PROGRAM SPECIFIC FILE

P.8 Records of instructional methods and pedagogical initiatives used in teaching and learning.

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1	Project Based Learning
2	Flipped-Classroom
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6	ICT-based Learning
7	Buddy Class
8	Thin-Pair-Share

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NMIMS MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Department of Computer Science

Sub: Database Management System

Academic year (2020-21)

Class: BTECH CS 2nd yr **Sem: IV**

Project-Based Learning (PBL)

Objective:
To enhance students' practical understanding of Database Management Systems through hands-on, projects that build critical skills in database design, query optimization, and management.

Overview:
The Project-Based Learning (PBL) approach for the DBMS course emphasizes experimental learning by engaging students in projects that simulate real-world database scenarios. This pedagogical method promotes collaborative problem-solving, critical thinking, and active learning as students work on designing and implementing databases for practical applications.

Implementation Steps:

1. **Project Assignment**:
   - Students are divided into small groups and assigned a project related to database application such as library management, hospital management, an inventory control system etc.
   - Each project covers key DBMS concepts, including ER modeling, schema design, normalization, SQL querying, and database optimization.
2. **Hands-On Labs and Tools**:
   - Students use industry-standard database management tools like MySQL, Oracle, SQL server for project implementation.
   - Practical labs help students practice SQL queries, normalization techniques, and optimization strategies, reinforcing project work.
3. **Regular Peer Reviews and Feedback**:
   - Periodic peer reviews encourage collaborative learning, with team members sharing insights and offering constructive feedback.
   - Instructors provide formative feedback after each milestone to guide students' progress and ensure quality in database design and functionality.
4. **Final Presentation and Evaluation**:
   - Each team presents its completed project, showcasing the database design, key features, and query optimizations.

- Evaluation criteria include project complexity, creativity in solving problems, adherence to DBMS principles, and team collaboration.

Expected Outcomes:

- **Enhanced Practical Knowledge**: Students gain a comprehensive understanding of database systems by applying theoretical concepts to real-world problems.
- **Improved Critical Thinking and Problem Solving**: Working on complex database projects hones students' analytical skills and their ability to troubleshoot and optimize database systems.
- **Collaboration and Communication Skills**: Team projects foster essential interpersonal skills as students communicate their ideas and present their findings.

Group and project details:

Sr.No	SAP ID	Roll.No.	Students Name	Project Title
1	70021119073	B260	Raghav Agarwal	LIBRARY MANAGEMENT SYSTEM
	70011119028	A224	Utkarsh Jain	
2	70021119081	B268	Dishika Arora	Bank Management System
	70021119079	B265	Shristi Kala	
3	70021119074	B259	Malay Bhadane	Online Examination Management System
	70021119061	B250	Shreyansh Sohane	
4	70021119027	B222	VAISHNAVI JARIWALA	RAILWAY MANAGEMENT SYSTEM
	70021119004	B204	DIVYA BHANUSHALI	
5	70021119005	*B205*	VED BHATKAR	Banking System
	70021119032	*B226*	KUNJ JOSHI	
	70021119017	B215	Adit Goyal	
6	70021119009	B209	Kunal Booch	Sports Management System with MySQL
	70021119011	B211	Abhraneel Das	
	70021119030	B225	Kushal Jha	
7	70021119080	B266	Suyash Singh	UNIVERSITY DATABASE System
	70021119082	B269	Arpit Choudhary	
8	70021119029	B224	Dwij Jha	Pizza Delivery Management System
	70021119001	B203	Rishi Agrawal	
9	70021119006	B206	Samarth Bhatt	Anime rating management System
	70021119008	B208	Harshad Behre	
10	70021119035	B228	Pranav Kolhe	Hotel Management System
	70021119012	B212	Dhairya Desai	
11	70021119015	B213	Yash Garg	COURIER MANAGEMENT SERVICE
	70021119021	B219	Charvi Hasaliya	
12	70021119040	B232	Rohan Mathur	DELIVERY MANAGEMENT SYSTEM (DMS)
	70021119016	B214	Naman Gokharu	
13	70021119007	B207	Mohit Bhavsar	DVD Management System
	70021119017	B215	Adit Goyal	
14	70021119010	B210	Tirth Butani Archit Gupta	HOSPITAL MANAGEMENT SYSTEM
	70021119018	B216	Archit Gupta	

15	70021119019	B217	Shambhavi Gupta	ORDER DELIVERY MANAGEMENT SYSTEM
	70021119036	B229	Priyanshu Mahajan	
16	70021119024	B221	Arnav Kumar Jain	Blood Bank Management System
	70021119023	B220	Arihant Jain	
17	70021119075	B261	CHAITANYA JUMALE	LIBRARY MANAGEMENT SYSTEM (LMS)
	70021119060	B249	PRANAY SIROYA	
18	70021119077	B263	AagamShah	Organ Donation System
	70021119033	B227	KritishaKhandelwal	
	70021119057	B247	MehrinNaaz	
19	70021119038	B230	Priyanshi Mapara	COLLEGE DATA MANAGEMENT SYSTEM
	70021119066	B254	Shruthi Sunil	
20	70021119039	B231	Vipul Mashruwala	Music Management Database System
	70021119044	B236	Urvaang Naik	
21	70021119043	B235	Aayush Naik	UNIVERSITY DATABASE System
	70021119078	B264	Raj Patel	
22	70021119046	B237	Kenil Navadiya	Airport Management System
	70021119055	B246	Trushil Shah	
23	70021119048	B239	Preetkumar. S. Patil	HOSPITAL MANAGEMENT SYSTEM
24	70021119062	B251	Chhavi Somani	Library Management System
	70021119076	B262	Dev Pithva	
25	70021119049	B240	Anugh Pradeep	Supermarket Management System
	70021119063	B252	Roshan Somavajula	
26	70021119047	B238	Varad Nilakhe	Library management System
	70021119050	B241	Alpesh Ranjan	
27	70021119051	B242	Siddhivinayak Sahoo	Hospital Management
	70021118055	B267	Anshul Soni	
28	70021119052	B243	Nishit Saraf	Blood bank management system
	70021119058	B248	Aditya Sharma	
29	70021119054	B245	Samyak Shah	MOVIE BOOKING SYSTEM
	70021119069	B255	Harshvardhan Thakur	
30	70021119071	B257	Eshaan Vyas	Railway Reservation System
	70021119053	B244	Rishi Shah	

Project Marks Distribution

Sr. No	Roll No	SAP ID	Name of the Student	Design and Implementation and presentation[5]	Q/A[5]	Total[10]
				5	5	10

1	A224	70011119028	JAIN, UTKARSH	4	4	8
2	B203	70021119001	AGRAWAL, RISHI	3	3	6
3	B204	70021119004	BHANUSHALI, DIVYA	5	3	8
4	B205	70021119005	BHATKAR, VED	4	4	8
5	B206	70021119006	BHATT, SAMARTH	4	4	8
6	B207	70021119007	BHAVSAR, MOHIT	4	4	8
7	B208	70021119008	BHERE, HARSHAD	5	4	9
8	B209	70021119009	BOOCH, KUNAL	4	5	9
9	B210	70021119010	BUTANI, TIRTH	4	4	8
10	B211	70021119011	DAS, ABHRANEEL	5	3	8
11	B212	70021119012	DESAI, DHAIRYA	4	4	8
12	B213	70021119015	GARG, YASH	4	5	9
13	B214	70021119016	GOKHARU, NAMAN	5	4	9
14	B215	70021119017	GOYAL, ADIT	4	5	9
15	B216	70021119018	GUPTA, ARCHIT	4	5	9
16	B217	70021119019	GUPTA, SHAMBHAVI	4	4	8
17	B219	70021119021	HASALIYA, CHARVI	4	4	8
18	B220	70021119023	JAIN, ARIHANT	5	3	8
19	B221	70021119024	JAIN, ARNAV KUMAR	4	4	8
20	B222	70021119027	JARIWALA, VAISHNAVI	5	3	8
21	B224	70021119029	JHA, DWIJ	5	3	8
22	B225	70021119030	JHA, KUSHAL	4	4	8
23	B226	70021119032	JOSHI, KUNJKUMAR	5	3	8
24	B227	70021119033	KHANDELWAL, KRITISHA	4	4	8
25	B228	70021119035	KOLHE, PRANAV	4	4	8
26	B229	70021119036	MAHAJAN, PRIYANSHU	5	4	9
27	B230	70021119038	MAPARA, PRIYANSHI	4	4	8
28	B231	70021119039	MASHRUWALA, VIPUL	5	4	9
29	B232	70021119040	MATHUR, ROHAN	4	5	9
30	B235	70021119043	NAIK, AAYUSH	5	3	8
31	B236	70021119044	NAIK, URVAANG	5	4	9
32	B237	70021119046	NAVADIYA, KENIL	5	3	8
33	B238	70021119047	NILAKHE, VARAD	5	4	9
34	B239	70021119048	PATIL, PREETKUMAR	5	4	9
35	B240	70021119049	PRADEEP, AMOGH	5	4	9
36	B241	70021119050	RANJAN, ALPESH	5	4	9
37	B242	70021119051	SAHOO, SIDDHIVINAYAK	4	4	8
38	B243	70021119052	SARAF, NISHIT	5	3	8
39	B244	70021119053	SHAH, RISHI	4	4	8
40	B245	70021119054	SHAH, SAMYAK	4	5	9
41	B246	70021119055	SHAH, TRUSHIL	5	3	8

42	B247	70021119057	SHAIKH MAHERIN NAAZ	5	4	9
43	B248	70021119058	SHARMA ADITYA	4	4	8
44	B249	70021119060	SHRIVAS PRAYAS	4	5	9
45	[illegible]	[illegible]	[illegible]	5	4	9
46	[illegible]	[illegible]	[illegible]	5	4	9
47	[illegible]	[illegible]	[illegible] RANJAN	5	4	9
48	[illegible]	[illegible]	[illegible]	4	4	8
49	[illegible]	[illegible]	[illegible]	5	4	9
50	[illegible]	[illegible]	[illegible]	4	5	9
51	[illegible]	[illegible]	[illegible]	4	5	9
52	[illegible]	[illegible]	[illegible]	5	3	8
53	[illegible]	[illegible]	[illegible] CHAITANYA	5	4	9
54	[illegible]	[illegible]	[illegible]	4	5	9
55	[illegible]	[illegible]	[illegible]	5	3	8
56	[illegible]	[illegible]	[illegible]	4	4	8
57	[illegible]	[illegible]	[illegible]	4	5	9
58	[illegible]	[illegible]	[illegible]	4	4	8
59	[illegible]	[illegible]	[illegible]	5	3	8
60	[illegible]	[illegible]	[illegible]	4	5	9
61	[illegible]	[illegible]	[illegible]	4	4	8

[illegible]

[illegible]

NMIMS MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Department of Computer Science

Sub: Machine Learning

Academic year (2022-23)

Class: BTECH CS 3rd yr **Sem: VI**

Project-Based Learning (PBL)

Machine Learning Pedagogy Plan

Objective:

To enable students to gain practical experience and theoretical understanding of Machine Learning by implementing algorithms, analyzing datasets, and solving real-world problems using ML techniques.

Teaching Approach:

1. Project-Based Learning (PBL):

Engage students in team-based projects focused on real-world ML applications to develop technical skills, teamwork, and problem-solving abilities.

Implementation Steps:

1. **Project Assignment**:
   - Students are divided into small groups and assigned a project related to Machine Learning application
   - Each project covers key concepts, Data preprocessing techniques.
   - Identify which machine learning algorithm is suitable
   - Applying regression / classification/ clustering on dataset

2. **Hands-On Labs and Tools**:
   - Provide students with access to industry-standard tools and programming languages for ML, such as: Python (with libraries like NumPy, Pandas, scikit-learn,)
   - Jupyter Notebook for interactive coding and visualization.

3. **Regular Reviews and Feedback**:
    - Periodic reviews encourage collaborative learning, with team members sharing insights and offering constructive feedback.
    - Provide regular feedback at each milestone to refine problem-solving approaches and algorithm choices.
2. **Final Presentation and Evaluation**:

Teams present their projects with visualizations, code demonstrations, and results.
Evaluation based on:
- Creativity in applying ML techniques.
- Accuracy and efficiency of models.
- Explanation of results and adherence to ML principles.

Learning Outcomes:

- Enhanced Practical Knowledge: Students apply ML algorithms to solve domain-specific problems, reinforcing theoretical concepts.
- Improved Analytical Thinking: Students analyze and interpret model performance, developing critical evaluation skills.
- Collaboration Skills: Team projects encourage effective communication and collaborative problem-solving.

Group and project details:

RollNo	Student Name	Project Title
B214	TOLIA, VEDANT	Glass type prediction
B204	TALAVIYA, KHUSHI	
B211	KAMBLE, RUSHI	
B251	DUBEY, SANIDDHYA	Air fare prediction
B219	NANDI, ANKON	
B259	PATIDAR, ADITYA	
B270	SINGH, SAHIL	credit card fraud detection
B213	PAREKH, ADITYA	
B237	INAMDAR, ARYAN	
B248	KHANDELWAL, ARIN	Credit risk assessment
B205	DALAL, PARAM	
B223	SHAH, HIRAK	
B257	KANJARIYA, TEJ	Cicket match results prediction
B235	MANANI, HIREN	
B240	PATIL, JAY	
B242	KHANDELWAL, SPARSH	Prediction of kidney diseses
B216	MAHESHWARI, AMAN	Money ball

B218	PALIWAL, SHOBHIT	
B230	PATEL, BHAVYA	
B210	BAWASKER, ARYAN	
B226	KAUSHAL, PRIYANSHU	
B256	SINGH, RAHUL	Email classification
B208	MODI, JAINIL	
B224	RAUT, TANMAY	
B227	NAYAK, SATVIK	Admission prediction
B233	RAWKA, TANISHK	
B215	THOMAS, JOEL	
B222	DHUMALE, SAHIL	Movie recommendation
B207	SHARMA, HRIDAYANK	
B217	BAKSHI, JASJOT	
B261	SINGH, SAURAV KUMAR	stock price prediction
B234	KUMAR, PRAVEEN	
B228	BANCHHOD, TANUSH	
B220	SARAIYA, CHARVEE	
B232	THAKUR, SUMIT	Wine quality prediction
B203	PATEL, JAYKUMAR	
B206	SAXENA, SHAURYA	
B236	DARAK, SIDDHESH	alzheimer's disease detection
B239	JAIN, DEVANSH	
B252	GOLANI, SHIVAM	
B269	CHOPRA, MUSKAN	Diabetic prediction
B254	SINDHI, UMESH	
B250	ARORA, ADVAIT	
B267	MANTRI, ADITYA	House price prediction
B241	BHATIA, SADGI	
B243	JAIN, HARDIK	
B245	SHUKLA, LAXITA	Emotion Detection
B253	WADHWANI, MITANSH	
B238	TUTEJA, DEEPANSH	
B209	SAHNI, JASLEEN	heart stroke detection
B229	TRIPATHI, SWASTI	
B246	JAIN, NAITIK	
B265	JOSHI, ATHARVA	Titanic survival prediction
B244	AGRAWAL, TAPAN	
B258	SAXENA, AYUSH	
B260	KUMARI, SAROJ	Flight price prediction
B247	DESAI, RAJAT	
B249	DEVARU, ADITHYA	Gold price prediction

B266	TAKKAR, MANAN	

Project marks Distribution

Roll.No	Name	Project Name	Design and Implementation and presenation[5]	Q/A[5]	Total(10)
B214	TOLIA, VEDANT	Glass type prediction	5	4	9
B204	TALAVIYA, KHUSHI	Air fare prediction	4	5	9
B211	KAMBLE, RUSHI		4	4	8
B251	DUBEY, SANIDDHYA		4	4	8
B219	NANDI, ANKON	credit card fraud detection	5	3	8
B259	PATIDAR, ADITYA		4	4	8
B270	SINGH, SAHIL		4	4	8
B213	PAREKH, ADITYA	Credit risk assessment	4	4	8
B237	INAMDAR, ARYAN		5	3	8
B248	KHANDELWAL, ARIN		5	4	9
B205	DALAL, PARAM	Cicket match results prediction	5	4	9
B223	SHAH, HIRAK		4	5	9
B257	KANJARIYA, TEJ		4	5	9
B235	MANANI, HIREN	Prediction of kidney diseses	4	4	8
B240	PATIL, JAY		5	3	8
B242	KHANDELWAL, SPARSH		4	5	9
B216	MAHESHWARI, AMAN	Money ball	4	5	9
B218	PALIWAL, SHOBHIT		5	4	9
B230	PATEL, BHAVYA		5	4	9
B210	BAWASKER, ARYAN	Email classification	4	4	8
B226	KAUSHAL, PRIYANSHU		4	5	9
B256	SINGH, RAHUL		5	3	8

B208	MODI, JAINIL	Admission prediction	4	5	9
B224	RAUT, TANMAY		4	4	8
B227	NAYAK, SATVIK		5	3	8
B233	RAWKA, TANISHK	Movie recommendation	4	4	8
B215	THOMAS, JOEL		5	4	9
B222	DHUMALE, SAHIL		4	4	8
B207	SHARMA, HRIDAYANK	stock price prediction	4	4	8
B217	BAKSHI, JASJOT		5	4	9
B261	SINGH, SAURAV KUMAR		4	4	8
B234	KUMAR, PRAVEEN	Wine quality prediction	5	3	8
B228	BANCHHOD, TANUSH		4	4	8
B220	SARAIYA, CHARVEE		5	3	8
B232	THAKUR, SUMIT		5	4	9
B203	PATEL, JAYKUMAR	alzheimer's disease detection	5	4	9
B206	SAXENA, SHAURYA		4	5	9
B236	DARAK, SIDDHESH		5	4	9
B239	JAIN, DEVANSH	Diabetic prediction	4	4	8
B252	GOLANI, SHIVAM		5	4	9
B269	CHOPRA, MUSKAN		5	4	9
B254	SINDHI, UMESH	House price prediction	4	4	8
B250	ARORA, ADVAIT		5	3	8
B267	MANTRI, ADITYA		4	5	9
B241	BHATIA, SADGI	Emotion Detection	5	4	9
B243	JAIN, HARDIK		4	5	9
B245	SHUKLA, LAXITA		5	4	9
B253	WADHWANI, MITANSH	heart stroke detection	4	4	8
B238	TUTEJA, DEEPANSH		4	4	8
B209	SAHNI, JASLEEN		5	4	9
B229	TRIPATHI, SWASTI	Titanic survival prediction	5	3	8
B246	JAIN, NAITIK		5	4	9
B265	JOSHI, ATHARVA		4	5	9
B244	AGRAWAL, TAPAN	Flight price prediction	4	4	8
B258	SAXENA, AYUSH		5	3	8
B260	KUMARI, SAROJ		5	4	9

B247	DESAI, RAJAT	Gold price prediction	4	5	9
B249	DEVARU, ADITHYA		4	4	8
B266	TAKKAR, MANAN		5	4	9

Nemade

Prof.Varsha Nemade

Subject Teacher

Department of Computer Science

Project Based Learning

Class: B.Tech. (CS)/Sem-V

Subject: Software Engineering

Topic: Project based Learning

Objective:

The objective of **Project-Based Learning (PBL)** in software engineering is to provide students with hands-on, real-world experience by engaging them in the development of a software product or system from start to finish.

Project based learning Approach:

1. Break the Project into Phases

- Students follow the typical **Software Development Life Cycle (SDLC)**, with well-defined stages such as planning, design, implementation, testing, and deployment.
- Stages of Project:
  - Project Planning and Requirements Gathering: Students define the project scope, gather user requirements, and create initial specifications.
  - System Design: Students design the software architecture, choose technologies, and plan the user interface and database structure.
  - Implementation: Students begin coding, utilizing version control, setting up a development environment, and writing documentation as they go.
  - Testing and Debugging: Students perform unit tests, integration tests, and system tests to ensure the software is functional, secure, and free from bugs.
  - Deployment and Maintenance: Students deploy the software, ensuring it works in a production environment, and continue maintenance as needed.

2. Encourage Teamwork and Collaboration

- **Roles in the Team**: Assign different roles (e.g., project manager, lead developer, tester, documentation writer) to ensure students gain experience in various aspects of software development.
- **Agile Practices**: Students can adopt **Agile methodologies** (Scrum, Kanban) to divide tasks into manageable sprints, hold regular stand-ups, and track progress.

3. Incorporate Industry Tools and Practices

- **Version Control**: Use **Git** or **GitHub** to track changes in code and manage collaboration.

- **Automated Testing**: Introduce automated testing tools such as Selenium Testing Tool.
- Software designing tool: Introduce designing tools such as StarUML.

4. Project Presentation and Reflection

- **Project Presentation**: Students present their final product to the class or stakeholders, demonstrating its features, architecture, and how they solved key problems.

Outcome of the Project Based Learning Approach in Software Engineering:

- Real-World Skills: Students gain practical, hands-on experience that mirrors the real-world software development process, making them more job-ready.
- Team Collaboration: Students develop strong communication and collaboration skills, learning how to work effectively in a team.
- Problem-Solving: Through iterative work on the project, students develop critical thinking and problem-solving skills, improving their ability to tackle complex software engineering challenges.
- Exposure to Industry Practices: Students become familiar with the tools, techniques, and methodologies used in the software industry, improving their employability and skillset.
- Confidence and Ownership: By creating and completing a software project, students gain a sense of accomplishment and ownership, building confidence in their abilities.

		System Name	Kollno	Sign
G11	1. Vishwajeet Patil	Health Care System	B262	
	2. Pranay Nepalia		E226	
	3. Mrinal Verma		E219	
G12	1. Jainish Jayal	Plagiarism Checker	E201	
	2. Om Mishra		E216	
G13	1. Yash Salunke	Ecosnap	E202	
	2. Vinit Jadhav		E203	
	3. Kunika Mahajan		E207	
G14	1. Amit Upadhyay	Nearby: Real-Time Proximity Communication	E208	
G15	1. Prarthansa Saxena	Book sharing Platform	E209	
	2. Janisha Saxena		E213	
	3. Bhavya Dadlani		E214	
G16	1. Rudra Kabrawala	EmployedIn	E210	
	2. Yug Shah		E211	
	3. Devanshi Suratia		E225	
G17	1. Yash Tarejia (7987845577)	Class management System	E224	
	2. Madhav Gupta		E212	
G18	1. Vaibhav Tayal	MediCare	E221	
	2. Aryan Khandelwal		E215	
G19	1. Nishtha Desai	Food Waste Management	E217	
	2. Kunsh Anand		E227	
G10	1. Rasanath Kulkarni	Loan Origination & Management System	E218	
G...	1. Abhishek Pal	Student Leave	E228	

Batch-12 22/10/24

	Name	System Name	Roll no	Sign
G1	1. Sahil Singh 2. Mayank Agarwal 3. Atharva Chaudhary	SDLC Progress Report	E229 E257 E253	
G2	Garima Nandwani Utsav Jha Yash Desai	Committe Management System	E235 E237 E230	
G3	Priyanshu Tiwari Diksha Parkash	Patient Tracker System	E232 E255	
G4	1. Parth Sharma 2. Shantanu Thakeria 3. Harsh Mistry	Family Tree Creation	E234 E233 E246	
G5	yug Desai Aditya Raut	Personal finance Tracker.	E236 E261	
G6	1. Raju Patidar 2. Devanshi Ramani	Elderly Care App	E238 E256	
G7	1. Nilesh Borse 2. Aayushi Rajput 3. Manshesit Kaur	Track My Fit.	E239 E242 E244	
G8	1. Krish Sajitra 2. Akshat Mantar 3. Dhruv Modi	Flood Detection Alert System	E252 E240 E269	
G9	1. Mrithyunjay shrimali 2. Samvidh Mishra	Health Tracker	E250 E241	

MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Department of Computer Science

Sub: Advanced Web Programing

Academic year (2024-25)

Class: BTECH CS 3rd yr **Sem: V**

Project-Based Learning (PBL)

Advanced Web Programing Pedagogy Plan

Objective:

To design, develop, and deploy a full-stack web application using AngularJS, Node.js, and MongoDB, integrating best practices in designing dynamic client-server scripting, performance, and scalability to prepare students for real-world web development challenges.

Teaching Approach:

1. Project-Based Learning (PBL): Engage students in collaborative, team-based projects that emphasize hands-on, real-world applications using various web development frameworks. By creating functional web applications across multiple domains, they gain practical experience while enhancing their problem-solving, critical thinking, and teamwork skills.

Implementation Steps:

1. **Project Assignment**:
   - Students are divided into small groups and assigned a project related to web application development to solve problems of different business domains.
   - Each project covers three main components of web application development: presentation logic, business logic and database logic.
   - Identify web development framework that best suits to designed web development components as per business requirements.
   - Deployment of web application on free hosting servers.

2. **Hands-On Labs and Tools**:

   - Provide students with access to industry-standard tools and web development framework such as Angular JS, Ajax, Node JS and MongoDB.
   - VS code for interactive scripting coding.
   - Vercel,GitHub for deployment of Web Based Application.

3. **Regular Reviews and Feedback**:

   - Periodic reviews encourage collaborative learning, with team members sharing insights and offering constructive feedback.
   - Provide regular feedback at each milestone to refine problem-solving approaches and algorithm choices.

2. **Final Presentation and Evaluation**:

Teams present their projects with demo of fully functional web application along with presentation and project report.
Evaluation based on:

Criteria	Description	Weightage (%)
Functionality	Core features, proper working of the application	10%
Technical Implementation	Clean, efficient, and well-structured code, API integration.	30%
UI/UX Design	Responsive, intuitive, and user-friendly interface	10%
Security Measures	Authentication, authorization, data protection	10%
Collaboration & Teamwork	Contribution of team members, use of Git/version control	10%
Presentation & Documentation	Clarity in explanation, project report.	10%

3. Submission Requirements

Before the presentation, teams must submit:

- **Source code repository (GitHub/MS Team).**
- **Final report** covering project objectives, implementation, challenges, and conclusions

Learning Outcomes:

By the end of the **Project-Based Learning (PBL)** approach in **Advanced Web Programming**, students will be able to:

- **Full-Stack Web Development Proficiency:** Design and develop **dynamic, full-stack web applications** using **AngularJS, Node.js, Express.js, Ajax and MongoDB**.
- **Authentication & Security:** Students will be to implement user authentication and data validation in single page application.
- **Collaboration Skills:** Team projects encourage effective communication and collaborative problem-solving.

Group and project details:

SAP ID	Student Name	Project Title
70552200030	Abhishek Pal	Buzzed Just Another social media
70552300082	Himanshu Jadhav	Campus Laundry Management System
70552200003	Vinit Jadhav	
70552300085	Ninad Patil	
70552200083	Yash Patel	
70552200023	Vaibhav Tayal	Payment Hub
70552200027	Devanshi Ramani	
70552200036	Parth Sharma	
70552200071	Vismay Kansara	Study Planner
70552200015	Tanisha Saxena	
70552200069	Aaryan Uppal	
70552200038	Yug Desai	E-commerce WebAPP
70552200013	Yug Shah	

SAP ID	Student Name	Project Title
[illegible]	Devansh Suratia	Blood Bank Management System
[illegible]	Krish Sojitra	
[illegible]	Dravinam Tandel	
[illegible]	Manshreet Kaur Chhabra	Rapid Route
[illegible]	Aditya Raut	
[illegible]	Utsav Jha	
[illegible]	Basanath Kulkarni	
[illegible]	Kunika Mahajan	RK Fitness APP
[illegible]	Rajeshwari Patil	
[illegible]	Atharva Chaudhary	Online Quiz Platform
[illegible]	Mrinal Verma	Bunkist Application

The rubric with the **maximum mark** of **10**, where the **UI/UX Design** is weighted **2 marks**, **Client-Server Scripting** is weighted **6 marks**, and **Question Answering** is weighted **2 marks**.

Total Marks: 10

Score Range	Grade	Performance Level
9 - 10	A+	Outstanding
7.5 - 8.5	A	Excellent
6.5 - 7	B	Good
5.5 - 6	C	Satisfactory
Below 5.5	F	Needs Improvement

Project Based Learning Rubric

This rubric evaluates student performance in a Project-Based Learning environment for web programming. The criteria focus on **technical skills**, **collaboration**, **presentation**, and **problem-solving** within the project. The goal is to assess both technical proficiency and the ability to work in teams to deliver real-world projects successfully.

Criteria	Excellent (2)	Good (1.5)	Satisfactory (1)	Needs Improvement (0)	Weight (Marks)
UI/UX Design	Highly responsive, intuitive, visually appealing, excellent accessibility and design.	Responsive, good UI, minor usability issues.	Basic UI design, some issues with responsiveness or usability.	Poor UI design, unresponsive or hard to navigate.	**2 Marks**
Question Answering	Clear, concise, and well-thought-out answers to technical questions. Excellent understanding.	Answers are clear, good understanding with minor gaps.	Basic understanding of concepts, but lacks depth in answers.	Incorrect or incomplete answers, misunderstanding of concepts.	**2 Marks**
Criteria	**Excellent (6)**	**Good (4-5)**	**Satisfactory (2-3)**	**Needs Improvement (0-1)**	**Weight (Marks)**
Client-Server Scripting	Fully functional client-server interaction (AJAX, APIs), well-optimized and efficient.	Mostly functional, minor issues in client-server communication.	Some issues in communication, partially functional APIs.	Client-server interaction not functional or poorly implemented.	**6 Marks**

Project Marks Distribution

Sr. No.	Roll No.	Sap No.	Name of Student	Mini Project			
				Part	a	b	c
				Total Marks	Design of UI/UX Component [2]	Client-Sever Side Scripting [6]	Q/A[2]
1	E203	70552200003	Vinit Jadhav	8	2	4	2
2	E207	70552200009	Kunika Mahajan	7	2	3	2
3	E208	70552200010	Amit Upadhyay	8	2	4	2
4	E211	70552200013	Yug Shah	8	2	4	2
5	E213	70552200015	Tanisha Saxena	8	2	4	2
6	E218	70552200020	Rasanath Kulkarni	8	2	4	2
7	E219	70552200021	Mrinal Verma	8	2	4	2
8	E221	70552200023	Vaibhav Tayal	8	2	4	2
9	E225	70552200027	Devansh Suratia	7	2	4	1
10	E228	70552200030	Abhishek Pal	9	2	5	2
11	E234	70552200036	Parth Sharma	8	2	4	2
12	E236	70552200038	Yug Desai	8	2	4	2
13	E237	70552200039	Utsav Jha	7	2	4	1
14	E244	70552200046	Manshreet kaur chhabra	8	2	4	2
15	E252	70552200054	Krish Sojitra	7	2	4	2
16	E253	70552200055	Atharva Chaudhary	9	2	5	2
17	E256	70552200058	Devanshi Ramani	8	2	4	2
18	E261	70552200063	Aditya Raut	7	2	3	1
19	E266	70552200069	Aaryan uppal	8	2	4	2
20	E268	70552200071	Vismay Kansara	8	2	4	2
21	E270	70552200073	Dravinam Tandel	7	2	3	1
22	E279	70552200083	Yash Patel	8	2	4	2
23	E288	70552300082	Himanshu Jadhav	8	2	4	2
24	E290	70552300084	Rajeshwari Patil	7	2	3	2
25	E291	70552300085	Ninad Satish Patil	8	2	4	2

Prof.Suraj Patil

Subject Teacher

NMIMS

MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Department of Computer Science

Sub: Advanced Web Programing

Academic year (2022-23)

Class: BTECH CS 3rd yr **Sem: VI**

Project-Based Learning (PBL)

Advanced Web Programing Pedagogy Plan

Objective:

To design, develop, and deploy a full-stack web application using AngularJS, Node.js, and MongoDB, integrating best practices in designing dynamic client-server scripting, performance, and scalability to prepare students for real-world web development challenges.

Teaching Approach:

1. Project-Based Learning (PBL): Engage students in collaborative, team-based projects that emphasize hands-on, real-world applications using various web development frameworks. By creating functional web applications across multiple domains, they gain practical experience while enhancing their problem-solving, critical thinking, and teamwork skills.

Implementation Steps:

1. **Project Assignment:**
   - Students are divided into small groups and assigned a project related to web application development to solve problems of different business domains.
   - Each project covers three main components of web application development: presentation logic, business logic and database logic.
   - Identify web development framework that best suits to designed web development components as per business requirements.

- Deployment of web application on free hosting servers.

2. **Hands-On Labs and Tools**:

   - Provide students with access to industry-standard tools and web development framework such as Angular JS, Ajax, Node JS and MongoDB.
   - VS code for interactive scripting coding.

3. **Regular Reviews and Feedback**:

   - Periodic reviews encourage collaborative learning, with team members sharing insights and offering constructive feedback.
   - Provide regular feedback at each milestone to refine problem-solving approaches and algorithm choices.

2. **Final Presentation and Evaluation**:

Teams present their projects with demo of fully functional web application along with presentation and project report.
Evaluation based on:

Criteria	Description	Weightage (%)
Functionality	Core features, proper working of the application	15%
Technical Implementation	Clean, efficient, and well-structured code, API integration.	30%
UI/UX Design	Responsive, intuitive, and user-friendly interface	10%
Security Measures	Authentication, authorization, data protection	10%
Collaboration & Teamwork	Contribution of team members, use of Git/version control	10%
Presentation & Documentation	Clarity in explanation, project report.	10%

3. Submission Requirements

Before the presentation, teams must submit:

- **Source code repository (GitHub/MS Team).**
- **Final report** covering project objectives, implementation, challenges, and conclusions

Learning Outcomes:

By the end of the **Project-Based Learning (PBL)** approach in **Advanced Web Programming**, students will be able to:

Full-Stack Web Development Proficiency: Design and develop **dynamic, full-stack web applications** using **AngularJS, Node.js, Express.js, Ajax and MongoDB**.

Authentication & Security: Students will be to implement user authentication and data validation in single page application.

Collaboration Skills: Team projects encourage effective communication and collaborative problem-solving.

Group and project details:

Roll.No	Student Name	Project Title
B214	Rishi Agrawal	Real Time Chat BOT Application using SocketIO
B207	Mohit Bhavsar	
B215	Adit Goyal	
B224	Dwij Jha	
B208	Harshad Bhere	**Knot:** A collaborative workspace
B214	Naman Gokharu	Contest Mania
B222	Vaishnavi Jariwala	
B255	Harshvardhan Thaku	
B259	Kunal Booch	
B270	Kushal Jha	
B207	Samarth Bhatt	Flash Type
B205	Butani Tirth	
B248	Aditya Sharma	
B219	Charvi Hasaliya	Group Chat Application
B247	Maherin Naaz Shaikh	
B254	Shruthi Sunil	
B238	Varad Nilakhe	Muzly: Music Stream App
B241	Alpesh Ranjan	

The rubric with the **maximum mark** of **20**, where the **UI/UX Design** is weighted **5 marks**, **Client-Server Scripting** is weighted **10 marks**, and **Question Answering** is weighted **5 marks**:

Learning Outcomes:

By the end of the **Project-Based Learning (PBL)** approach in **Advanced Web Programming**, students will be able to:

- **Full-Stack Web Development Proficiency:** Design and develop **dynamic, full-stack web applications** using **AngularJS, Node.js, Express.js, Ajax and MongoDB**.
- **Authentication & Security:** Students will be to implement user authentication and data validation in single page application.
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B255	Harshvardhan Thaku	
B259	Kunal Booch	
B270	Kushal Jha	
B207	Samarth Bhatt	Flash Type
B205	Butani Tirth	
B248	Aditya Sharma	
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B247	Maherin Naaz Shaikh	
B254	Shruthi Sunil	
B238	Varad Nilakhe	Muzly: Music Stream App
B241	Alpesh Ranjan	

The rubric with the **maximum mark** of **20**, where the **UI/UX Design** is weighted **5 marks**, **Client-Server Scripting** is weighted **10 marks**, and **Question Answering** is weighted **5 marks**:

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Criteria	**Excellent (6)**	**Good (4-5)**	**Satisfactory (2-3)**	**Needs Improvement (0-1)**	**Weight (Marks)**
Client-Server Scripting	Fully functional client-server interaction (AJAX, APIs), well-optimized and efficient.	Mostly functional, minor issues in client-server communication .	Some issues in communication , partially functional APIs.	Client-server interaction not functional or poorly implemented.	**6 Marks**

Project Marks Distribution

Sr. No.	Roll No.	Sap No.	Name of Student	Mini Project Part	a	b	c
				Total Marks	Design of UI/UX Component [5]	Client-Sever Side Scripting [10]	Q/A[5]
1	B203	70021119001	RISHI AGRAWAL	20	4	8	4
2	B206	70021119006	SAMARTH BHATT	20	4	9	4
3	B207	70021119007	MOHIT BHAVSAR	20	5	9	4
4	B208	70021119008	HARSHAD BHERE	20	5	8	5
5	B209	70021119009	KUNAL BOOCH	20	5	8	5
6	B210	70021119010	TIRTH BUTANI	20	4	8	4
7	B214	70021119016	NAMAN GOKHARU	20	5	8	5
8	B215	70021119017	ADIT GOYAL	20	4	8	4
9	B219	70021119021	CHARVI HASALIYA	20	5	6	5
10	B222	70021119027	VAISHNAVI JARIWALA	20	5	8	5
11	B224	70021119029	DWIJ JHA	20	5	7	5
12	B225	70021119030	KUSHAL JHA	20	4	8	4
13	B238	70021119047	VARAD NILAKHE	20	4	8	4
14	B241	70021119050	ALPESH RANJAN	20	4	8	4
15	B247	70021119057	MAHERIN NAAZ SHAIKH	20	5	7	5
16	B248	70021119058	ADITYA SHARMA	20	4	8	4
17	B254	70021119066	SHRUTHI SUNIL	20	4	8	4
18	B255	70021119069	HARSH VARDHAN THAKU	20	5	7	4

Prof.Suraj Patil

Subject Teacher

Pedagogical innovation

Course: Image & Video Processing

Academic Year: 2023-24

Prepared by: Prof. Sachin Chavan

Pedagogy Title: Team Based Learning and Project Based Learning

1. Introduction and Objectives

1.1 Course Overview:

The Image and Video Processing course aims to equip undergraduate students with the skills to process and Analyze images and videos using various techniques and tools. The course covers spatial and frequency domain techniques, morphological operations, segmentation methods, and video processing techniques.

1.2 Objectives of the Activities:

- Enhance student understanding of image and video processing concepts through collaborative learning.
- Foster critical thinking and problem-solving skills via real-world project applications.
- Promote teamwork and communication among students.

2. Formation of Teams:

2.1 Team Composition:

- Students were divided into teams of 3-4 members.
- Each team included a mix of skills and backgrounds to ensure diverse perspectives and balanced contributions.

2.2 Role Allocation:

- Each team member was assigned a specific role, such as project manager, coder, researcher, or presenter.

3. Team-Based Learning (TBL) Activities

3.1 Pre-Class Preparation:

- **Reading Materials:**
    - Students were provided with reading materials covering spatial domain enhancement techniques, frequency domain transforms, morphological operations, segmentation techniques, and video processing.

3.2 In-Class Team Activities:

- **Problem-Solving Sessions:**
  - Teams worked on a series of challenging problems, such as image enhancement and noise reduction, video compression, feature extraction, and object recognition.
- **Use of Collaborative Tools:**
  - Whiteboards and online collaboration tools (e.g., Google Docs, Microsoft Teams) facilitated teamwork and idea sharing.

3.3 Team Presentations and Discussions:

- **Presentations:**
  - Each team presented their solutions and approaches to the class.
- **Peer Feedback:**
  - Students provided constructive feedback to their peers, fostering a deeper understanding and exchange of ideas.

4. Project-Based Learning (PBL) Component

4.1 Project Proposal:

- **Project Topics:**
  - Each team identified a real-world problem or innovative application in image and video processing.
- **Proposal Submission:**
  - Teams submitted a detailed proposal outlining the problem statement, objectives, methodologies, and expected outcomes.

4.2 Project Development:

- **Timeline and Milestones:**
  - A project timeline with set milestones was provided to guide the teams.
- **Regular Check-Ins:**
  - Weekly check-in meetings were conducted to monitor progress and provide guidance.
- **Documentation:**
  - Teams documented their work, including code, research findings, experiments, and results.

4.3 Final Presentation and Evaluation:

- **Presentation Session:**
  - A final presentation session was organized where each team showcased their project.
- **External Evaluation:**
  - External experts and industry professionals were invited to evaluate the projects based on innovation, technical implementation, teamwork, and presentation quality.

5. Reflection and Feedback

5.1 Reflection Session:

- **Student Reflections:**
  - Students shared their learning experiences, challenges faced, and insights gained during the activities.
- **Instructor Feedback:**
  - Constructive feedback was provided to students to enhance their learning and future projects.

5.2 Course Feedback:

- **Feedback is collected through the Word cloud,**

6. Resources and Support

- **Software Tools:**
  - Access to relevant software tools (e.g., MATLAB, OpenCV) was provided.

- **Learning Resources:**
    - Recommended textbooks, research papers, and online tutorials were shared with students.
- **Technical Support:**
    - Technical support and guidance were available throughout the activities to assist students with their projects.

Conclusion:

The implementation of Team-Based Learning and Project-Based Learning activities in the Image and Video Processing course provided an engaging and hands-on learning experience for students. Through collaborative problem-solving and real-world projects, students enhanced their understanding of course concepts, developed critical skills, and fostered teamwork and communication. The feedback received will be instrumental in refining and improving future iterations of the course.

Attached list of Project titles and Team members:

Sr. No.	Project Title	Team Member
1	Image Steganography	Amit Agrawal (E201) Manan Chhajedh (E218) Vivek Jain (E226)
2	Brain Tumor Detection	Param Patel (E205) Parth Patel (E220) Priyanshu Agrawal (E221)
3	Analyzing Satellite Imagery using Image processing	Mithali Patil (E206) Manvi Mehta (E208) Soch Bagdi (E212)
4	Image enhancement and processing	Pradhumn Bharadwaj (E219) Prakhar Saxena (E222) Rudra Vyas (E203)
5	Car Number Plate Detection Using MATLAB and Image Processing	Mann Jaunjalkar (E231) Yash Chaubal (E214) Tanushree Gupta (E217)
6	Maze solver	Yash Patel Devarsh Choksi Dhruvil Makadia
7	Develop a counterfeit currency note detection system using MATLAB	Aditya Patidar (E207) Dhruv Gore (E210) Harshit Shah (E229)
8	Blood Vessel Segmentation in Retinal Images	Krishna Gupta (E216)
9	Spatial filtering in angiography	Chaitanya Sharma (E204) Aruja Shrivastava (E223) Krishna Mistry (E225)
10	Digital Image Watermarking and Demarking	Prachi Raut (E230)

		Bhavya Solanki (I [illegible]) [illegible] (I [illegible])
11	Video Based Driver Fatigue Detection System	[illegible] [illegible]
12	Radiological Image Data Compression and Diagnostic Enhancement Framework	[illegible]
13	Lung Cancer Detection	[illegible] Sharma (I [illegible]) [illegible] Gupta (I [illegible]) [illegible] (I [illegible])
14	Sex detection system using MATLAB	[illegible] (I [illegible]) [illegible] (I [illegible]) [illegible] (I [illegible])
15	Baldness Detection	[illegible] (I [illegible]) Yash [illegible] (I [illegible]) Ashutosh Singh (I [illegible])
16	Cancer cell detection using MATLAB	[illegible] (I [illegible]) Muskan Agrawal (I [illegible]) [illegible] Gautam (I [illegible])
17	Number Plate Detection Using MATLAB and Image Processing	[illegible] (I [illegible]) [illegible] Mishra (I [illegible]) Gargi Jain (I [illegible])
18	Automated Brain Tumour Detection Using Image and Video Processing	Soham Gupta (I [illegible]) Sanyam Shah (I [illegible]) Shreya Joshi (I [illegible])
19	Image Steganography	[illegible] Patil (I [illegible]) [illegible] (I [illegible]) Dhyan Joshi (I [illegible])
20	Antarctic Ice Mass Melting Calculation using Image Processing	Shubham Gandhi (I [illegible]) Pratham Patil (I [illegible]) Mahaveer Mandlor (I243)
21	Mobile Phone Face Unlock with Image Processing	Sanat Pareek (I [illegible]) Tanishka Mathur (I [illegible])
22	Bilinear Interpolation	Abhinav Sharma (I244) Anushka Srivastava (I [illegible])

Student Mark list

Sr. No	SAP ID	Roll No	Student Name	Review-I 5	Review-II 5	Review-III 15	Total 25
1	[illegible]	I201	Anu Agarwal	5	5	12	22
2	[illegible]	I202	Bhavya Solanki	4	3	10	17
3	[illegible]	I203	Rudra Vyas	4	3	11	18
4	[illegible]	I204	Chaitanya Sharma	5	5	12	22
5	[illegible]	I205	Param Patel	4	3	11	18
6	[illegible]	I206	Malhar Patil	3	3	10	16
7	[illegible]	I207	Aditya Pandit	3	3	10	16

8	70552100010	E208	Manvi Mehta	3	3	11	17
9	70552100011	E209	Ishwari Tilekar	4	3	12	19
10	70552100012	E210	Dhruv Gore	3	3	10	16
11	70552100015	E212	Snch Bagdi	3	3	12	18
12	70552100018	E213	Dhruvil Makadia	4	3	11	18
13	70552100020	E214	Yash Chaubal	5	5	11	21
14	70552100026	E215	Devarsh Choksi	4	4	12	20
15	70552100028	E216	Krishna Gupta	4	3	10	17
16	70552100029	E217	Tanushree Gupta	5	3	10	18
17	70552100031	E218	Manan Chhajed	5	4	11	20
18	70552100041	E219	Pradhumn Bhardwaj	4	3	12	19
19	70552100043	E220	Parth Patel	4	3	12	19
20	70552100047	E221	Priyanshu Agrawal	4	3	13	20
21	70552100054	E222	Prakhar Saxena	4	3	11	18
22	70552100055	E223	Aruja Shrivastava	5	4	12	21
23	70552100057	E224	Yash Patel	4	4	14	22
24	70552100058	E225	Krishna Mistry	5	4	12	21
25	70552100059	E226	Vivek Jain	5	4	12	21
26	70552100066	E229	Harshit Shah	4	3	10	17
27	70552100072	E230	Prachi Rout	4	4	13	21
28	70552100073	E231	Mann Jaunjalkar	5	5	11	21
29	70552100078	E232	Yash Chimnani	4	3	11	18
30	70552100082	E234	Parinjay Gupta	4	3	13	20
31	70552100083	E235	Dhyan Joshi	4	3	10	17
32	70552100084	E236	Kshitij Tomar	5	3	13	21
33	70552100085	E237	Apurva Alhat	4	4	11	19
34	70552100086	E238	Vanshaj Chandore	4	3	12	19
35	70552100087	E239	Muskan Agrawal	5	5	10	20
36	70552100088	E240	Tanishka Mathur	4	3	12	19
37	70552100089	E241	Shubham Gandhi	4	3	12	19
38	70552100090	E242	Gargi Jain	4	4	13	21
39	70552100091	E243	Mahaveer Mandloi	4	4	12	20
40	70552100092	E244	Abhinav Sharma	4	3	11	18
41	70552100093	E245	Akash Bharti	5	3	11	19
42	70552100094	E246	Shreya Joshi	5	5	10	20
43	70552100096	E247	Virajsinh Girase	4	4	12	20

44	70552100097	E248	Omi Mishra	4	4	13	21
45	70552100099	E249	Niketa Sharma	4	3	13	20
46	70552100101	E251	Anushka Srivastava	4	3	12	19
47	70552100102	E252	Ashutosh Singh	4	4	11	19
48	70552100103	E253	Parnshree Gautam	3	3	10	16
49	70552100104	E254	Tanishq Mandowara	5	4	13	22
50	70552100106	E256	Sanat Pareek	4	3	12	19
51	70552100107	E257	Dakshita Gupta	4	3	11	18
52	70552100109	E259	Sanyam Shah	4	4	12	20
53	70552100116	E266	Pratham Patil	5	5	13	23
54	70552100119	E269	Mihir Patil	5	5	13	23
55	70552100124	E274	Suhani Gupta	5	5	12	22
56	70552100125	E275	Saumya Soni	3	3	10	16
57	70552100126	E276	Devan Shah	4	3	13	20
58	70552100130	E279	Krish Verma	5	3	12	20
59	70552200005	E280	Vishwa Bhalodia	4	3	12	19
60	70552200006	E281	Jhanvi Bhalodia	5	5	11	21

Prof. Sachin Chavan

Subject Teacher

NMIMS | MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING
Shirpur Campus

Department of Computer Science

Project Based Learning

Class: B.Tech. (CS)/Sem-V

Subject: Software Engineering

Topic: Project based Learning

Objective:

The objective of **Project-Based Learning (PBL)** in software engineering is to provide students with hands-on, real-world experience by engaging them in the development of a software product or system from start to finish.

Project based learning Approach:

1. Break the Project into Phases

- Students follow the typical **Software Development Life Cycle (SDLC)**, with well-defined stages such as planning, design, implementation, testing, and deployment.
- Stages of Project:
  - Project Planning and Requirements Gathering: Students define the project scope, gather user requirements, and create initial specifications.
  - System Design: Students design the software architecture, choose technologies, and plan the user interface and database structure.
  - Implementation: Students begin coding, utilizing version control, setting up a development environment, and writing documentation as they go.
  - Testing and Debugging: Students perform unit tests, integration tests, and system tests to ensure the software is functional, secure, and free from bugs.
  - Deployment and Maintenance: Students deploy the software, ensuring it works in a production environment, and continue maintenance as needed.

2. Encourage Teamwork and Collaboration

- ***Roles in the Team***: Assign different roles (e.g., project manager, lead developer, tester, documentation writer) to ensure students gain experience in various aspects of
- software development.
- **Agile Practices**: Students can adopt **Agile methodologies** (Scrum, Kanban) to divide tasks into manageable sprints, hold regular stand-ups, and track progress.

3. Incorporate Industry Tools and Practices

- **Version Control**: Use **Git** or **GitHub** to track changes in code and manage collaboration.

Subject Teacher

- **Automated Testing**: Introduce automated testing tools such as Selenium Testing Tool.
- Software designing tool: Introduce designing tools such as StarUML

4. Project Presentation and Reflection

- **Project Presentation**: Students present their final product to the class or stakeholders, demonstrating its features, architecture, and how they solved key problems.

Outcome of the Project Based Learning Approach in Software Engineering:

- Real-World Skills: Students gain practical, hands-on experience that mirrors the real-world software development process, making them more job-ready.
- Team Collaboration: Students develop strong communication and collaboration skills, learning how to work effectively in a team.
- Problem-Solving: Through iterative work on the project, students develop critical thinking and problem-solving skills, improving their ability to tackle complex software engineering challenges.
- Exposure to Industry Practices: Students become familiar with the tools, techniques, and methodologies used in the software industry, improving their employability and skillset.
- Confidence and Ownership: By creating and completing a software project, students gain a sense of accomplishment and ownership, building confidence in their abilities.

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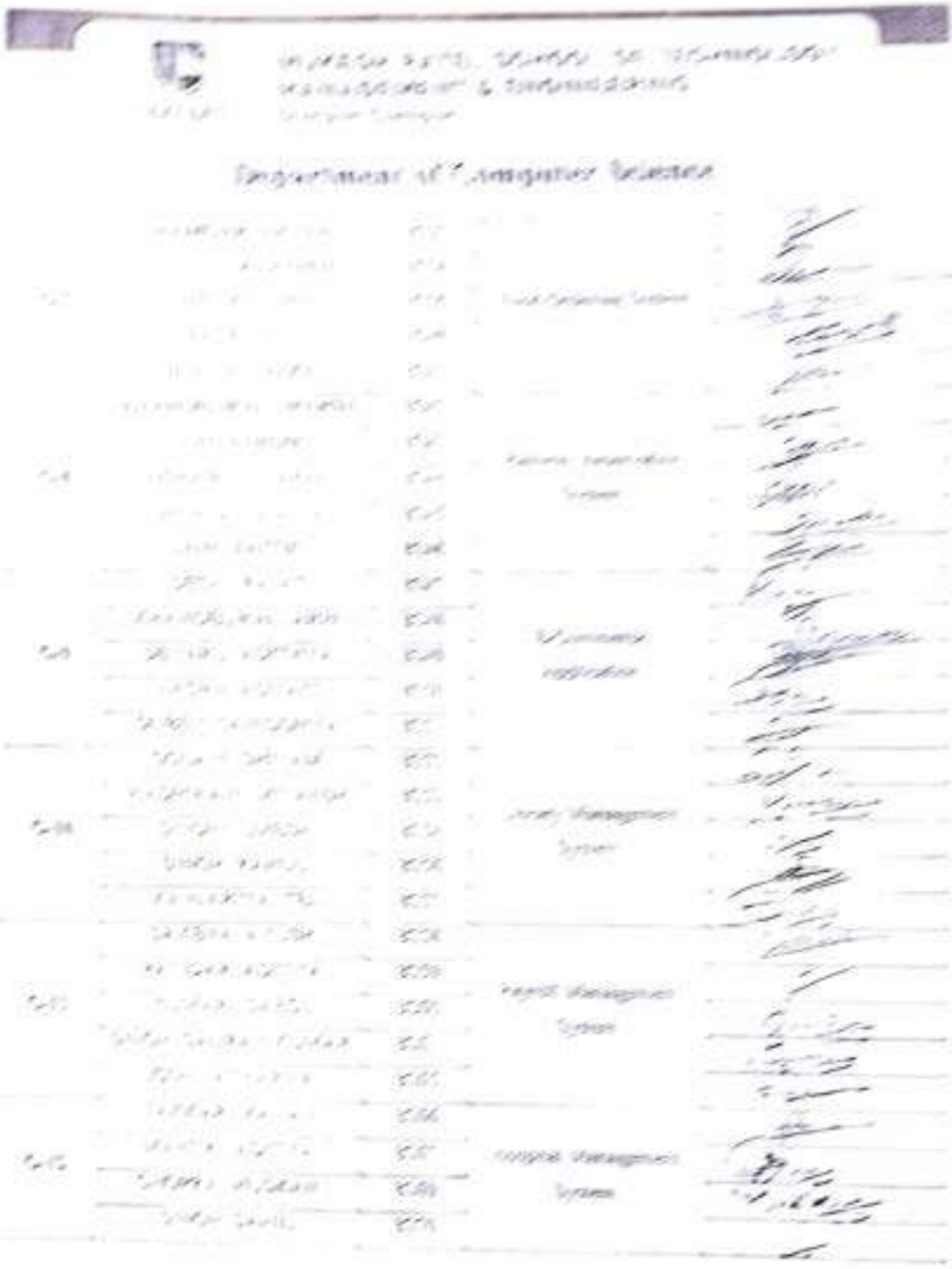
Shirpur Campus

Department of Computer Science

Attendance Sheet
Academic Session: 2022-23
B. Tech. CS Sem. V
Subject: Software Engineering

Sr. No.	Name of Student	Roll No.	Project Title	Signature
G-1	PATEL, JAYKUMAR	B203	Flight Reservation System	
	TALAVIYA, KHUSHI	B204		
	DALAL, PARAM	B205		
	SAXENA, SHAURYA	B206		
	SHARMA, HRIDAYANK	B207		
G-2	MODI, JAINIL	B208	College Admission Management System	
	SAHNI, JASLEEN	B209		
	BAWASKER, ARYAN	B210		
	KAMBLE, RUSHI	B211		
	PAREKH, ADITYA	B213		
G-3	TOLIA, VEDANT	B214	Attendance Management System	
	THOMAS, JOEL	B215		
	MAHESHWARI, AMAN	B216		
	BAKSHI, JASJOT	B217		
	PALIWAL, SHOBHIT	B218		
G-4	NANDI, ANKON	B219	Hotel Room Reservation System	
	SARAIYA, CHARVEE	B220		
	DHUMALE, SAHIL	B222		
	SHAH, HIRAK	B223		
	RAUT, TANMAY	B224		
G-5	KAUSHAL, PRIYANSHU	B226	Shopping Mall Management System	
	NAYAK, SATVIK	B227		
	BANCHHOD, TANUSH	B228		
	TRIPATHI, SWASTI	B229		
	PATEL, BHAVYA	B230		
G-6	THAKUR, SUMIT	B232	Online Couse Registration System	
	RAWKA, TANISHK	B233		
	KUMAR, PRAVEEN	B234		
	MANANI, HIREN	B235		
	DARAK, SIDDHESH	B236		



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Shirpur Campus

Department of Computer Science

Evaluation
Academic Session: 2022-23
B. Tech. CS Sem. V
Subject: Software Engineering

Sr. No.	Name of Student	Roll No.	Project Title	Project Evaluation			
				Basic Knowledge (5M)	Presentation (5M)	Viva (10M)	Total (20M)
G-1	PATEL JAYKUMAR	B203	Flight Reservation System	3	3	5	11
	TALAVIYA KHUSHI	B204		4	4	7	15
	DALAL PARAM	B205		3	4	7	14
	SAXENA SURYA	B206		4	4	8	16
	SHARMA HRIDAYANK	B207		2	3	5	10
G-2	MODI JAINIL	B208	College Admission Management System	2	3	4	9
	SAINI JASLEEN	B209		3	3	5	11
	BAWASKER ARYAN	B210		2	3	5	10
	KAMBLE SUSHI	B211		3	3	6	12
	PAREKH ADITYA	B213		2	3	4	9
G-3	TOLIA VEDANT	B214	Attendance Management System	2	3	4	9
	THOMAS JOEL	B215		3	4	6	13
	MAHESHWARI AMAN	B216		2	3	5	10
	BAKSHI JASJOT	B217		3	4	7	14
	PALIWAL SHOBHIT	B218		2	3	4	9
G-4	NANDI ANKON	B219	Hotel Room Reservation System	3	4	6	13
	SARAIYA CHARVEE	B220		3	4	7	14
	DHUMALE SAHIL	B222		3	4	7	14
	SHAH HIRAK	B223		4	4	7	15
	RAUT TANMAY	B224		3	3	6	12
G-5	KAUSHAL PRIYANSHU	B226	Shopping Mall Management System	2	3	5	10
	NAYAK SATVIK	B227		3	4	7	14
	BANCHHOD TANUSH	B228		3	4	7	14
	TRIPATHI SWASTI	B229		2	3	4	9
	PATEL BHAVYA	B230		3	3	6	12
G-6	THAKUR SUMIT	B232	Online Course Registration System	4	4	7	15
	RAWKA TANISHK	B233		3	3	6	12
	KUMAR PRAVEEN	B234		3	3	6	12
	MANANI HIREN	B235		3	3	6	12
	DARAK SIDDHESH	B236		4	4	8	16

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G 7	BAMBHAR, ARYAN	B237	Food Ordering System	2	1	4	9
	BHUTRA, DEEPANSH	B238		2	3	5	10
	JAIN, DEVANSH	B239		2	3	4	9
	PATIL, JAY	B240		2	3	4	9
	BHATIA, SAHIL	B241		2	3	4	9
G 8	KHANDELWAL, SPARSH	B242	Railway Reservation System	3	4	6	13
	JAIN, HARSH	B243		3	4	6	13
	AGRAWAL, TAPAN	B244		3	3	5	11
	SHUKLA, ANITA	B245		3	4	8	15
	JAIN, NAITIK	B246		4	4	8	16
G 9	DESAI, RAJAT	B247	E-Commerce Application	3	4	7	14
	KHANDELWAL, ARJIT	B248		4	4	7	15
	DEVAKE, ADITYA	B249		3	3	4	10
	ARORA, ADYATI	B250		2	3	5	10
	DUBEY, SANSKRITA	B251		4	4	7	15
G 10	GOLANI, SHIVANI	B252	Library Management System	3	4	7	14
	WADHWANI, MITANSHI	B253		2	3	5	10
	SINGHL, UMESH	B254		2	3	5	10
	SINGH, RAHUL	B256		2	2	3	7
	KANJARIYA, JAY	B257		3	3	5	11
G 11	SAXENA, AYUSH	B258	Payroll Management System	3	4	7	14
	PATIDAR, ADITYA	B259		2	3	5	10
	KUMARI, SAROJ	B260		2	2	3	7
	SINGH, SAURAV KUMAR	B261		4	5	9	18
	JOSHI, ATHARVA	B265		2	3	5	10
G 12	FAKEAR, MANAN	B266	Hospital Management System	3	4	6	13
	MANTRI, ADITYA	B267		2	3	5	10
	CHOPRA, MUSKAN	B269		2	2	5	9
	SINGH, SAHIL	B270		2	3	5	10

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A REPORT ON

"Blood Donation Website"

By

Vaishnavi Jariwala (B222 / 70021119027)

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B.Tech (Computer Science) III Year

Academic Year 2021-22

"Blood Donation Website"

ABSTRACT: -

Web-based Blood Donation Management System is a management system website that enables individuals who want to donate blood to help the needy. It also provides a centralized blood bank database. The system is developed by using HTML, CSS, JavaScript, PHP, and MySQL as a database system to manage and store the data. The website requires the donor to take a quiz to check if he/she is eligible to donate blood. Users can register themselves as Patients to find compatible blood types accordingly and the website also provides the user to check nearby blood donation centres. There's a chat-bot to help the user to go through the website and also helps them to register as a donor or a patient. The user can also change their information by editing their profile page then the changes are stored permanently in the database until the user wishes to change them again. The website generates OTP and sends it to the user's email id, which increases the security and maintains the authenticity of the user and the website.

1. INTRODUCTION

Blood Donation Website is created in order to serve the community with the information available and made freely accessible to everyone. It provides a pathway for patients with emergencies to make utilisation of these freely available lists of donors and centres and helps out the needy ones. There are 2 types of user registration on this website :

a). User Registration as a Donor

b). User Registration as a patient

The aim of this website is to serve the society in the best possible manner and keeping this in mind, it is very important for us to ensure that every donor who is registered on our portal is a healthy donor and fit to donate blood. For this we have created an eligibility quiz. Users can register as a donor only if he passes the eligibility test which is the preformatted one created using HTML, CSS and JS. Hence, every user registering as a donor will be a legitimate user. Considering the seriousness of this issue we believe that in case of any emergency the patient may not be willing to register on our portal due to time constraint and so the patient is not bound to register in order to access information. He may or may not register, the option is available to them. Even if the patient has not registered he will be able to access all the information from our website. For every registration form, there is an Email OTP validation system created in order to have secure users registration. After the successful registration of a donor, the donor becomes part of the donor community and he can be accessed for that particular region using the "Search Donor" section by anyone. Apart from it, all the donor centres are stored in the database and can be accessed using the sub-section on homepage names as "Search Donor Centres".

Registered user can also change its details from the profile section, in case he/she fills in any wrong information while registering, then the changes are saved permanently in the database. Users can also upload their profile picture through the profile page.

A chatbot has also been designed for better UI and UX using HTML, CSS and JS. It is helpful for any arbitrary user to have their queries resolved and in case of additional queries the chatbot will convey a message to the user to contact us via given mediums in footer or header section of the homepage.

Further, this website helps any arbitrary user to access the information regarding blood centres across any region in India and blood donors available in those regions, therefore the information regarding donor centres can also be made use of by any donor when he wishes to donate blood. This freely accessible information can also be helpful for a vast number of NGOs and campaign organisers in India.

2. PROBLEM STATEMENT AND SOLUTION

Problem: During any emergency situation where an urgent requirement of blood donor arises or information regarding pre-stored blood at any blood center is required, most of the time patients are unaware of the place where blood of that particular type would be available. Sometimes, they are even unaware of the blood centres within their locality or region.

Solution: In order to have an effective method to know the availability of blood of particular type at any blood centres within locality or in order to have a direct communication medium of patients with any donor registered on the website, this mini project has been implemented. Here, all the information which might be useful to patients regarding blood donation centres in India (district wise) including their website link if any, contact number, email id, etc or number of donors available within their region or district, their personal details including email for communication, etc can be accessed without even logging in as patient. Anyone can view this information and may help their needy ones.

3. LIST OF TECHNOLOGIES USED

Describe the use of following technologies like

- HTML
- CSS
- JavaScript
- PHP
- MySQL

4. PROJECT GALLERY

Home Page: The below sub-images is the home page of Blood Donation Website where a chatbot can be seen in the bottom right corner for better user experience. Some facilities such as search donor centres (Fig 1.2) or search donors can be accessible to anyone without logging in. The footer is helpful for users to contact us regarding any queries.

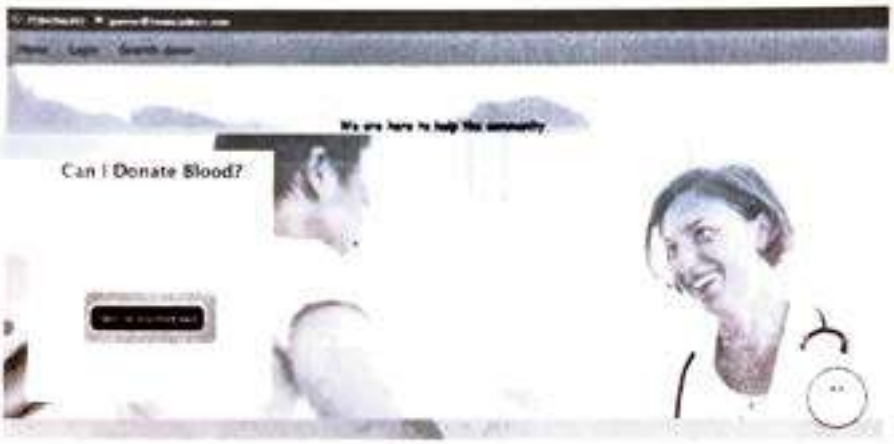


Figure 1.1 (Home page)

Figure 1.2 (Home page)

Figure 1.3 (Home page)

Eligibility Test: This page is the eligibility quiz page. The contents of this page are changed according to the user's click, that is if the user clicks yes or no. If the user is ineligible at any point alert message is shown and if the user is eligible it asks another question until the page with donor registration link does not appear. Once donor registration page appears the user can register

Figure 2.1 (Eligibility test)

Figure 2.2 (Eligibility test)

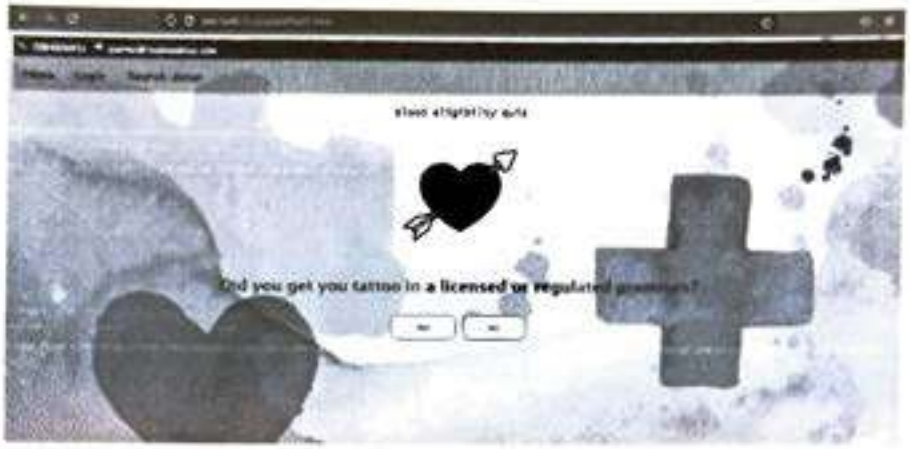


Figure 2.3 (Eligibility test)

Figure 2.4 (Eligibility test)

Figure 2.5 (Eligibility test)

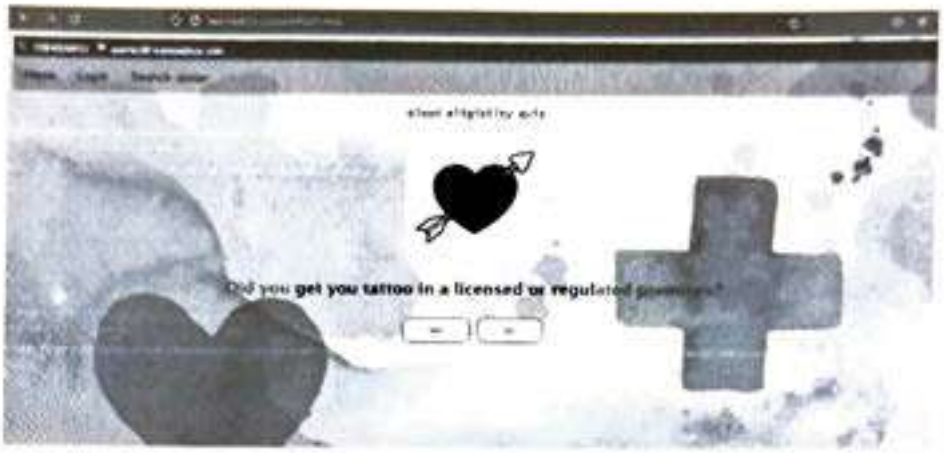


Figure 2.3 (Eligibility test)

Figure 2.4 (Eligibility test)

Figure 2.5 (Eligibility test)

Figure 2.6 (Eligibility test)

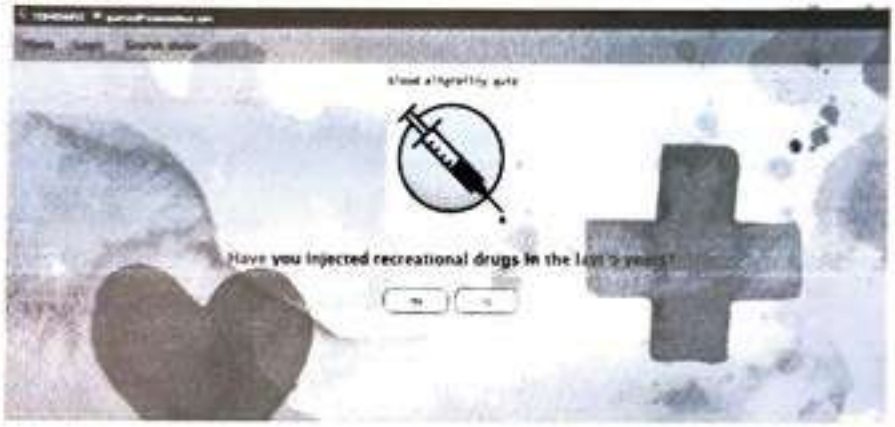


Figure 2.7 (Eligibility test)

Figure 2.8 (Eligibility test)

Figure 2.9 (Eligibility test)

Donor Form: After passing the eligibility quiz, the donor can register at this page, it contains all the necessary validation of the form. Further an OTP is sent to the user's email ID and the user is redirected to the verification page. If the OTP matches, details of the user will be inserted in the database otherwise an error will be thrown saying OTP does not match.

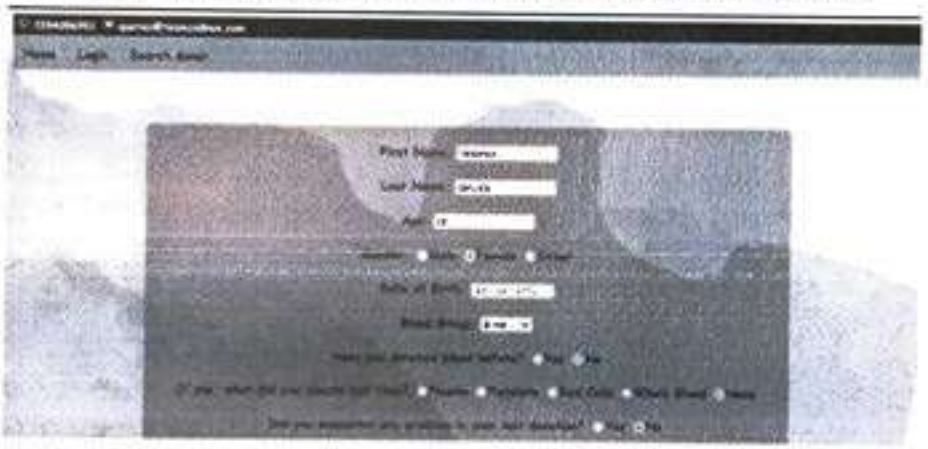


Figure 3.1 (Donor Form)

Figure 3.2 (Donor Form)

Figure 3.3 (OTP sent)

Figure 3.4 (Verification)

Login Page: Here, a registered user can log in to his/her account and when the user clicks login button it starts the session which is further used to extract information from the database in the profile page.

Figure 4 (Login Page)

Patient Form: Here, Users can register themselves as patients to find donors of compatible blood types. The information of users are stored in the database.

Figure 5 (Patient Form)

Profile Page: On this page, the user can change its personal information and also its profile picture and when he/she presses the Update button, the changes are saved in the database.

Figure 6 (Profile Page)

Donor Centres search: On this page, any arbitrary user can search for the donation centres by selecting the state and the corresponding city from options available.

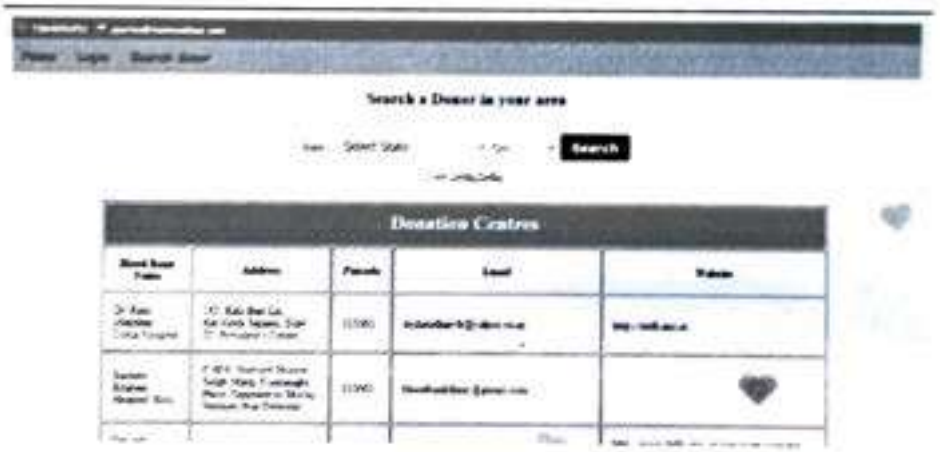


Figure 7.1 (Donor centres)

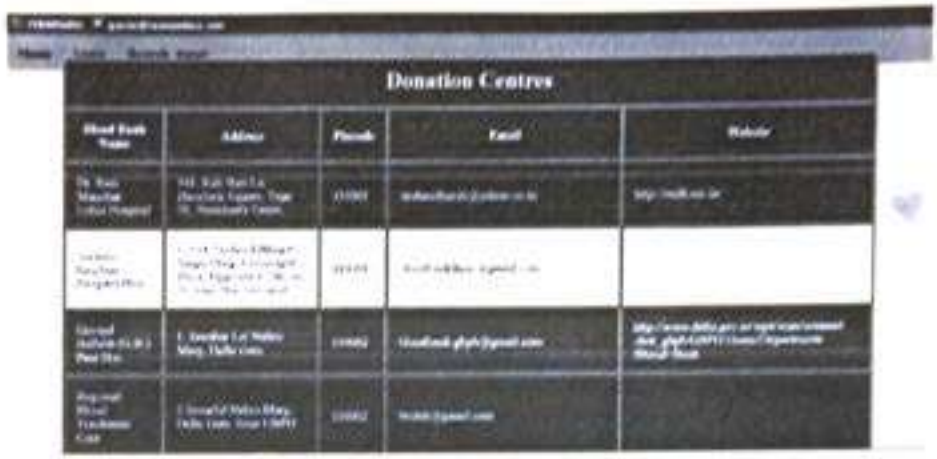


Figure 7.2 (Donor centres)

Donor Search: On this page, any arbitrary user can search for the donors available by selecting the state, the corresponding city and blood group required from options available. The details of available donors are displayed in tabular format including age, name, email, etc for communication purposes.

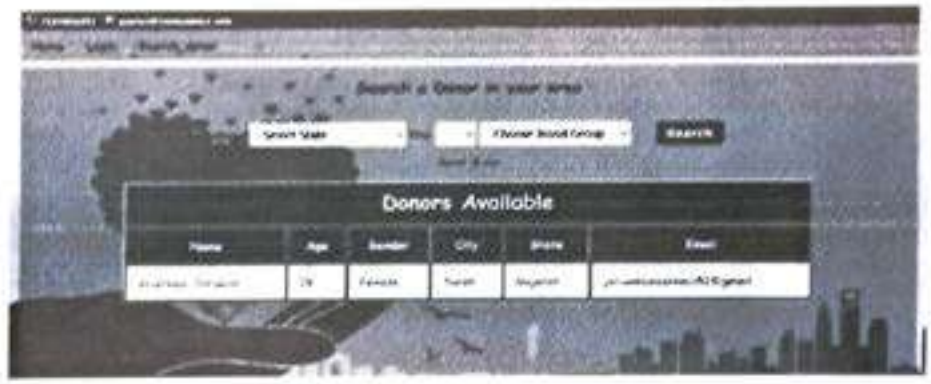


Figure 8 (Donor search)

Chatbot: Designed using HTML,CSS and JS, the chatbot is made available for better user experience and to resolve their queries using placeholders as the way of communication.

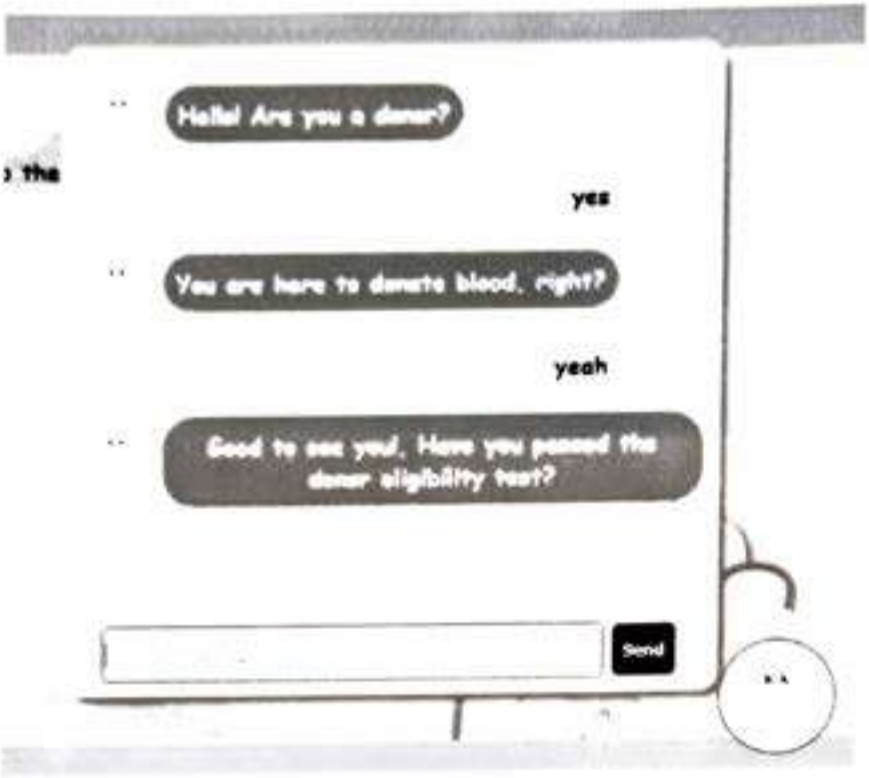


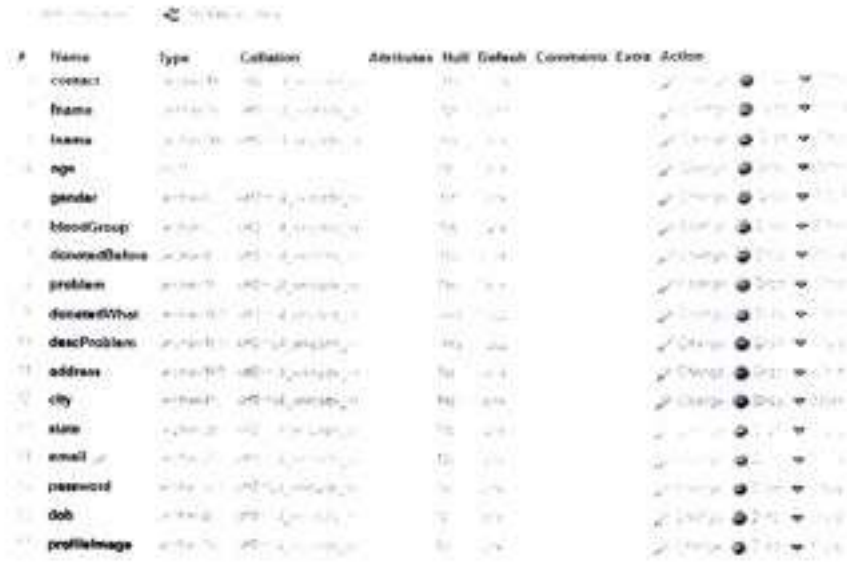
Figure 9 (chatbot)

After login: After login the profile picture of the user is displayed as a small circular thumbnail on the navbar.

Figure 10 (After login)

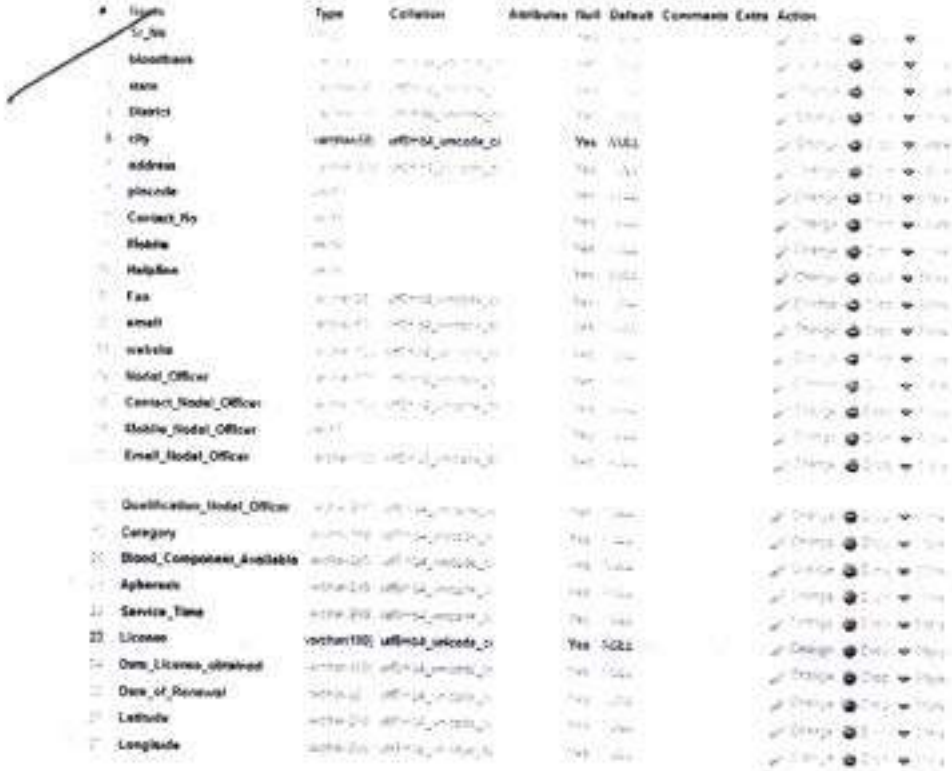
4.1 Database Created

Donor form:



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
	contact								
	fname								
	lname								
	age								
	gender								
	bloodGroup								
	donatedBefore								
	problem								
	donatedWhat								
	descProblem								
	address								
	city								
	state								
	email								
	password								
	dob								
	profileImage								

Donor centers:



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
	Sr_No								
	bloodbank								
	state								
	District								
5	city	varchar(50)	utf8mb4_unicode_ci		Yes	NULL			
	address								
	pincode								
	Contact_No								
	Mobile								
	Helpline								
	Fax								
	email								
	website								
	Nodal_Officer								
	Contact_Nodal_Officer								
	Mobile_Nodal_Officer								
	Email_Nodal_Officer								
	Qualification_Nodal_Officer								
	Category								
	Blood_Components_Available								
	Apheresis								
	Service_Time								
23	License	varchar(100)	utf8mb4_unicode_ci		Yes	NULL			
	Date_License_obtained								
	Date_of_Renewal								
	Latitude								
	Longitude								

Login details:

Patient form:

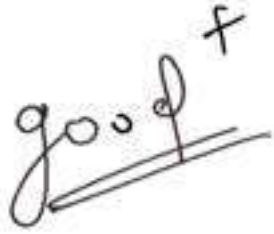
5. DEPLOYMENT OF WEB APPLICATION

We are yet to add many services including the "NEWS" section where the user can get the information regarding the blood donation campaigns in a particular locality or a region. Also, the created chatbot can be completely implemented using AI, which will provide better experience and will cover a vast range of queries. Apart from this, a navbar providing "Community Circle" between all the registered donors can be formed and the implementation of integrated chat system will help them for communication. Further, we can make use of REST APIs and using Web Mining techniques, filtering of all the tags relating to blood donation campaigns can be extracted and displayed to the end users.

Thus, there is a lot of functionality we can add on and also many functionalities are yet to be explored. Hence, after adding on with these functionalities and a proper testing, we can go on with deployment of "Blood Donation Website".

CONCLUSION

Blood banks in India are already facing scarcity of blood due to high demand and less donors. Blood donation website designed by us is an interface for the people in need to communicate with the ones ready to help them. It is a contribution to the society from our team. We strongly believe that our website will be helpful to many citizens in the case of an emergency or in any medical crisis. Our website also takes care about the safety criteria of our users by providing an eligibility quiz to the donors. On failing to pass the test, the donor will not be registered which proves that we only have healthy donors on our portal. Apart from having our contact details, through which any user can reach out to us in case of any query, we have provided a chatbot system which may be helpful to the user. We have designed the system keeping in mind the importance of the issue regarding scarcity of blood. As we understand the significance of blood banks in saving someone's life, we have also integrated our system with a donor centre search where any donor can search for blood donation centres and donate blood to that particular centre or blood bank. Talking about the future goals of our team, we aim to make this interface easy to use and supportive by introducing some more features like making the chatbot AI assisted, providing all the recent and fresh updates regarding blood donation centers, daily updates regarding this topic of blood donation and many more. These features will also help in creating awareness among the people regarding this serious issue. We strongly believe that our website will have a great impact on the betterment of our society.



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Shirpur Campus

Department of Computer Science

Flipped Classroom Strategy on "Cryptographic Technique

Class: B.Tech. (CS)/Sem-VI

Subject: Cyber Security

Topic: Cryptographic Technique

Objective:

To help students understand the various cryptographic methods, including symmetric and asymmetric encryption, hashing, and digital signatures. Students will be able to apply basic cryptographic techniques to solve real-world security problems.

Flipped Classroom Approach:

1. **Pre-Class Preparation:**
   - **Video/Reading Material:**
     - Provide students with introductory videos or articles about basic cryptographic concepts (e.g., RSA, AES).
     - Video Link: https://archive.nptel.ac.in/courses/106/105/106105162/
     - Video Link: https://www.youtube.com/watch?v=cOpYHlqis3o
2. **In-Class Activities:**
   - **Hands-on Cryptography Exercise:**
     - Break students into groups and assign them different encryption algorithms.
     - Have them implement the encryption and decryption steps with sample data, either manually or using a programming language (eg. Java, Python).
   - **Collaborative Problem Solving:**
     - Present a scenario where students need to decide which cryptographic method to use.
     - Students will be divided into groups and each each group will be asked to analyse and select an appropriate cryptographic technique for the given problem.
   - **Group Discussion on Modern Cryptographic Challenges:**
     - Facilitate a class discussion on the current challenges in cryptography, such as the rise of quantum computing or encryption backdoors.
     - Students can use the knowledge gained from pre-class activities to contribute to the discussion.
3. **Post-Class Assignment:**
   - **Case Study Analysis:** Provide a case study about a recent security breach or cryptographic failure.

Subject Teacher

- Ask students to analyze the breach in terms of cryptographic failure and propose solutions or alternative cryptographic techniques that could have prevented the issue.

List of Real-World Problems and Challenges in Cryptographic Techniques:

Cryptographic Backdoors:

There are concerns about governments or organizations forcing companies to include backdoors in their encryption systems, compromising user privacy and data security.

Side-Channel Attacks:

These attacks exploit information leaks from physical systems (like CPU power consumption or electromagnetic emissions) to break encryption without needing to directly break the cryptographic algorithm.

Secure Communication in Mobile Networks:

Mobile devices face unique challenges in securing communications over insecure networks (e.g., public Wi-Fi), where attackers can intercept or modify encrypted data.

Digital Signature Forgery:

The challenge of ensuring digital signatures cannot be forged or tampered with remains critical, especially in applications like secure contracts and e-commerce.

Password Security and Storage:

Ensuring passwords are securely hashed and stored is crucial to protecting user credentials. Weak or outdated hashing algorithms, like MD5 or SHA-1, are vulnerable to collision attacks.

Privacy-Preserving Cryptography:

Balancing cryptographic techniques with user privacy, especially when it comes to collecting and analyzing user data for marketing, social networks, or governmental purposes.

Blockchain Security:

While blockchain uses cryptographic techniques to secure transactions, challenges remain in ensuring the security and scalability of blockchain-based systems, especially in public networks.

Subject Teacher

MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING
Shirpur Campus

Department of Computer Science

Evaluation Sheet (Case Study)
Academic Session: 2022-23
B. Tech. CS Sem. VI
Subject: Cyber Security

Sr. No.	Name of Student	Roll No.	Application of Concept (10M)	ViVa (10M)	Total (20M)
1	PATEL, JAYKUMAR	B203	9	9	18
2	TALAVIYA, KHUSHI	B204	10	8	18
3	DALAL, PARAM	B205	8	10	18
4	SAXENA, SHAURYA	B206	9	10	19
5	SHARMA, HRIDAYANK	B207	8	8	16
6	MODI, JAINIL	B208	8	9	17
7	SAHNI, JASLEEN	B209	9	9	18
8	BAWASKER, ARYAN	B210	9	9	18
9	KAMBLE, RUSHI	B211	7	8	15
10	PAREKH, ADITYA	B213	9	9	18
11	TOLIA, VEDANT	B214	9	9	18
12	THOMAS, JOEL	B215	9	8	17
13	MAHESHWARI, AMAN	B216	9	9	18
14	BAKSHI, JASJOT	B217	8	8	16
15	PALIWAL, SHOBHIT	B218	8	8	16
16	NANDI, ANKON	B219	9	9	18
17	SARAIYA, CHARVEE	B220	8	9	17
18	DHUMALE, SAHIL	B222	8	8	16
19	SHAH, HIRAK	B223	9	10	19
20	RAUT, TANMAY	B224	8	8	16
21	KAUSHAL, PRIYANSHU	B226	8	8	16
22	NAYAK, SATVIK	B227	9	8	17
23	BANCHHOD, TANUSH	B228	9	8	17
24	TRIPATHI, SWASTI	B229	9	9	18
25	PATEL, BHAVYA	B230	8	8	16
26	THAKUR, SUMIT	B232	7	8	15
27	RAWKA, TANISHK	B233	9	9	18
28	KUMAR, PRAVEEN	B234	9	8	19
29	MANANI, HIREN	B235	10	9	19
30	DARAK, SIDDHESH	B236	10	9	19
31	INAMDAR, ARYAN	B237	8	7	15
32	TUTEJA, DEEPANSH	B238	8	8	16
33	JAIN, DEVANSH	B239	8	8	16
34	PATIL, JAY	B240	8	9	17
35	BHATIA, SADGI	B241	9	8	17

Subject Teacher

NMIMS

MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING
Shirpur Campus

Department of Computer Science

36	KHANDELWAL, SPARSH	B242	10	9	19
37	JAIN, HARDIK	B243	9	9	18
38	AGRAWAL, TAPAN	B244	9	8	17
39	SHUKLA, LAXITA	B245	9	9	18
40	JAIN, NAITIK	B246	7	8	15
41	DESAI, RAJAT	B247	8	8	16
42	KHANDELWAL, ARIN	B248	8	8	16
43	DEVARU, ADITHYA	B249	8	8	16
44	ARORA, ADVAIT	B250	8	8	16
45	DUBEY, SANIDDHYA	B251	10	9	19
46	GOLANI, SHIVAM	B252	9	8	17
47	WADHWANI, MITANSH	B253	9	8	17
48	SINDHI, UMESH	B254	10	9	19
49	SINGH, RAHUL	B256	7	8	15
50	KANJARIYA, TEJ	B257	9	10	19
51	SAXENA, AYUSH	B258	8	7	15
52	PATIDAR, ADITYA	B259	9	9	18
53	KUMARI, SAROJ	B260	9	8	17
54	SINGH, SAURAV KUMAR	B261	8	9	17
55	JOSHI, ATHARVA	B265	9	9	18
56	TAKKAR, MANAN	B266	7	8	15
57	MANTRI, ADITYA	B267	9	10	19
58	CHOPRA, MUSKAN	B269	9	10	19
59	SINGH, SAHIL	B270	9	8	17

NMIMS

MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING
Shirpur Campus

Department of Computer Science

Attendance Sheet
Academic Session: 2022-23
B. Tech. CS Sem. VI
Subject: Cyber Security

Sl. No.	Name of Student	Roll No.	Signature
1	PATEL, JAYKUMAR	B203	
2	TALAVIYA, KHUSHI	B204	
3	PALAI, PARAM	B205	
4	SAXENA, SHAURYA	B206	
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6	MODI, JAINIL	B208	
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8	BAWASKER, ARYAN	B210	
9	KAMBLE, RUSHI	B211	
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11	TOLIA, VEDANT	B214	
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13	MAHESHWARI, AMAN	B216	
14	BAKSHI, JASJOT	B217	
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29	MANANI, HIREN	B235	

Department of Computer Science

30	DARAK, SIDDHESH	B236	
31	INAMDAR, ARYAN	B237	
32	HUEJA, DEEPANSH	B238	
33	JAIN, DEVANSH	B239	
34	PATIL, JAY	B240	
35	BHATIA, SAIGH	B241	
36	KHANDELWAL, SPARSH	B242	
37	JAIN, HARDIK	B243	
38	AGRAWAL, TAPAN	B244	
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55	JOSHI, ATHARVA	B265	
56	TAKKAR, MANAN	B266	
57	MANTRI, ADITYA	B267	
58	CHOPRA, MUSKAN	B269	
59	SINGH, SAHIL	B270	

NMIMS MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Out-of-the-classroom learning for 'Design Thinking' Course
In First Year B Tech CS and IT
A.Y. 2023-24
Faculty – Dr. Rakesh Chaudhari

Out-of-the-class learning about design thinking projects proved to be especially beneficial for first-year engineering students. Integrating such experiences early in their education helped them grasp the relevance of theoretical concepts through practical application, enhancing their overall understanding and retention.

For example, a group of first-year engineering students worked on a design thinking project to improve campus sustainability. They started by observing and interviewing students and staff about their daily routines and environmental concerns. By gathering data on recycling habits, energy usage, and waste management, students gained a deeper understanding of the campus ecosystem. This hands-on experience allowed them to apply their foundational engineering knowledge in real-world contexts, fostering a more holistic learning process.

Another project involved collaborating with a local community to design affordable and efficient water filtration systems. Students visited households to understand their water usage patterns and challenges, and then used their engineering skills to prototype and test different filtration designs. This direct engagement with users and iterative problem-solving process helped students appreciate the impact of their work and develop practical skills that were crucial for their future careers.

Additionally, a design thinking project focused on enhancing campus transportation involved students analysing current transportation methods, interviewing users, and brainstorming innovative solutions to reduce congestion and improve efficiency. By applying principles learned in their engineering courses, such as mechanics and materials science, students created prototypes and gathered feedback in real-time, refining their solutions based on actual user needs.

These examples highlighted how out-of-the-class learning in design thinking projects bridged the gap between theory and practice for first-year engineering students. It encouraged them to think creatively, work collaboratively, and develop empathy for end-users, all of which were essential skills for successful engineers. By engaging with real-world problems from the outset of their education, students became more motivated and better prepared to tackle complex engineering challenges in the future.

Glimpses of the Classes taken out of the classroom-

List of Few Projects Completed by students using pedagogy

Sr. No.	Project Title	Group members
1.	Wastage of food due to excessive production in hostel Group Name- "Area 51"	1. Vedant Bhonge (C234) 2. Atharva Maheshawari (C241) 3. Chaitanya Patil(C247) 4. Aditya Chaudhari (C251) 5. Kalpesh Chaudhari (C253) 6. Shreyas Gujarathi (C259)
2.	Problem faced by day scholars due to bus timings	1. Bhavesh Lohar (C240) 2.Sahil More (C245) 3. Ashish Patil (C258) 4.Tejas Patil (C261) 5. Ritesh Pawar (C233)

		6.Yash Bari (C249) 7. Akshay Bamnote (C228)
3.	Defects in Uniform Tshirts	1. Naman Sanghavi (C215) 2. Rushabh Shah(C217) 3. Dhruv Kathiriya (C218) 4. Krishna Rajput(C222) 5. Rachit Chaudhari (C223) 6. Khushal Dhole (C226)
4	Excessive cutting of trees due to lack of alternative materials used in manufacturing paper	1. Sanjana Gadigone (C206) 2. Mahi Singh (C212) 3. Anubhav Sharma (C216) 4. Abhinav Rajpurohit (C221) 5. Aastha Tiwari (C237)

Report on the Pedagogy Methods used in the course "Data Structures and Algorithm" from B. Tech. (CS)/Sem-III

Three method of Innovative pedagogy were used in the delivery of the course

1. Use of Virtual Lab/Visualization tool

The virtual laboratory from IIIT Hyderabad and Data structure visualization tool from University of Sanfranscisco for the same course were used in the laboratory for detailed explanation of the topic, as given in the image below.

1. Data Structure Visualization tool from Department of Computer Science, University of SanFrancisco, USA

Source : https://www.cs.usfca.edu/~galles/visualization/Algorithms.html

2. Virtual Lab from IIIT, Hyderabad (Department of Computer science & Engineering

Source : https://ds1-iiith.vlabs.ac.in/

2. One Subject One Webinar (OSOW):

An webinar was arranged for the student to enable them in understanding the importance of subject in industry.

Webinar on Data Structures- Industrial Applications

Pedagogical innovation

Course: Human-Computer Interaction (HCI)

Academic Year: 2023-24

Prepared by: Deepti Barhate

1. Objective of the Project

The project aimed to enhance the learning and teaching experience in the Human-Computer Interaction (HCI) subject by incorporating visual tools such as storyboards and word clouds. These tools were used to improve student engagement, conceptual understanding, and practical application of HCI principles.

2. Rationale and Relevance

- HCI Principles: The HCI course covers fundamental concepts like usability, user-centered design, and interface design. Visual tools like storyboards and word clouds aid in clarifying complex ideas, making them more accessible and relatable.

3. Methodology

The project was implemented in three phases:

1. Preparation Phase:

- Introduced storyboarding and word cloud generation tools to students.(mentimeters)

- Provided resources and tutorials for using Storyboard That (for storyboarding) and WordClouds.com/Mentimeter (for creating word clouds).

2. Execution Phase:

- Students created storyboards that mapped key user interactions in HCI contexts, such as mobile application use or web design.

- Students generated word clouds from course materials to highlight critical HCI terms and concepts.using mentimeter

3. Analysis Phase:

- Collected student work and feedback to evaluate the effectiveness of these tools in enhancing engagement and understanding.

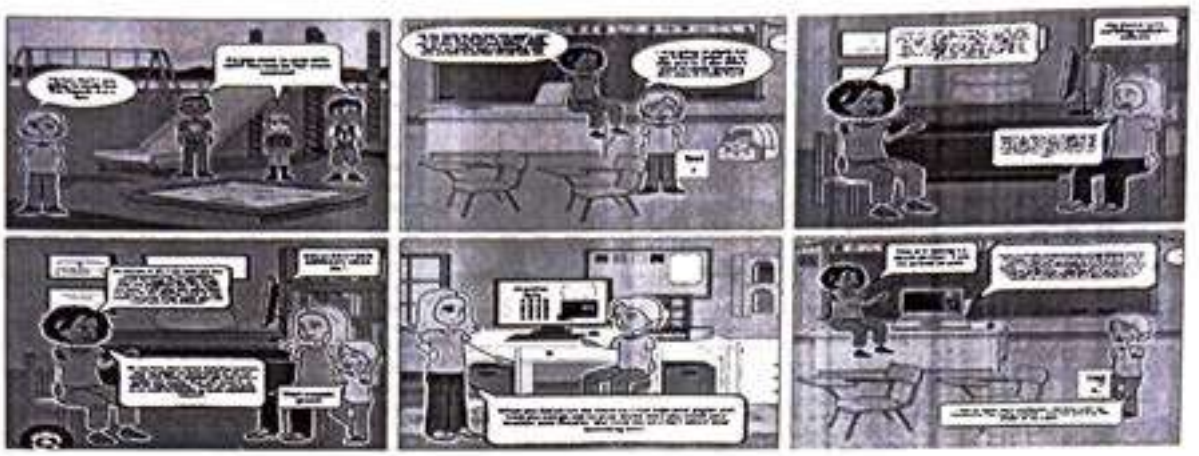
- Analyzed the clarity of visual representations and how they helped contextualize theoretical HCI concepts.

4. Key Tools Used

- Storyboard That: A digital tool used for creating storyboards to visually represent user interaction scenarios. It was employed by students to showcase user flows and design processes.

- WordClouds.com: A tool for generating word clouds from texts, helping students visualize the frequency and importance of key HCI-related terms.

5. Outcomes and Results



B: Word Cloud Generated from Class Discussions on Usability

This report provides a concise overview of the project's objectives, methodology, outcomes, and its alignment with NBA accreditation standards. It demonstrates the effectiveness of visual learning tools in improving the quality of education in HCI and highlights their impact on student engagement and performance.

Following students were present :

Sap No	Roll No	Name	Sign
70552100002	E201	AMIT AGARWAL	
70552100003	E202	BHAVYA SOLANKI	
70552100004	E203	RUDRA VYAS	
70552100005	E204	CHAITANYA SHARMA	
70552100007	E205	PARAM PATEL	
70552100008	E206	MITHALI PATIL	
70552100009	E207	ADITYA PATIDAR	
70552100010	E208	MANVI MEHTA	
70552100011	E209	ISHWARI TILEKAR	
70552100012	E210	DHRUV GORE	
70552100015	E212	SNEH BAGDI	
70552100018	E213	DHRUVIL MAKADIA	
70552100020	E214	YASH CHAUBAL	
70552100026	E215	DEVARSH CHOKSI	
70552100028	E216	KRISHNA GUPTA	
70552100029	E217	TANUSHREE GUPTA	
70552100031	E218	MANAN CHHAJED	
70552100041	E219	PRADHUMN BHARDWAJ	
70552100043	E220	PARTH PATEL	
70552100047	E221	PRIYANSHU AGRAWAL	
70552100054	E222	PRAKHAR SAXENA	
70552100055	E223	ARUJA SHRIVASTAVA	
70552100057	E224	YASH PATEL	
70552100058	E225	KRISHNA MISTRY	
70552100059	E226	VIVEK JAIN	
70552100066	E229	HARSHIT SHAH	
70552100072	E230	PRACHI ROUT	
70552100073	E231	MANN JAUNJALKAR	
70552100078	E232	YASH CHIMNANI	
70552100082	E234	PARINJAY GUPTA	
70552100083	E235	DHYAN JOSHI	
70552100084	E236	KSHITIZ TOMAR	
70552100085	E237	APURVA ALHAT	
70552100086	E238	VANSHAJ CHANDORE	
70552100087	E239	MUSKAN AGRAWAL	
70552100088	E240	TANISHKA MATHUR	
70552100089	E241	SHUBHAM GANDHI	
70552100090	E242	GARGI JAIN	
70552100091	E243	MAHAVEER MANDLOI	
70552100092	E244	ABHINAV SHARMA	
70552100093	E245	AKASH BHARTI	
70552100094	E246	SHREYA JOSHI	
70552100096	E247	VIRAJSINH GIRASE	

3. Role Playing model in the course delivery and evaluation of the student

Activity Report: Innovative Pedagogy Method - Role Playing

Objective: To enhance student understanding of the various topics from Data Structure through an innovative role playing pedagogy method.

Methodology:

1. **Introduction and Demonstration**:
   - The faculty conducted a role-playing example with the help of volunteer students to teach the topic "Singly Linked List Structure."
   - A sample document containing various aspects of the topic and its applications was provided to the students.
2. **Group Assignment**:
   - Students were given multiple real life scenarios to choose from and were instructed to form groups to perform the role play.
   - Each group was tasked with preparing a document detailing their selected scenario and the relevant information about the topic. They were also tasked with demonstrating the role play activity for the selected topic and it was evaluated as group assignment for ten marks.
3. **Role Play Activity**:
   - Students performed the role play as a group assignment.
   - The activity was evaluated on a scale of ten marks based on the following parameters:
     - Documentation: 5 Marks
     - Role Play Performance: 3 Marks
     - Contribution to Teamwork: 2 Marks
4. **Evaluation and Recording**:
   - Student performances were recorded.
   - Selected performances were uploaded to YouTube and shared on LinkedIn to showcase the innovative teaching method.

Evaluation Criteria:

- **Documentation (5 Marks)**:
  - Clarity and completeness of the document.
  - Relevance and accuracy of the information provided.
- **Role Play Performance (3 Marks)**:
  - Engagement and creativity in the role play.
  - Understanding and explanation of the topic.
- **Teamwork Contribution (2 Marks)**:
  - Collaboration and participation of all group members.
  - Effective communication and coordination within the group.

Outcomes:

- Enhanced understanding of the Data Structure among students.
- Improved student engagement and participation through an interactive learning method.
- Positive feedback from students on the effectiveness of the role-playing activity.
- Increased visibility and recognition of the innovative pedagogy method through social media platforms.

The students feedback was collected for the pedagogical methods, through MS Forms, as summarised below

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Students Feedback Summary of Findings on Pedagogical Tools

1. **Role-Playing Pedagogy**
   - **Effectiveness**: The majority of students found the role-playing pedagogy to be extremely effective in enhancing their understanding of the course contents. Specifically, most responses rated it as "Extremely effective," with a few students rating it as "Very effective."
2. **Data Structures Visualization Tools**:
   - **Effectiveness**: The visualization tools from the University of San Francisco and the Virtual Laboratory from IIIT Hyderabad were also highly appreciated. Most students rated these tools as "Extremely effective," with some rating them as "Very effective" and a few as "Moderately effective."
3. **One Subject One Webinar: on "Data Structure - Industrial Applications"**
   - Participants expressed a high level of satisfaction with the webinar, praising the speaker, Mr. Arpit Agrawal, for his effective delivery and engaging presentation style. The content was deemed highly relevant to their studies and future careers, with many noting the practical insights into data structures and their applications in the industry. The interactive nature of the session was particularly appreciated, with participants highlighting the value of real-world examples and the emphasis on core concepts such as arrays, linked lists, stacks, queues, trees, graphs, and key algorithms.

Detailed Analysis

- **Role-Playing Pedagogy**:
  - **Extremely Effective**: This was the most common rating, indicating that students felt this method significantly enhanced their understanding.
  - **Very Effective**: A smaller group of students found it very effective, suggesting that while beneficial, it might not have been as impactful for everyone.
- **Data Structures Visualization Tools**:
  - **Extremely Effective**: These tools were highly rated, showing that visual aids are crucial in understanding complex concepts.
  - **Very Effective**: Some students found these tools very effective, indicating a strong positive impact.
  - **Moderately Effective**: A few students rated these tools as moderately effective, suggesting room for improvement or varying levels of engagement with these tools.
- **One Subject One Webinar: on "Data Structure - Industrial Applications"**
  - Participants reported gaining a deeper understanding of the importance of data structures for job interviews and technical roles. They appreciated the focus on practical problems and the detailed explanation of various data structures and algorithms. The session helped clarify which topics are crucial for corporate roles and provided guidance on how to approach learning and practicing these concepts.
  - Suggestions for Improvement: Some participants suggested organizing multiple webinars to cover more topics in-depth and incorporating more interactive elements such as live coding demonstrations and problem-solving exercises.
  - The positive feedback on the speaker's ability to deliver content effectively and maintain high levels of interactivity was appreciated.

Conclusion

Overall, the feedback indicates a strong positive reception towards the pedagogical tools used, particularly the role playing pedagogy and the data structures visualization tools. These methods were generally seen as highly

effective in enhancing students' understanding of the course material. The few moderate ratings suggest that while the tools are effective for most, there may be opportunities to further refine and adapt these methods to cater to all students.

Students Feedback Summary of Findings on Instructor's teaching Methods

1. **Effectiveness in Explaining Concepts**:
    - **Extremely Effective**: The majority of students rated the instructor as extremely effective in explaining the concepts of Data Structures and Algorithms.
    - **Very Effective**: A smaller group of students found the instructor very effective.
2. **Approachability and Helpfulness**:
    - **Extremely Approachable and Helpful**: Most students found the instructor to be extremely approachable and helpful.
    - **Very Approachable and Helpful**: Some students rated the instructor as very approachable and helpful.
3. **Overall Teaching Methods**:
    - **Excellent**: The majority of students rated the overall teaching methods (lectures, discussions, practical exercises) as excellent.
    - **Very Good**: A few students rated the teaching methods as very good.

Detailed Analysis

- **Effectiveness in Explaining Concepts**:
    - **Extremely Effective**: This was the predominant rating, indicating that students felt the instructor was highly effective in conveying the course material.
    - **Very Effective**: A smaller portion of students found the instructor very effective, suggesting a generally high level of satisfaction with the instructor's explanations.
- **Approachability and Helpfulness**:
    - **Extremely Approachable and Helpful**: The majority of students felt that the instructor was very accessible and supportive, which is crucial for a positive learning experience.
    - **Very Approachable and Helpful**: Some students rated the instructor slightly lower but still positively, indicating a strong overall perception of the instructor's approachability.
- **Overall Teaching Methods**:
    - **Excellent**: Most students rated the teaching methods as excellent, reflecting a high level of satisfaction with the instructional strategies used in the course.
    - **Very Good**: A few students rated the methods as very good, suggesting that while the teaching methods were effective, there might be minor areas for improvement.

Conclusion

The feedback indicates a very positive reception towards the instructor's teaching methods. The instructor was generally seen as highly effective in explaining concepts, very approachable, and supportive. The overall teaching methods were rated as excellent by most students, with a few suggesting they were very good. This feedback highlights the instructor's strong impact on the students' learning experience and suggests that the teaching methods used were well-received.

The sample video for the Role play pedagogy were uploaded on youtube and also posted on linked in for public domain reach.

Post 1 :

Data Structure : Role Play in Teaching Learning

Title: Airport Runway Management System Using Queue | B.Tech.(CS) Second Year Role Play Project

Description:

Welcome to our latest video showcasing an Role Playing model project by the second year B.Tech Computer Science students !

In this video, you'll see a detailed demonstration of the "Airport Runway Management System using Queue," a project developed as part of their Teaching Learning Pedagogy. This group assignment challenged students to identify and implement a linear data structure, and they chose to tackle the complexities of airport runway management using queues.

What to Expect:

- An introduction to the project and its objectives.
- A step-by-step walkthrough of how queues are used to manage runway scheduling and prioritization.
- Insights into the challenges faced and solutions devised by the students.
- Real-world applications and the importance of efficient data structures in software development.

Join us as we dive into this fascinating project and celebrate the creativity and technical skills of our students. Don't forget to like, comment, and subscribe for more exciting content!

Your positive comments and advice will encourage the students to do more such activities.

You tube Video Link:

Linked in Post Link:

Post 2 :

Data Structure: Role Play in Teaching Learning

Title: Music Playlist Management System Using Doubly Linked List | B.Tech.(CS) Second Year Project

Description:

Welcome to our latest video featuring an innovative project by the second year B.Tech Computer Science students!

In this video, you'll witness a comprehensive demonstration of the "Music Playlist Management System using Doubly Linked List," a project developed as part of their Teaching Learning Pedagogy. This group assignment tasked students with identifying and implementing a linear data structure, and they chose to explore the intricacies of managing a music playlist using a doubly linked list.

What to Expect:

- An introduction to the project and its objectives.
- A detailed walkthrough of how doubly linked lists are used to manage playlist operations such as adding, removing, and navigating through songs.
- Insights into the challenges faced and the innovative solutions devised by the students.

- Real-world applications and the significance of efficient data structures in software development.

Join us as we delve into this exciting project and celebrate the creativity and technical prowess of our students. Don't forget to like, comment, and subscribe for more inspiring content!

You tube Video Link:

Linked-in Post Link:

Post 3 :

Data Structure: Role Play in Teaching Learning

Title: Blog Post Management Using Singly Linked List | B.Tech.(CS) Second Year Project

Description:

Welcome to our latest video showcasing an innovative project by the second-year B.Tech Computer Science students!

In this video, you'll see a detailed demonstration of the "Blog Post Management using Singly Linked List," a project developed as part of their **Teaching Learning Pedagogy**. This group assignment challenged students to identify and implement a linear data structure, and they chose to manage blog posts using a singly linked list.

What to Expect:

- An introduction to the project and its objectives.
- A step-by-step walkthrough of how singly linked lists are used to manage blog post operations such as adding, removing, and navigating through posts.
- Insights into the challenges faced and solutions devised by the students.

Join us as we dive into this fascinating project and celebrate the creativity and technical skills of our students. Don't forget to like, comment, and subscribe for more exciting content!

You tube Video Link:

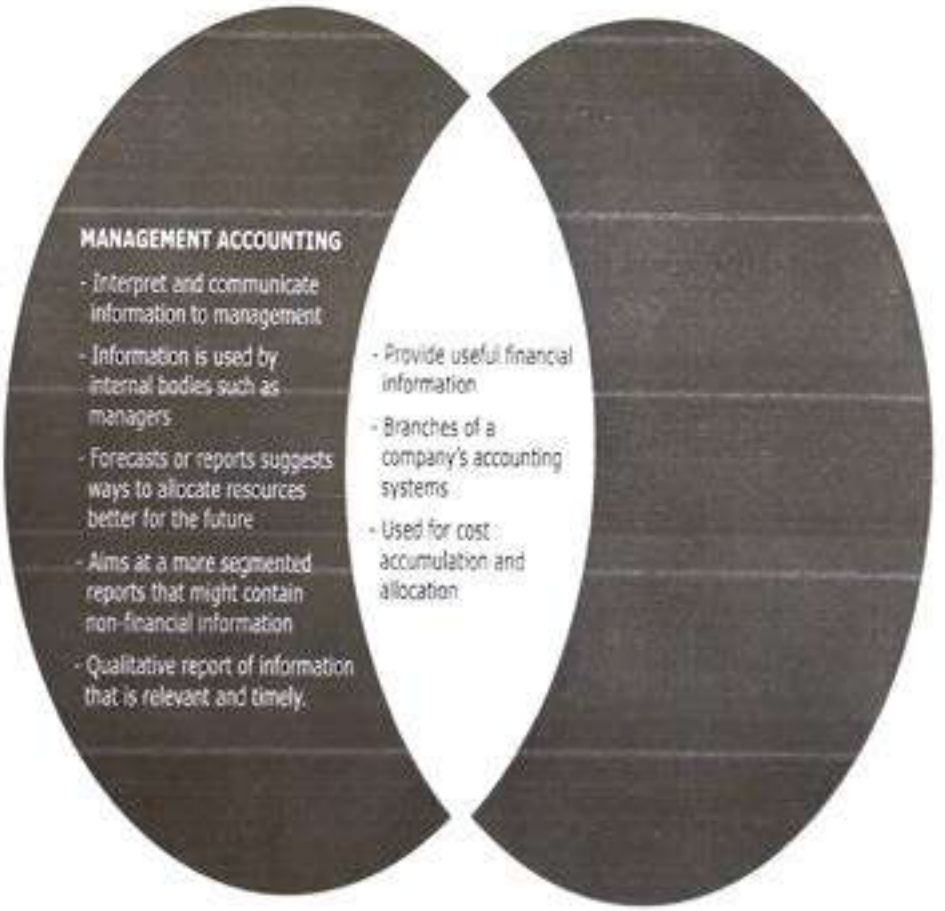
Linked-in Post Link:

INNOVATIVE PEDAGOGIES ADOPTED –

Management Accounting for Engineers

1. Power Point Presentations

Normally the introduction portion and the basic concepts of every chapter/unit is explained with the help of PPT on the Smart Boards installed in the class rooms. Many a times the slides of PPT are carefully designed so that students can easily understand the concept and remember it. A model slide is presented below which explains the concepts of Management Accounting and Financial Accounting, Differences between them as well as similarities between the two.



2. Case Studies

Accounting is a practical subject, and students need to see the real-world applications of various principles to gauge their importance and application. Hence, it is very common that I discuss real life as well as hypothetical case studies related to the topic of discussion in the classroom. A model example of case study on decision making is given below, where the student is asked to take a decision as to which product should continue/discontinue with sufficient justification.

Continue/Discontinue a Product – A Case Study

SELLING PRICE	20000	22000	42000
VARIABLE COST	17000	13000	30000
FIXED COST	5000	5000	10000
PROFIT	-2000	+4000	+2000

3. Peer Tutoring

Here the teacher sets a difficult quiz and then forms groups according to students' performance in the quiz. Each group has 3/4 students: one academically advanced; one average and one slow learner. These students then work in their groups and teacher can supervise them during the lesson. Later on these students continue to work in their groups even outside class timings and a considerable amount of improvement can be noted in the exam results of the slow learner and the average students.

4. Group Projects/Research Papers

Preparation of Research/Review Paper/Article/Case Study

Students are required to come up with a suitable topic/area of their interest, which is related to the subject. They have to get the topic approved. After that they are told to review the available literature on the area of research and write the paper.

Abstract

Introduction

Background of the Company

5. Active learning techniques

Active learning is a method of learning in which students are actively or experientially involved in the learning process. The following learning techniques will be adopted for the course:

1. **Muddiest topic:** Faculty will find out the least understood point/topic in the session. This topic is then further explained to ensure that it is understood well.
2. **The "One Minute Paper":** The faculty will ask students to take out a blank sheet of paper, pose a question (either specific or open-ended), and give them one (or perhaps two - but not many) minutes (s) to respond.
3. **Wait Time:** Rather than choosing the student who will answer the question presented, this variation has the faculty waiting before calling on someone to answer it.
4. **Blended Learning:** Students will be introduced to the topic at home while the in-depth topics, applications, and numerical problems will be discussed by the faculty in the lecture session. An outline for a preliminary study to be done for each unit will be provided before the commencement of each unit. Preliminary study material (video links, presentation, notes, etc) will be made available on the student portal.
5. **Frame a question:** Students will be asked to design and frame their questions about the topic being taught. The idea is to stimulate students' curiosity, engage the students in collaborative teaching and learning, and motivate students to develop a deeper understanding of the topic.
6. **Brainstorming:** Students will be asked to generate ideas on a certain topic, category, or question while the faculty will facilitate and record the answers on the blackboard/whiteboard.

6. Course Policy and Teaching Plan

A well designed course policy which includes the teaching plan of the course along with CO-PO mapping, details of internal assessment components along with submission deadlines are being shared among the students at the beginning of the semester so as to make things clear as to how the course will continue.

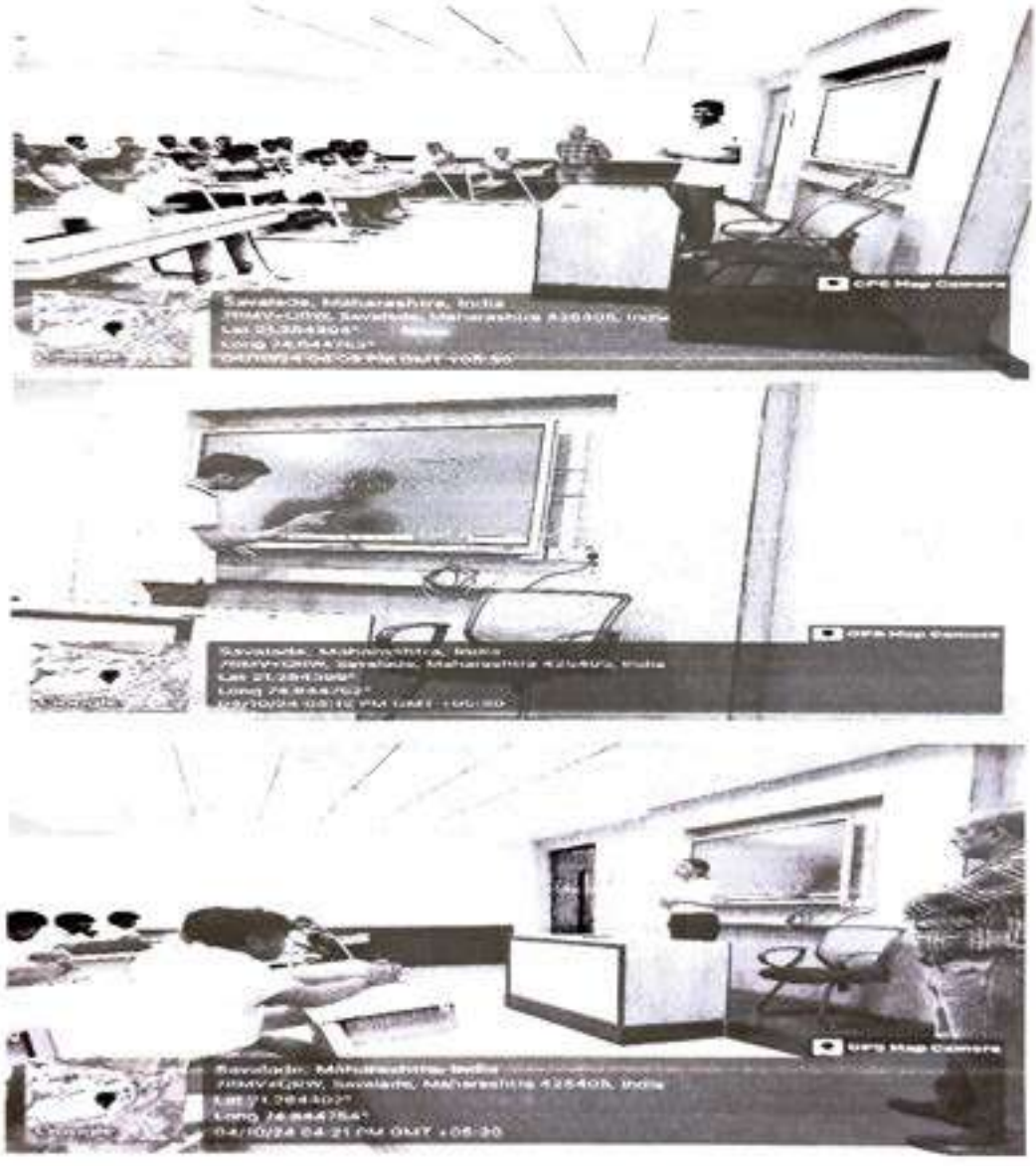
7. Remedial Classes

Weak students are supported through remedial and extra classes and they are encouraged to attend those sessions actively to improve their academics.

The time-table and online link shared with students for remedial classes during June 2023 is given below:

S.N	Subject Name	Program Name	Degree	Semester	Course Coordinator	Session 1				Session 2				Session 3				Session 4			
						Faculty Conducting Remedial Class	Date of Session 1 Class	Time	Link for the Class	Faculty Conducting Remedial Class	Date of Session 2 Class	Time	Link for the Class	Faculty Conducting Remedial Class	Date of Session 3 Class	Time	Link for the Class	Faculty Conducting Remedial Class	Date of Session 4 Class	Time	Link for the Class
	Management Accounting for Engineers	[illegible]	[illegible]	Semester [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Prof [illegible]	[illegible]	[illegible]	[illegible]

8. **Flipped Classroom Pedagogy:** Flipped Classroom Pedagogy: This method focuses on activity-based learning in the classroom, where students participate in discussions and analysis after completing self-study. In a flipped learning model, traditional classroom instruction is reversed—students are introduced to the material before class, while class time is dedicated to deepening their understanding through peer discussions and problem-solving activities. Students are expected to prepare, present topics from the current or previous week, and address questions from their classmates. This approach proved highly effective, especially since it was part of an internal assessment worth 10 marks.



8. Academics beyond Curriculum

Bright students are encouraged to go for extra courses from SWAYAM, NPTEL, and Courseera etc. and to right research papers in journals.

Journal of Economic Policy & Research
[illegible]

Impact of Macroeconomic Variables on the Performance of Mutual Funds: A Selective Study

Ashok Panigrahi[1]
Pradhum Karwa[2]
Puskin Joshi[3]

Abstract

Over the period, investment in mutual fund has played an important role in the financial market and its popularity has increased at a very fast rate. India has seen a phenomenal growth in both the number and size of diversified equity mutual funds in recent years. [illegible] The purpose of this study is to examine the impact of economic events on the risk-adjusted return performance of mutual funds in India. The study sought to establish the effect of macroeconomic variables on financial performance of selected mutual funds in India. [illegible] Equity Fund and HDFC Equity Fund. The research concludes that the influence of macroeconomic variables is about 52% on the performance of Mutual Funds.

Keywords: [illegible] Exchange Rate, Inflation Rate, Interest Rate, Mutual Fund, NAV, Performance

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Introduction

[illegible]

[1] Associate Professor, [illegible] NMIMS University, Mumbai and can be reached at [illegible]
[2] Student, NMIMS University, Mumbai and can be reached at [illegible]
[3] Student, NMIMS University, Mumbai and can be reached at [illegible]

NMIMS MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING

Department of Computer Science

Academic Year	: 2021-22	Sem	: VI
Class	: B Tech		
Subject	: Advanced Database Management System		

Buddy Class Pedagogy Activity

Name of the course: Advanced Database Management System
Year of Study: B Tech
Academic Year: 2021-22

Buddy class pedagogy is a student-centred approach that promotes active learning, peer support, and social interaction. It aims to create a collaborative classroom environment where every student can thrive academically and socially.

Following students participated in activity

Roll No	NMIMS ID	NAME	Sign
B[illegible]	[illegible]	[illegible] ARYAN ARVIND KUMAR	
B[illegible]	[illegible]	[illegible] KOLHE PRANAV	
B[illegible]	[illegible]	[illegible] [illegible]	
B[illegible]	[illegible]	[illegible] [illegible] TANVI	
B[illegible]	[illegible]	AGARWAL RAGHAV	
B[illegible]	[illegible]	GARG YASH	
B[illegible]	[illegible]	SINGH SUYASH	
B[illegible]	[illegible]	ARORA DISHIKA	

Tasks assigned were (MUDB, Parallel and distributed database)

Outcome of the activity:

- Create a collaborative classroom environment.
- Weak students will be able to understand the concepts without any hesitation they can clear their doubts from fast learner.

Prof. Varsha Nemade

Subject Teacher

Pedagogical Tool: Subject "Elements of Biology"

Objectives of the Pedagogy:

1. To provide students with an understanding of biomimicry and its relevance in solving real-world engineering challenges.
2. To foster interdisciplinary thinking by connecting biological principles with engineering innovation.
3. To equip students to develop engineering solutions inspired by nature's designs.

Pedagogy Name and Implementation Plan:

Topic: Biomimicry – Engineering Solutions Inspired by Nature

Learning Outcomes:

CO1: Identify key principles of biomimicry and develop engineering solutions for different fields.

Materials Needed:

- Smartboard
- Laptops/PCs with internet access
- Sample materials for hands-on projects (e.g., 3D printing tools, paper, or simple mechanical tools)
- Case study examples (e.g., Velcro, termite mounds for cooling systems, kingfisher-inspired trains)

Proof: Presentation given by the students

Implementation Plan:

Teacher Activity

1. **Introduction (10 minutes):**
   - **Concept Explanation:** Explain biomimicry using everyday examples, such as Velcro (inspired by burdock burrs) and wind turbines inspired by whale fins. Use diagrams and videos to illustrate.

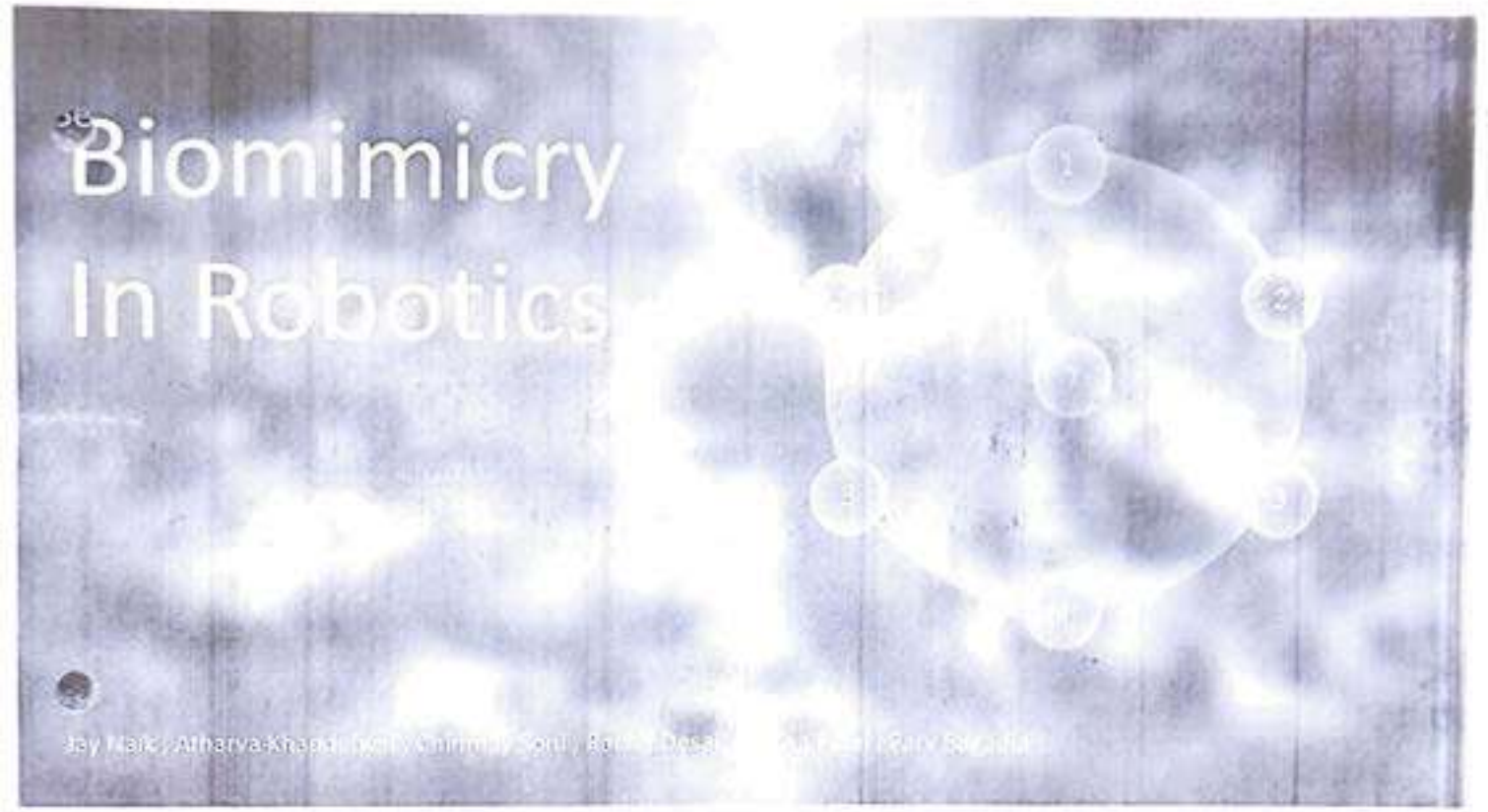
     Proof https://www.youtube.com/watch?v=XDeRLJYXSv0

Student Activity

2. **Think (10 minutes):**
   - **Individual Reflection:** Students brainstorm examples of natural phenomena they have observed that could inspire engineering solutions.

Proof: Case Study: The Kingfisher's beak inspired high-speed Bullet trains.

Biomimicry In Robotics




Introduction


Natur
Partnership


Bio-Inspired
Locomotion

Bio-Inspired Locomotion

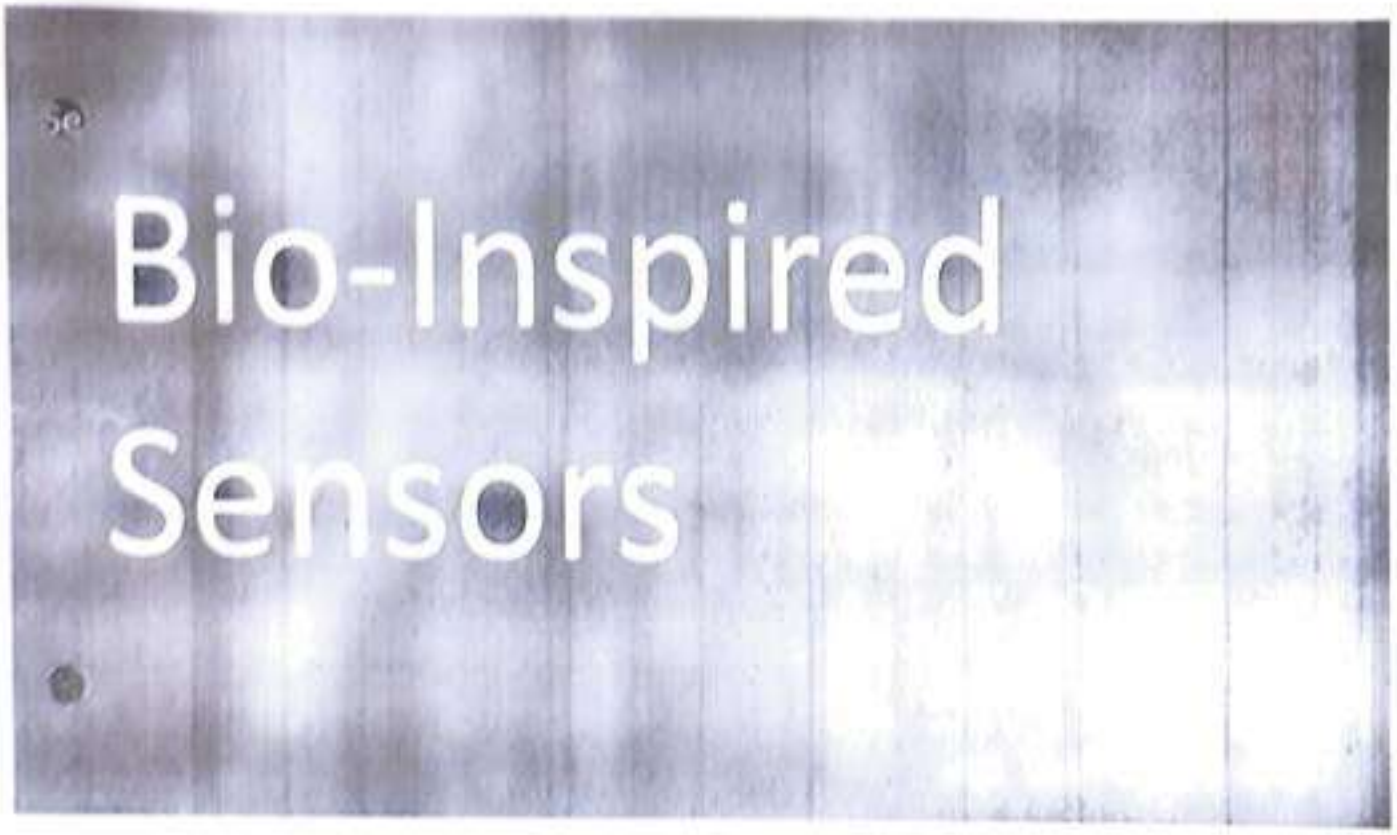
Cheetah-Inspired Robots: Unleashing Unrivaled Speed and Agility

Search & Rescue: Reaching Victims in Peril

Disaster Relief: Navigating Hazardous Terrains

Speedy Delivery: Redefining Logistics

The Future of Robotics: Inspired by Nature's Fastest


Bio-Inspired
Sensors

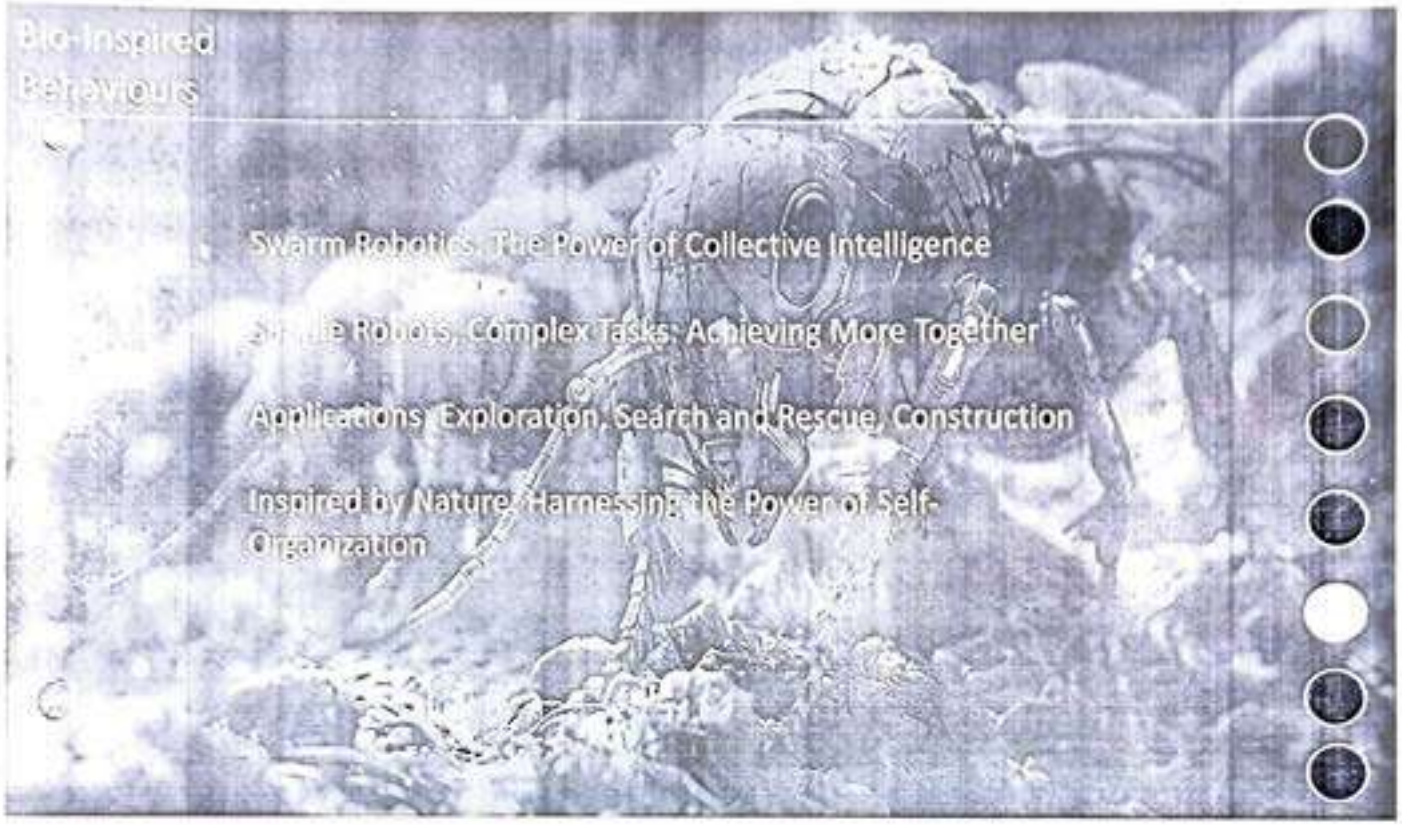
Bio-Inspired Sensors

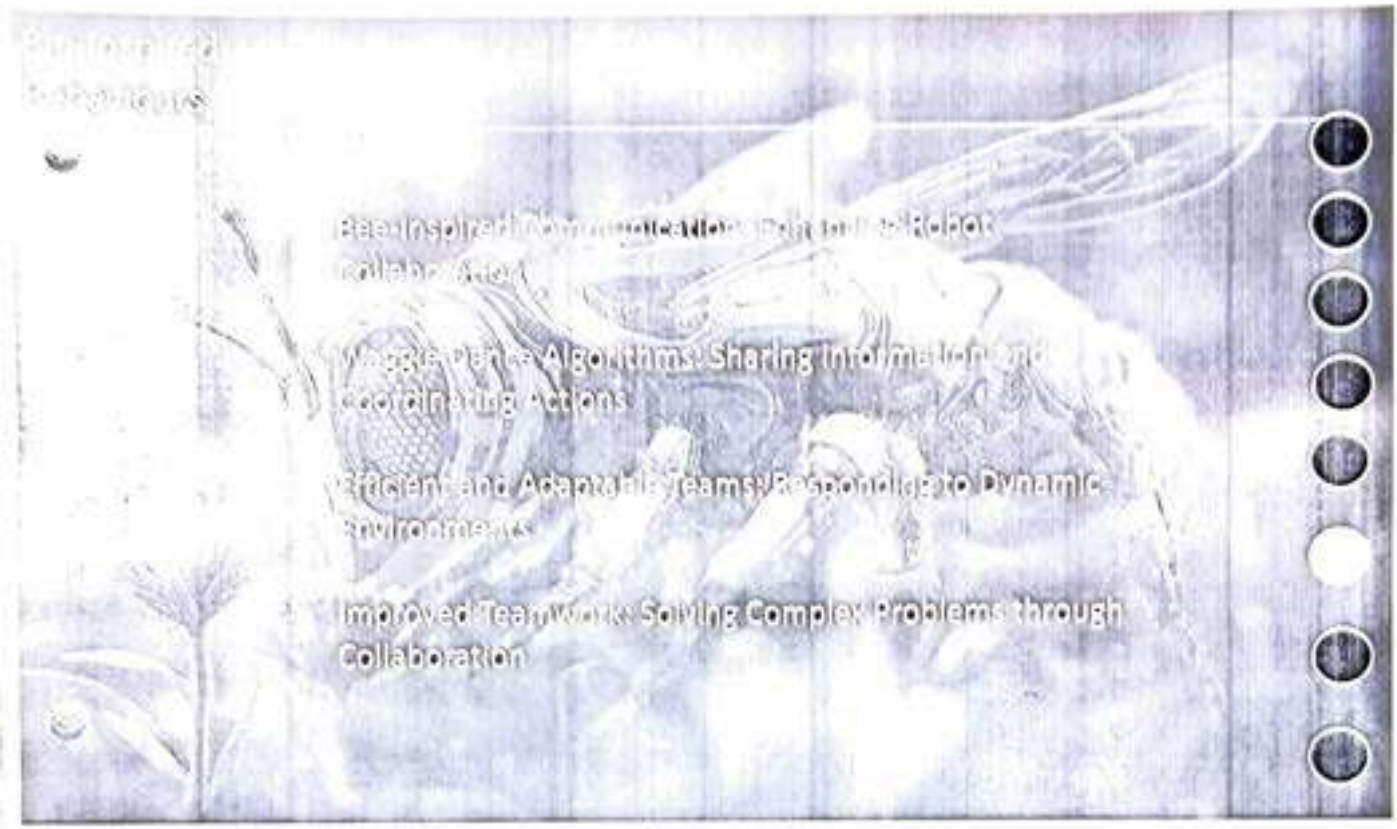
Insect-Inspired Cameras: A Wider View for Robots

Compound Eye Cameras: Replicating Nature's Design

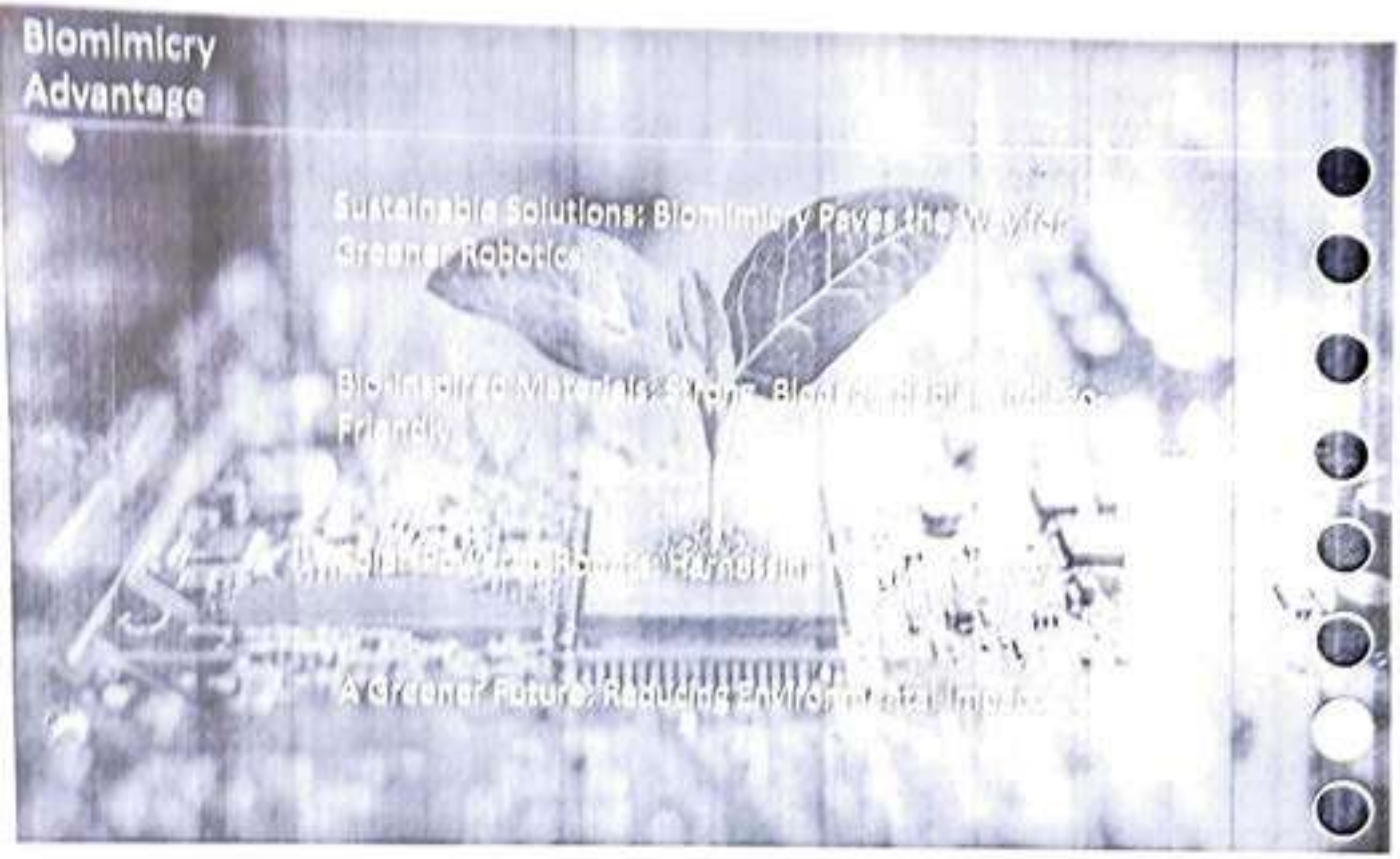
Enhanced Vision: Wide Field of View, Motion Tracking, UV Sensitivity

Applications in Robotics: Surveillance, Object Tracking, Autonomous Vehicles


Bio-Inspired Behaviours
Swarm Robotics: The Power of Collective Intelligence
Simple Robots, Complex Tasks: Achieving More Together
Applications: Exploration, Search and Rescue, Construction
Inspired by Nature: Harnessing the Power of Self-Organization




Biomimicry Advantage
Nature's Efficiency, Reimagined: Bio-inspired robots outperform traditional designs.
Billions of Years of R&D: Leveraging nature's optimized solutions.
Flight of Fancy: Bird-inspired drones achieve longer flight times and reduced environmental impact.
Graceful Gliders: Fish-inspired robots explore further with enhanced energy efficiency.


Biomimicry
Advantage


Challenges and Future Decisions
Replicating Nature's Complexity: A Formidable Challenge
From the Human Hand to Bird Flight: Mimicking Sophisticated Systems
Advanced Materials and Algorithms: The Tools of Bio-Inspired Robotics
A Journey of Discovery: Pushing the Boundaries of What's Possible


Challenges and Future Decisions
The Future of Biomimicry: Unleashing the Next Generation of Robots
Swarm Robotics: The Power of Collective Intelligence
A Bright Future: Limitless Possibilities

Tania Bagulia

Case Study

a) The Kingfisher beak inspired | high-speed bullet train

Background

The Kingfisher Japanese Shinkansen, or bullet train, initially faced a problem of loud noise when exiting tunnels due to air pressure changes. Engineers turned to biomimicry, studying nature to solve the issue. The Kingfisher bird, known for it's silent water dives, became the inspiration for redesigning the bullet train's nose.

Working

The Kingfisher's streamlined beak allows it to dive silently & smoothly. Engineers redesigned the bullet train's nose for a similar ~~nose~~ shape, reducing air resistance & noise. Other natural references include owl's silent flight & penguin's body for sleek design.

Advantages

(i) Reduced noise - The Kingfisher - inspired ~~nose~~ nose minimized tunnel boom.

(ii) Increased speed & efficiency: Improved aerodynamics led to better fuel efficiency & higher speeds.

(iii) Energy savings - The designs reduced power consumption by cutting air resistance.

Tanvi N. Bagade
E-224

22/07/2024

Case Study - 2

Breaking the Storage Barrier by Storing massive amounts of Data in DNA

Background:- Data generation has exploded in the last few decades, with estimates of data ~~creation~~ 463 exabytes (10^{18} bytes) of Data daily by 2025. Current Data storage methods, such as hard disks, magnetic tapes, chips etc. face several challenges, like having limited capacity, degradation over time, & consume a lot of raw material & physical space which is trouble in managing them. For ex- large data centres occupy vast real estate, require cooling systems etc. Since there are such problems we are trying to use DNA as a storage medium.
Scientists have discovered an alternative, which is DNA. It is incredibly dense & stable & has the capacity to store 215 petabytes of Data in 1 gram of ~~tissue~~ DNA. Since it is in all biological organisms, we have close to unlimited source of DNA & DNA can also last till 10,000s of years.

Working:- DNA storage works by encoding digital information in the 4 letter genetic Alphabet of DNA - A, G, C, T.

1) Binary to DNA - Digital Data which is in Binary (0s & 1s) is converted into A, G, C, T.
2) DNA Synthesis - Once Data is ~~encoded~~ converted, it is synthesized into DNA by chemical process.
3) DNA Storage - Since DNA is very Dense, it is stored in small containers like a tiny vial.
4) Reading Data - To retrieve data, sequencing technology reads the DNA sequence & converts them back into binary code which is interpreted by computer.

Advantages:- 1) High Density - DNA offers a storage density which is far better than current method. A warehouse sized data centre's worth of data could theoretically fit in a jar of DNA.
2) Longevity - DNA can last upto thousands of years if kept in cool, dry environment

Assessment Rubrics:

Criteria	Description	Marks
Understanding of Topic (5 Marks)		
Poor (0-20%)	Minimal understanding of the topic lacks clarity and depth.	0-1
Fair (21%-50%)	Basic understanding with some clarity but lacks depth and analysis.	2
Good (51%-80%)	Good understanding with clear explanations and some depth.	3-4
Excellent (81%-100%)	Comprehensive understanding with in-depth analysis and clarity.	5
Originality of Work (2 Marks)	Work is mostly copied or lacks originality.	0-2
Involvement and Effort (2 Marks)	Demonstrates minimal effort and engagement.	0-2
Timely Completion (1 Mark)	Submission is late.	0-1

Pedagogy Evidence Report

Btech CS AY-2022-23

Course Name: Human-Computer Interaction

Topic: Future of HCI

Date:- 16/12/2022

Objectives of the Pedagogy

- Address course outcomes related to understanding advancements in HCI technologies.
- Enable students to explore futuristic trends like brain-computer interfaces, AR/VR, and AI in HCI.
- Encourage critical thinking, communication skills, and teamwork through discussions and activities.

Pedagogy Name: Think-Pair-Share with Scenario Analysis

Implementation Plan

Teacher Activity

1. **Introduction**
   - Brief overview of the evolution of HCI.
   - Discuss emerging trends, including voice interfaces, AI-driven personalization, and non-traditional input methods (e.g., neural interfaces).
   - Present key challenges and opportunities in the future of HCI.

Student Activity

2. **Think (10 minutes)**

- Reflect individually on potential HCI applications in the next 10 years.
- Questions to consider:
  - What new technologies might emerge in HCI?
  - How can HCI address accessibility and inclusivity?

Student Activity

3. **Pair (10 minutes)**

- Collaborate in pairs to discuss ideas and compare insights.
- Develop a short scenario showcasing a futuristic HCI application (e.g., using AR for remote education or neural interfaces for healthcare).

Student Activity

4. **Share (10 minutes)**

- **Future Scope**: AI-powered interfaces that predict user needs and enhance accessibility.

3. IoT-Based Home Appliances(B237-to B242)

IoT is transforming smart homes, making daily tasks more efficient. Insights from discussions:

- **Smart Home Automation**: Devices like smart thermostats, lighting, and security systems that can be controlled remotely.
- **Energy Efficiency**: IoT devices help optimize energy consumption by monitoring usage patterns.
- **Security Concerns**: Potential risks of hacking and data breaches in interconnected devices.
- **Future Developments**: Integration of AI for predictive maintenance and self-learning home systems.

4. HCI for Disabled People(B244-54)

HCI has been instrumental in improving accessibility for disabled individuals. Key insights:

- **Assistive Technologies**: Voice-controlled interfaces, eye-tracking systems, and brain-computer interfaces enhancing accessibility.
- **Adaptive UI**: Customizable interfaces tailored to users with different disabilities.
- **Challenges**: High costs of assistive technologies and lack of standardization.
- **Future Possibilities**: AI-driven assistive tools with improved real-time responsiveness.

5. Robotics and UI(B254-B270)

The role of robotics in UI design and automation was another focal point. Discussions highlighted:

- **Human-Robot Interaction (HRI)**: Advanced UI for smoother interaction between humans and robots.
- **Industries Benefiting from Robotics**: Healthcare (surgical robots), manufacturing (automation), and service industries (AI-driven assistants).
- **Challenges**: Ethical concerns, job displacement, and need for more intuitive UI designs.
- **Future Trends**: AI-driven robots capable of real-time decision-making and adaptive learning.

Present students: All Present *

*Students were already being informed to attend this activity as it had importance.

Name	Roll No	Sign
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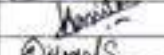
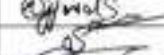
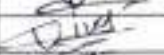
LAXITAJAIN	E202	
UJJWALSEN	E203	
SHASHANK	E204	
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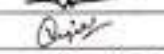
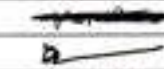
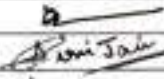
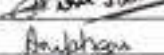
TANISHQNANDWANA	E211	
DHYANISHAH	E212	
VINAYAKGIRI	E213	
SRIKARMOLAHALLI	E214	
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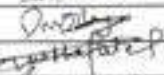
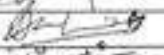
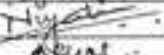
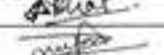
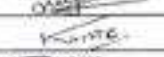
ANUBHAVMISHRA	E219	
VISHAKHAKHETAN	E220	
MRNISH[illegible]T	E222	
OMDHANWAR	E223	
GAATHAPATEL	E224	
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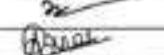
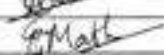
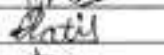
NIYATISABALPARA	E226	
SIDDHANTGHAT	E227	
MEETALLANGI	E228	
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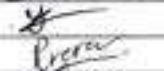
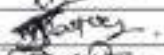
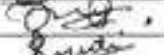
KARTIKTIWARI	E230	
PRINCERO	E231	
ARNABCHAKRADHURY	E232	
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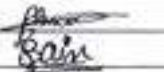
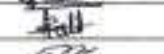
LOKESHPATIL	E234	
DESHNASHETTI	E236	
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VYOMADHYARU	E267	
PRAKRATIJAIN	E268	
SOHAMLASHKARY	E269	
VRINDRAJVANSHI	E271	
NIKHILMEHTA	E272	
YANSHUBARIA	E274	
ANKITJANGID	E275	
ARNAVJAIN	E276	
JAINISHDEVPURA	E277	
JAYESHPAWAR	E278	
KESHAVGUPTA	E279	
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PEDAGOGICAL ACTIVITY

CLASS : BTECH CS SEM IV , AY 2024-25 ,TERM-I

FACULTY:- DR.DEEPTI BARHATE

DATE: 20 Sept 2024

SUB:-COMPUTER NETWORK

Topic: Understanding Different Types of Protocols in Networking (e.g., HTTP, FTP, TCP, UDP, IP)

Objective:

The objective was to help students understand the various protocols used in networking, their purposes, and how they function within the OSI and TCP/IP models.

Materials Needed:

1. Smartboard
2. Laptop/PC
3. Internet access
4. Packet sniffing tools (e.g., Wireshark)
5. Examples of network communication (e.g., accessing a webpage, FTP file transfer)

Introduction (10 minutes)

- **Concept Explanation:**
  - The teacher introduced common networking protocols (e.g., HTTP, FTP, TCP, UDP, IP).
  - The teacher explained the purpose of each protocol:
    - **HTTP (Hypertext Transfer Protocol):** Used for web communication.
    - **FTP (File Transfer Protocol):** Used for file transfer.
    - **TCP (Transmission Control Protocol):** Provides reliable, connection-based communication.
    - **UDP (User Datagram Protocol):** Provides connectionless, faster communication without guaranteed delivery.
    - **IP (Internet Protocol):** Handles addressing and routing of packets.
- **Visual Demonstration:** The teacher used diagrams of the OSI and TCP/IP models to show where each protocol functions within the layers.

Student Activity: 2. Think (10 minutes)

- **Individual Reflection:**

List of students : Activity based Assignment (pedagogy)

YASHASVI E WANKHADE	E201	9
LAXITA JAIN	E202	9
UJJWAL SEN	E203	7
SHASHANK	E204	8
VIVEKKUMAR	E205	8
NEHA MOR	E208	8
SAMYAK PADLIYA	E210	7
TANISHQ NANDWANA	E211	7
DHYANI SHAH	E212	8
VINAYAK [illegible]RI	E213	7
SRIKAR MA[illegible]AHALLI	E214	9
LAVESH PA[illegible]	E215	9
AVNI JAIN	E217	8
ANUBHAV MISHRA	E219	7
VISHAKHA KHETAN	E220	7
M RNISHA[illegible]	E222	8
OMDHAN[illegible]R	E223	8
GAATHAP[illegible]EL	E224	7
SOWPARN[illegible]ASELVANAYAGAM	E225	7
NIYATI S[illegible]ALPARA	E226	8
SIDDHANT[illegible]IAT	E227	8
MEETALI[illegible]NGI	E228	8
DIVYANSH[illegible]KUMBE	E229	8
KARTIKE[illegible]ATI	E230	8
PRINCE RA[illegible]	E231	8
ARNAB CH[illegible]DHURY	E232	8
GAURIM[illegible]ER	E233	8
LOKESH P[illegible]	E234	9
DESHNA[illegible]CHETI	E236	8
YASHGE[illegible]T	E237	8
PRANAV[illegible]TRI	E238	8
JAYPATE[illegible]	E239	7
ROHAN PA[illegible]ER	E242	8
SHRUTIM[illegible]RA	E243	8
ROUNAK K[illegible]MA	E244	9
SAMRUDD[illegible]DAIN	E245	8
ASHMIT[illegible]	E246	8
PINAKSA[illegible]KE	E247	8
ARPITA G[illegible]SE	E248	8
KRISHPR[illegible]PATI	E249	8
ABHIJIT[illegible]E	E251	8
AVNI GUP[illegible]	E252	8
ANSHUL S[illegible]SHRAJPUT	E253	8
ATHARV P[illegible]POHIT	E254	8
NINAD CH[illegible]AN	E255	7
MANAS S[illegible]DEEPBORSE	E257	8