LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Report on "24 Hour Hackathon on MERN Full Stack Technologies"

Event Type : Hackathon

Date : **19th October to 20th October 2024**

Venue : SRK Hall, 2nd Floor Admin Block.

Chief Guest : Mr. P. Vishnu Vardhan Reddy, Vendor Manager, GSPANN Technologies, Hyderabad.

Name of the Convener(s) :
Dr. D. Veeraiah, Professor & HOD, Dept. of CSE
Dr. O. Rama Devi, Professor & HOD, Dept. of AI&DS
Dr. S. Jayaprada, Professor & HOD, Dept. of CSE (AI&ML)

Name of the Coordinator(s):
Dr. Y. Vijaya Bhaskar Reddy, Professor, CSE
Dr. S. Nagarjuna Reddy, Associate Professor, CSE
Mr. N. Srinivasa Rao, Sr. Assistant Professor, CSE
Mr. S. Srinivasa Reddy, Sr. Assistant Professor, CSE
Mr. K. Venkatesh, Sr. Assistant Professor, AI&DS
Mrs. Razeena Begum, Sr. Assistant Professor, CSM

Name of the Co-Coordinator(s):
Mr. T. N. V. S Praveen, Sr. Assistant Professor, CSE
Mr. A. Gopi Suresh, Sr. Assistant Professor, CSE
Ms. P. Sarala, Sr. Assistant Professor, CSE
Mr. N. Srikanth, Sr. Assistant Professor, CSE
Mr. A. Koteswar Rao, Assistant Professor, CSE
Mr. J. Nagaraju, Assistant Professor, CSE

Targeted Audience : B.Tech III Sem CSE, AI&DS and CSE (AI&ML)

Total No. of Students : 57 Batches (280 Students)

Objective of the Event:

This program aims to empower III Year students of CSE, AI&DS and CSE (AI&ML) participants to innovate and apply technical skills by building impactful web applications. Through hands-on experience with MERN Stack (MongoDB, Express.js, React.js, Node.js) and collaborative problem-solving, participants will develop solutions to real-world challenges. This event encourages creativity, teamwork, and technical growth, with the goal of producing functional and scalable projects that demonstrate each team's skill in full-stack development.

About event:

GSPANN Technologies has crafted an intensive 7-phase Hackathon to help students translate technical knowledge into impactful projects. With a focus on teamwork, innovation, and practical application, this structured program provides students with a complete experience, from project ideation to deployment. Below is an overview of the key phases:

Project Description: Full Stack Social Media Platform

Project Overview

Create a fully functional social media platform where users can register, create profiles, post updates, follow other users, and like/comment on posts. The platform will also include an admin panel for managing users and posts. This project will leverage the full stack of technologies outlined, providing hands-on experience with both front-end and back-end development, API design, DevOps, and testing.

Key Features

1. **User Authentication and Authorization**
    - Users can register and log in using JWT-based authentication.
    - Admin users can manage platform content.
2. **User Profiles**
    - Users can create and update their profiles with a profile picture, bio, and personal information.
3. **Posts**
    - Users can create, edit, and delete posts.
    - Users can like and comment on posts.
4. **Following System**
    - Users can follow and unfollow other users.
    - Users can see posts from users they follow in their feed.
5. **Notifications**
    - Users receive notifications for likes, comments, and new followers.
6. **Search Functionality**
    - Users can search for other users and posts.
7. **Admin Panel**
    - Admins can manage users and posts, including deleting inappropriate content.

Technology Stack

Front-End Development

1. **React.js**
   - Build dynamic user interfaces for the platform.
2. **JSScript**
   - Ensure type safety and scalability of the front-end codebase.
3. **Redux**
   - Manage the application state, such as user authentication and posts.
4. **Context API & Hooks**
   - Handle local component state and context.
5. **Tailwind CSS**
   - Style the application with utility-first CSS.

Back-End Development

7. **Node.js**
   - Build the server-side of the application.
8. **Express.js**
   - Create RESTful APIs for the platform.
9. **MongoDB**
   - Store user data, posts, comments, and likes.
10. **Mongoose**
   - Model and interact with the MongoDB database.

API Design and Management

11. **RESTful Services**
   - Create endpoints for user registration, login, post management, etc.
12. **GraphQL**
   - Implement GraphQL to fetch complex data requirements efficiently.

DevOps and Deployment

13. **Docker**
   - Containerize the application for consistent environments.
14. **GitHub Actions**
   - Implement CI/CD pipelines for automated testing and deployment.
15. **AWS*
   - Deploy the application on a cloud platform for scalability and reliability.

Testing

16. **Jest**
   - Write unit tests for the front-end and back-end logic.
17. **Cypress**
   - Perform end-to-end testing of the user interface and interactions.

Project Structure

1. **User Registration and Authentication**
   - Set up JWT authentication and create registration and login pages.
   - Use Redux to manage authentication state.
2. **User Profiles**
   - Create profile pages using React and Tailwind CSS.
   - Implement profile editing functionality with Context API and Hooks.

3. **Posts**
    - Design a post schema in MongoDB using Mongoose.
    - Build endpoints to create, read, update, and delete posts with Express.js.
    - Display posts on the front-end with React and manage state with Redux.
4. **Following System**
    - Implement follow/unfollow functionality in the back-end.
    - Update the user feed to display posts from followed users.
5. **Notifications**
    - Create a notification system to inform users of interactions.
6. **Search Functionality**
    - Add search capabilities to find users and posts.
7. **Admin Panel**
    - Build an admin dashboard to manage users and posts.
8. **CI/CD and Deployment**
    - Set up Docker for containerization.
    - Use Jenkins or GitHub Actions for continuous integration and deployment.
    - Deploy the application to AWS, Azure, or Google Cloud.
9. **Testing**
    - Write unit tests using Jest for both front-end and back-end.
    - Perform end-to-end testing using Cypress to ensure application functionality.

Phases in Hackathon for Building a Social Media Web App:

Phase 1: Ideation and Planning

- **Objective**: Define the purpose, unique features, and target audience of the social media app.
- **Tasks**: Brainstorm ideas, outline core functionalities (e.g., user profiles, posts, messaging), and decide on app design elements.
- **Outcome**: A clear project plan with feature prioritization and a timeline.

Phase 2: Design and Wireframing

- **Objective**: Visualize the app's layout and user experience.
- **Tasks**: Create wireframes for main pages (e.g., login, profile, newsfeed), establish UI/UX design guidelines, and decide on color schemes.
- **Outcome**: A set of wireframes or mockups outlining the app's structure and look.

Phase 3: Database and Back-End Development

- **Objective**: Build the app's data storage and management systems.
- **Tasks**: Set up a MongoDB database for storing user data, posts, and interactions; develop the back-end with Node.js and Express.js, including user authentication and data processing.
- **Outcome**: A functional back-end ready to support front-end data requirements.

Phase 4: Front-End Development

- **Objective**: Build the user interface for interactions.
- **Tasks**: Develop the front-end using React.js to create interactive components (e.g., newsfeed, like/comment sections, messaging).
- **Outcome**: A responsive, user-friendly front-end with essential social media features.

Phase 5: Integration and Testing

- **Objective**: Connect the front-end and back-end, ensuring seamless functionality.
- **Tasks**: Integrate API endpoints, test each feature (e.g., user login, data saving), and ensure smooth interactions across the app.
- **Outcome**: A fully integrated app with tested functionalities, ready for demo.

Phase 6: Polishing and Optimization

- **Objective**: Refine the app for performance and user experience.
- **Tasks**: Optimize loading times, improve database queries, enhance UI/UX elements, and fix any remaining bugs.
- **Outcome**: A polished, efficient, and user-ready social media app.

Phase 7: Presentation and Demonstration

- **Objective**: Showcase the project and its features to judges and peers.
- **Tasks**: Prepare a short demo highlighting the app's purpose, core features, and technologies used; explain the development process and answer questions.
- **Outcome**: A compelling presentation of a functional social media web app, ready for feedback and potential deployment.

These phases help teams organize their work, maximize productivity, and deliver a functional app by the hackathon's end.

Conclusion of the Event:

After Completion of 7-phases, expert team has finalized 7- teams based on their Innovative Idea, way of exploration, performing various technical skills, team work, time utilization and consistency of overall activities.

- 2-Team Rewarded as Social media championship Prize with 5000/- rupees in each team.
- 2-Team Rewarded as Consolation Prize with 5000/- rupees in each team.
- 3-Teams Rewarded for III prize with 10000/- rupees in each team.
- 2-Teams Rewarded for II prize with 15000/- rupees in each team.
- 1-Team Rewarded for I prize with 20000/- rupees.

Learning Objective of the event:

- Full-Stack Development Proficiency: Develop hands-on skills in using the MERN stack (MongoDB, Express.js, React.js, Node.js) to build comprehensive web applications, focusing on both front-end and back-end development.

- Project Planning and Execution: Learn how to ideate, plan, and manage the development of a project from concept to completion, including feature prioritization, time management, and workflow optimization.

- Database Design and Management: Gain experience in designing and managing databases with MongoDB, focusing on efficient data structuring for storing user information, posts, and interactions.

- User Interface and User Experience Design: Understand UI/UX principles by designing wireframes and creating an intuitive, user-friendly interface that supports easy navigation and engagement.

- API Integration and Data Flow: Learn to connect front-end and back-end components seamlessly, using APIs to ensure smooth data flow, efficient user authentication, and real-time interactions.

- Debugging and Testing Skills: Improve debugging and testing abilities to identify and fix bugs across front-end and back-end components, ensuring application stability and a positive user experience.

- Collaboration and Communication: Enhance teamwork and communication by working in a group, practicing task delegation, effective communication, and collaboration to achieve shared goals.

- Creative Problem Solving: Apply critical thinking and innovation to address challenges and implement unique solutions that enhance the social media app's functionality and appeal.

- Presentation and Demonstration Skills: Develop the ability to present a project professionally, explain the development process clearly, and demonstrate the app's features effectively to an audience.

- Industry-Relevant Application Building: Gain real-world experience by building an application like those in demand across tech industries, equipping students with valuable skills for future careers in web development.

Description of the event:

Coordinators of the Hackathon, Dr. Y. Vijaya Bhaskar Reddy, Dr. S. Nagarjuna Reddy, Mr. N. Srinivasa Rao, Mr. S. Srinivasa Reddy, Mr. K. Venkatesh, Mrs. Razeena Begum welcomed all the dignitaries and delegates. In their welcome speech, they highlighted the importance and objectives of organizing this Hackathon. Conveners of the Hackathon, Dr. D. Veeraiah, Dr. O. Rama Devi and Dr. S. Jayaprada started their speech by thanking LBRCE Management and congratulating all the participants. Then they thanked the Resource Persons for accepting our request irrespective of his busy schedule. They added the importance of MERN Full Stack Technologies. They suggested all the students utilize this opportunity, which will help them in identifying/doing projects in MERN Full Stack Technologies.

- 24 Hour Hackathon on MERN Full Stack Technologies on 19-10-2024 from 10:00 AM to 20-10-2024 09:00 AM.

Hackathon Participants at SRK Hall


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(AUTONOMOUS)
24 HOURS
HACKATHON On
Hyderabad.


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INSTITUTION'S INNOVATION COUNCIL

24 Hour Hackathon on MERN Full Stack Technologies - Winners List

Roll Number	STUDENT NAME (As per SSC)	Branch	Team Number	Position
22761A0526	KETHAM SANJAY	CSE	A10	1st
22761A0562	VADDEPALLI BHARGAVA RAGHAVA	CSE	A10	
22761A0553	TELUKONTLA SHIVA VENKAT KUMAR	CSE	A10	
22761A05I6	SEETHAMSETTI BHARGAV	CSE	C1	2nd
23765A0516	JARAPALA BALAJI GOPI NAYAK	CSE	C1	
22761A05E2	CHITTURI YASVANTH	CSE	C1	
22761A05E5	DHARANALA SURYA VAMSI	CSE	C1	
23765A0508	G.SHANMUKHSHYAMA SYAM	CSE	B3	2nd
22761A05A2	MARADANI CHANDRA NAGA DEEP	CSE	B3	
22761A0599	MALLAVALLI VICTOR PAUL	CSE	B3	
22761A0586	GUNDUBOINA KRISHNA VAMSI	CSE	B3	
22761A0592	KARRI VENKATA AJAY KUMAR	CSE	B3	
22761A5467	AILURI NITHYA SANTHOSHINI	AI&DS	DS6	3rd
22761A54C3	TALLURI.KEERTHANA	AI&DS	DS6	
22761A54C1	SHAIK SADHIK	AI&DS	DS6	
22761A5479	CHETTUPODILA DINESH	AI&DS	DS6	
22761A5480	CHINTA PRUDHVI SAI RAJ	AI&DS	DS6	
22761A0593	KASAGANI HARSHA VARDHAN	CSE	B4	3rd
22761A05C9	VUSTELA SAI TEJA	CSE	B4	
22761A0582	GODA VAMSI KRISHNA	CSE	B4	
23765A0511	SHAIK JOHNY BASHA	CSE	B4	
22761A1258	TALARI NAVAJEEVANSRAVANTH	IT	B4	
22761A0571	BOJJAGANI VIVEK	CSE	B10	3rd
22761A05C7	VEMULA V S L SURYA NARAYANA	CSE	B10	
22761A0588	JAJULA KISHORE NANDHAN	CSE	B10	
22761A0580	DUVVA VARUN SAI	CSE	B10	
22761A05C8	VIJJESWARAPU NIKHIL	CSE	B10	
22761A05F3	JONNADULA MOHIT SAI	CSE	C6	CONSOLATION
22761A05F8	KOLLIPARA AKHIL	CSE	C6	
22761A05D2	AGAMAM JAYANARASIMHA CHARYULU	CSE	C6	
22761AO5H5	NADIMINTI VINOD	CSE	C6	
22761A05D9	CHALLAGULLA VENKAT	CSE	C6	
22761A0509	CHALLA YUVA PRASANTHI	CSE	A4	CONSOLATION
22761A1266	YELURI HARSHA VARDHINI	IT	A4	
22761A0527	KODALI PRISKILLA	CSE	A4	
22761A0544	RAGA MADHURI DHULIPUDI	CSE	A4	
22761A0555	THAMMISETTY GAMYA SRI	CSE	A4	
22761A0563	VALLEPU SUBHASHINI	CSE	A4	