Abdul Kalam

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Technical Skills

Languages: JavaScript, Python

Technologies & Tools: Node.js, Express.js, Flask, RESTful APIs, Socket.io, MongoDB, Git, VS Code, Postman

Work Experience

Marwadi Education Foundation's Group of Institutions   Jul 2023 - May 2024
Research Engineer

- Led research on Traffic Forecasting using Federated Learning (FL) for 5G networks, ensuring accurate predictions up by 4% from the existing while maintaining user privacy through decentralized model training.
- Engineered an innovative Federated Learning model for traffic prediction, allowing distributed data to remain local while ensuring high levels of confidentiality and data integrity.
- Utilized React.js, JavaScript, HTML, and Web Components to develop scalable and efficient applications and employed the Redux state management library for efficient data handling in React.js applications.
- Successfully created and implemented solution that reduced system errors by 30% & enhanced application performance by 25%.

Projects

Real Time Chat Application | Link | JavaScript, Socket.io, Node.js, Git, VS Code   **2025**

- Built a real-time chat application using JavaScript, Node.js, Express, MongoDB, and Socket.IO, enabling secure user registration and persistent message history.
- Integrated bcrypt for password hashing and salting to ensure secure authentication and protect user credentials.
- Implemented bidirectional, low-latency messaging flow using Socket.IO for real-time group and private chat functionality.
- Developed RESTful API endpoints to support user sessions and chat message retrieval, with seamless frontend integration.
- Optimized MongoDB schema design and event-driven server architecture to minimize latency and enhance code maintainability.

OAuth Server - GitHub, Google Login | Link | JavaScript, Node.js, VS Code   **2025**

- Implemented secure login system using OAuth 2.0 Authorization Code Flow (without `passport.js`) to maintain full backend control.
- Manually handled authorization code exchange with GitHub and Google, and persisted session state with HTTP-only, signed cookies to enhance security.
- Secured `/profile` endpoint, allowing access only to authenticated users—managing cookie state seamlessly on Vercel with correct domain-level CORS settings.
- Ensured smooth client–backend session flow using JWTs stored within cookies, offering clear separation and developer flexibility for client applications.

Education

Dr. B. R. Ambedkar National Institute of Technology, Jalandhar   2021 − 2023
M.Tech in Computer Science and Engineering - **CGPA - 8.12**   Jalandhar, Punjab