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DEPARTMENT : Computer Science and Engineering

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Completed the project named as

Phase_05_Technology

PROJECT NAME : Login Authentication System

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Project Overview:

- In today's digital age, online platforms require secure user authentication to protect sensitive information.
- Our Login Authentication System aims to provide a secure, efficient, and user-friendly way for users to register, log in, and manage sessions safely.

This system ensures:

- Passwords are hashed using bcrypt for data security.
- Authentication is handled using JWT (JSON Web Tokens).- Users can reset forgotten passwords through email.
- An admin panel allows administrators to monitor and manage users.-

Security features such as input validation, rate limiting, and account lockout protect against brute-force and injection attacks.

Tech Stack:

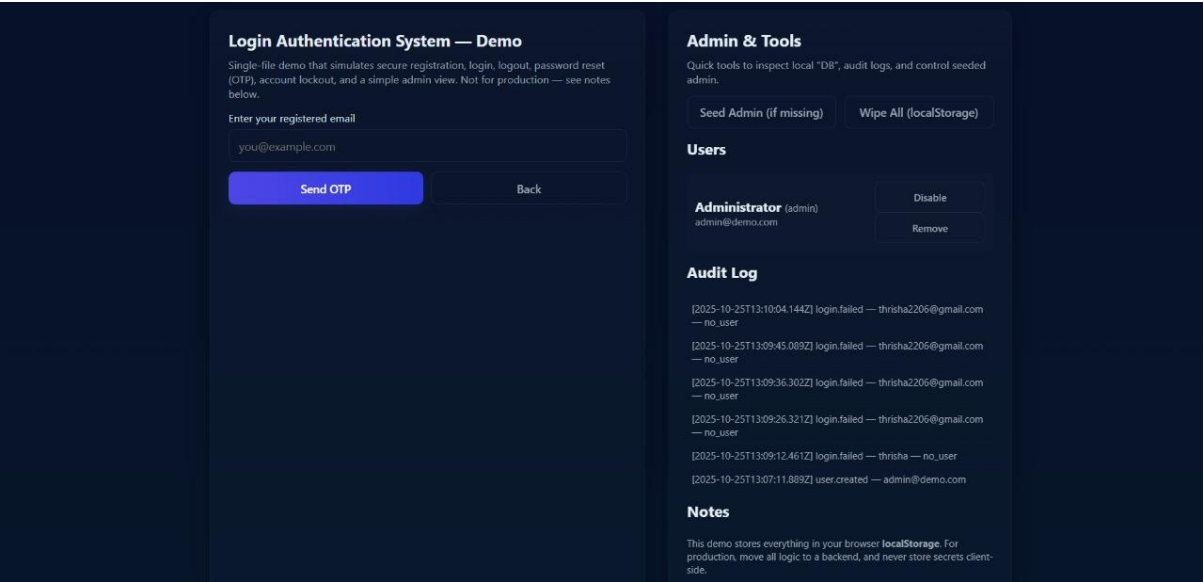
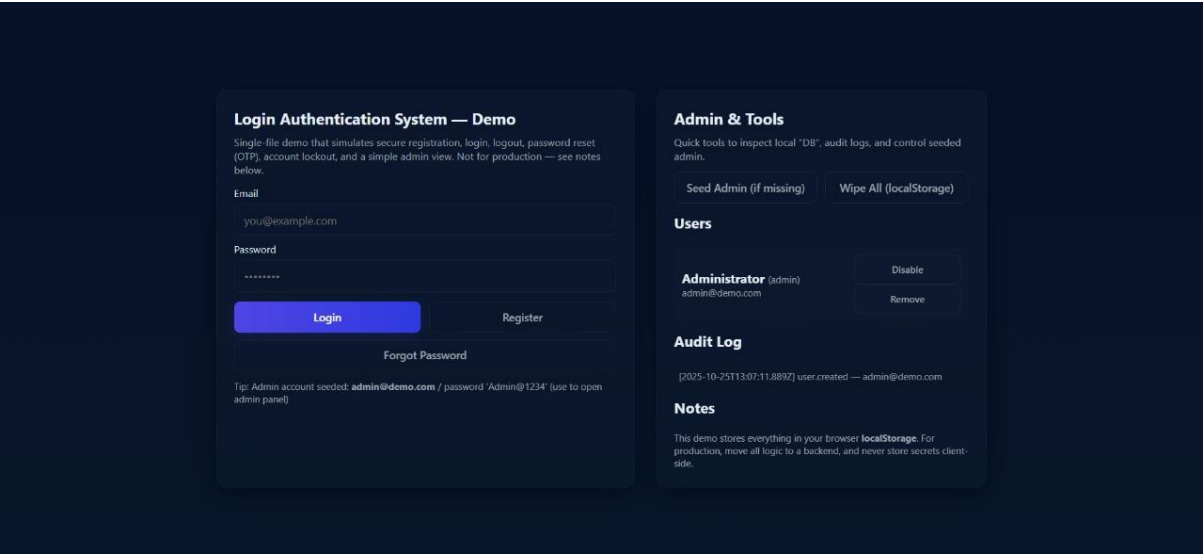
- Frontend: React.js (or HTML/CSS/JS prototype)
- Backend: Node.js with Express.js
- Database: MongoDB (Mongoose ORM)
- Styling: Tailwind CSS / Bootstrap
- Version Control & Hosting: Git + GitHub / GitHub Pages

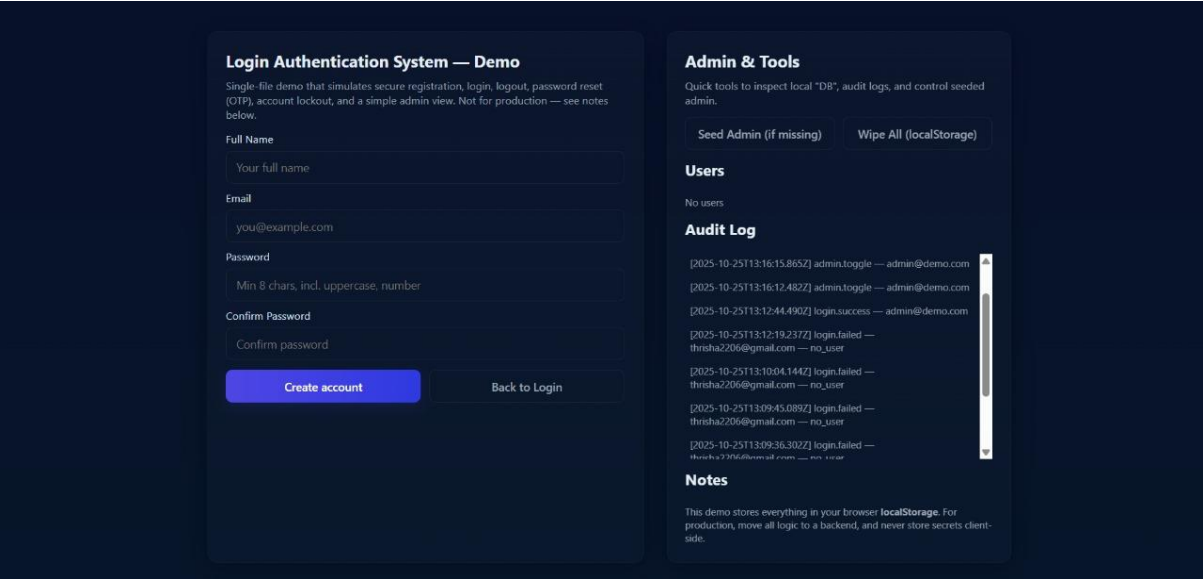
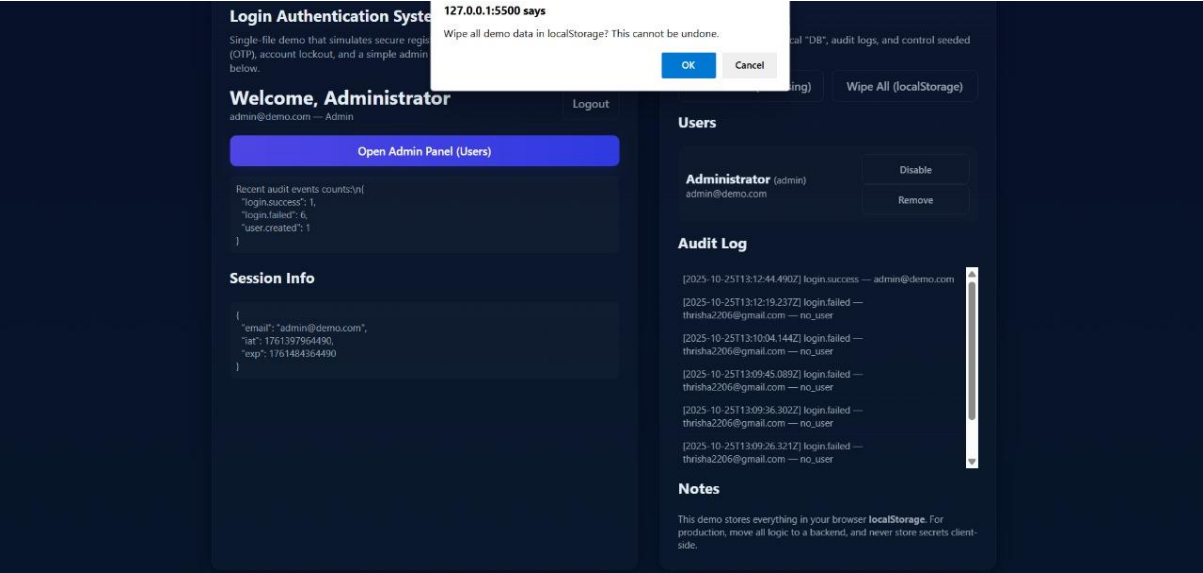
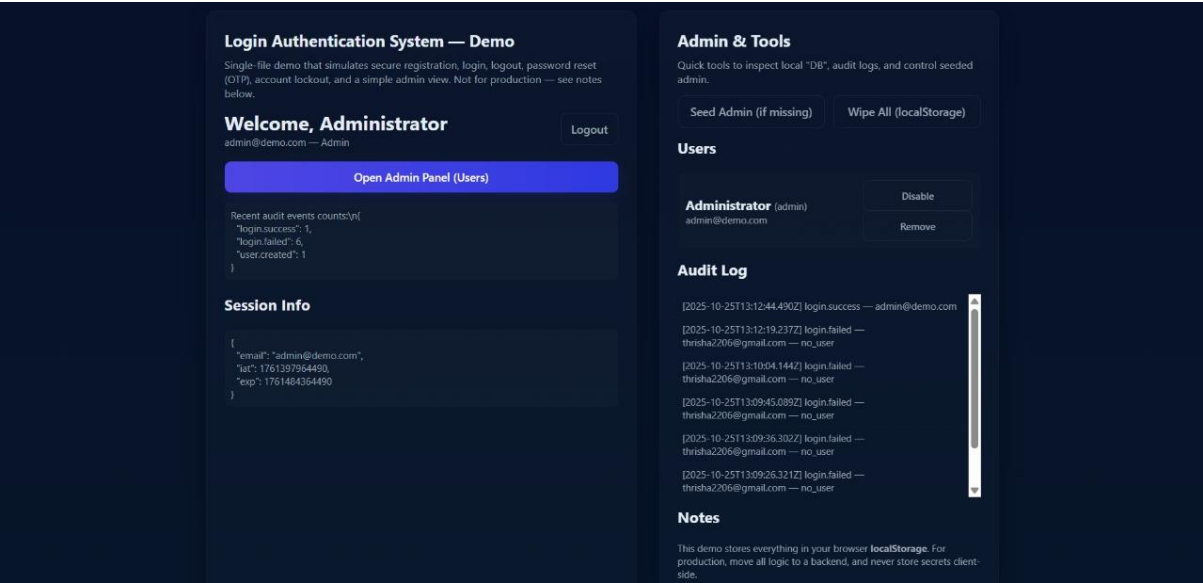
Project Report :

The project was developed in multiple phases:

- Phase 1 – Problem Understanding & Requirements We identified the problem of insecure password-based systems and defined user requirements.
- Phase 2 – Solution Design & Architecture Designed the architecture with RESTful APIs, frontend UI, and database schema using MongoDB.
- Phase 3 – Implementation Built the frontend and backend, integrated bcrypt, JWT, and implemented secure routes.
- Phase 4 – Enhancement & Deployment Added Forgot Password, 2FA, Role-Based Dashboard, and deployed the system online.
- Phase 5 – Testing & Final Verification Performed Unit, Integration, and Security Testing to ensure complete system stability

Screenshots:





Challenges & Solutions:

Challenge:

- Difficulty setting up secure password storage
- Session expiration & token validation issues
- Handling repeated failed login attempts
- Managing frontend and backend communication
- UI responsiveness across devices
- Email service for password reset
- Deployment configuration errors

Solution Applied:

- Implemented bcrypt hashing to safely store passwords
- Switched to JWT-based stateless authentication
- Added account lockout after 5 invalid attempts
- Used RESTful API architecture and CORS policy setup
- Applied Tailwind CSS/Bootstrap for consistent styling
- Configured Nodemailer with fallback for testing
- Resolved with environment variables and GitHub CI/CD

Github Link:

GitHub Repo Link: <https://github.com/t-r-web/Login-Authentication-System.git>

Deployed Link: <https://login-authentication-system-six.vercel.app/>

“All the project phases (Phase 1 to Phase 5) have been uploaded to the GitHub repository mentioned above.”