NEXT GEN EMPLOYABILITY PROGRAM

CREATING A FUTURE-READY WORKFORCE

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CAPSTONE PROJECT SHOWCASE

Project Title

WallPay

Abstract | Problem Statement | Project Overview | Proposed Solution | Technology Used | Modelling & Results | Conclusion | Q&A

Abstract

1. WallPay is a modern digital payment solution that enables users to manage wallets, perform secure UPI transactions, and track financial activity in real time.
2. Built using the MERN stack, it features user authentication, QR code payments, and a dynamic transaction dashboard.
3. The platform emphasizes speed, simplicity, and security, making it ideal for daily digital transactions.
4. WallPay aims to bring seamless payment experiences to users through an intuitive and responsive interface.

Problem Statement

- In today’s fast-paced digital economy, users often face challenges with fragmented payment systems, lack of centralized wallet management, and security concerns during fund transfers. There is a need for an all-in-one platform that offers seamless, secure, and user-friendly digital transactions, including UPI-based payments and real-time tracking. WallPay aims to solve this problem by providing a unified digital wallet experience that simplifies money transfers and enhances financial transparency for users.
- Its standout feature lies in delivering all functionalities through a clean, minimal interface with reduced multi-page navigation—ensuring smooth user interaction, workflow efficiency, and a clutter-free experience.

Project Overview

- **WallPay** is a full-stack digital payment wallet platform developed using the **MERN stack (MongoDB, Express.js, React.js, Node.js)**. It is designed to streamline the way users manage and interact with digital transactions. WallPay enables users to perform secure **UPI-based fund transfers**, generate and scan **QR codes**, manage wallet balances, and track both **paid and received transactions** through an intuitive dashboard.
- The platform focuses on delivering a **minimalistic and responsive UI**, ensuring users can perform tasks like bill payments, banking actions, and personal finance management without dealing with overwhelming multi-page navigation. Security is enforced via **JWT-based authentication**, and MongoDB is used to store and retrieve user and transaction data in real-time.
- WallPay aims to offer a unified, clutter-free, and efficient financial experience suitable for both individuals and businesses operating in the evolving digital payment ecosystem.

Proposed Solution

- **WallPay** is a full-stack digital payment wallet platform developed using the **MERN stack (MongoDB, Express.js, React.js, Node.js)**. It is designed to streamline the way users manage and interact with digital transactions. WallPay enables users to perform secure **UPI-based fund transfers**, generate and scan **QR codes**, manage wallet balances, and track both **paid and received transactions** through an intuitive dashboard.
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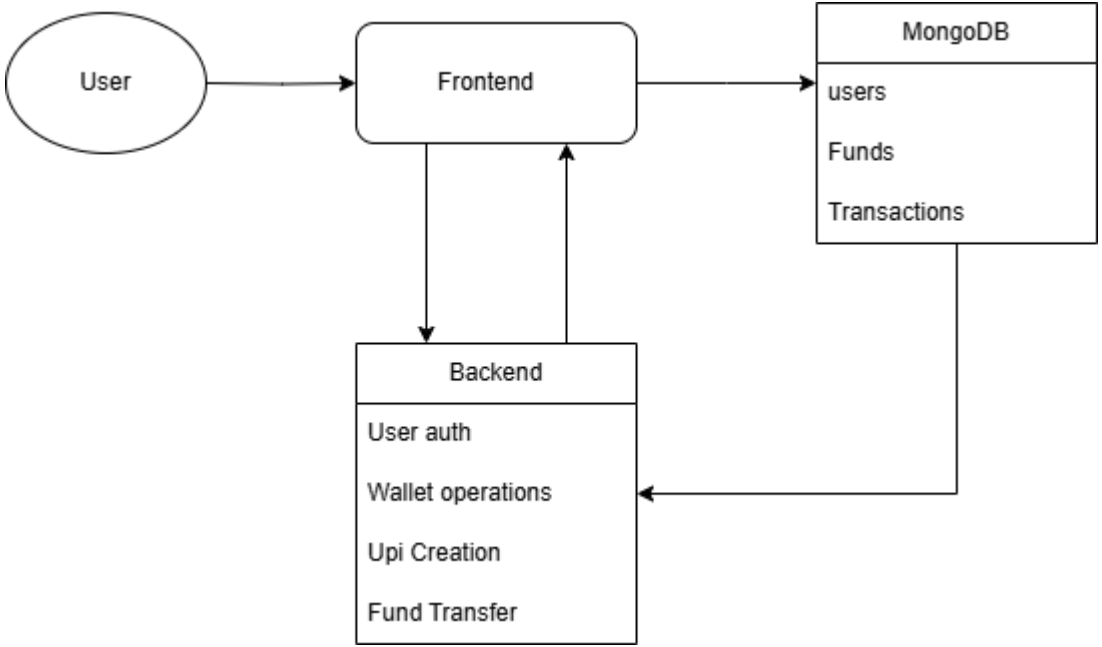
Technology used

- **Frontend:** React.js – For building dynamic and responsive user interfaces. Ant Design (AntD) – For sleek, pre-styled UI components.Axios – For making HTTP requests between frontend and backend.CSS – For custom styling and layout management. Vite – For fast development and build tooling.
- **Backend:** Node.js – JavaScript runtime for building scalable server-side applications. Express.js – Lightweight web framework for handling APIs and middleware. JWT (JSON Web Token) – For secure authentication and session management.bcrypt – For hashing user passwords and securing login credentials. Crypto (Node.js module) – For generating unique UPI IDs securely.
- **Database:** MongoDB – NoSQL database used to store user details, wallet balances, transactions, and UPI codes. Mongoose – ODM (Object Data Modeling) library to interact with MongoDB using schemas.
- **Others**: QRCode – For generating QR codes based on UPI IDs. Git & GitHub – Version control and repository management. MongoDB Compass – GUI for managing MongoDB collections and documents.

Modelling & Result

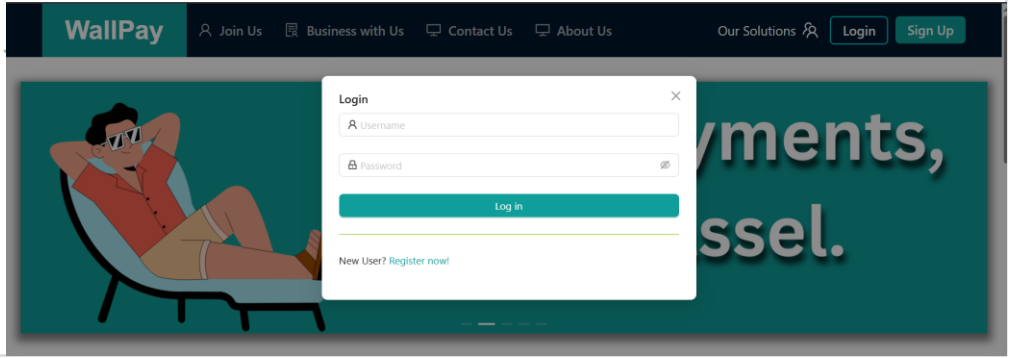
- Data Flow Diagram



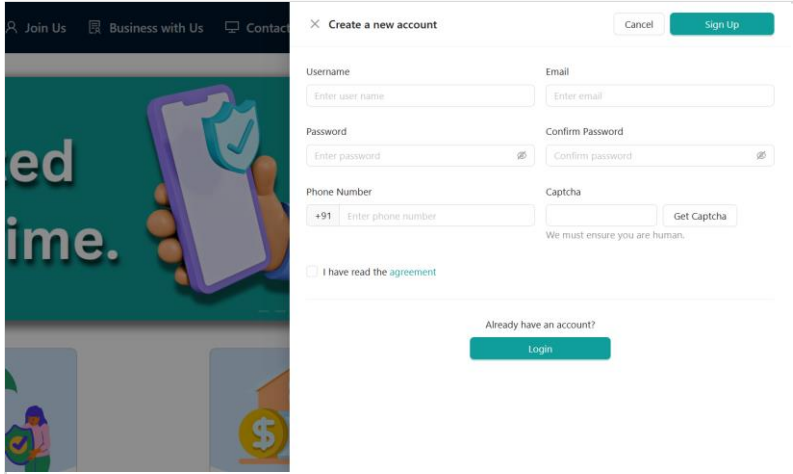
Modelling & Result

- HomePage

- Login Card

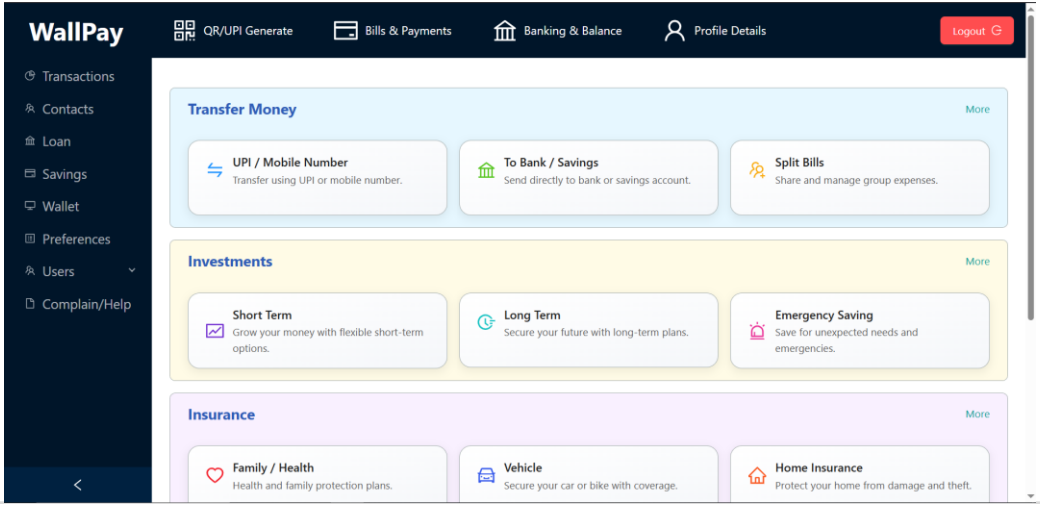


Modelling & Result

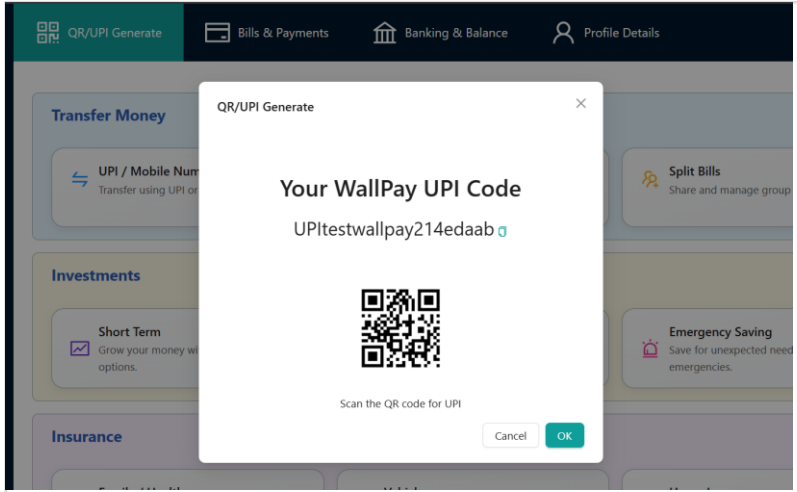


- Signup Drawer

- User Page

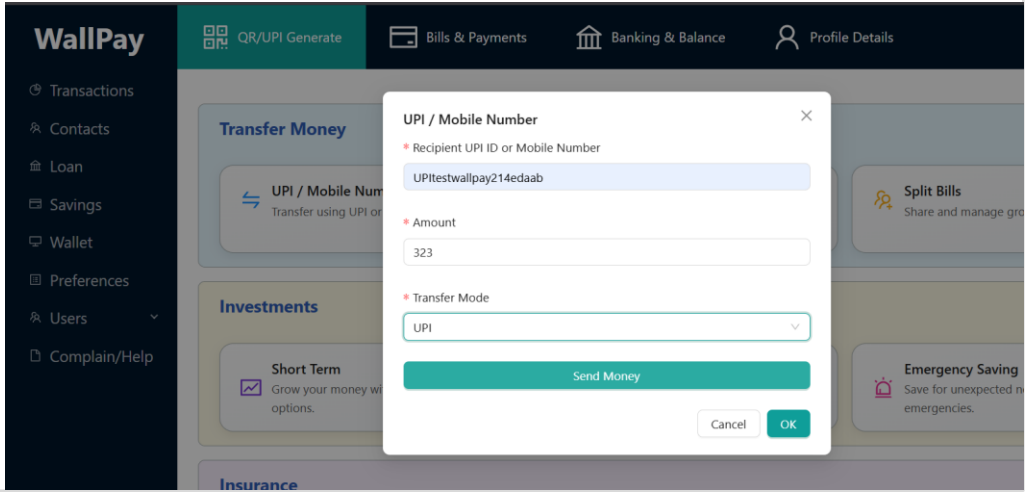


Modelling & Result

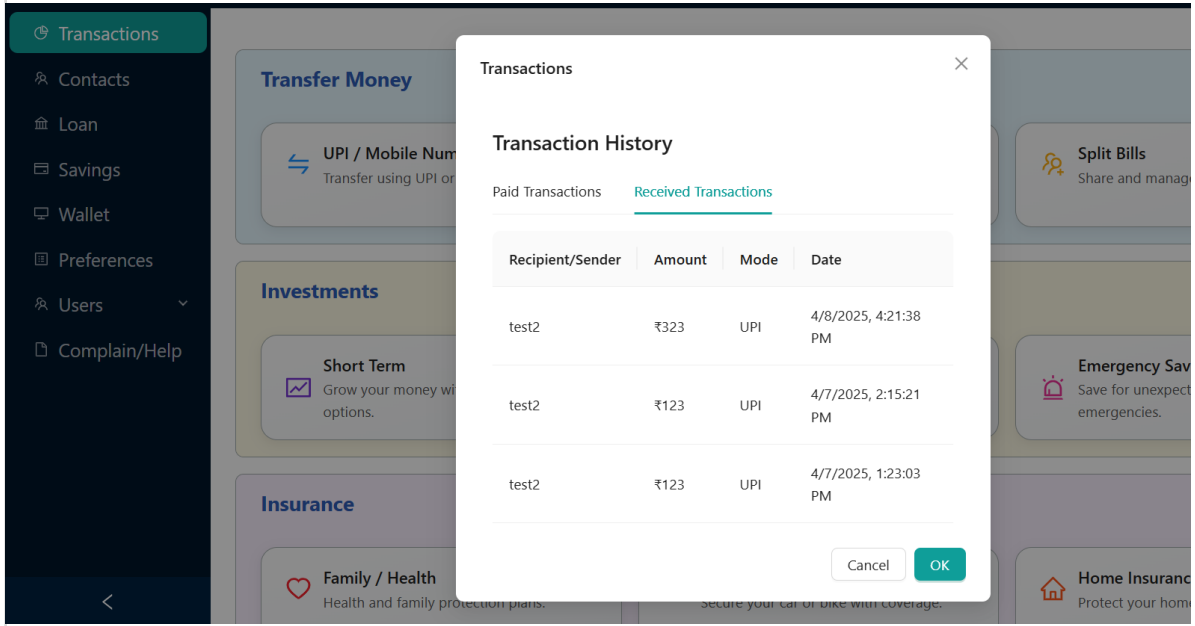


- Upi / QR code viewer

- Payment Gate Way



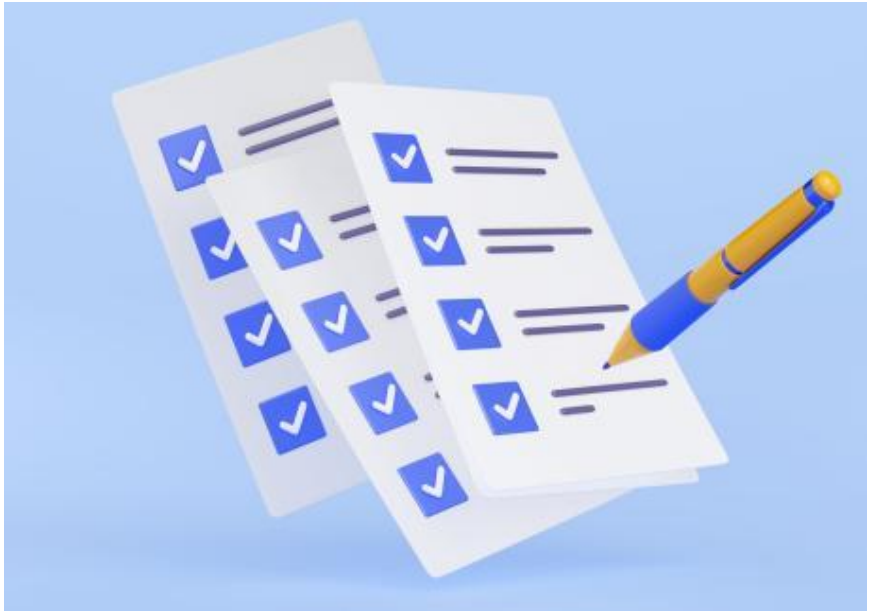
Modelling & Result



- Transactions details and history

Conclusion

- The development of WallPay successfully addresses the need for a simplified, secure, and unified digital wallet experience. By leveraging the power of the MERN stack, Ant Design, JWT, Axios, and bcrypt, the platform delivers a responsive and seamless interface for UPI generation, QR code sharing, and secure fund transfers.
- The project ensures real-time transaction tracking, data consistency, and a user-friendly flow through its optimized modal-based interface. WallPay not only meets current digital payment demands but is also architected with scalability in mind, allowing future integration of advanced features like utility bill payments, ticket bookings, and more.
- Overall, WallPay demonstrates how a modern, clean, and efficient digital wallet solution can enhance financial transparency and usability for everyday users.



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