NEXT GEN EMPLOYABILITY PROGRAM

CREATING A FUTURE-READY WORKFORCE

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CAPSTONE PROJECT SHOWCASE

Project Title

Personal Finance Manager with MERN Technology (P4)

Abstract

1   **Real-Time Expense Management:**Users can create, view, edit, and delete expenses with instant updates across all reports.

2   **Secure User Authentication:**Ensures data security and user privacy using authentication mechanisms.

3   **Seamless Collaboration:**Real-time synchronization for an interactive and efficient financial tracking experience.

4   **Technology Stack (MERN):**Built with MongoDB, Express.js, React.js, and Node.js for a robust and scalable platform.

Problem Statement

- **Personal Finance Manager with MERN Technology'** => "The Expense management project is designed to create a platform where users can create, view, edit, and delete expense with real-time updates. The platform ensures that any changes made to any expense are instantly reflected across all reports. This project will provide you with hands-on experience in implementing user authentication, managing documents, and ensuring real-time collaboration using the MERN stack (MongoDB, Express.js, React.js, Node.js).

Project Overview

- The Personal Finance Manager is a web-based application designed to help users efficiently track and manage their expenses in real time. Built using the MERN stack (MongoDB, Express.js, React.js, Node.js), this platform allows users to create, view, edit, and delete expenses, ensuring that all financial records remain accurate and up-to-date.

- This system integrates user authentication for secure access, document management for efficient data handling, and real-time collaboration to enable seamless expense tracking among multiple users. The application aims to provide a user-friendly, responsive, and scalable solution, empowering individuals to take control of their financial management with enhanced security, real-time updates, and intuitive design.
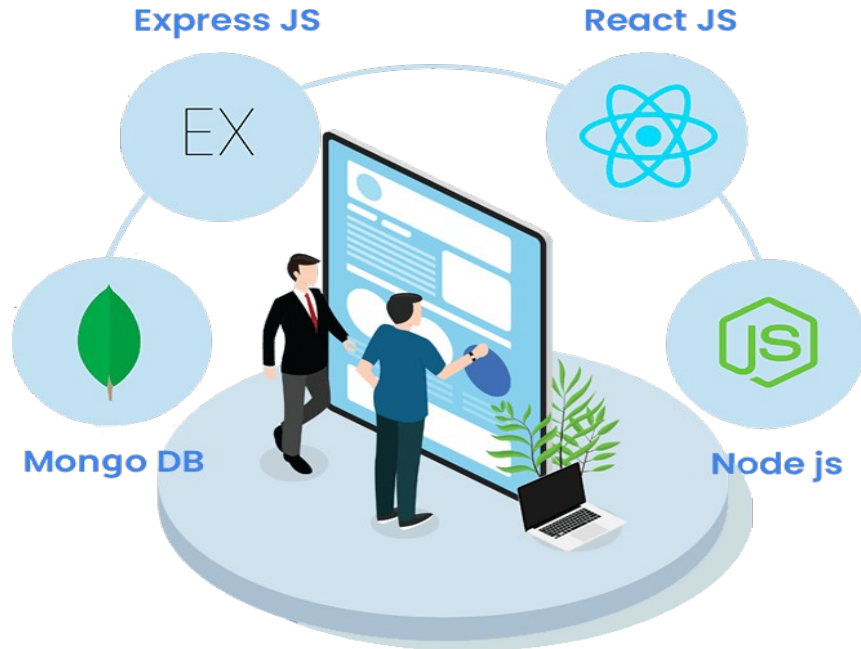
Proposed Solution

- **Key Features of the Solution:**

  ✔ **Real-Time Expense Tracking –** Allows users to create, view, edit, and delete expenses, with instant updates across all reports.

  ✔ **Secure User Authentication –** Ensures data privacy and security using authentication mechanisms.

  ✔ **Efficient Document Management –** Provides a structured way to store and retrieve financial records.

  ✔ **Real-Time Collaboration –** Enables seamless tracking and management of shared expenses among multiple users.

  ✔ **User-Friendly Interface –** Designed with a responsive and intuitive UI for easy navigation and efficient financial management.

- **Impact of the Solution:**

  ☑ Simplifies financial tracking for individuals and groups.

  ☑ Enhances security by protecting sensitive financial data.

  ☑ Provides real-time insights to make informed financial decisions.

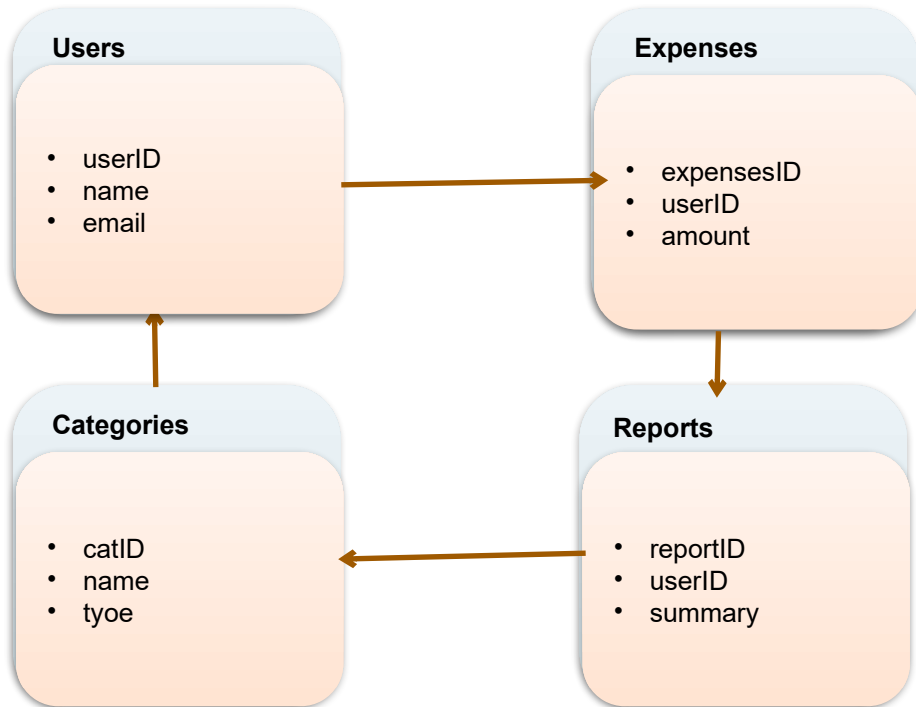 ☑ Ensures accessibility with a scalable and responsive web application.

Technology used

Express JS

React JS

EX

Mongo DB

Node js

MongoDB:MongoDB stores and manages expense data efficiently with real-time updates.

Express.js :Express.js handles backend logic, API routes, and server-side processing efficiently.

React.js:React.js provides a dynamic and responsive user interface for seamless expense management.

Node.js:Node.js powers the backend, handling server-side operations and API requests efficiently.

Modelling & Result

Users
- userID
- name
- email

Expenses
- expensesID
- userID
- amount

Categories
- catID
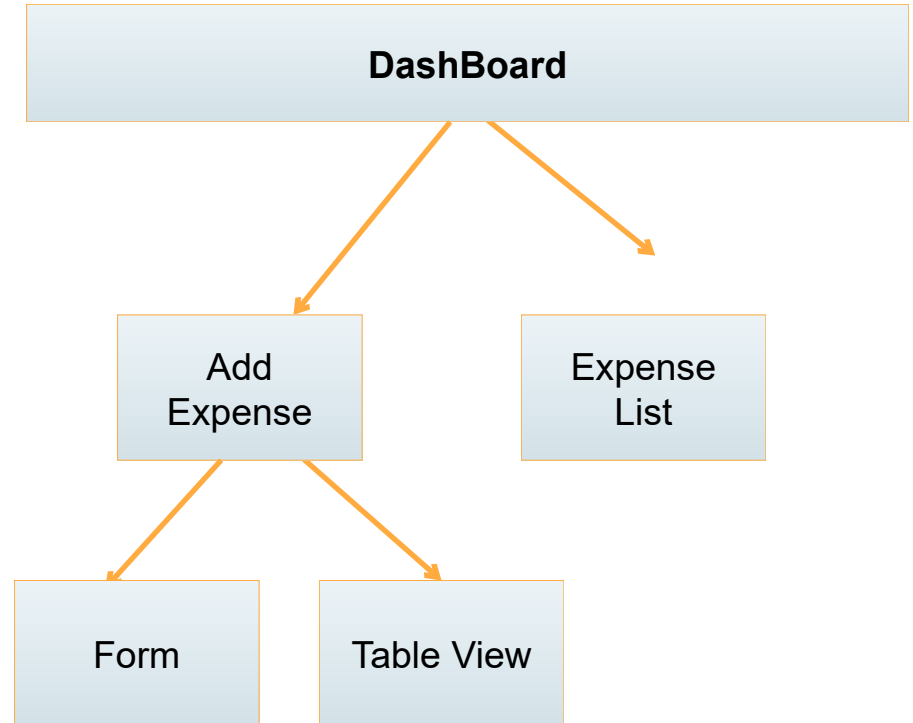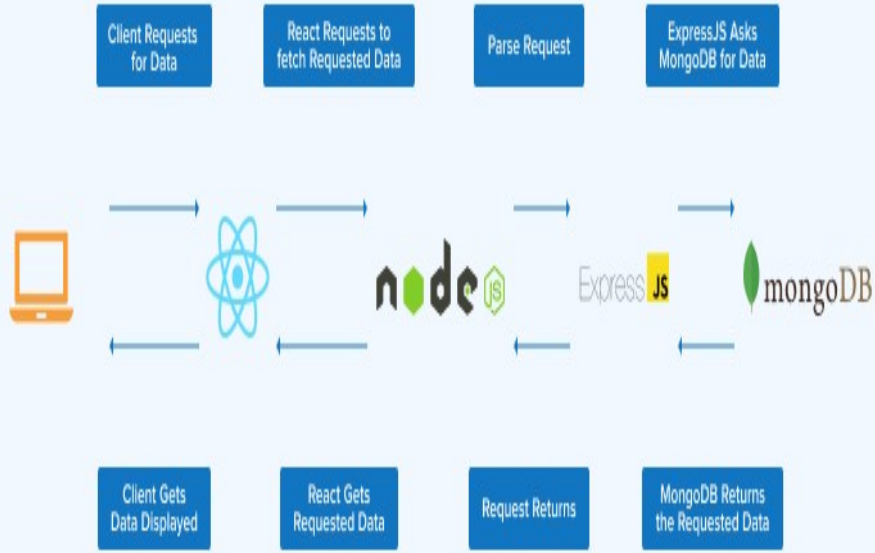- name
- tyoe

Reports
- reportID
- userID
- summary

Title:Data Modeling & Database Design
Content:
- MongoDB is used as a NoSQL database for scalable data storage.
- Collections:

*Users: Stores user details and authentication credentials.

*Expenses: Tracks user expenses with fields like amount, category, date, and description.

*Categories: Manages predefined and custom expense categories.

*Reports: Stores summarized financial reports for insights.

- Schema Relationships: Users are linked to their expenses, ensuring organized data retrieval.

Modelling & Result

MERN Stack Architecture

Client Requests for Data → React Requests to fetch Requested Data → Parse Request → ExpressJS Asks MongoDB for Data

Client Gets Data Displayed ← React Gets Requested Data ← Request Returns ← MongoDB Returns the Requested Data

DashBoard → Add Expense → Form, Table View; DashBoard → Expense List

Modelling & Result

Features	Before	After
1. Expense Tracking 2. Collaboration 3. Security 4. Accessibility	1. Paper/Excel 2. No Sharing 3. Risk Of Data Loss 4. Limited	1. Real-time Updates 2. Multi-User Support 3. Secure Authentication 4. Access Anywhere

Conclusion

- The Personal Finance Manager leverages the MERN stack to provide a seamless, secure, and real-time expense tracking solution. With features like user authentication, real-time updates, and efficient data management, the platform enhances financial transparency and accessibility. This project demonstrates the effectiveness of modern web technologies in creating scalable and user-centric financial management solutions.

Thank you!

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