Budget-WebApp

Report on

21INT82 – Industry Internship

Submitted by

Sagar Ganesh

4MW21CS082

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF ENGINEERING

Department of Computer Science & Engineering

SHRI MADHWA VADIRAJA
INSTITUTE OF TECHNOLOGY & MANAGEMENT

Vishwothama Nagar, Bantakal – 574 115, Udupi District, Karnataka

2024–2025

SHRI MADHWA VADIRAJA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(A Unit of Shri Sode Vadiraja Mutt Education Trust ®, Udupi)

Vishwothama Nagar, BANTAKAL – 574 115, Udupi District, Karnataka, INDIA

Department of Computer Science & Engineering

<u>CERTIFICATE</u>

Certified that the Internship Work titled '**Budget-WebApp**' is carried out by:

Mr. Sagar Ganesh   USN: **4MW21CS082**

bonafide students of Shri Madhwa Vadiraja Institute of Technology and Management, in partial fulfilment for the award of the degree of **Bachelor of Engineering** in Computer Science Engineering of Visvesvaraya Technological University, Belagavi during the year 2024-25. It is certified that all the corrections / suggestions have been incorporated in the report. The report has been approved as it satisfies the academic requirements in respect of Internship Work prescribed for the said degree.

Mrs. Yashwini A S   **Dr.Sowmya J Bhat**   **Dr. Thirumaleshwara Bhat**
Asst. Professor & Guide   Asso.Proff and HOD   Principal,
Dept. of CSE   Dept. of CSE   SMVITM, Bantakal

Internship Evaluation

		Name of the Examiners:	Signature with Date
CIE: Internal Assessment	1. 2.		
SEE: Semester End Exam	1. 2.	Name of the Examiners:	Signature with Date

Acknowledgements

_____

TABLE OF CONTENTS

CONTENT   **Page No.**

LIST OF FIGURES

_____

FIGURES   **Page No.**

WEB DEVELOPMENT(Budeting-WebApp)

INTRODUCTION

My internship was based on the topic **"Budgeting App"**, which is a mobile and web-based application designed to help users manage their income and expenses effectively. It allows people to track their daily spending, set financial goals, and maintain savings by planning budgets in a smart and simple way. This project gave me an opportunity to understand how personal finance apps are developed and how they solve real-life problems. The app is designed to enhance personal finance management through a user-friendly interface and smart budgeting features. The content will cover the key objectives, target audience, technology stack, app structure, and features of the Budgeting Web App. I did my internship at **Quantum Learning**, located in **Bangalore**. The company specializes in providing IT services, including mobile app development, web development, and data analytics. They also offer training programs and internships for students to gain hands-on experience on live projects. Quantum Learning aims to bridge the gap between academic knowledge and industry skills by involving interns in real-time tasks. The work environment was supportive and helped me enhance my technical and soft skills.

METHODS & MATERIALS

During my internship at Quantum Learning, we worked collaboratively on the development of a comprehensive Budgeting Web App aimed at helping users manage their personal finances efficiently. Our responsibilities covered both front-end and back-end development, where we implemented user-friendly features for tracking expenses, setting and monitoring budget goals, and managing debts. One of the major enhancements we introduced was predictive analysis on the overview page, which utilized historical financial data to forecast future spending patterns, potential savings, and budget trends—empowering users to make informed decisions in advance. To enhance usability and visual clarity, we incorporated interactive overall graphs that provided clear insights into income versus expenses, spending by category, and progress toward financial targets. We also developed a debt notification system that automatically alerts users about upcoming payments due within the next seven days, helping them stay on top of their financial obligations.
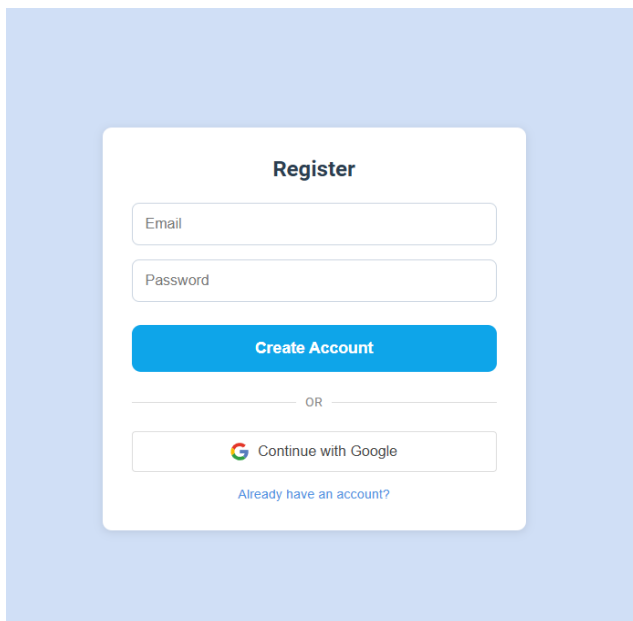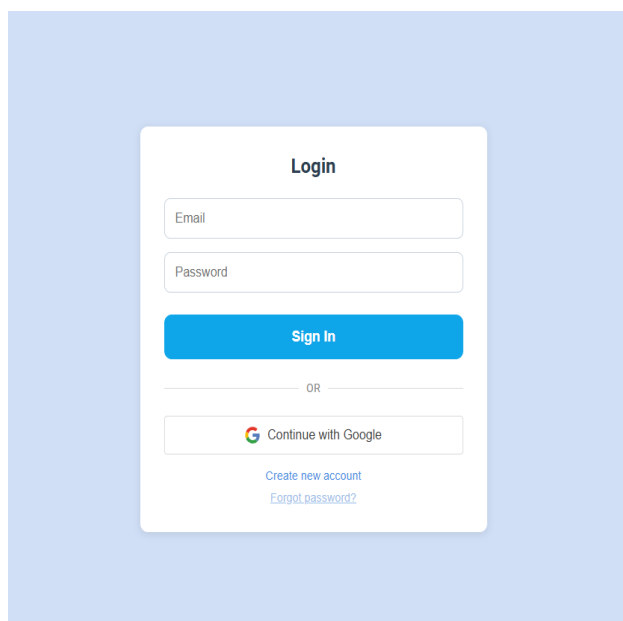

Figure 1 Register page   Figure 2 Login page

1. Frontend Development

The frontend of the application was built using **React.js**, a JavaScript library known for its component-based architecture and fast performance. Initially, the project used **custom CSS** for more flexibility and uniqueness in design.

Key aspects of frontend development included:

- Creating responsive layouts and reusable UI components.
- Implementing conditional rendering for better user interactivity.

- Integrating **Recharts** for visual representation of financial data.
- Using **Framer Motion** for smooth transitions and animations.

2. Backend Integration

For the backend, we used **Firebase**, which provided seamless integration of authentication and data storage services. Firebase's **Authentication** module allowed us to securely manage user login, signup, and session management. We used **Firestore**, Firebase's real-time NoSQL database, for storing user budgets, income, and expense details.

Key backend tasks included:

- Setting up Firestore collections and documents for each user.
- Implementing security rules to ensure user data privacy.
- Real-time syncing of expense inputs and budget updates.
- Structuring the database for quick read/write operations.

3.UI/UX Design and Deployment

We focused strongly on UI/UX principles to ensure the app was not just functional but also visually appealing and user-friendly. Key techniques used:

- **Glassmorphism** for creating modern-looking interfaces with depth.
- **Gradients** and color blending to enhance aesthetics.
- **Responsive design** to make the app accessible on both mobile and desktop.
- **Subtle animations** using Framer Motion for better interactivity.

The final app was deployed on **Vercel**, providing optimized performance, seamless CI/CD integration, and edge network capabilities for global reliability

4.Key Features Implemented

i. Overview:

The **Overview Page** is the main dashboard of the app, where users can quickly see a summary of their financial status. It includes:

- **Total Expenses**: Shows the total money spent so far.
- **Net Savings**: Calculates how much money is left after subtracting expenses from income.
- **Total Debt**: Displays the total amount the user still owes.

We also included **Predictive Analysis** on this page. It uses past financial data to:

- **Estimate future expenses and savings**

- **Warn users if they are likely to overspend**

- **Help them plan their budget more wisely**

The overview combines this information into **simple graphs and visuals**, making it easy for users to understand and take action quickly.
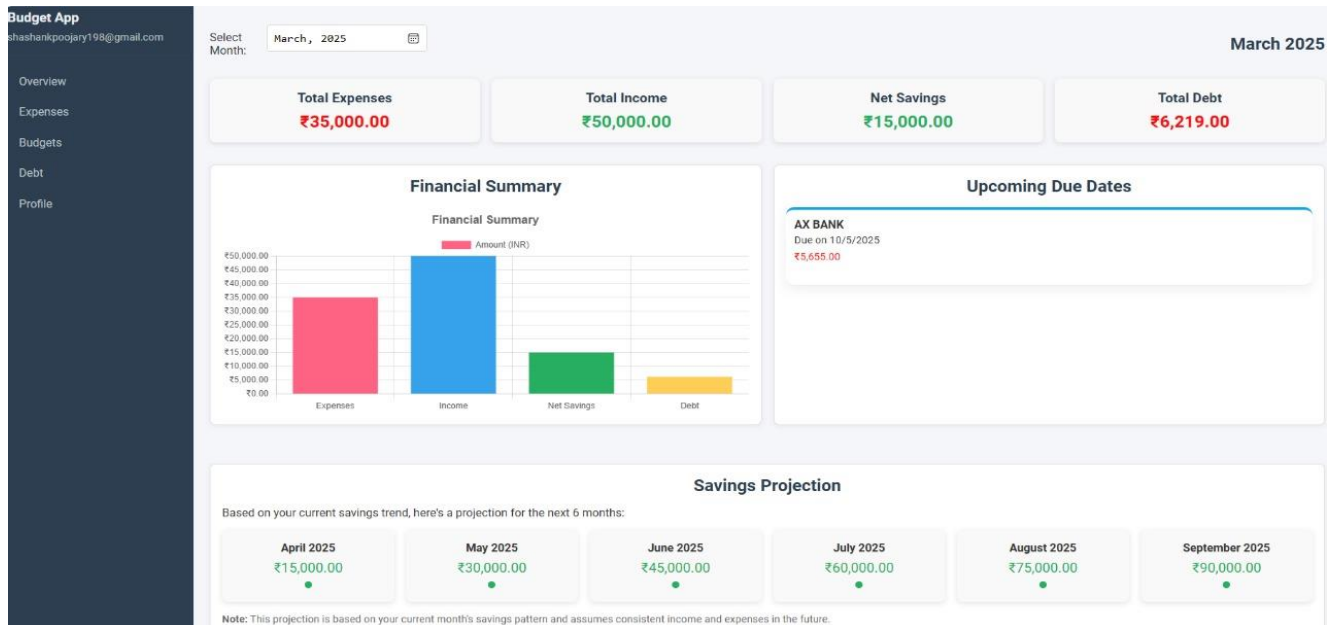

Figure 3 Overview

ii. Expense & Income Tracking:

- **Real-Time Logging**: Users could add their expenses instantly, categorizing them as food, travel, utilities, etc.

- **Visual Spending Analysis**: Integrated **Recharts** to visualize user expenses over time.

- **Smart Categorization**: Implemented basic rule-based logic to auto-categorize expenses using predefined tags and keywords.

- **Income Entry & Tracking**: Users could input their income sources (like salary, freelancing) to keep track of total monthly income and compare it with expenses.
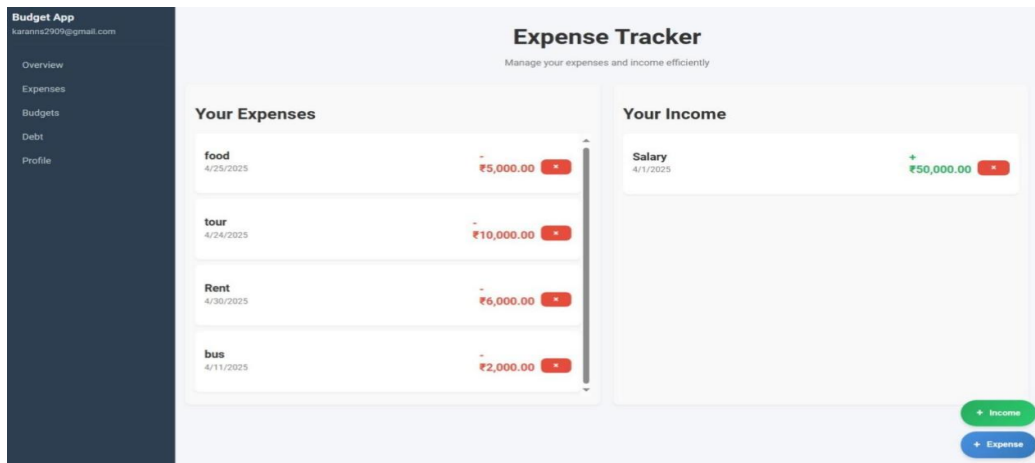
Figure 4 Expense Tracker

iii. Income & Budget Goals:

- **Set Income Targets**: Monthly income inputs were added to set a baseline for budgets.

- **Progress Bars**: Visual bars showed progress against each category limit.

- **Custom Budget Categories**: Users could add custom budget areas like entertainment or groceries.

- **Budget Adjustment Suggestions**: Based on spending trends, the app suggested increasing or decreasing budget limits for better money control.
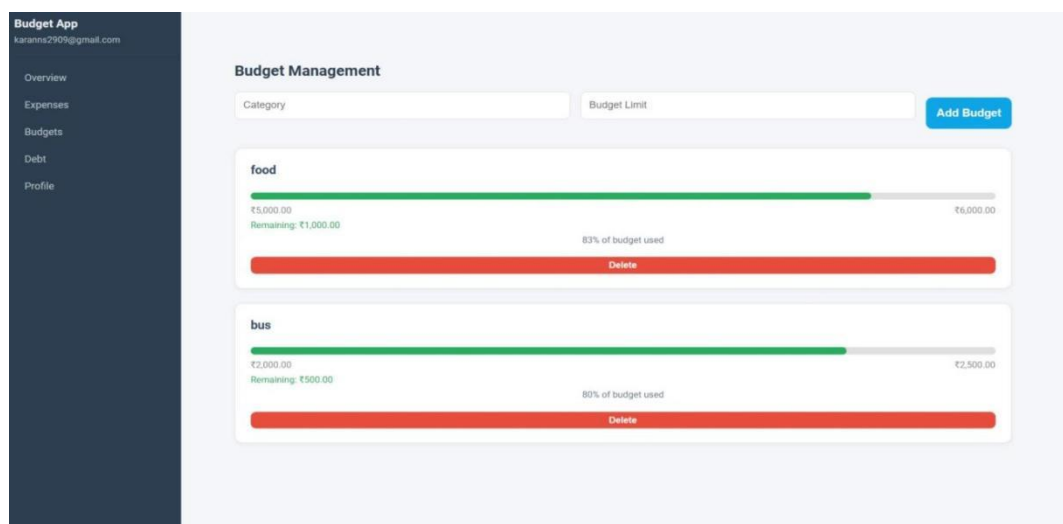

Figure 5 Budget Management

iv. Debt Tracker:

- **Multiple Debt Tracking**: Users could list all their debts such as loans, credit cards, etc.

- **Repayment Schedules**: Timelines and expected payoff dates were added per debt item.

- **Upcoming Payment Alerts**: The app sends reminders for payments due in the next 7 days

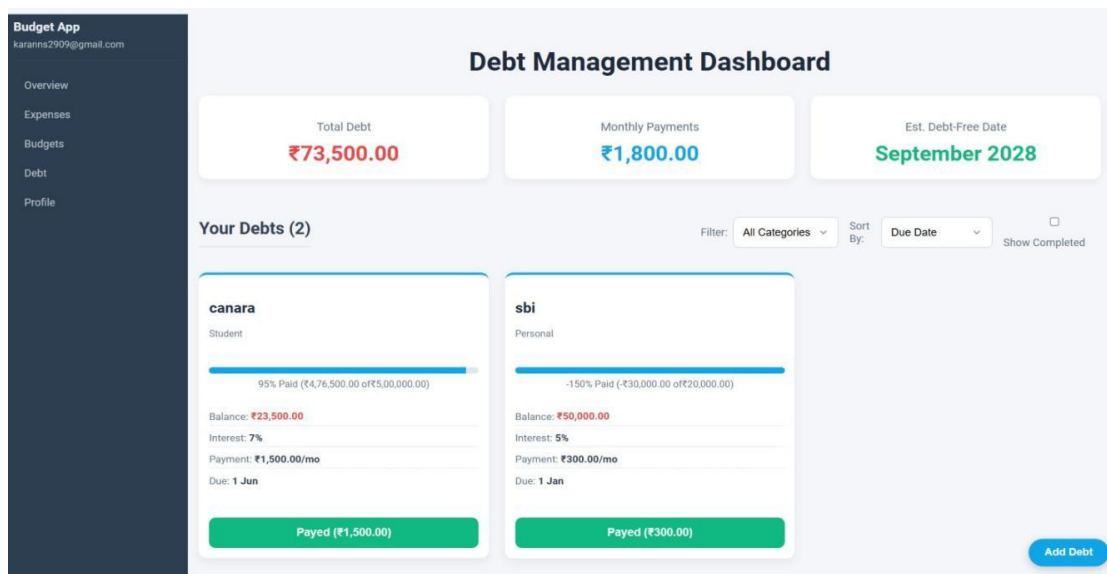- **Debt Summary View**: Users can see a clear overview of total debt, paid amount, and remaining balance.

Figure 6 Debt Management

5.Data Visualization

We used an **overall graph chart** to visually show:

- Budget vs actual spending
- Income vs expenses trends
- Debt reduction progress

These graphs helped users easily understand their money habits and make better financial decisions.

We also added **basic predictive analysis**. This looked at past expenses to **guess future spending**, so users could spot possible overspending early and **adjust their budgets**.

Industry Internship (21INT82)

6.Project Challenges & Solutions

I.Data Security:

- Integrated Firebase Authentication to manage user access securely.
- Enforced strict Firestore security rules to protect user data.
- Limited database access to authenticated users only.

II. Performance Optimization

- Implemented lazy loading to improve initial load speed.
- Applied code splitting for more efficient component delivery.
- Minimized bundle size by optimizing dependencies.

III. Cross-Browser Compatibility

- Performed thorough testing on Chrome, Firefox, and Edge.
- Resolved layout inconsistencies across different rendering engines.
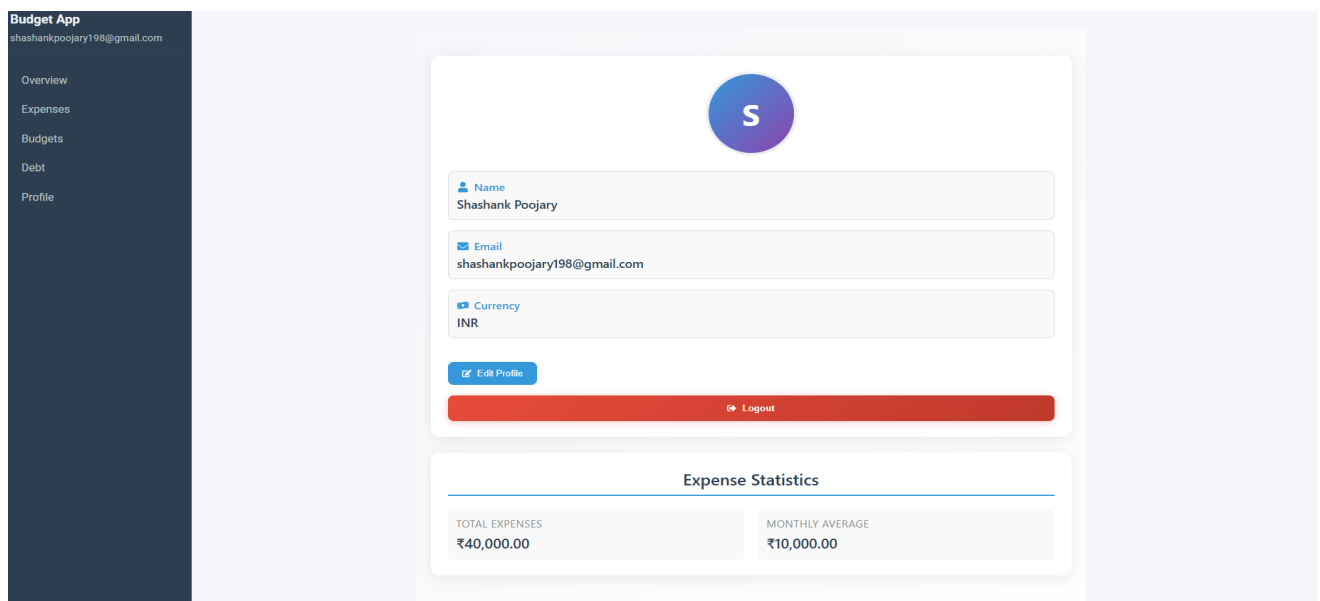- Ensured consistent user experience on modern desktop browsers.

Figure 7 Profile Page.

7.Contributions

- Designed and implemented key React components including the Navbar, Dashboard, and Add Expense Modal.
- Reworked existing styles using custom CSS to align with the updated UI design vision.

Industry Internship (21INT82)

- Integrated Recharts to provide dynamic and interactive data visualizations.

- Connected Firebase Firestore to the frontend, enabling seamless real-time data updates.

- Built and integrated the complete authentication flow, including signup, login, and logout functionality.

- Collaborated through daily team meetings and code reviews, incorporating feedback and guidance from the senior developer.

8.Results and Learnings

- **App Functionality**: The app successfully tracks total expenses, income, debt, and net savings, providing clear financial insights through graphs and predictive analysis for the next 6 months.

- **Debt and Payment Tracking**: Features like debt tracking, payment notifications, and budgeting goals were effectively implemented, allowing users to manage their finances and track debt repayments.

- **User-Centered Design**: Focused on simplicity and usability, ensuring the app's features, like the overview and budget pages, are intuitive for users.

- **Skills Development**: Gained hands-on experience in frontend and backend development, including user authentication, data handling, and real-time notifications.

- **Financial Management Understanding**: Deepened knowledge of financial management concepts, such as debt tracking, budgeting, and predictive analysis for savings.

- **Problem-Solving and Debugging**: Developed problem-solving skills by addressing issues related to data synchronization and notifications.

FUTURE WORK

- Payment Gateway Integration: Enable users to make payments directly through the app, facilitating debt repayment and bill settlement.

- Advanced Predictive Analytics: Implement machine learning models to offer personalized financial advice and improve expense and savings management.

- Data Synchronization: Allow data synchronization across multiple devices to enhance accessibility and usability.

- Financial Reports and Insights: Add functionality to generate detailed financial reports and insights based on spending patterns to assist users in making informed decisions.

- Recurring Expense Tracking: Implement a feature to track recurring expenses and send reminders for upcoming payments.

- Improved Notifications: Enhance notification system for upcoming due dates, debt payments, and budget milestones to ensure timely financial management.

CONCLUSION

Through this internship at Quantum Learning, I gained valuable hands-on experience in developing a real-time Budgeting Web App aimed at helping users manage their personal finances efficiently. I worked on both the frontend and backend, gaining practical knowledge in React.js, Firebase, and modern UI/UX design techniques. The app successfully incorporated features like expense tracking, budget goal setting, debt management, and financial data visualization.

This project enhanced my technical skills, problem-solving ability, and understanding of full-stack web development. The app can be further improved by adding features like voice input and multi-language support in future updates. Overall, the internship helped me bridge the gap between theoretical learning and industry application, preparing me better for a career in software development.