NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR

DEPARTMENT INFORMATION TECHNOLOGY

PROJECT REPORT

WEB TECHNOLOGY LAB

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Introduction

In today's fast-paced world, managing personal finances efficiently is essential for financial well-being. The ability to track expenses accurately plays a crucial role in maintaining a healthy financial lifestyle. To address this need, we have developed an innovative Expense Tracker application.

The Expense Tracker application is designed to provide users with a simple yet powerful tool to monitor and manage their expenses effectively. Leveraging the modern web technologies, our application utilizes React for the front end and Supabase for the back end, ensuring a seamless and responsive user experience.

With the Expense Tracker, users can easily log their expenses, including details such as the date of the expense, the amount spent, and the method of payment. The application then organizes this data to provide users with a comprehensive overview of their spending habits, including total expenses over a specified period.

This project aims to empower users by offering them insights into their spending patterns, helping them make informed financial decisions. Whether it's tracking daily expenses, monitoring monthly budgets, or analysing spending trends over time, our Expense Tracker provides users with the tools they need to stay financially organized.

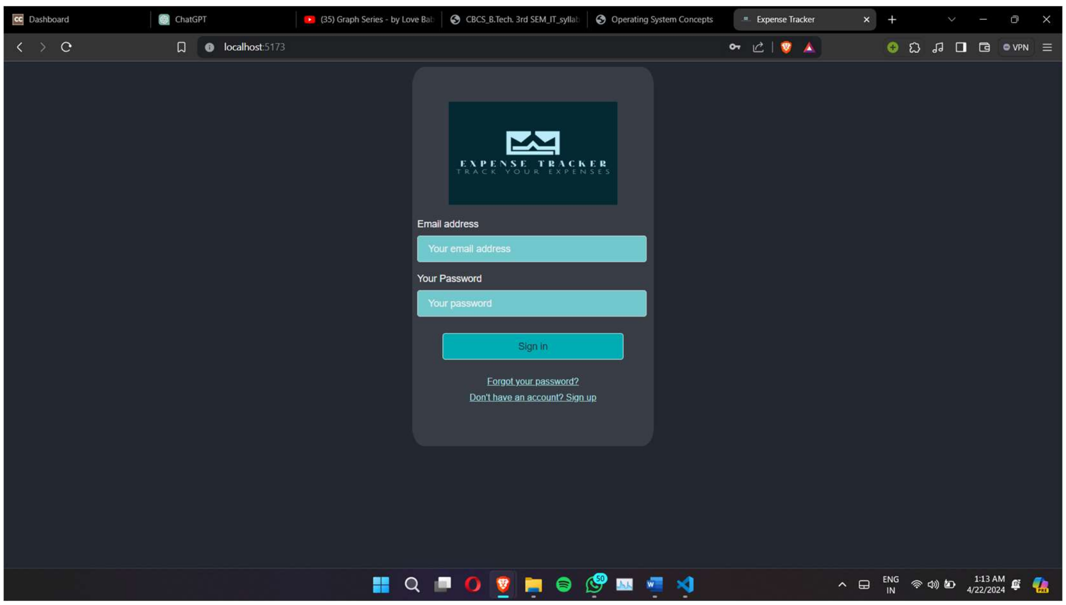
In this project report, we will delve into the details of the Expense Tracker application, including its features, technologies used, future scope, and the overall impact on personal finance management. Join us on this journey as we explore how technology can revolutionize the way we manage our expenses.

Description

User Authentication: Sign In and Sign Up

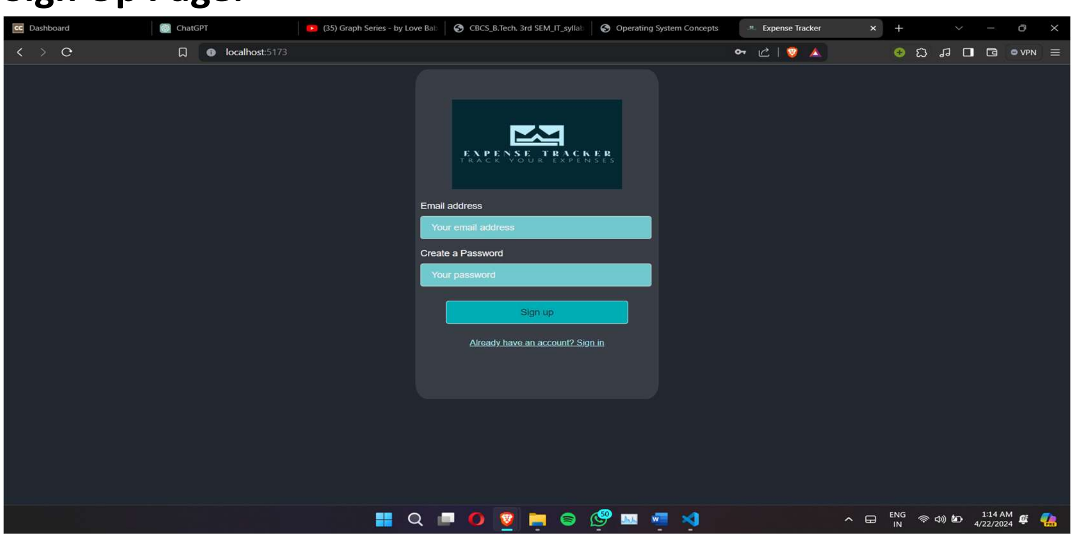
Our Expense Tracker application begins with a 'Sign In/Sign Out' page. Existing users sign in with their email ID and password. New users can create an account via the 'Do Not Have an Account' link, which leads to the Sign Up page.

Sign In Page:



Users enter their credentials here for access to their dashboard and expense tracking.

Sign Up Page:



New users register by providing their email ID and a password. After registration, an email verification link is sent. Clicking this link redirects users to the Login page for access with their new credentials.

This process ensures a secure and streamlined user experience.

Dashboard and User Profile:

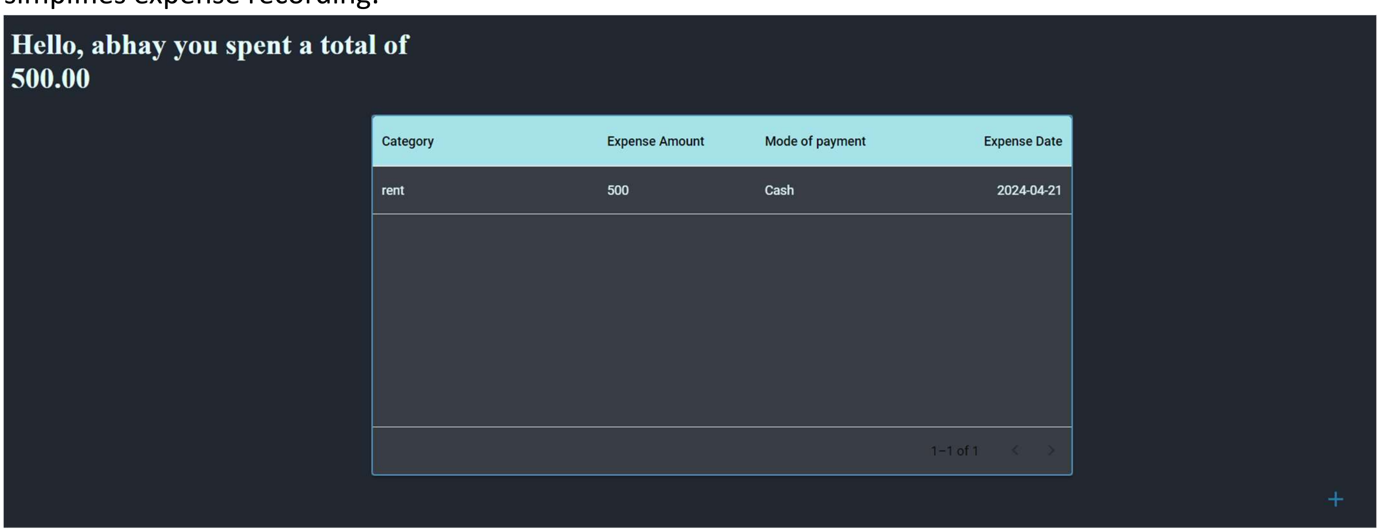
After signing in, registered users access the dashboard featuring a streamlined navigation bar offering Profile, Dashboard, and Logout options. The dashboard presents expense details in a table format, including date, amount, and payment method, aiding in efficient expense tracking.

Navigation Bar:

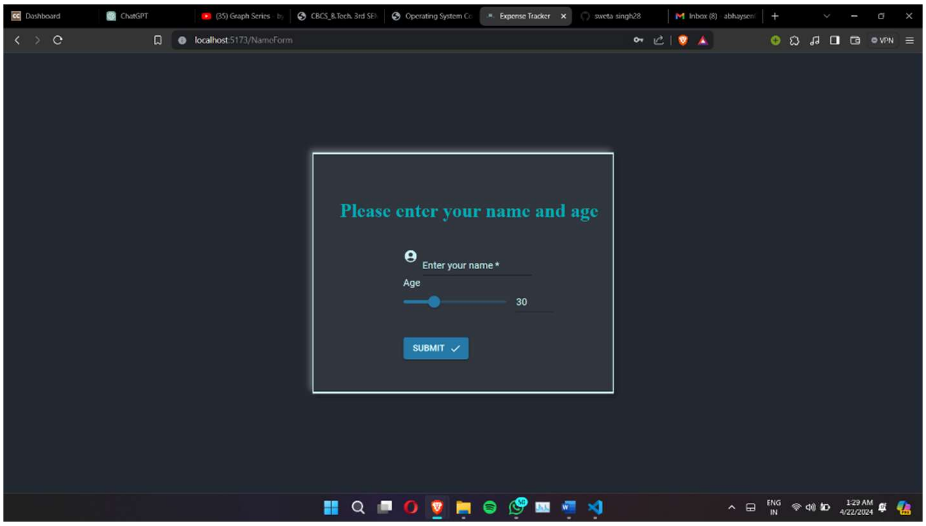
- Profile: Manage personal details like age and name.
- Dashboard: Provides an organized view of expenses.
-Logout: Ensures secure account logout.

Expense Table and User Info:

A table displays expense details while a personalized message greets users by name, displaying total expenses. An "Add New Expense" button simplifies expense recording.

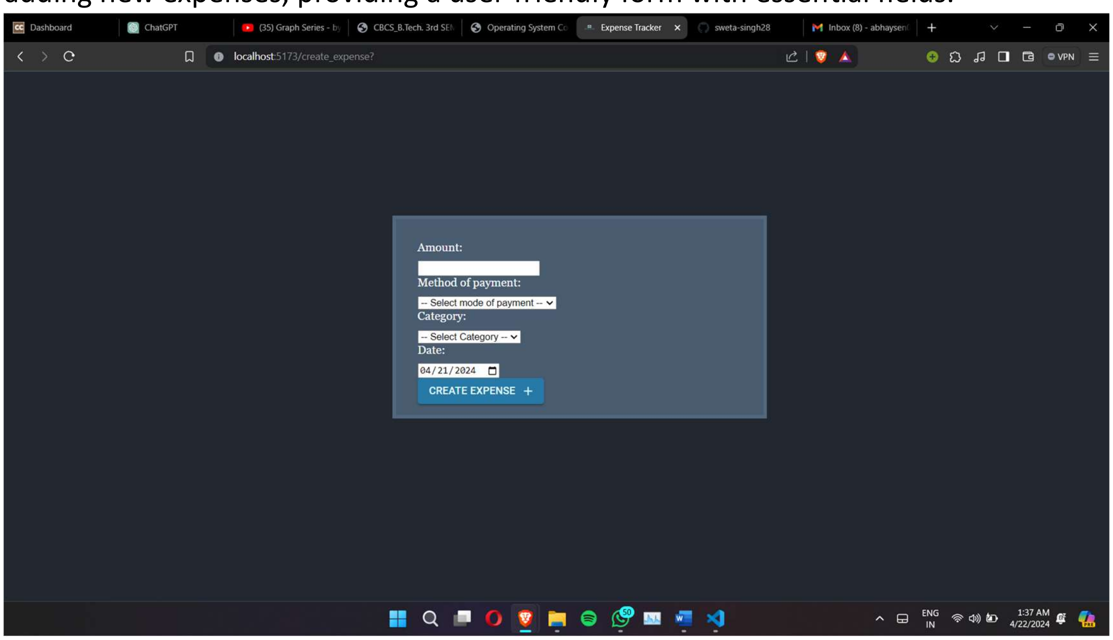


New User Registration: New users input age and name post-sign-in, completing their profiles for tailored experiences.



This setup prioritizes user convenience, fostering effective expense management and personalized interactions within the Expense Tracker application.

Expense Adding Page: Upon clicking the "Add New Expense" button on the dashboard, users are redirected to the Expense Adding page. This dedicated page simplifies the process of adding new expenses, providing a user-friendly form with essential fields.



Expense Form:

-Amount Field: Users input the amount of the expense.

- Payment Method Dropdown Menu: Offers options for selecting the payment method, ensuring accurate record-keeping.

-Payment Category Dropdown Menu: Allows users to categorize expenses for better organization and analysis.
- Date Picker: Enables selection of the expense date, ensuring chronological tracking.

The intuitive design of the Expense Adding page streamlines expense entry, enhancing user convenience and accuracy in maintaining financial records within the Expense Tracker application.

Tech Stack:

Our Expense Tracker application leverages a robust and modern tech stack, carefully chosen to ensure reliability, scalability, and an exceptional user experience. Below are the key components of our tech stack:

1. Front End - React:

- Why React? React's component-based architecture simplifies UI development, enhances code reusability, and ensures a responsive and interactive user interface.
- Libraries and Tools: We utilize React Router for efficient navigation within the application, Axios for handling API requests, and Material-UI for designing consistent and visually appealing UI components.

2. Back End - Supabase:

- Why Supabase? Supabase provides a powerful combination of PostgreSQL database functionalities and authentication services, offering real-time data synchronization, secure data storage, and user management capabilities.
- Features: Our backend implementation includes Supabase's database for storing expense data, authentication services for user registration and login, and API integration for seamless communication between the front end and back end.

3. Database - PostgreSQL:

- Why PostgreSQL? PostgreSQL is a robust and reliable open-source relational database management system known for its performance, scalability, and advanced features such as ACID compliance, JSONB data type support, and extensive indexing options.
- Data Management: We utilize PostgreSQL through Supabase for efficient data storage, retrieval, and management, ensuring data integrity and optimal performance for our Expense Tracker application.

4. Authentication and Security:

- JSON Web Tokens (JWT): We implement JWT-based authentication for secure user authentication and authorization, ensuring that only authenticated users can access sensitive functionalities such as adding expenses and managing user profiles.

- Encryption: All sensitive data, including user passwords and authentication tokens, are encrypted using industry-standard encryption algorithms to protect user privacy and data security.

5. Deployment and Hosting:

- Platform: Our application is deployed and hosted on cloud platforms such as Vercel or Netlify for seamless deployment, scalability, and reliability.
- Continuous Integration/Continuous Deployment (CI/CD): We implement CI/CD pipelines to automate the deployment process, ensuring smooth updates and releases without downtime.

By leveraging this advanced tech stack, our Expense Tracker application delivers a robust, secure, and user-friendly solution for effective expense management and financial tracking.

Future Scope:

As our Expense Tracker application continues to evolve, we envision several exciting enhancements and features to further empower users in managing their finances effectively. The future scope of our project includes:

1. Income Tracking:
   - Integrate an income tracking feature to monitor total income sources.
   - Implement functionality to deduct expenses from total income, providing users with a comprehensive view of their financial health.

2. Visual Data Representation:
   - Incorporate dynamic pie charts and data visualization tools to depict spending patterns and expenditure categories graphically.
   - Provide interactive charts that allow users to explore and analyze their spending habits, enabling informed financial decision-making.

3. Budgeting and Forecasting:
   - Develop budgeting tools to help users set financial goals, allocate budgets for different expense categories, and track budget adherence.
   - Implement forecasting algorithms to predict future expenses based on historical data and spending trends, assisting users in proactive financial planning.

4. Mobile Application Integration:
   - Create a mobile application version of the Expense Tracker for seamless access and usability on smartphones and tablets.
   - Utilize mobile platform-specific features such as push notifications, camera integration for receipt scanning, and location-based expense tracking for enhanced user experience.

5. Enhanced User Profiles:
   - Expand user profile capabilities to include additional personal finance metrics such as savings goals, investment portfolios, and debt management.
   - Provide personalized financial insights and recommendations based on user behavior and financial data analysis.

6. Collaborative Features:
   - Introduce collaborative features such as shared expense tracking for households, families, or teams, enabling collective budget management and expense sharing.
   - Implement user permissions and access controls to ensure data privacy and security in collaborative environments.

7. Integration with Financial Services:
   - Explore partnerships and integrations with financial institutions, payment gateways, and third-party services to streamline expense tracking, bill payments, and financial transactions.
   - Offer value-added services such as credit score monitoring, investment tracking, and tax planning tools within the Expense Tracker platform.

By implementing these future enhancements, our goal is to transform the Expense Tracker application into a comprehensive financial management solution, empowering users to achieve financial stability, make informed financial decisions, and achieve their financial goals with confidence.

Conclusion:

Our Expense Tracker application represents a significant advancement in financial management, offering users a streamlined and intuitive platform for expense tracking and financial visibility. Leveraging modern technologies like React, Supabase, and PostgreSQL, we've created a robust and user-centric solution.

Key features such as intuitive navigation, personalized profiles, and visual data representation enhance user experience. Future enhancements like income tracking, budgeting tools, and mobile integration will further enrich our platform, meeting diverse user needs.

We're committed to continual improvement and thank our stakeholders for their support. Together, we're shaping a more financially empowered future.