FACULTY OF COMPUTER SCIENCE

Assignment 2

In
The Class of

CSCI 5709: ADVANCED TOPICS IN WEB DEVELOPMENT

by

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Submitted to

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A2.1. Application Feature

The application feature that I have chosen to work on in this assignment is the Pro Feature.

A2.2.1 Application Details

The Financial Management Platform provides users with a comprehensive suite of tools and features designed to facilitate the efficient financial planning, monitoring, and control. Its primary aim is to offer an intuitive interface that empowers individuals to manage their finances effectively, make well-informed decisions, and achieve their financial goals. With a range of features spanning from authentication to credit score tracking and the pro feature, the platform is dedicated to enhancing users' financial well-being and fostering a sense of empowerment in managing their finances.

Target User Insight

The FINtastic Application caters to a diverse user base consisting of individuals from various professional backgrounds and life stages. Whether they are digital nomads, entrepreneurs, parents, freelancers, students, retirees, or small business owners, each user brings unique financial management needs and aspirations to the platform.

Assumptions on why users would use the application

- Scenarios:
  Users like Petra, a freelance graphic designer, who relies on irregular income streams, can benefit from our application's features such as expense categorization and invoicing tools. Petra can streamline her freelance finances, manage client invoices efficiently, and gain better insights into her cash flow. Similarly, students like Alex, navigating through their academic journey, can leverage FinTastic's budget planning features. Alex can manage their expenses, track savings, and allocate funds for tuition fees, textbooks, and other educational expenses, ensuring a balanced financial approach during their student life. Retirees like Sarah, transitioning into post-employment life, can utilize FinTastic's investment tracking features. Sarah can ensure financial security during her retirement years by setting up retirement goals, monitoring investment portfolios, and making informed decisions to optimize her savings.

- Use Cases:
  Users interact with the platform to upgrade their subscriptions, explore premium features, set financial goals, monitor progress, and enhance their financial well-being.

- User Flow:
  FinTastic seamlessly guides users through the subscription process, payment gateway, feature discovery, goal setting, and progress monitoring, ensuring a user-friendly experience at every step.

Requirements and Prerequisites

- Knowledge:
  While basic financial literacy is recommended, FinTastic's intuitive interface accommodates users with varying levels of expertise.

- User Account:
  Users must create an account on FinTastic to unlock personalized features, set financial goals, and track their progress over time.

- Subscription:
  To access premium features and enhanced tools, users are required to subscribe to the Pro plan, which involves a seamless payment process through the integrated gateway.

User-Centered Design Approach

In designing and developing our Financial Management Platform, FinTastic, we adopted a user-centered approach to ensure that the platform meets the diverse needs of our user base. Our user-centered design approach for FinTastic involved incorporating insights from user scenarios, use cases, and feedback to create a platform that addresses the specific needs and preferences of our diverse user base. From the subscription process to dashboard enhancements, every aspect of the design and development was informed by user insights to deliver a seamless and empowering financial management experience.

Figure 1. represents the sitemap for the web application that includes all the web pages as part of the application [4].

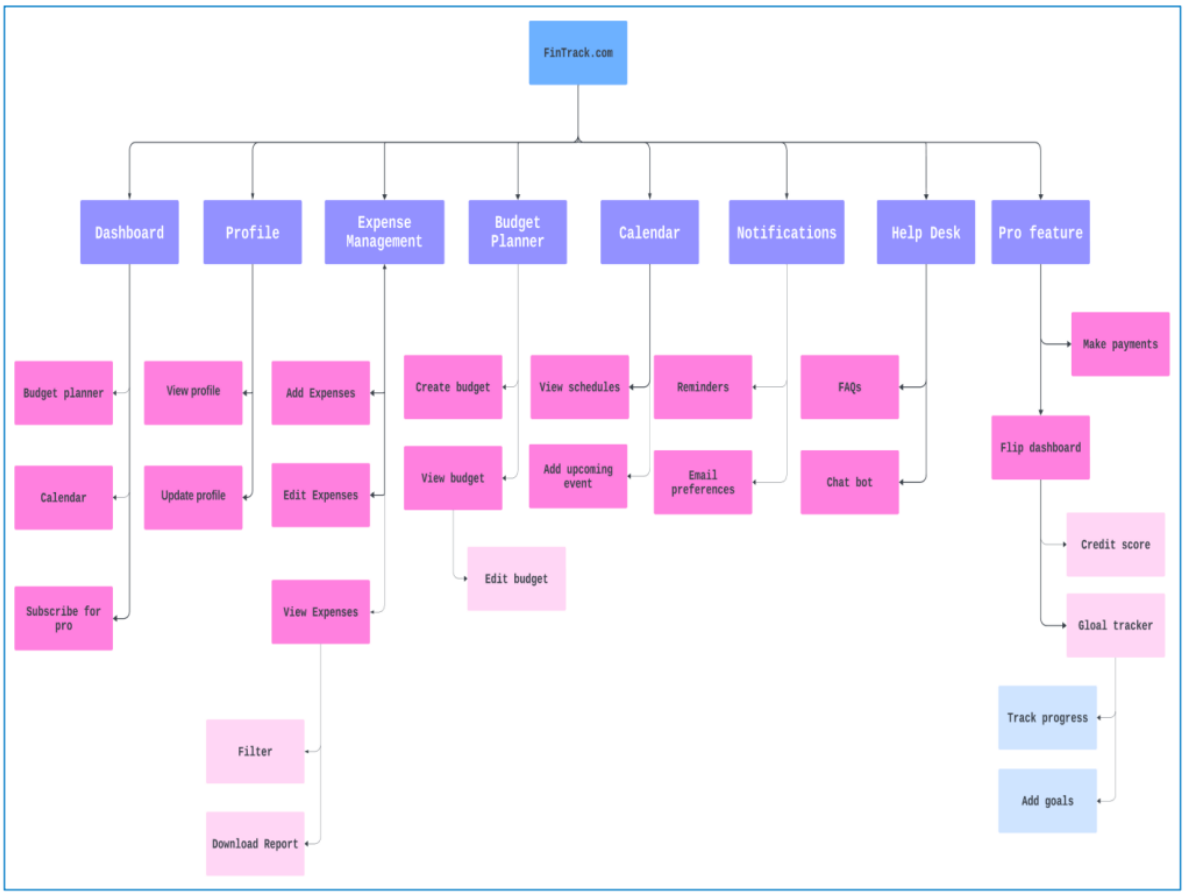

Figure 1: Sitemap for the application [1]

Here's how user insights have been incorporated into our design and development process:

- Subscription Process:
  Figure 2. – 4. shows the Lo-fidelity prototype of viewing the subscription process. We analyzed user scenarios where individuals were interested in upgrading to the Pro Subscription for enhanced financial planning features. Based on this insight, we prioritized creating a seamless and secure payment gateway integrated into the platform.
  By understanding the importance of clarity and transparency in decision-making, we designed a dedicated subscription page that highlights the benefits and features of the Pro plan. This allows users to make informed decisions about upgrading.
  Offering various secure payment options and guiding users through the payment process ensures a user-friendly experience, addressing the need for simplicity and security expressed by our user base [4].

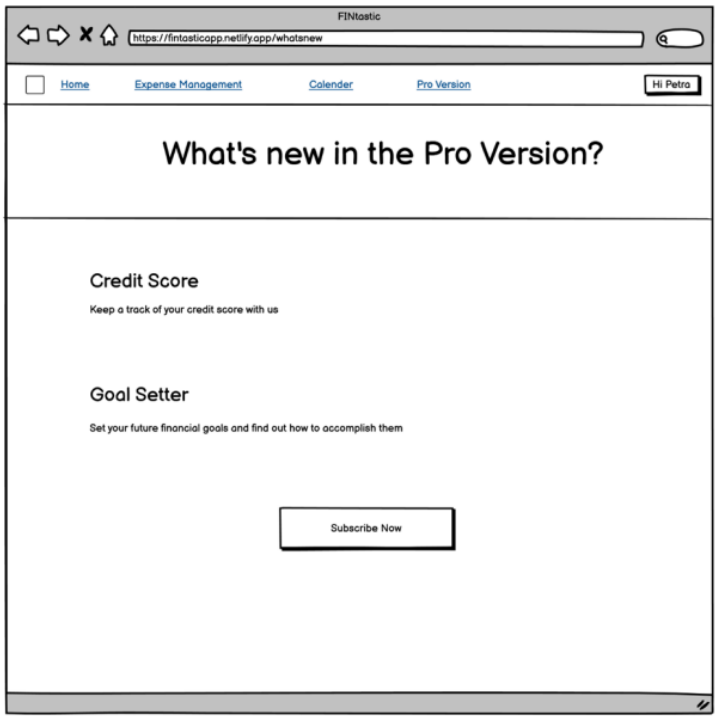

Figure 2: Lo-Fidelity Diagram of what's new section [2]

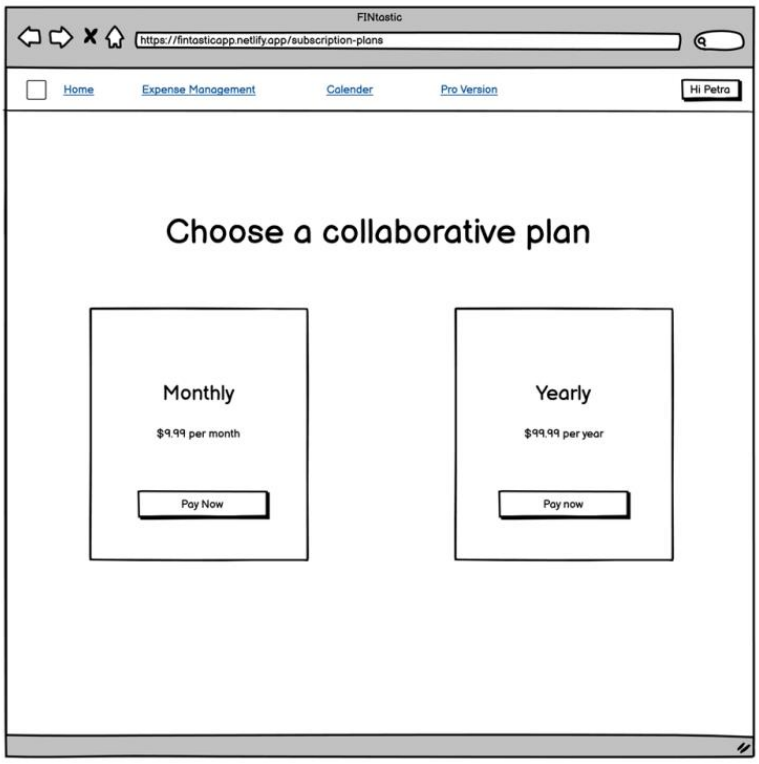

Figure 3: Lo-Fidelity Diagram Choose a plan [2]

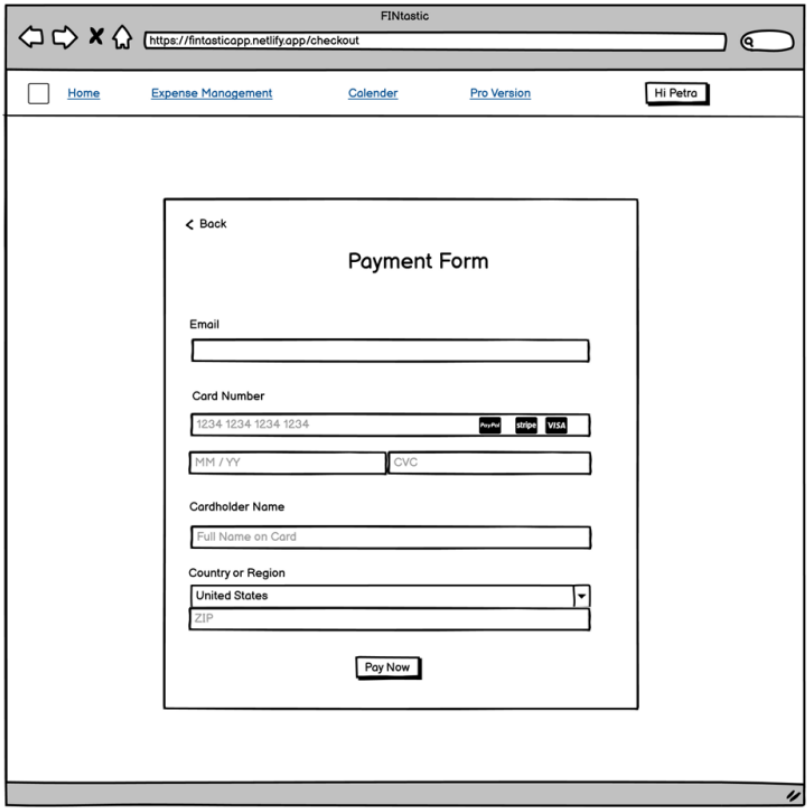

Figure 4: Lo-Fidelity Diagram of payment form [2]

- Dashboard Enhancements for Pro Users:
  Figure 5. represents the UI design of the enhanced dashboard for the Pro Users. Following the subscription, we focused on enhancing the dashboard interface to cater to the specific needs of Pro users. Through user feedback and use cases, we identified the need for personalized insights and tools for comprehensive financial management. We introduced distinct sections such as "Credit Score Insights" and "Financial Goals" to provide users with valuable insights and tools for setting and tracking financial objectives. Wireframing and design iterations were used to ensure a user-friendly interface.
  Features like personalized savings plans and progress indicators were incorporated to empower users to take control of their financial futures and make informed decisions about their finances [4].

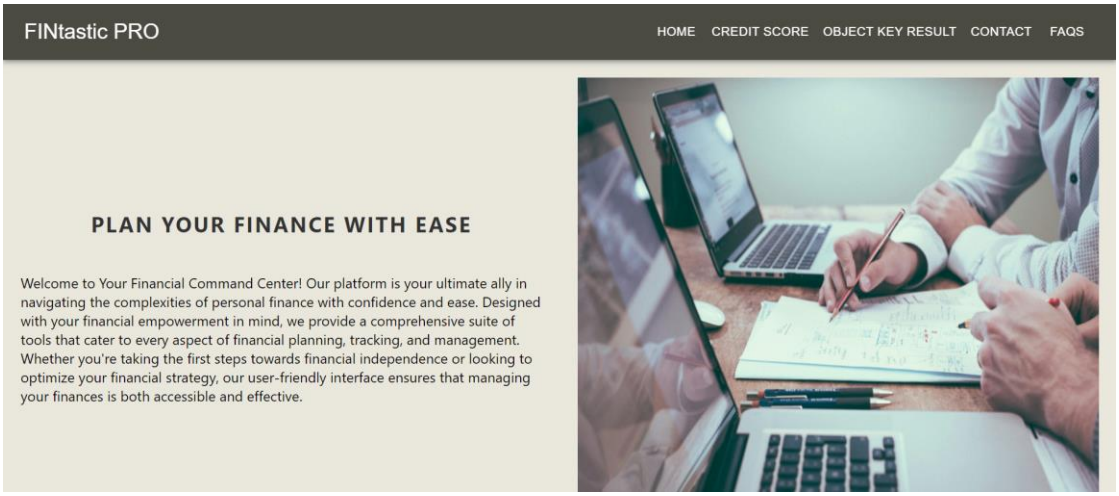

Figure 5: UI for Pro Dashboard

A2.2.2 Application Workflow

Figure 6. represents the application architecture for the FINtastic application. The Model View Controller (MVC) framework will be used to develop the application. The Model component defines the application's data structure and storage mechanisms, including entities, databases, and data management components. The View component serves as the front-end layer, encompassing the user interface and visual elements through which users interact with the application. The Controller, acting as the intermediary, contains the application's business logic, handling user requests, processing data, and generating responses. It orchestrates interactions between the Model and View, ensuring seamless user experiences.

The front end of the application is developed with the ReactJS framework. Its approach is based on components that enable modular development, simplifying code management. The backend of the application will be developed using Express JS and Node JS framework. Node.js enables developers to effortlessly build rapid, scalable server-side web applications. At last, MongoDB will be used to store the data of the application. MongoDB will provide us with the flexibility of storing different data of our application into a single collection [5].

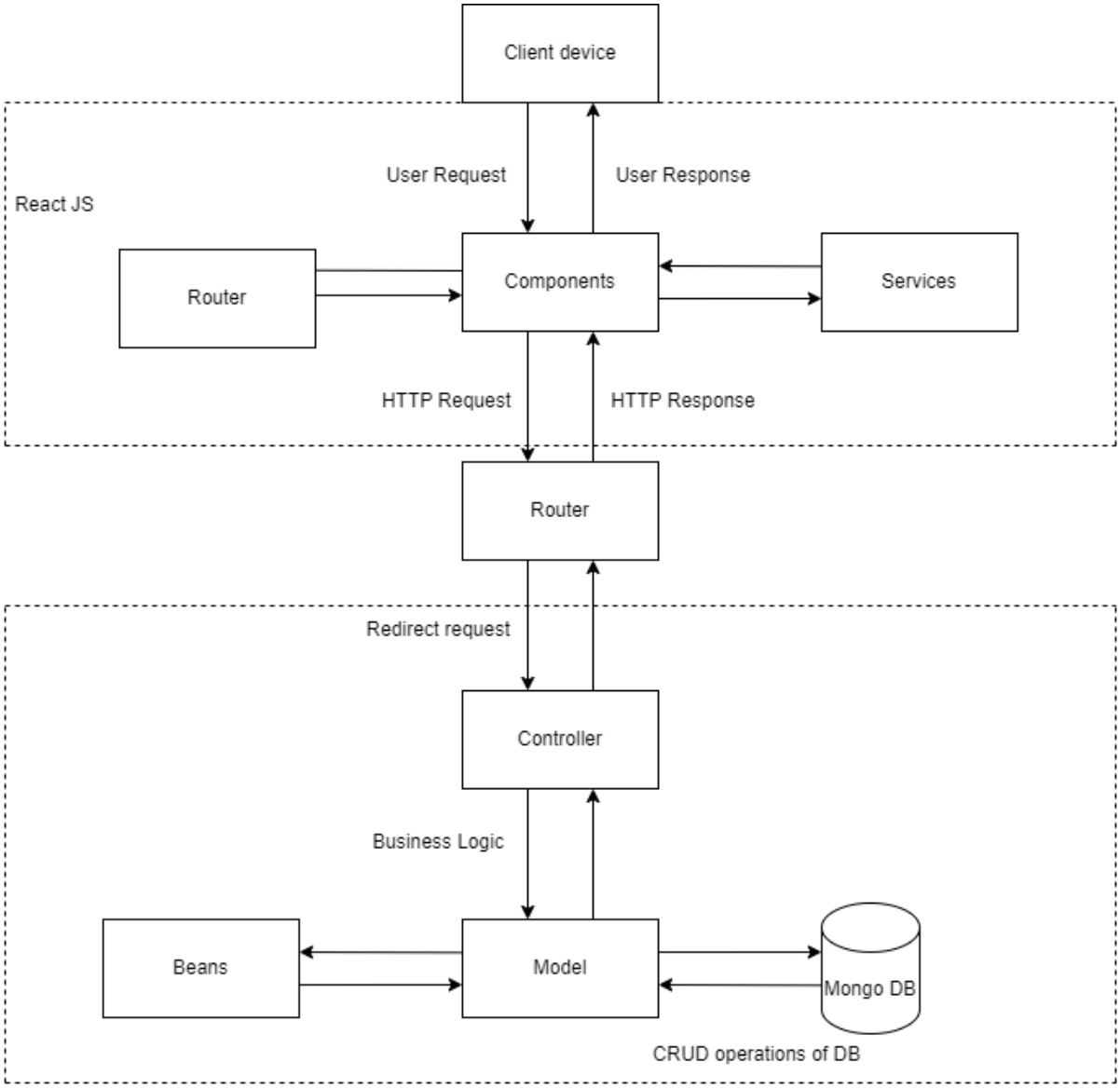

Figure 6: Application Workflow [3]

Interaction Design

In this section, the interaction design of the application with the user concerning my feature will be demonstrated.

Feature: Pro Version

Task 1: Payment Gateway for subscription
For the payment gateway task, the front end presents the user with clear navigation options and informative content about the benefits of the Pro plan. As the user selects the upgrade option, the front end guides it through the subscription process step-by-step. The front-end

interface displays available payment methods and prompts the user to enter her payment details securely.
In the back-end, payment processing services handle user's payment transactions securely. Once the user confirms her payment, the back-end verifies the transaction and updates her account status to reflect the Pro subscription. The back end then triggers the activation of premium features for the user's account [4].

Use Case:

Scenario:
Petra, an active user of the Financial Management Platform, decides to upgrade to the Pro subscription to access advanced features for better financial planning.

Normal Flow of events:

1. Petra logs into her account and navigates to the subscription section to explore the benefits of the Pro plan.
2. She reviews the advantages and features presented on the dedicated subscription page.
3. Petra selects the Pro plan and proceeds to the integrated payment gateway.
4. The payment gateway offers various secure payment options, and Petra chooses her preferred method.
5. Petra enters her payment details, ensuring a secure transaction process.
6. The back-end processes the payment, verifies it, and updates Petra's account to reflect the successful upgrade.
7. Petra gains immediate access to premium features, enhancing her financial management capabilities.

Alternate Flow of events:

1. If Petra encounters a payment processing error:
2. The back end detects the issue and sends an error response to the front end.
3. The front end displays an error message, informing Petra about the issue with processing her payment.
4. Petra retries the payment process using a different payment method or contacts support for assistance.

Task Flow:
Figure 7. represents the task flow diagram for the payment gateway for the subscription.

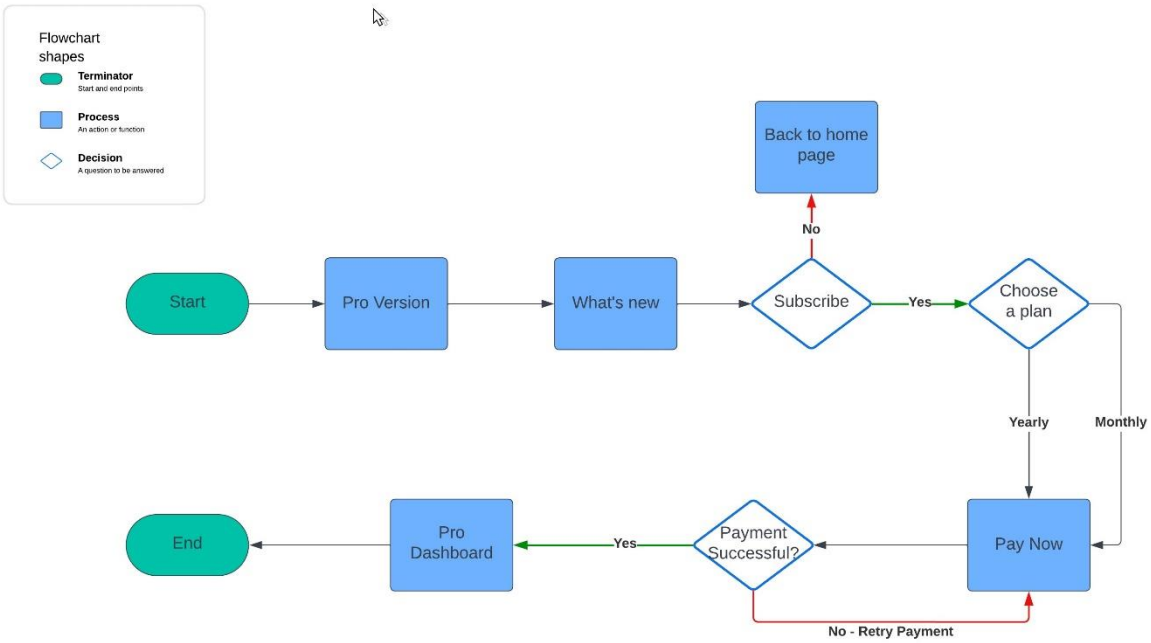

Figure 7: Task flow for Payment Process [1]

Click Stream:

Figure 8. represents the click stream diagram for the payment process.

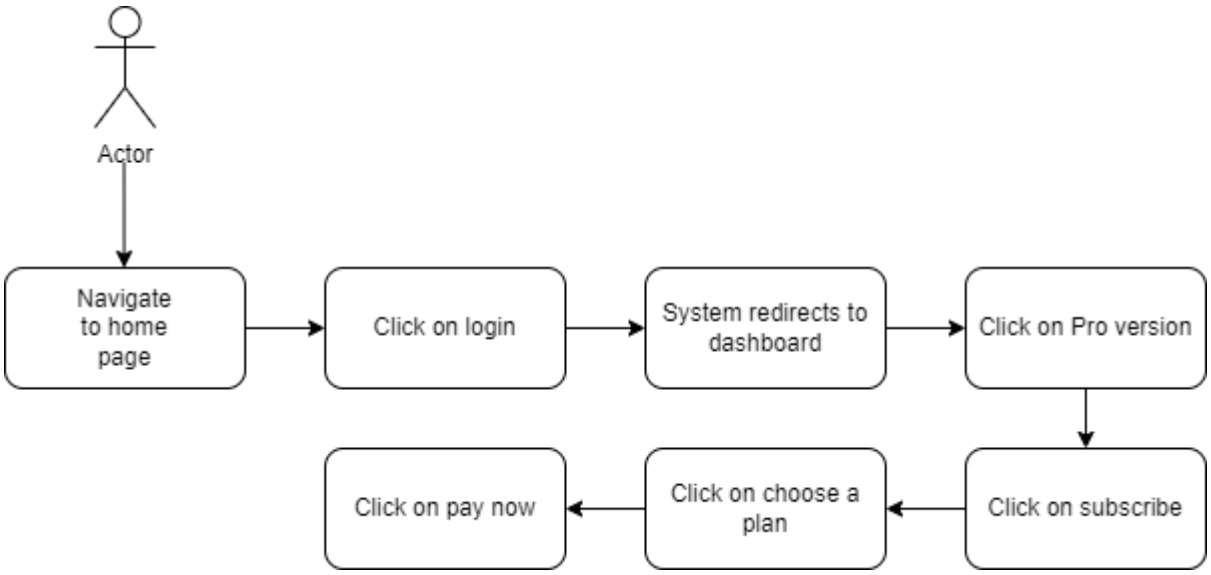

Figure 8: Click Stream for Payment Process [3]

Task 2: Dashboard with Additional Features for Pro Users
For the Dashboard with Additional Features task, the front end guides the user through the process of exploring and utilizing the new features after upgrading to the Pro plan. It ensures user engagement by providing clear instructions and visual cues.
In the back end, services handle the retrieval and processing of data required for displaying users' credit score insights and financial goal-setting tools. These services ensure that the user's personalized financial information is securely retrieved and displayed on the dashboard [4].

Use Case:
Petra, a newly subscribed Pro user, logs into the platform to explore the upgraded dashboard and its additional features tailored for Pro users.

Normal Flow:

1. Petra logs into her account and accesses the newly designed dashboard, featuring distinct sections for "Credit Score Insights" and "Financial Goals."
2. Intrigued by the prospect of improving her financial health, Petra clicks on "Credit Score Insights."
3. The front end displays Petra's current credit score and offers personalized tips to enhance it.
4. Satisfied with the insights, Petra navigates to the "Financial Goals" section to set a specific long-term objective, such as saving for her children's education.
5. Petra inputs the details of her financial goal, including the targeted amount and desired timeframe.
6. The front end calculates the periodic savings required and presents achievable milestones to track progress.
7. Encouraged by the seamless goal-setting process, Petra proceeds to the "Objectives & Key Results" module within the dashboard.
8. Here, she sets a specific Key Result related to her goal, such as saving a certain percentage of the targeted amount within a defined period.
9. After confirming her Key Results, the front-end automatically calculates and displays progress indicators for each measurable outcome.
10. Petra saves the Key Results, and the platform confirms the successful addition, providing her with a visual representation of her financial objectives and progress.

Alternate Flow:

1. If Petra encounters a technical issue while setting financial goals:
2. The front end detects the issue and prompts Petra with an error message.
3. Petra retries the goal-setting process or contacts customer support for assistance.
4. Alternatively, Petra navigates to other sections of the dashboard to explore different features while the issue is being resolved.

Task Flow:

Figure 9. represents the task flow diagram for the payment gateway for the pro user dashboard.

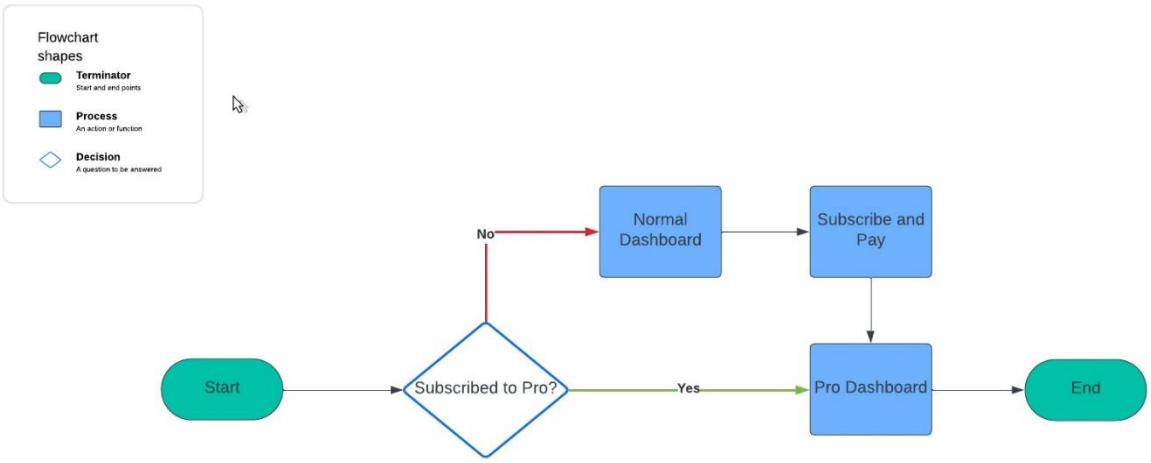

Figure 9: Task Flow for Pro Dashboard [1]

Click Stream:

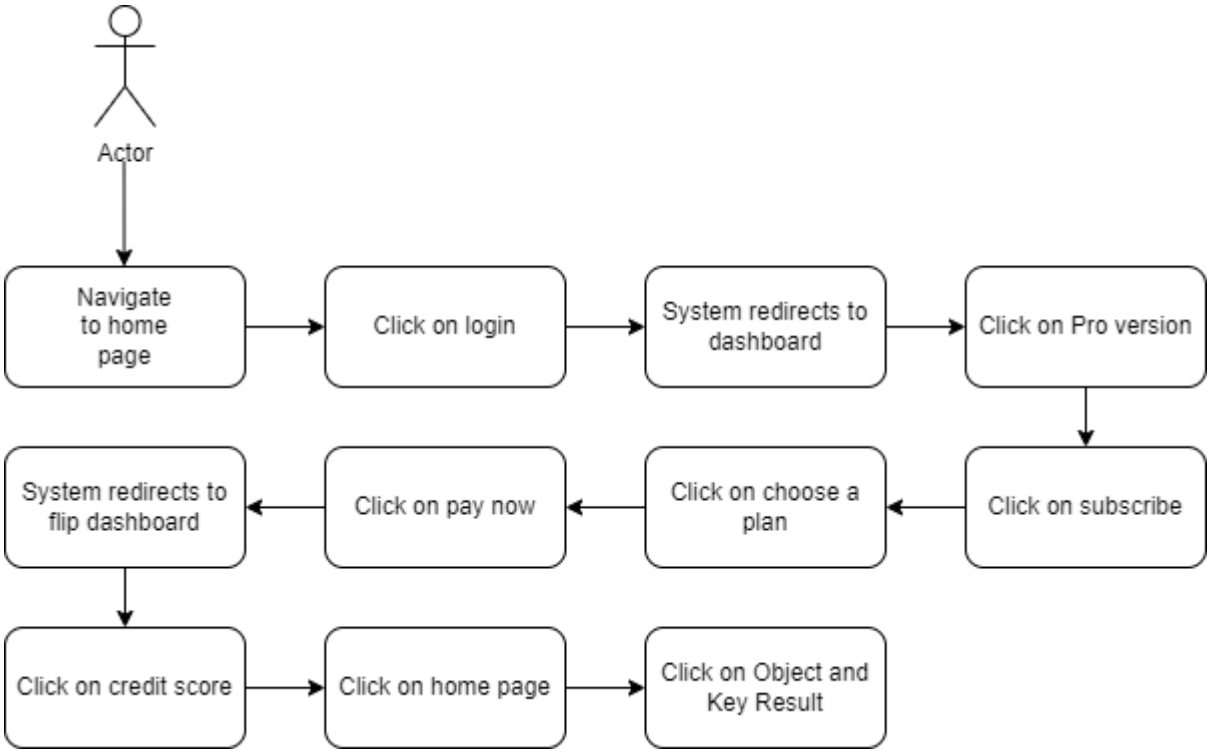

Figure 10: Click Stream for Pro Dashboard [3]

Process and Service workflow

Figure 11. represents the process workflow diagram for the FINtastic application.
When the user interacts with the website, the data is rendered on the client's machine using the react components. Then, the react component sends the API request to the backend (NodeJS). Further, the data is processed and retrieved through the database layer (Mongo DB). At last, the data is sent back to the frontend layer and is finally displayed to the user.

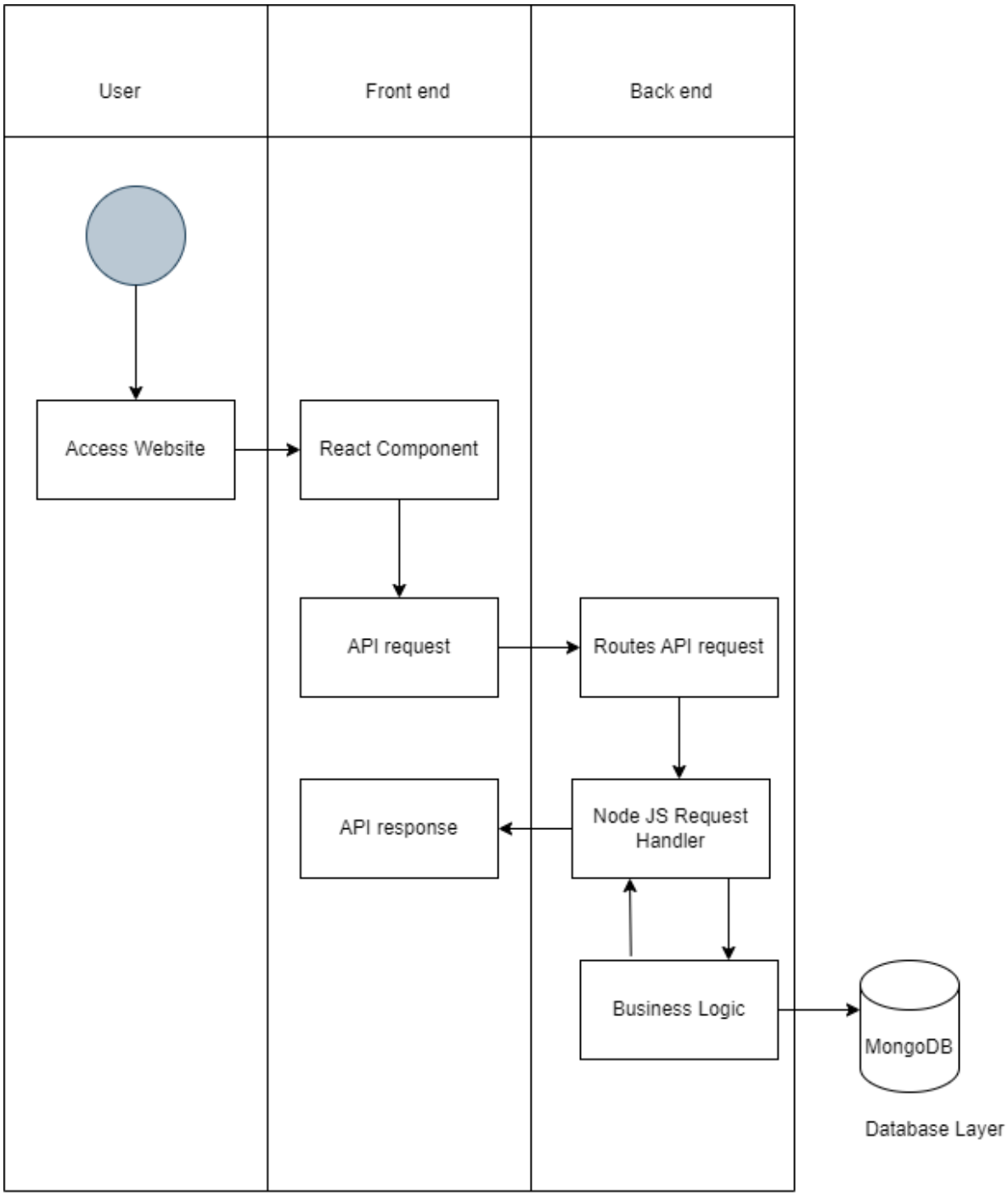

Figure 11: Process workflow of the application [3]

File and Folder Structure

The front end of the application is built using the ReactJS framework. Figure 12. shows the files and the folder structure of the front-end project.

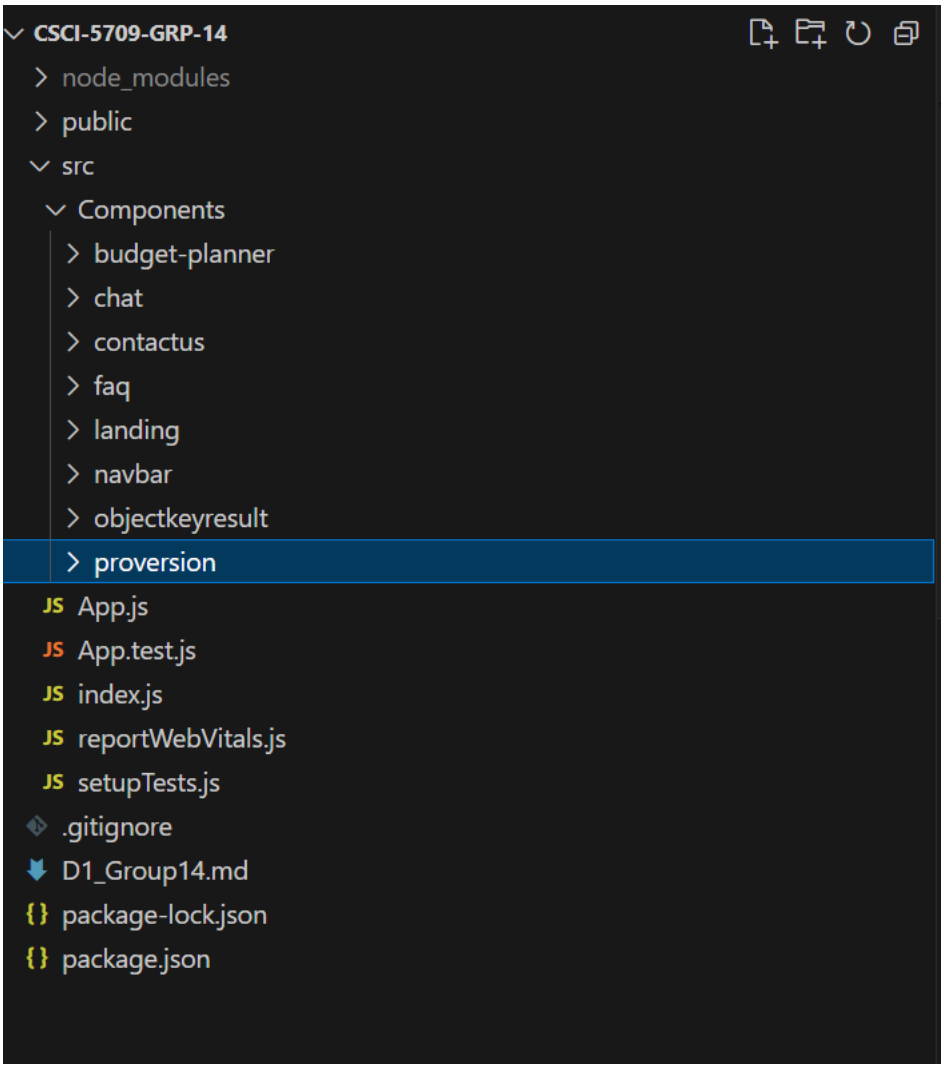

Figure 12: Folder Structure for the frontend project

The back end of the application Is developed using the NodeJS framework. Figure 13. shows the folder structure of the back-end project.

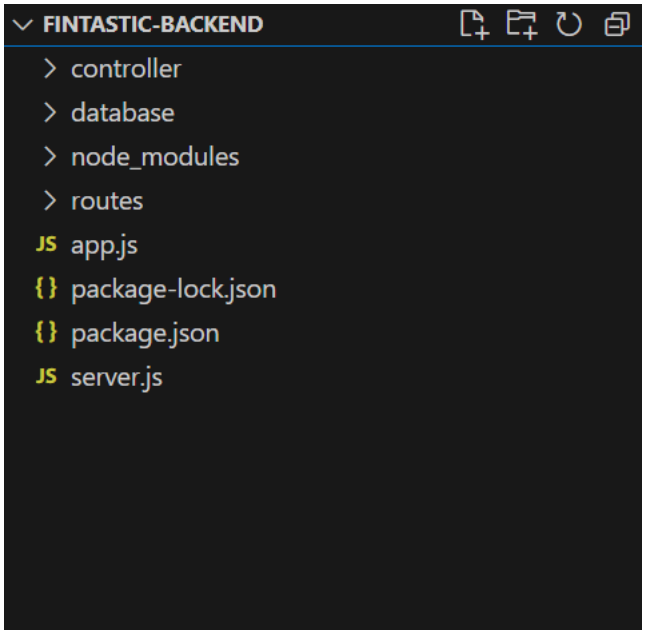

Figure 13: Folder Structure for the backend project

References

[1] "Documents," Lucid.app, 2015. https://lucid.app/documents#/documents?folder_id=home [Accessed: March. 09, 2024].

[2] Balsamiq.cloud, 2019. https://balsamiq.cloud/s1v357p/p1vjb5v/r1D80 [Accessed: March. 09, 2024]

[3] "Flowchart maker & online diagram software," *Diagrams.net*. [Online]. Available: https://app.diagrams.net/. [Accessed: March. 09, 2024].

[4] S. Kapoor, R. Kaur, V. N. Vasita, B. Kanodiya, J. Singh, D. V. Kosaliya, "CSCI 5709 Assignment 1." *Dalhousie University*, [online document], 2024. [Accessed: March 09, 2024].

[5] Shreya Kapoor, "CSCI 5709 Tutorial 1." *Dalhousie University*, [online document], 2024. [Accessed: March 09, 2024].