Instructor: **Eng. Golam Rabbany**
Daffodil International University
Course Title: Software Project VI
Course Code: CSE336

Dear Sir,

Re: **Enclosed Application Agreement for FishPlants Web Application System**

We're excited to present our tailored FishPlants web application system. This solution is designed to streamline your operations and enhance customer experience. By automating tasks and providing valuable insights, our application will help you:

- **Increase Efficiency:** Save time and reduce manual effort.
- **Improve Customer Satisfaction:** Offer a seamless and personalized experience.
- **Boost Sales:** Drive growth through targeted marketing and promotions.

Please review the enclosed agreement for a detailed overview of the features and functionalities. We're confident that our application will exceed your expectations.

Please don't hesitate to contact us if you have any questions.

Sincerely,

Muhammad Ruhul Quddus
ID: 212-15-14712
Batch: 60_E
Daffodil International University

FishPlants Fish & Plants Ordering website

Project Overview

Purpose:

The purpose of this document is to define the functional and nonfunctional requirements for the development of a web-based application titled Fish & Plants Shop with User Authentication. This project provides a platform to showcase and manage fish and plant products while enabling user registration, login, and logout functionalities**.**

Scope:

The system allows users to:

- View fish and plant products with their details and prices.
- Register with a name, email, phone number, and password.
- Log in to access the website using valid credentials.
- Log out and return to the login page.
- Manage user details and product information through a backend integrated with MySQL.

The website will use Node.js with Express as the backend, and the MySQL database for data storage.

Definitions, Acronyms, and Abbreviations:

- HTML/CSS: Technologies for structuring and styling the website.
- JavaScript (JS): Programming language for frontend and backend scripting.
- Node.js: A server-side JavaScript runtime environment.
- Express.js: A web application framework for Node.js.
- MySQL: A relational database management system for data storage.
- API: Application Programming Interface for communication between client and server.

General Description

Product Perspective

The Fish & Plants website is an independent web application that allows users to view products, register, log in, and log out. It integrates a MySQL database for storing user data and product information, with a backend built using Node.js and Express.js.

User Classes and Characteristics

- Administrator: Manages product details and user data (future scope).
- Registered Users: Can log in to view the product catalog and manage their session.
- Guest Users: Can view products but need to register to access personalized features.

Operating Environment

- Frontend: HTML, CSS, JavaScript
- Backend: Node.js with Express.js
- Database: MySQL

Assumptions and Dependencies

- MySQL and Node.js are installed and properly configured.
- Users have access to a stable internet connection.
- Browser compatibility for modern web browsers is ensured.

Functional Requirements

User Registration

- Description: Users can register by providing their name, email, phone number, and password.
- Inputs: Name, Email, Phone, Password.
- Process: Save user information to the MySQL database.
- Outputs: Success or error message.
- Constraints: Duplicate email addresses should not be allowed.

User Login

- Description: Registered users can log in using their email and password.
- Inputs: Email, Password.
- Process: Validate credentials with the database.
- Outputs: Success message and access to the website.
- Constraints: Invalid credentials will display an error message.

User Logout

- Description: Logged-in users can log out of the system.
- Process: Clear session data.
- Outputs: Redirect the user to the login page.

Product Display

- Description: The website displays fish and plant products.
- Inputs: Product details such as name, price, and image.
- Outputs: Product grid with images, names, and prices.

External Interface Requirements

User Interface

- Registration Form: Fields for Name, Email, Phone, Password.
- Login Form: Fields for Email and Password.

- Product Page: Displays fish and plant products in a grid format with names, prices, and images.
- Logout Button: Logs out the user and redirects to the login page.
- 4.2 Software Interfaces
- Frontend: HTML, CSS, JavaScript.
- Backend: Node.js with Express.js.
- Database: MySQL for storing user and product data.

Software Interfaces:

- **Frontend**: HTML, CSS, JavaScript.
- **Backend**: Node.js with Express.js.
- **Database**: MySQL for storing user and product data.

Non-Functional Requirements

Performance Requirements

System response time for user actions (register, login, logout) should be **2-3 seconds**.

Security Requirements

User passwords must be securely stored in the database (future scope: password hashing). The system must validate inputs to prevent SQL injection and other attacks.

Usability Requirements

The interface should be intuitive and user-friendly. Clear error messages should be displayed for invalid inputs.

Availability

The system should be available **24/7**.

System Features

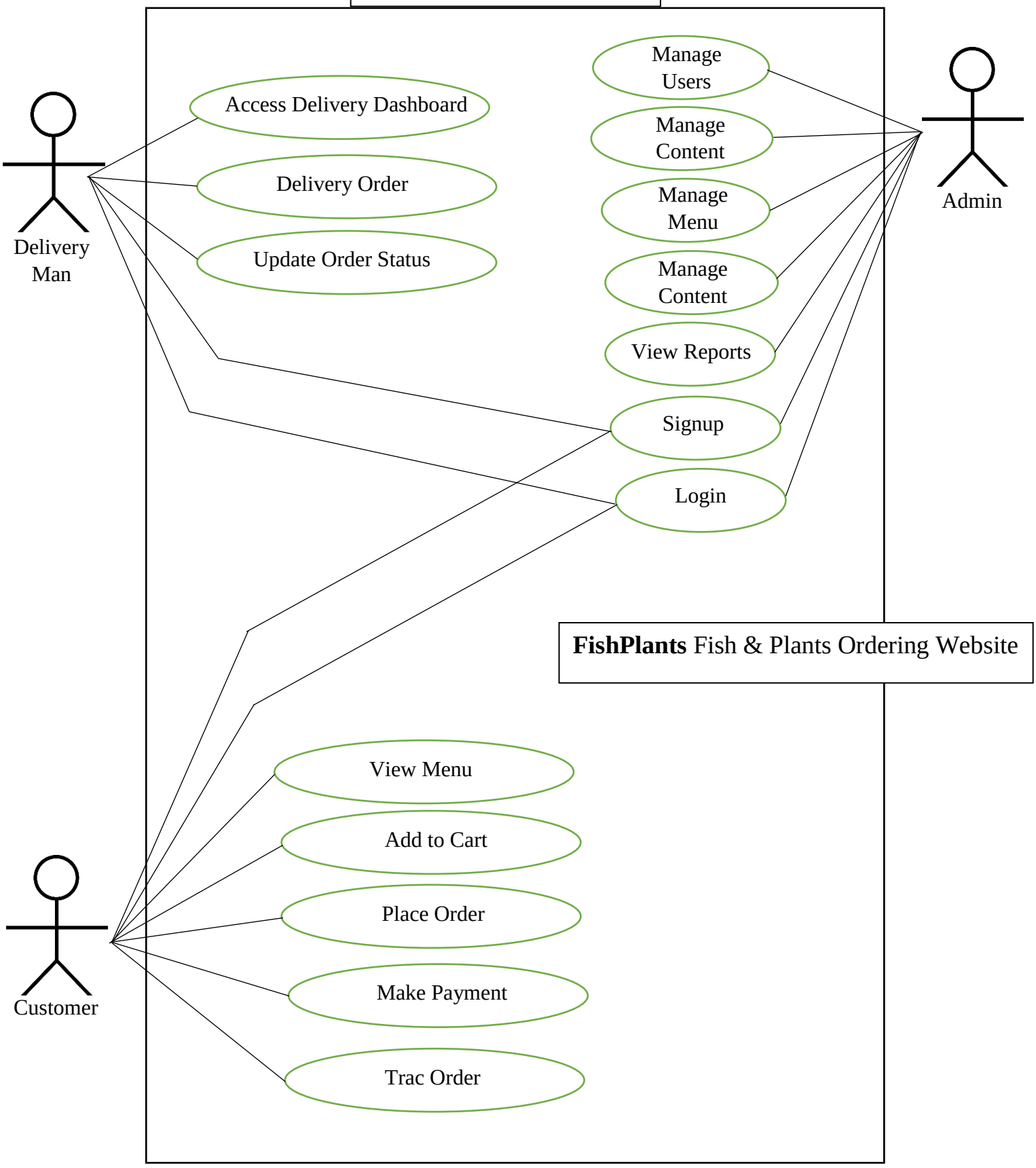
Feature	Description
User Registration	Allows new users to register with name, email, phone, and password.
User Login	Allows registered users to log in to the system.
User Logout	Allows users to log out and return to the login page.
Product Display	Displays fish and plant products in a grid layout.

Technology Stack

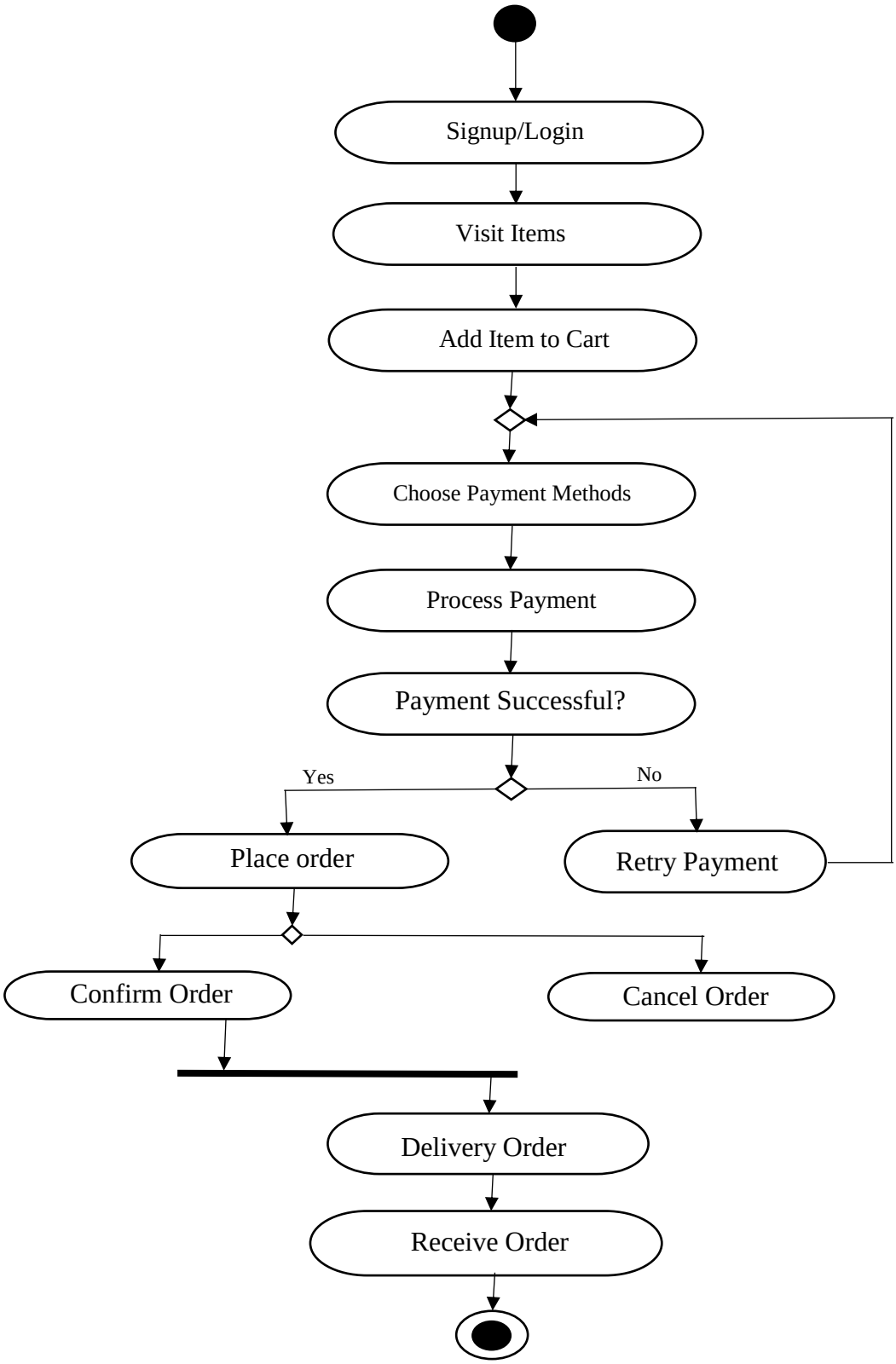
Component	Technology
Frontend	HTML, CSS, JavaScript
Backend	Node.js with Express.js
Database	MySQL
APIs	RESTful APIs
Hosting Environment	Localhost / Web Server

- Express, Node.js then we will add that will help us to connect with the database.
- Json web token using this we will create the authentication system
- Bcrypt using this we will encrypt the user's data and store in the database
- Cors using that we can give the permission to our front end to connect with the backend.
- Body parser using this we will pass the data coming through the user.
- Validator using this validator package we will check if the password or email id is valid or not.
- Nodemon using this package when we save our project the server will be restarted.

Use Case Diagram



Activity Diagram: FishPlants Ordering System



Detailed Workflows

Customer Workflow

- **Registration/Login:** Uses React forms with validation for fields like email and password.
- **Menu Browsing:** Renders available items with real-time inventory status.
- **Cart Management:** Uses state management (e.g., React Context or Redux) to add, remove, and modify items in the cart.
- **Order Placement:** Confirmation modal using React components; interacts with backend API for secure transactions.
- **Payment Processing:** Secure payment component with validation, integrated with third-party payment API.
- **Delivery Tracking:** Asynchronous polling or WebSocket integration for real-time order updates.

Admin Workflow

- **Item Management:** React-based forms for item addition, price updates, and deletion.
- **Order Processing:** Manage orders from a dashboard view, including order acceptance and status updates.
- **Inventory Updates:** Real-time updates reflected on the customer-side menu through API synchronization.

Delivery Workflow

Access orders assigned for delivery from a dedicated dashboard. Update order status in real-time, reflected on customer and manager views.

Module Description

Customer Modules

- **Home Page**: React component with featured restaurants and dynamic offers.
- **Menu Browsing**: Menu page with items listed by categories, and dynamic rendering of availability based on stock.
- **Cart Management**: Cart page or sidebar with add/remove item features, connected via context or Redux.
- **Checkout and Payment**: Step-by-step form with fields like delivery address, payment method, integrated with secure third-party APIs.
- **Order Tracking**: Dashboard component that polls backend for status or uses WebSocket for real-time tracking.

Admin Management Modules

- **Item Management**: Accessible via a dashboard with forms for item details, categories, and price updates.
- **Order Processing**: Order status updates and inventory management integrated with customer-side views.
- **Inventory Management**: Direct API interaction for real-time updates on availability.

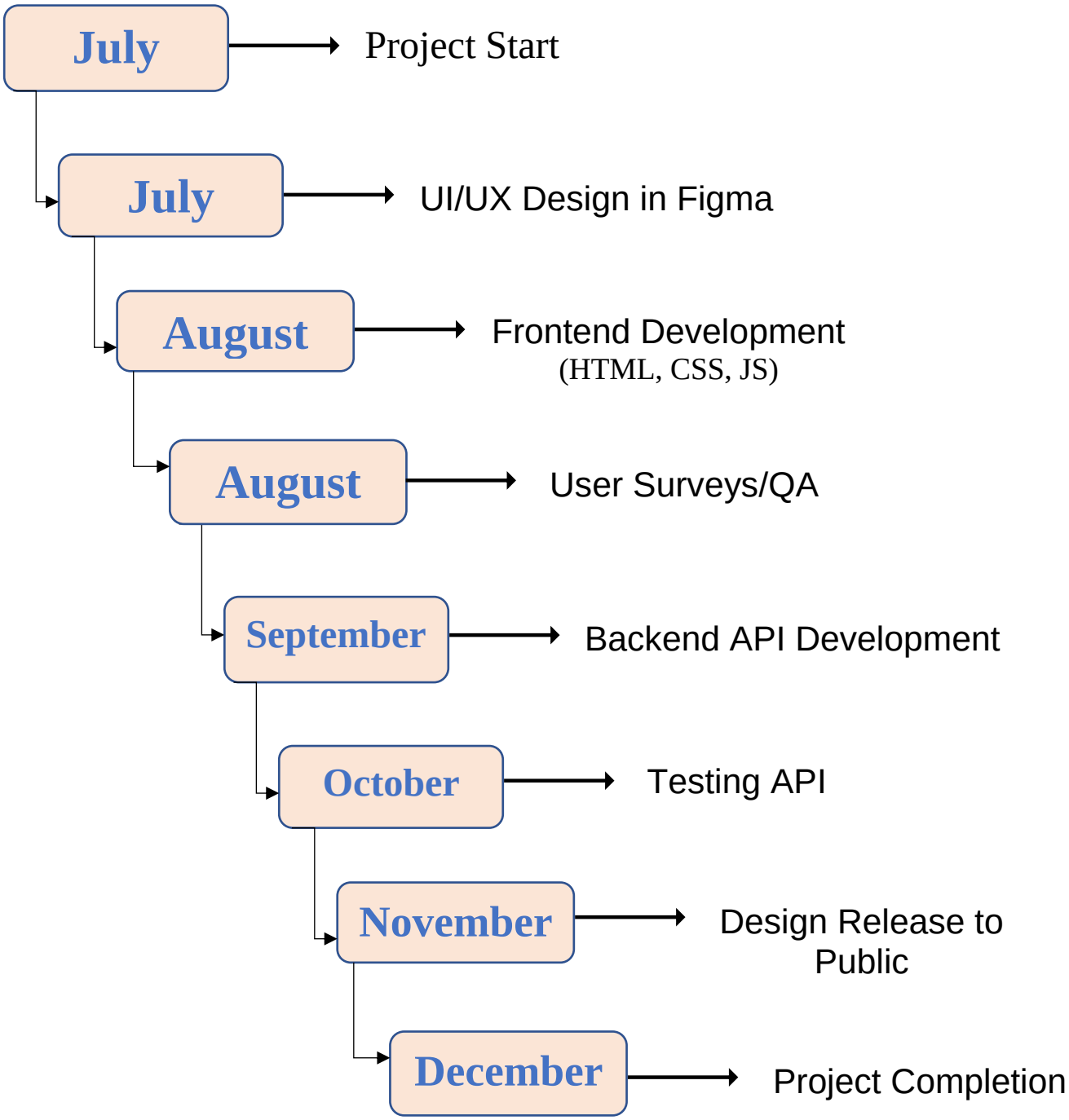
Delivery Personnel Modules

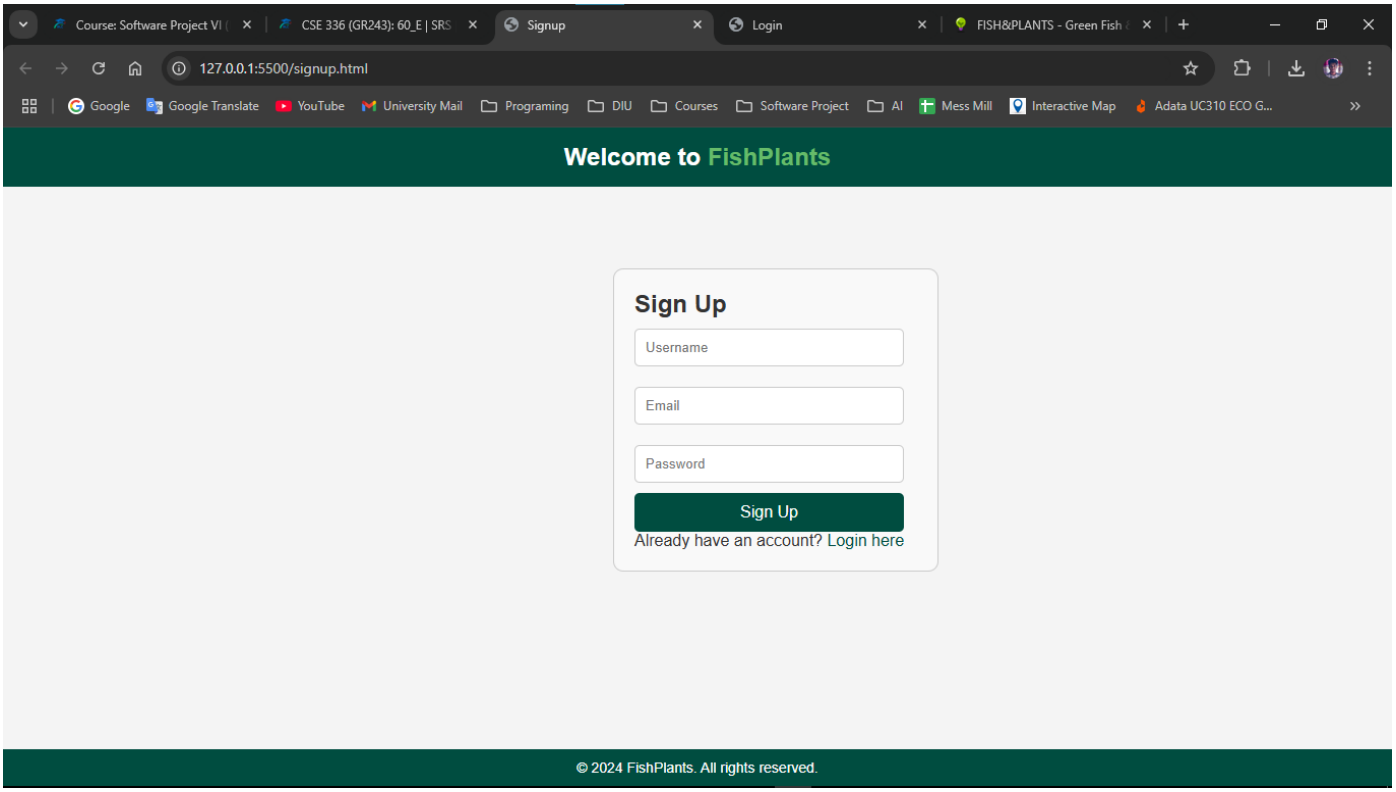
- **Delivery Dashboard**: Order details page with status updates.
- **Order Status Update**: Real-time status change options to keep customers informed.

Admin Panel

- **User Management**: List and management of all users with React components.
- **Reporting**: Generate sales reports, engagement statistics, etc., with charts and data visualizations in React.

Milestones and Timeline

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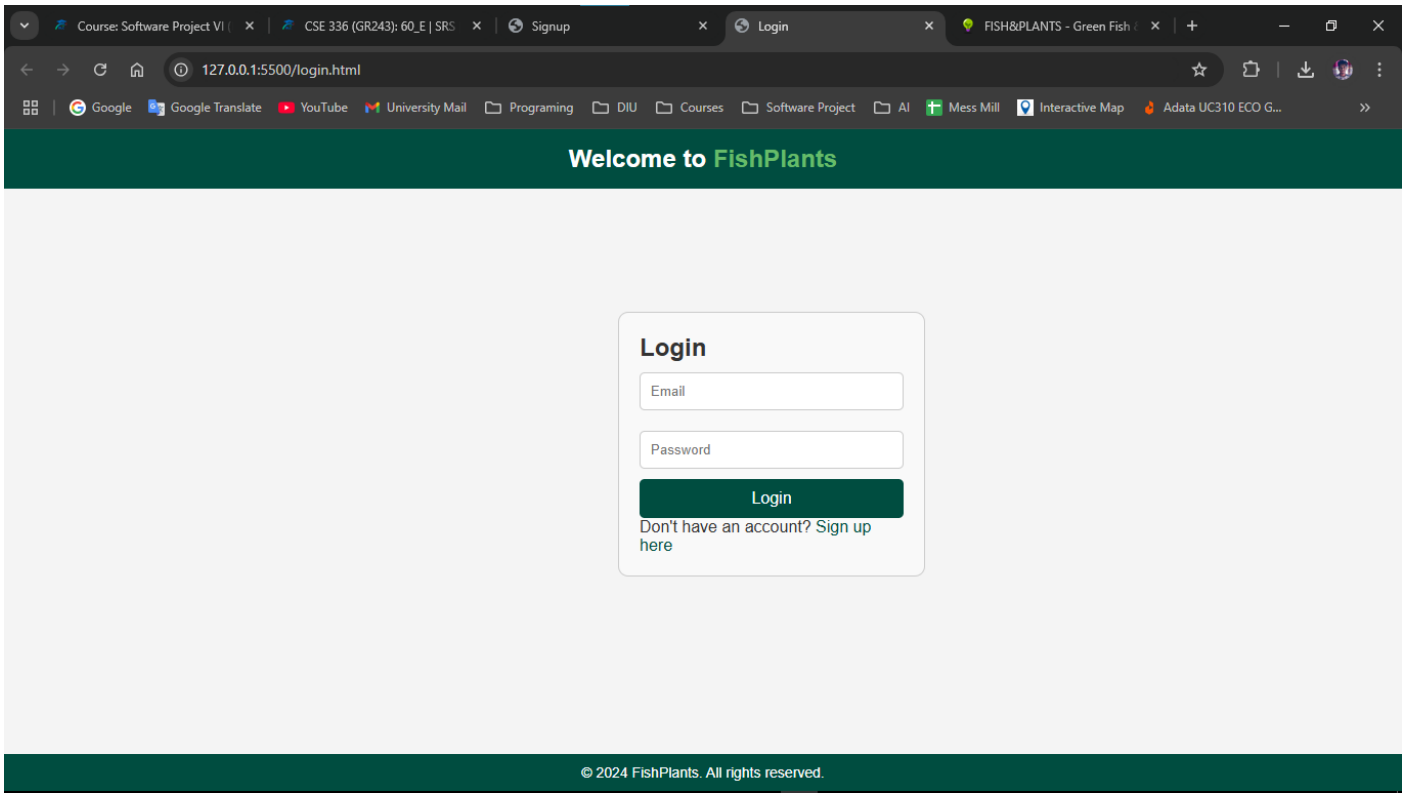
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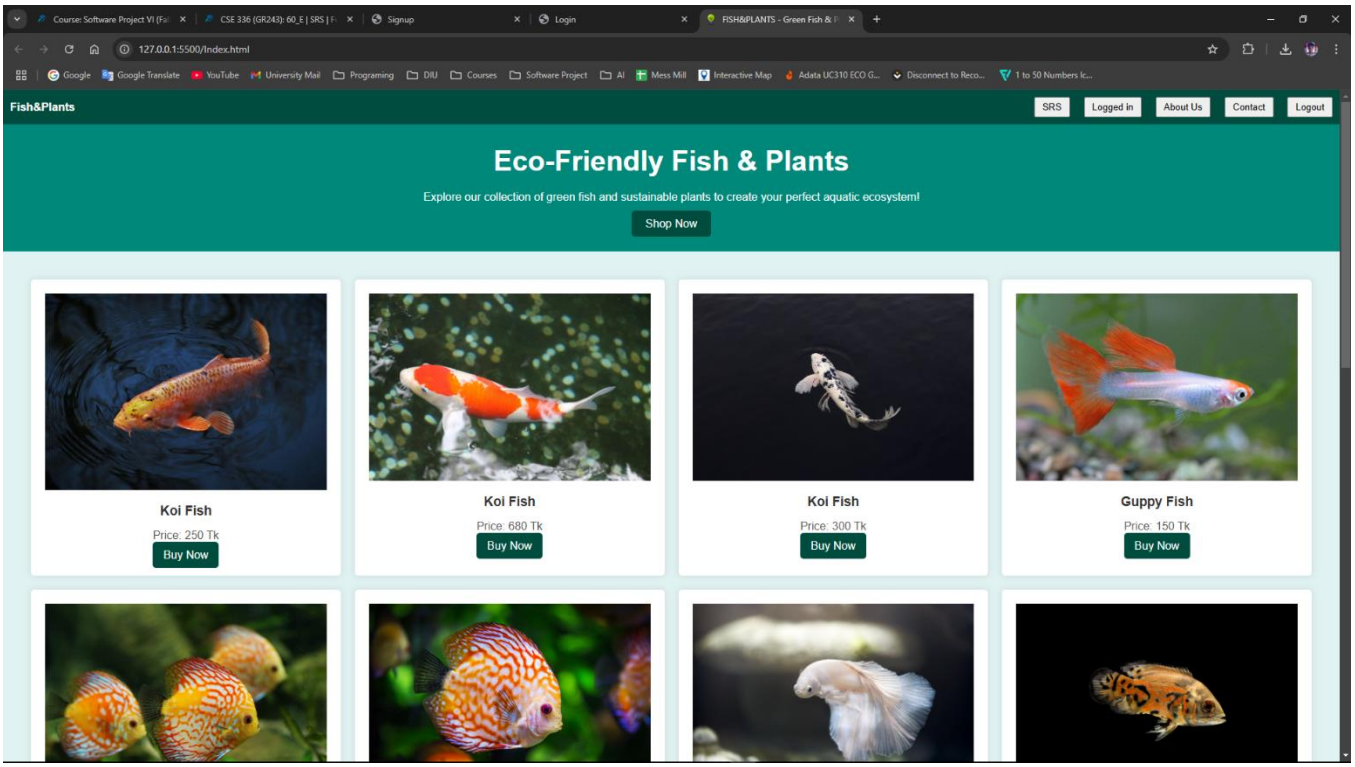
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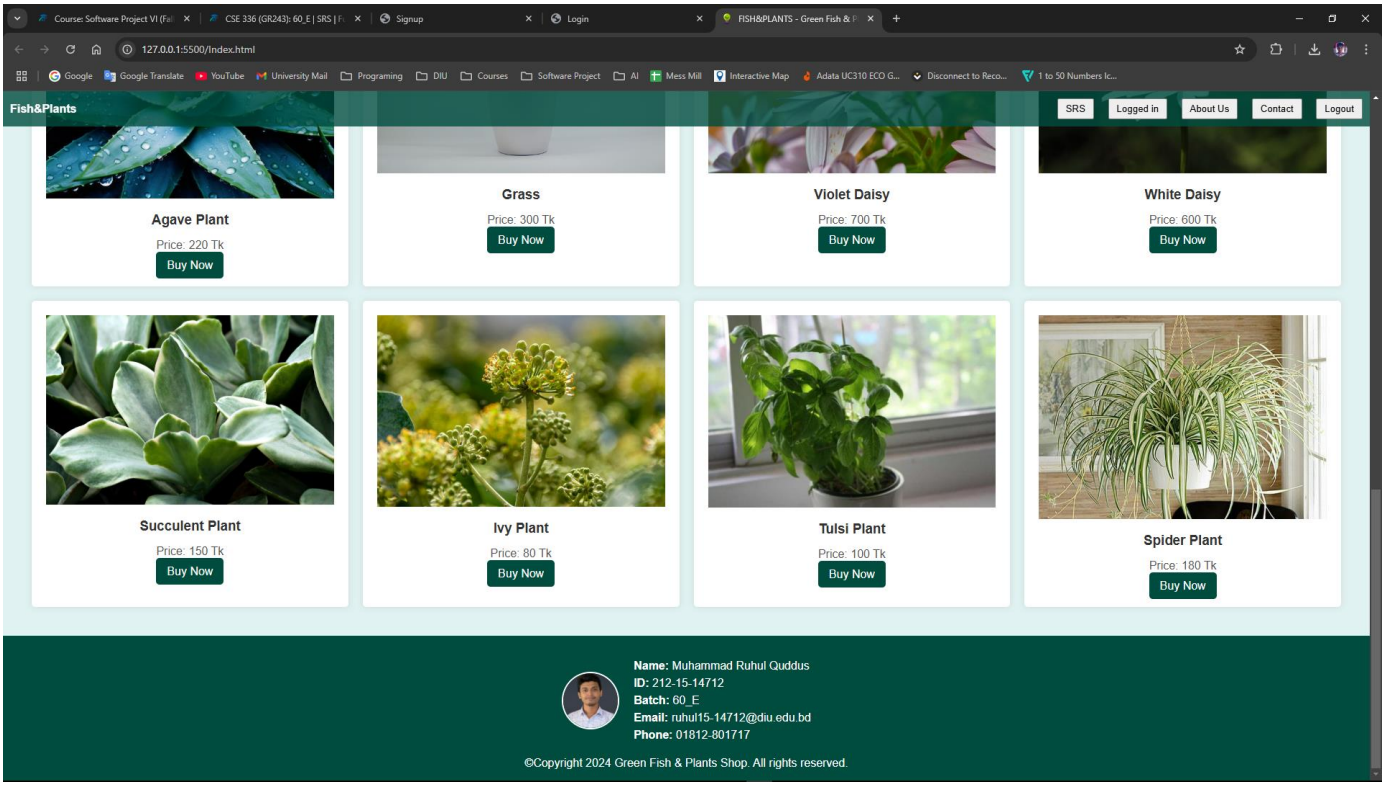
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Name: Muhammad Ruhul Quddus
ID: 212-15-14712
Batch: 60_E
Email: ruhul15-14712@diu.edu.bd
Phone: 01812-801717
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Testing Process

- **Unit Testing:** Component-level testing with Jest and React Testing Library.
- **Integration Testing:** Testing component interaction and backend API calls.
- **End-to-End Testing:** Cypress for simulating real user workflows from login to checkout.
- **User Acceptance Testing:** Feedback from test group of real users.

Support and Maintenance

- **Support Services:** 24/7 customer and technical support with service-level agreements.
- **Maintenance Plan:** Regular updates, bug fixes, and addition of new features.

Contact Us

You can get in touch with us in any of the ways:

Muhammad Ruhul Quddus
Email: ruhul15-14712@diu.edu.bd
Phone: 01812801717

Daffodil Smart City
Birulia, Savar, Dhaka

We look forward to hearing from you soon!