Customer and SIM Card Management System

Course Information

- Course: Information Systems with Computing
- Module Title: Programming for Information Systems
- Module Code: B9IS123
- Module Instructor: Paul Laird

Assessment Information

- Assessment Title: Customer and SIM Card Management System
- Assessment Code: CA2
- Group Size: One

Group Members

Student Name	Student ID
PRASANNA KUMAR S	20039859

1.INTRODUCTION

This project is designed for an information system that handles customer and sim card management for a telecommunications company. The system implemented basic CRUD operations (create, read, update and delete) for customer and sim card details , using mongoDB as the database. The backend is built using the nodes, express and mongoDB, while the frontend is implemented using html and javascript.

2. SYSTEM REQUIREMENTS

2.1 DATA REQUIREMENTS

- CUSTOMER INFORMATION:
    1. Name
    2. Email
- SIM CARD INFORMATION:
    1. Phone number
    2. Plans (Ireland plus, go unlimited, unlimited plus)
    3. Activations

2.2 FUNCTIONAL REQUIREMENTS:

- CREATE : Add a new customer and their sim card details.
- READ : Fetch all the customers and display the list.
- UPDATE : Edit the details of existing customers.
- DELETE : Delete a customer from the list.

ARCHITECTURE:

- **BACKEND:**
    - Node.js with express for API routing.
    - MongoDB for database management.
    - Mongoose ODM for MongoDB interaction.
- **FRONTEND:**
    - Simple html form for user input.
    - Javascript for handling DOM manipulation and making API calls to the backend.
    - Local storage is used for temporarily storing customers in the frontend during development,and database interaction.
- **API:**
    - RESTful API endpoints to perform CRUD operation.

SYSTEM COMPONENTS:

- SERVER (SERVER.JS):

  The express server is used to connect to mongodb and servers the static files and API endpoints.

- ROUTES (CUSTOMEROUTES.JS):

  The customerRoutes is used to handle CRUD operations on customer data.

- MODELS(Customer.js):

  Models define the schema for customer and sim card detail using Mongoose.

- FRONTEND(index.html,edit-customer.html):
  - index .html is used to add customers and sim card details using html forms.
  - Edit-customer.html is used to edit the existing customer details
- APP (app.js):

  It is used to handle frontend logics for interacting with the form,fetching customer data, and performing actions like editing and deleting.

- EDIT CUSTOMERS (edit-customer.js):

  Is used to populate the edit customer form and update the customer data upon submission.

FRONTEND DESIGN:

- **CUSTOMER LIST:** Display a list of all the customers with their names,phone number, plan, and active status. The list also consists of an edit and delete option for each customer.
- **ADD NEW CUSTOMER:** A form that allows users to input the customer details,including name,email,phone number, plan and active status.
- **EDIT CUSTOMERS:** Allows user to modify the existing customer's data pre populated in the forms with the current data.

TESTING:

UNIT TEST:

- **CRUD FUNCTION:** Unit tests will verify the correctness of the create ,read,update and delete functions.
  - CREATE: Ensure a new customer is added to the database.
  - READ : Verify that the list of customers can be fetched.
  - UPDATE : Ensure customer details are correctly updated.
  - DELETE: verify that a customer can be deleted.

INTEGRATION TEST:

Integration tests will be created to verify the integration between the frontend and backend, ensuring the customer data can be submitted through the frontend and correctly stored in MONGODB.

GITHUB REPOSITORY:

https://github.com/prasanna80564/simcard_management-project-