



Lambton
College

2024F-CSD-3103-01-Full Stack JavaScript

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Submission Date	14-Nov-2024

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Project Report: User Management System

1. Introduction

The User Management System is a web application designed to efficiently manage user data through a simple and intuitive interface. The application allows users to create, view, update, and delete user profiles. This system is built using Node.js with the Express framework, MongoDB for data storage, and Pug for templating. The core functionality of the system is centered around managing users and their personal details such as names, addresses, contact information, and additional notes.

2. Features

2.1 User Creation

The system allows the creation of new users through an Add User form. This form collects personal information, such as first name, last name, date of birth, address, phone number, email, and any additional user notes.

2.2 User Viewing

Users can be viewed in a list format. Each entry displays essential details such as name, date of birth, contact details, and more. The list can be accessed from the View User page, where each user's information is displayed in a tabular format.

2.3 User Details

Clicking on a user's name in the list takes the user to a User Detail page, where all details of the user are shown, including a Note field with additional information.

2.4 User Update

The application allows for easy updating of a user's details. Users can modify their information and submit the form to save the changes. This is done through the Update User page, which fetches the existing user details, pre-fills the form, and allows editing.

2.5 User Deletion

Each user entry in the system includes a Delete User option. The user can be deleted via a POST request, and upon deletion, the user is removed from the database and the user list is refreshed.

2.6 Responsive Interface

The user interface is responsive, ensuring that the application works seamlessly across various screen sizes, including desktops, tablets, and mobile devices. This is achieved using Bootstrap, which is integrated for styling and layout.

2.7 Interactive Dropdown for Actions

Each user in the list has an associated dropdown menu with options for Update and Delete. The dropdown menu prevents accidental row clicks and allows for user-specific actions.

3. How It Works

3.1 Frontend

The frontend is built using Pug templating engine, which generates dynamic HTML based on the data from the server. Pages such as the user list, user details, and user forms are rendered dynamically with the help of Pug templates. Additionally, Bootstrap is used for responsive styling and interactive elements like the dropdown menu for actions.

3.2 Backend

The application is powered by Node.js and Express, which handle routing, form submissions, and interactions with the MongoDB database. The mongoose library is used to interact with the MongoDB database, handling tasks like saving new users, retrieving user data, updating user information, and deleting users.

3.3 Database

MongoDB serves as the database for storing user information. Each user is represented as a document in the MongoDB collection. This NoSQL database allows for flexible schema design, and the mongoose ODM (Object Data Mapping) layer is used to interact with the database.

3.4 Method Overriding

The application uses method-override middleware to support HTTP methods like PUT for updating resources and DELETE for removing resources, as these methods aren't natively supported by HTML forms.

4. Technologies Used

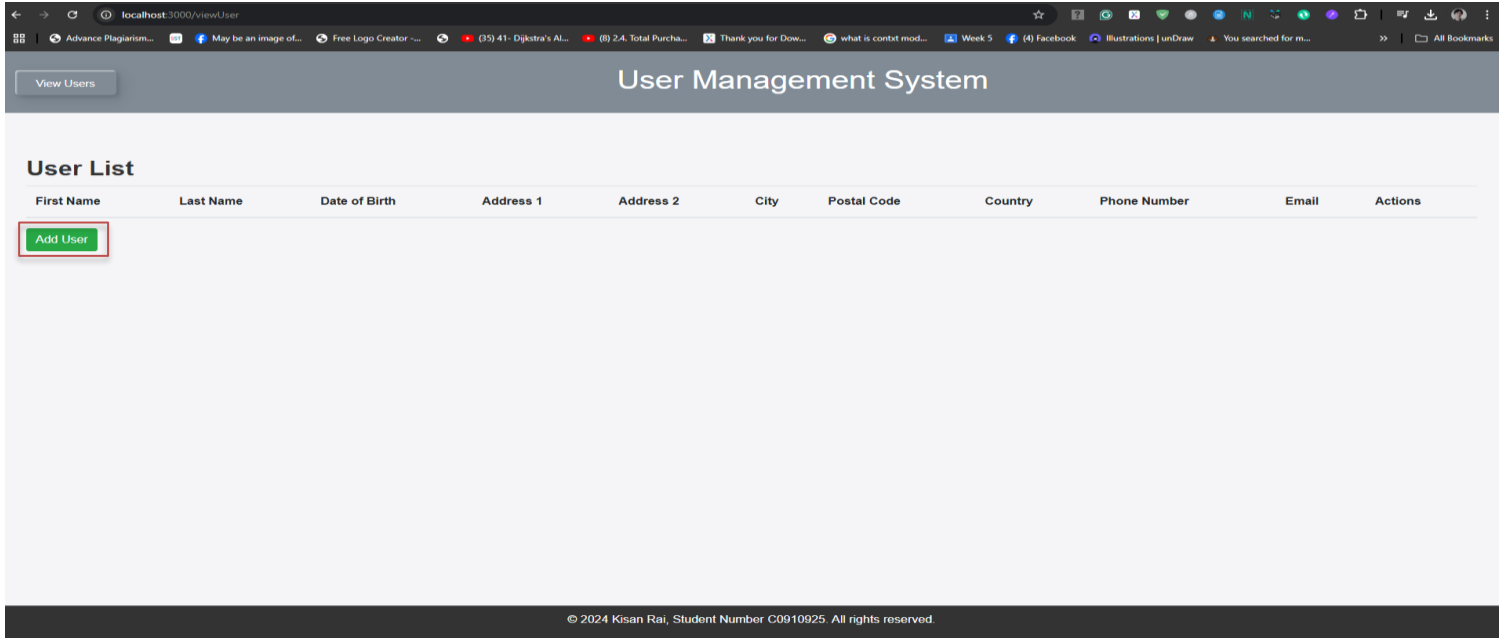
1. Node.js: Backend runtime environment.
2. Express.js: Web framework for building the application.
3. MongoDB: NoSQL database for storing user data.
4. Mongoose: ODM for MongoDB to simplify data manipulation.
5. Pug: Templating engine for rendering dynamic HTML views.
6. Bootstrap: Frontend framework for responsive design and layout.
7. Method-Override: Middleware for supporting PUT and DELETE HTTP methods.

5. Conclusion

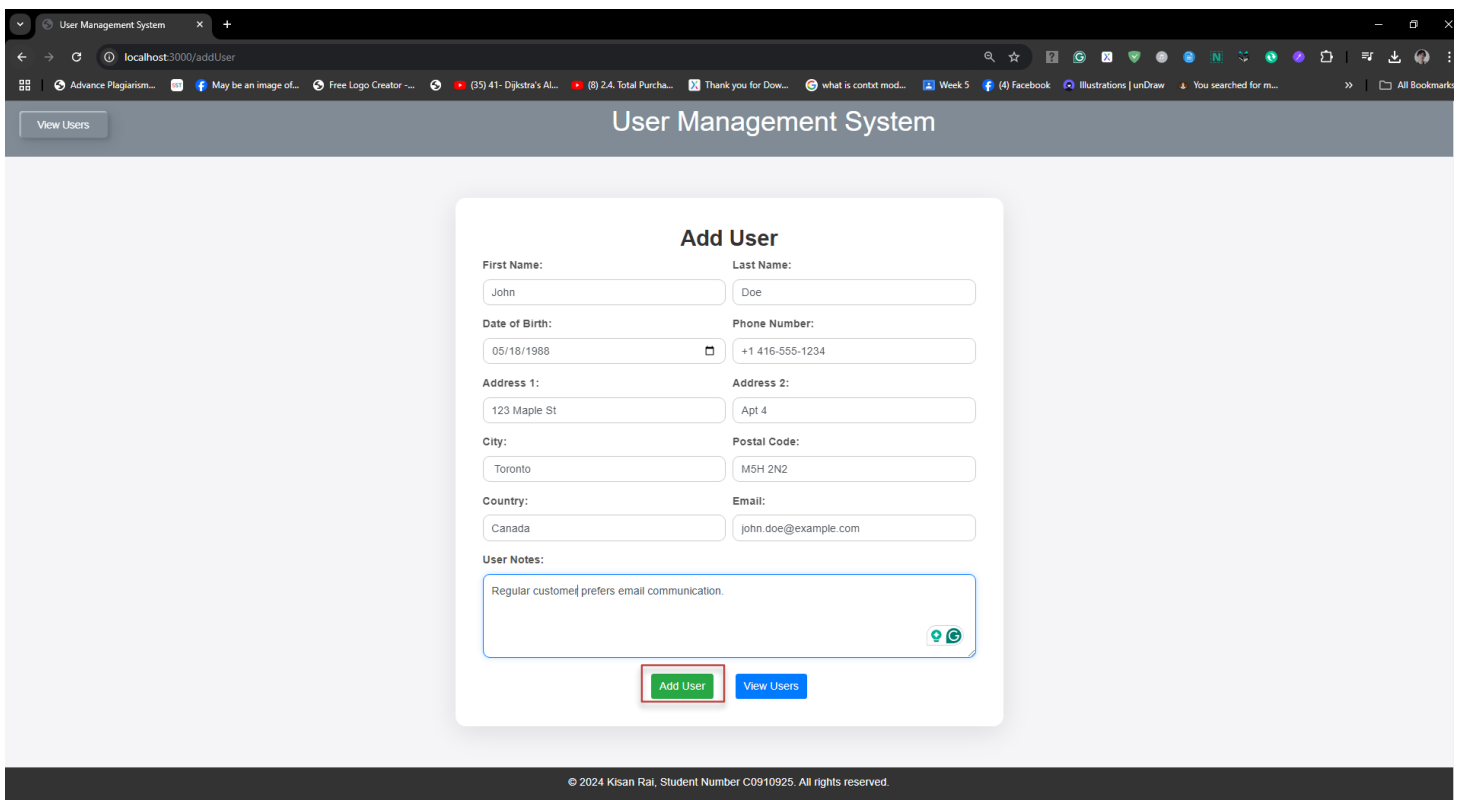
The User Management System is a functional and efficient solution for managing user data. It provides essential CRUD (Create, Read, Update, Delete) operations for user management with a clean and responsive UI. The system's use of MongoDB for storage, Express for routing, and Pug for rendering views ensures that the application is both scalable and easy to maintain. This project showcases a well-structured backend with a responsive, interactive frontend for a seamless user experience.

6. Screen Shots

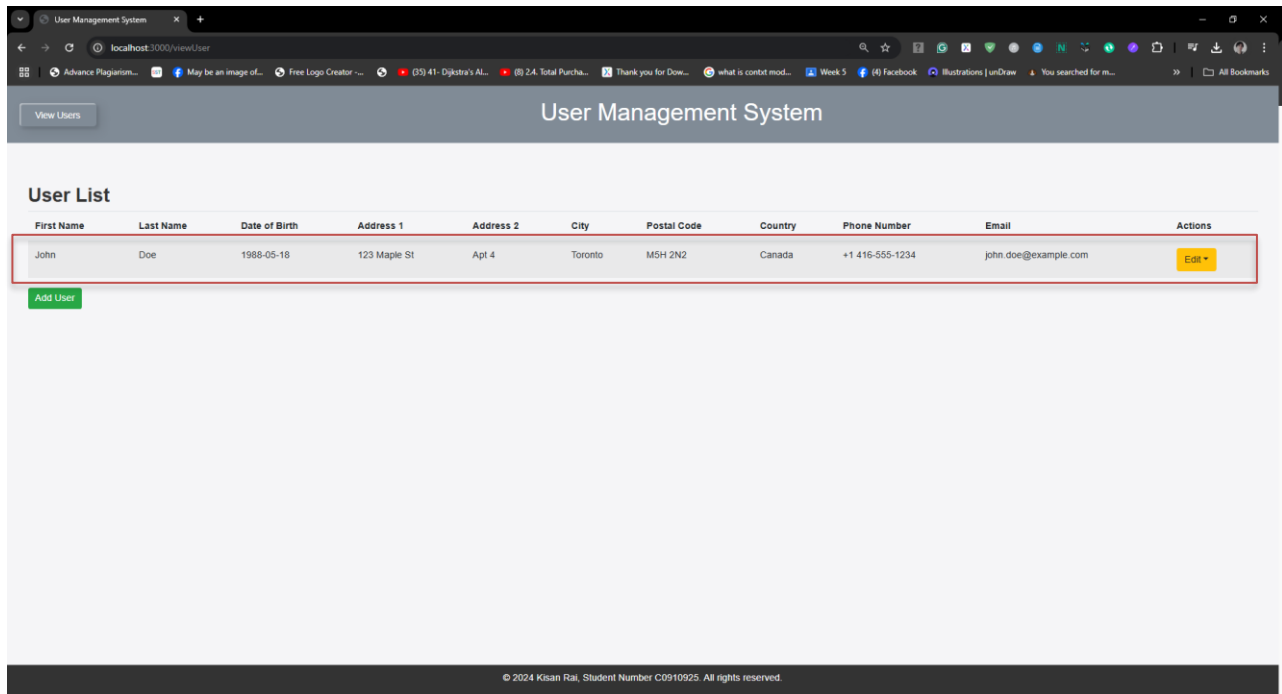
6.1: Empty User list in View page



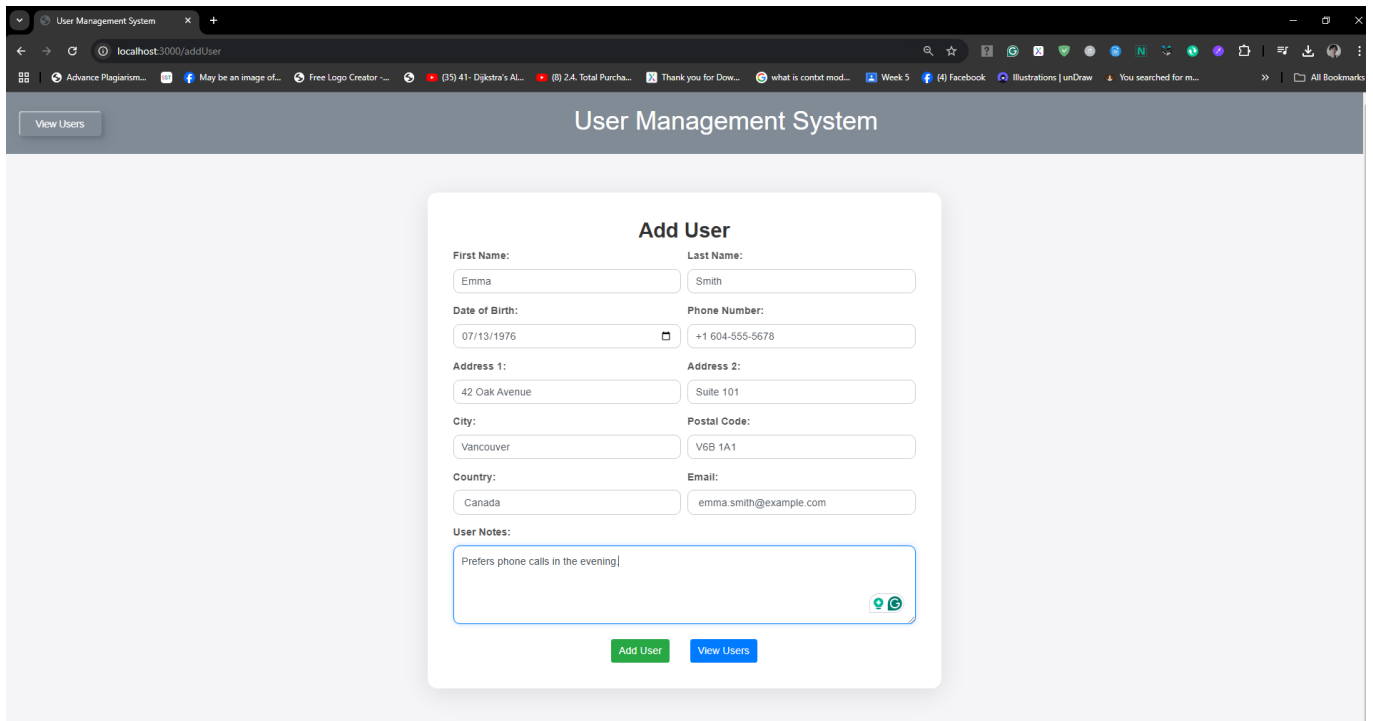
6.2: Adding user into addUser page



6.3: Adding successfully into User List page



6.4: Adding Second and fourth in User list



User Management System

View Users

Add User

First Name:	<input type="text" value="Sarah"/>	Last Name:	<input type="text" value="Wilson"/>
Date of Birth:	<input type="text" value="10/07/1998"/>	Phone Number:	<input type="text" value="+1 613-555-1122"/>
Address 1:	<input type="text" value="101 Birch St"/>	Address 2:	<input type="text" value="N/A"/>
City:	<input type="text" value="Ottawa"/>	Postal Code:	<input type="text" value="K1A 0B1"/>
Country:	<input type="text" value="Canada"/>	Email:	<input type="text" value="sarah.wilson@example.com"/>

User Notes:

Student, not available during daytime.

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6.5: Empty field validation check

User Management System

View Users

Add User

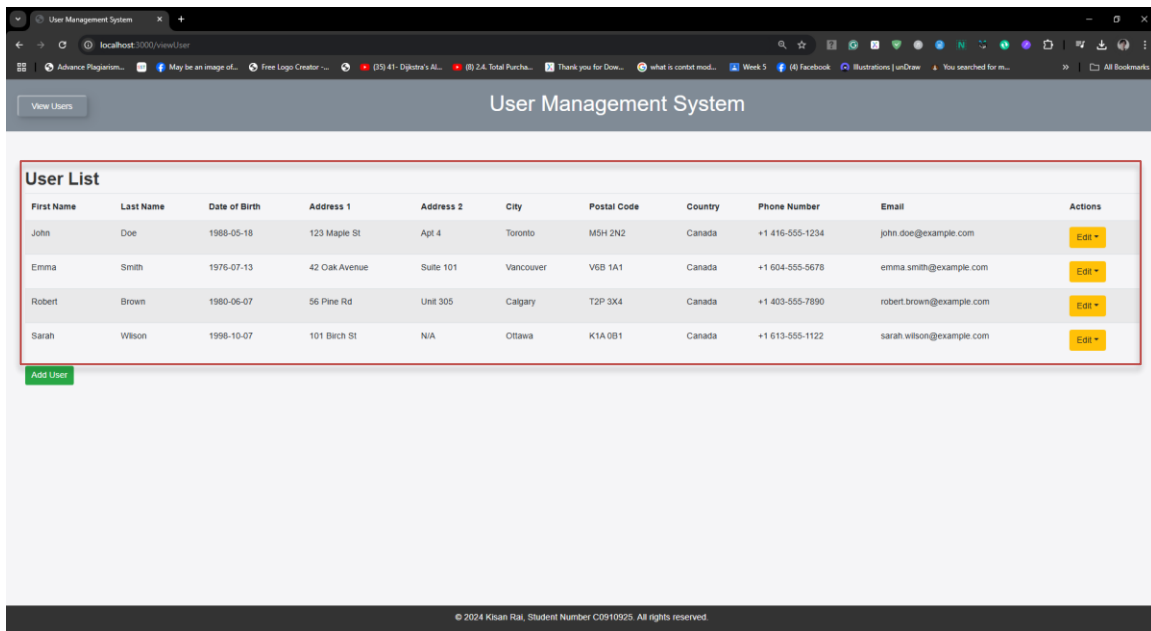
First Name:	<input type="text"/>	Last Name:	<input type="text" value="Wilson"/>
Date of Birth:	<input type="text" value="10/07/1998"/>	Phone Number:	<input type="text" value="+1 613-555-1122"/>
Address 1:	<input type="text" value="101 Birch St"/>	Address 2:	<input type="text" value="N/A"/>
City:	<input type="text" value="Ottawa"/>	Postal Code:	<input type="text" value="K1A 0B1"/>
Country:	<input type="text" value="Canada"/>	Email:	<input type="text" value="sarah.wilson@example.com"/>

User Notes:

Student, not available during daytime.

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6.6: User List:

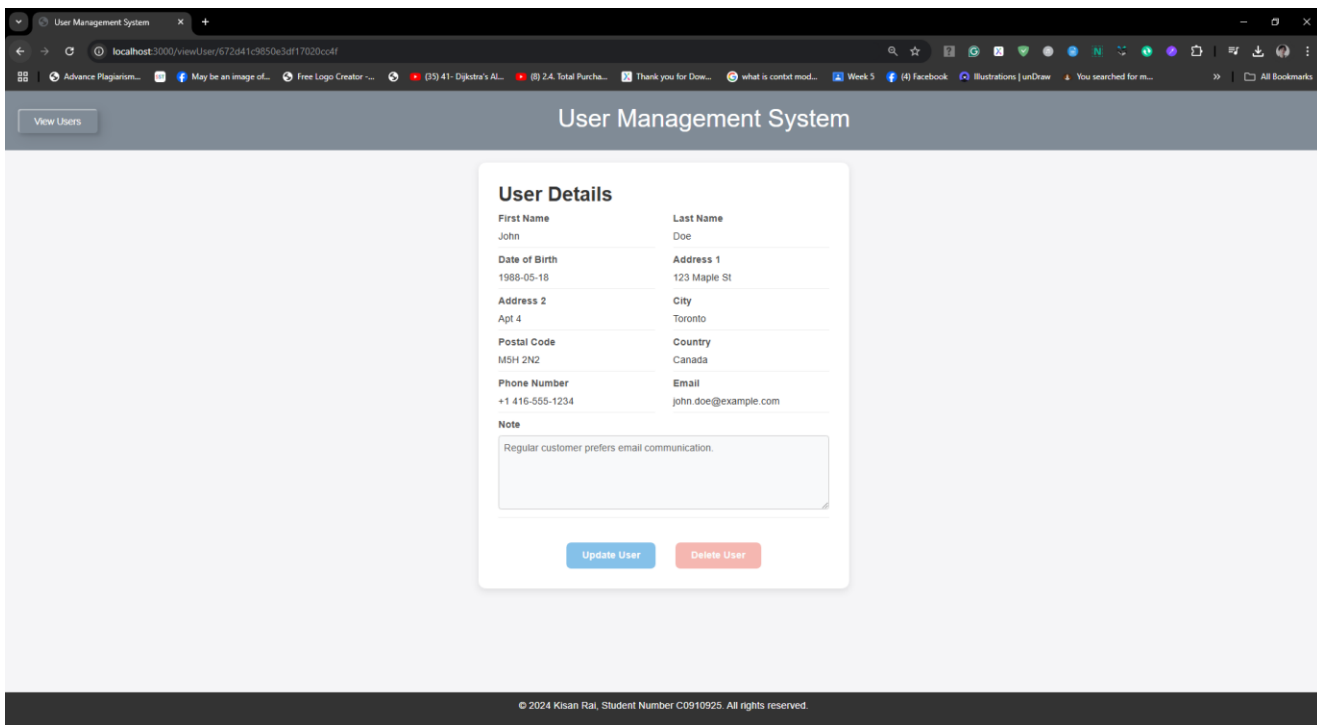


First Name	Last Name	Date of Birth	Address 1	Address 2	City	Postal Code	Country	Phone Number	Email	Actions
John	Doe	1988-05-18	123 Maple St	Apt 4	Toronto	M5H 2N2	Canada	+1 416-555-1234	john.doe@example.com	Edit
Emma	Smith	1975-07-13	42 Oak Avenue	Suite 101	Vancouver	V6B 1A1	Canada	+1 604-555-5678	emma.smith@example.com	Edit
Robert	Brown	1960-06-07	56 Pine Rd	Unit 305	Calgary	T2P 3K4	Canada	+1 403-555-7890	robert.brown@example.com	Edit
Sarah	Wilson	1995-10-07	101 Birch St	N/A	Ottawa	K1A 0B1	Canada	+1 613-555-1122	sarah.wilson@example.com	Edit

[Add User](#)

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6.7: John user detailed page:



User Details

First Name	John	Last Name	Doe
Date of Birth	1988-05-18	Address 1	123 Maple St
Address 2	Apt 4	City	Toronto
Postal Code	M5H 2N2	Country	Canada
Phone Number	+1 416-555-1234	Email	john.doe@example.com

Note

Regular customer prefers email communication.

[Update User](#) [Delete User](#)

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6.8: Updating John user Detail:

User Management System

View Users

User Management System

Update User

First Name:

JohnXX

Last Name:

DoeXX

Date of Birth:

05/18/1988

Phone Number:

+1 416-555-1234000000

Address 1:

123 Maple StNorth

Address 2:

Apt 1th

City:

Brampton

Postal Code:

M5H 2N2

Country:

Canada

Email:

john.doe@example.com

User Notes:

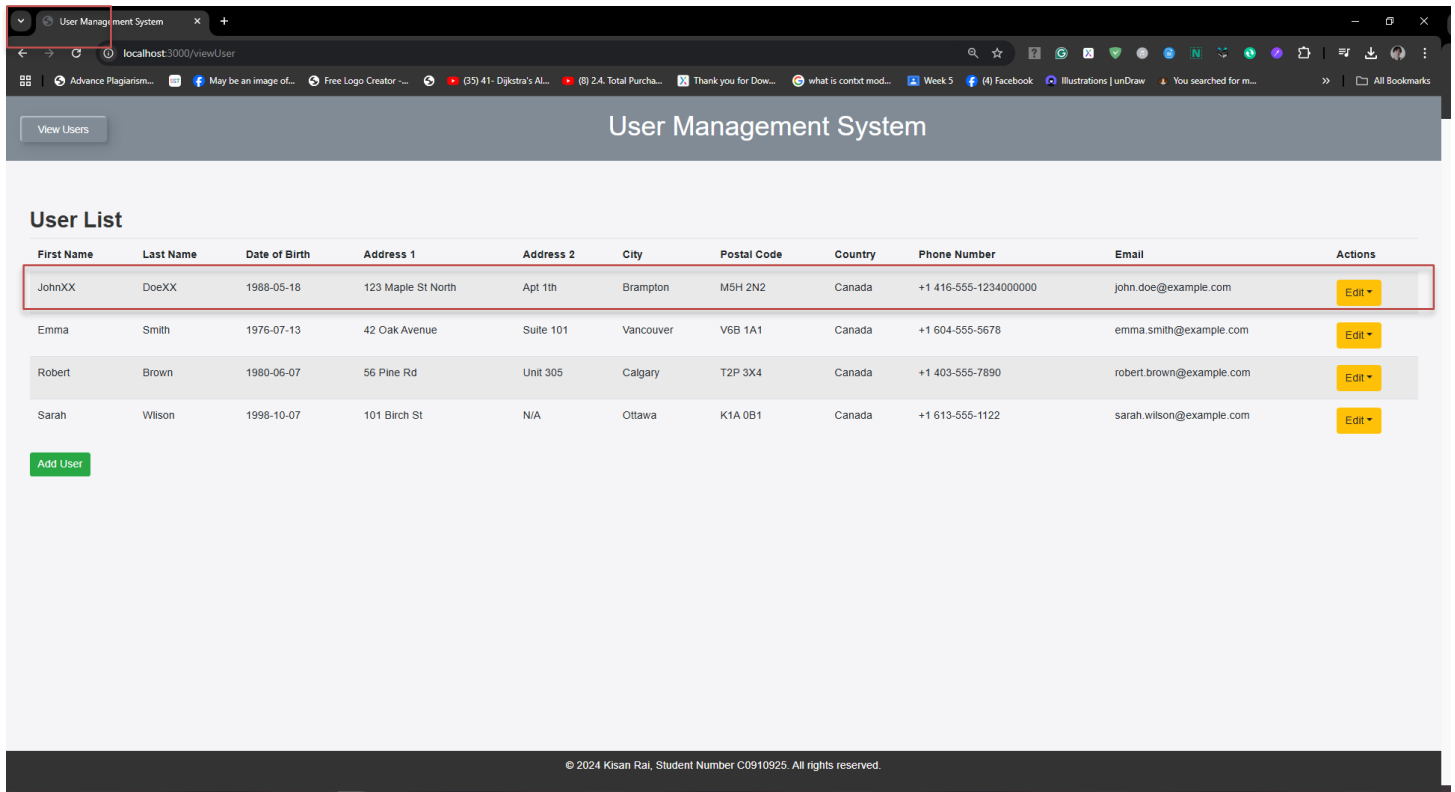
Regular customer prefers email communication.

Update User

View Users

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6.9: Updated John into user list page:



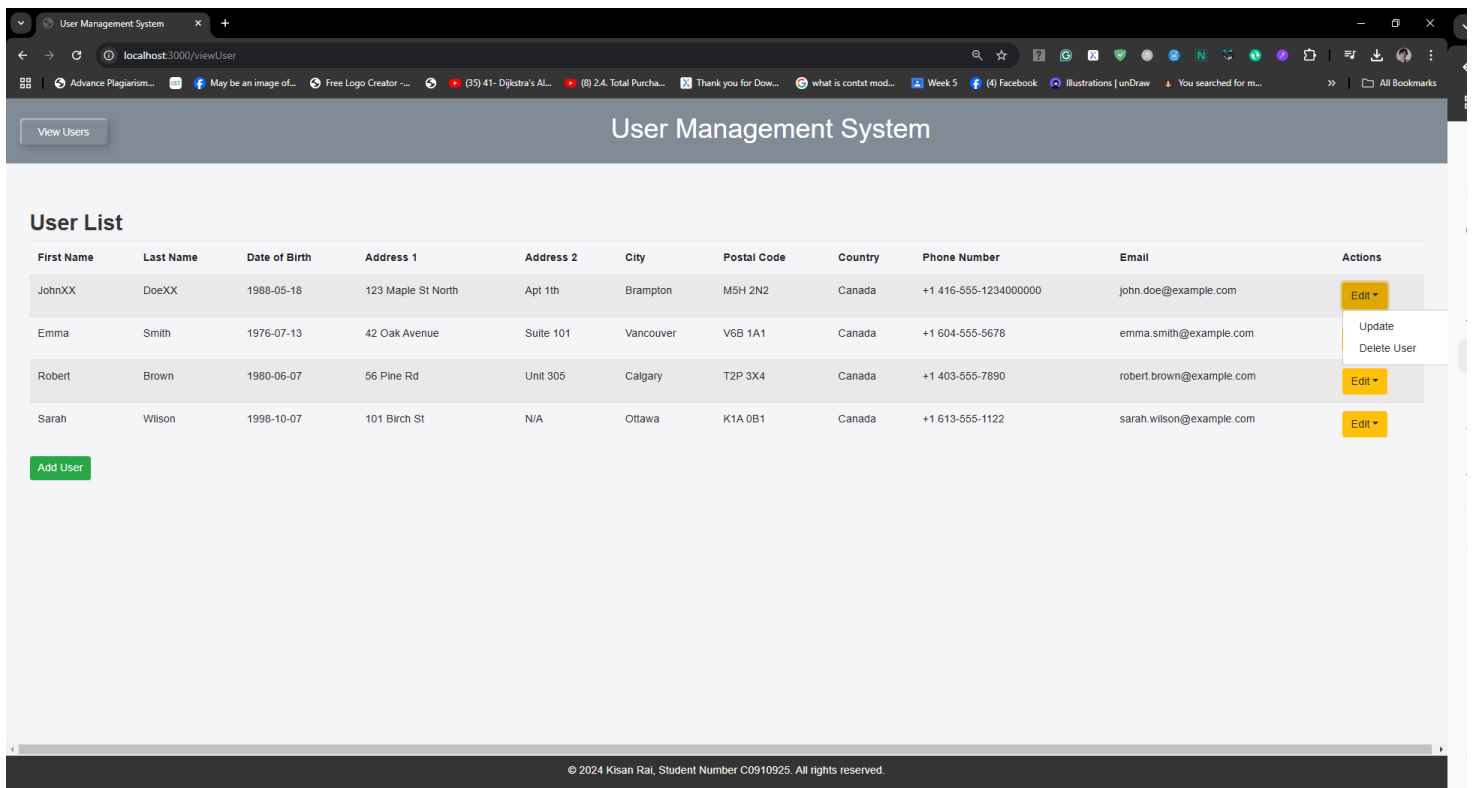
The screenshot shows a web browser window with the URL `localhost:3000/viewUser`. The page title is "User Management System". Below the title is a "View Users" button. The main content area is titled "User List" and contains a table with the following columns: First Name, Last Name, Date of Birth, Address 1, Address 2, City, Postal Code, Country, Phone Number, Email, and Actions. The first row, representing JohnXX, is highlighted with a red border. Below the table is a green "Add User" button. The footer contains the copyright notice: "© 2024 Kisan Rai, Student Number C0910925. All rights reserved."

First Name	Last Name	Date of Birth	Address 1	Address 2	City	Postal Code	Country	Phone Number	Email	Actions
JohnXX	DoeXX	1988-05-18	123 Maple St North	Apt 1th	Brampton	M5H 2N2	Canada	+1 416-555-1234000000	john.doe@example.com	Edit ▾
Emma	Smith	1976-07-13	42 Oak Avenue	Suite 101	Vancouver	V6B 1A1	Canada	+1 604-555-5678	emma.smith@example.com	Edit ▾
Robert	Brown	1980-06-07	56 Pine Rd	Unit 305	Calgary	T2P 3X4	Canada	+1 403-555-7890	robert.brown@example.com	Edit ▾
Sarah	Wilson	1998-10-07	101 Birch St	N/A	Ottawa	K1A 0B1	Canada	+1 613-555-1122	sarah.wilson@example.com	Edit ▾

Add User

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6.10: Deleting JohnXX form user list suing Edit delete dropdown option:



The screenshot shows the same "User Management System" page as in 6.9. The "Edit" dropdown menu for the first row (JohnXX) is open, showing two options: "Update" and "Delete User". The "Delete User" option is highlighted. The "Add User" button is still visible below the table. The footer contains the copyright notice: "© 2024 Kisan Rai, Student Number C0910925. All rights reserved."

First Name	Last Name	Date of Birth	Address 1	Address 2	City	Postal Code	Country	Phone Number	Email	Actions
JohnXX	DoeXX	1988-05-18	123 Maple St North	Apt 1th	Brampton	M5H 2N2	Canada	+1 416-555-1234000000	john.doe@example.com	Edit ▾ Update Delete User
Emma	Smith	1976-07-13	42 Oak Avenue	Suite 101	Vancouver	V6B 1A1	Canada	+1 604-555-5678	emma.smith@example.com	Edit ▾
Robert	Brown	1980-06-07	56 Pine Rd	Unit 305	Calgary	T2P 3X4	Canada	+1 403-555-7890	robert.brown@example.com	Edit ▾
Sarah	Wilson	1998-10-07	101 Birch St	N/A	Ottawa	K1A 0B1	Canada	+1 613-555-1122	sarah.wilson@example.com	Edit ▾

Add User

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6.11: Deleted JohnXX form user list:

User Management System

localhost:3000/viewUser

View Users

User Management System

User List

First Name	Last Name	Date of Birth	Address 1	Address 2	City	Postal Code	Country	Phone Number	Email	Actions
Emma	Smith	1976-07-13	42 Oak Avenue	Suite 101	Vancouver	V6B 1A1	Canada	+1 604-555-5678	emma.smith@example.com	Edit
Robert	Brown	1980-06-07	56 Pine Rd	Unit 305	Calgary	T2P 3X4	Canada	+1 403-555-7890	robert.brown@example.com	Edit
Sarah	Wilson	1998-10-07	101 Birch St	N/A	Ottawa	K1A 0B1	Canada	+1 613-555-1122	sarah.wilson@example.com	Edit

Add User

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