Full Stack Development with MERN Project

1. Introduction

Project Title: ResolveNow - An Online Complaint Registration and Management System

Team Members:

- **Team Leader :** Yadlapalli Bhuvana Priya
  - Role: Backend Developer
  - Responsibilities: Builds RESTful APIs using Node.js and Express.js, manages authentication and server logic.
- **Team member :** Vijaya Naga Varshitha Kammali
  - Role: Frontend Developer
  - Responsibilities: Works on the React-based UI, handles component design, page routing, and user interactions.
- **Team member :** Vidya Rani Elchuri
  - Role: Database Administrator
  - Responsibilities: Designs and manages MongoDB schemas, handles CRUD operations and ensures data consistency.
- **Team member :** Vemula ManjuSri
  - Role: Project Coordinator
  - Responsibilities: Responsible for overall planning, coordination, GitHub management, and integration of frontend and backend.

2. Project Overview

Purpose: The purpose of the ResolveNow project is to develop a full-stack web application that simplifies the process of registering and managing complaints online. It aims to provide users with a seamless experience through a modern and responsive web interface.

- Enable users to register complaints anytime.
- Allow users to track their complaints in real-time.
- Facilitate communication between users and agents assigned to handle their complaints.
- Provide an admin system to manage complaints and assign them to appropriate personnel.

Features: For Users:

- ✓ Sign Up / Log In – Create an account and access your complaint history.
- ✓ Submit Complaints – Enter details of complaints including name, description, address, etc.
- ✓ Track Complaints – View updates and receive notifications via email or SMS.
- ✓ Communicate with Agents – Interact with assigned agents for issue resolution**.**.
- ✓ Order Confirmation – Get a message when your order is successfully placed**.**

For Admin (Future Scope):

- ➢ Assign Complaints – Route complaints to the appropriate department or personnel.
- ➢ Manage Complaints – View and update the status of all complaints.
- ➢ Monitor System – Ensure compliance with platform policies and regulations.

3. Architecture

Frontend (React.js)

- Built using React with multiple pages (Home, Dashboard, Complaint Submission, etc.)
- Uses React Router for navigation and Context API for managing state.
- Axios is used for API calls to the backend.
- User information and complaint status are stored in localStorage for persistence.

Backend (Node.js + Express.js)

- Handles API routes like registration, login, submitting complaints, and tracking.
- Uses Express middleware for JSON handling and CORS.
- Connects to MongoDB using Mongoose for database operations.

Database (MongoDB)

- ➢ Stores user, complaint, and agent data.
- Collections:
  - users : name, email, password, contact details.
  - complaints : user ID, description, images, date submitted, status, assigned agent.
  - agents : name, department, assigned complaints.

4. Setup Instructions

Prerequisites

- **Node.js & npm** – For running frontend and backend
- **MongoDB** – Local database (use Compass or terminal)
- **Git** – To clone the project
- **VS Code** – Recommended editor

Installation Steps:

Clone the Project

https://github.com/manjuvemula/ComplaintCare-System.git

```
cd ComplaintCare System
```

1. **Install & Run Backend**

```
cd server
npm install
node server.js
```

2. **Install & Run Frontend**
   Open a new terminal:

   ```
   cd client
   npm install
   npm start
   ```

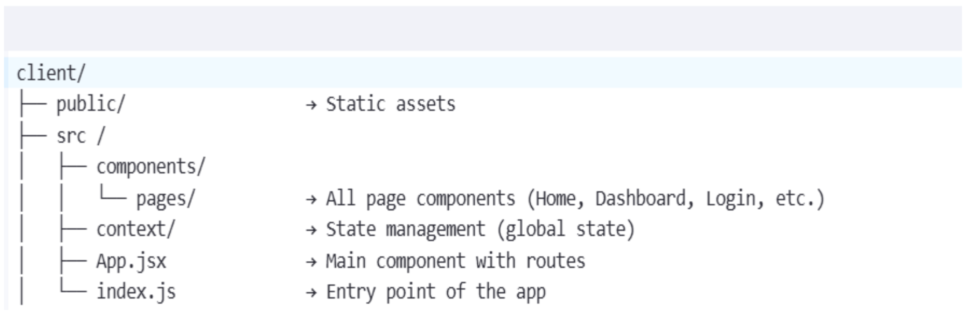
3. **Start MongoDB**
   - Use MongoDB Compass or run `mongod` in terminal.

Your app will run at:

- Frontend: http://localhost:3000
- Backend API: http://localhost:5000

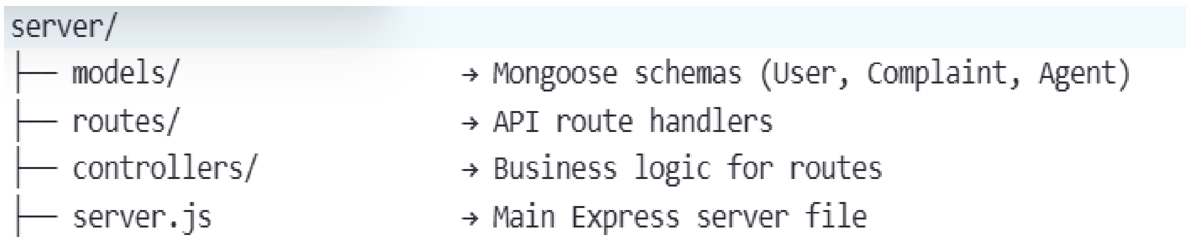
5. Folder Structure

Client (React frontend)



```
client/
├─ public/                  → Static assets
├─ src /
│  ├─ components/
│  │  └─ pages/             → All page components (Home, Dashboard, Login, etc.)
│  ├─ context/              → State management (global state)
│  ├─ App.jsx               → Main component with routes
│  └─ index.js              → Entry point of the app
```

Server (Node.js backend)



```
server/
├─ models/          → Mongoose schemas (User, Complaint, Agent)
├─ routes/          → API route handlers
├─ controllers/     → Business logic for routes
├─ server.js        → Main Express server file
```

Running the Application

Frontend :

```
cd client
npm start
```

Runs the chrome or React app at: http://localhost:3000

Backend :

```
cd server
npm start   # Or use: node server.js
```

Runs the Node.js server at: http://localhost:5000

6. API Documentation

- POST /api/register : Registers a new user.
- POST /api/login : Logs in an existing user.
- GET /api/complaints : Retrieves a list of complaints for the logged-in user.
- POST /api/complaints : Submits a new complaint.
- PUT /api/complaints/:id : Updates the status of a complaint (Admin only**).**

7. Authentication

How Authentication Works:

- Users register by providing their name, email, password, and contact details using the endpoint: POST /api/register.
- They log in with their email and password using: POST /api/login.

Method Used:

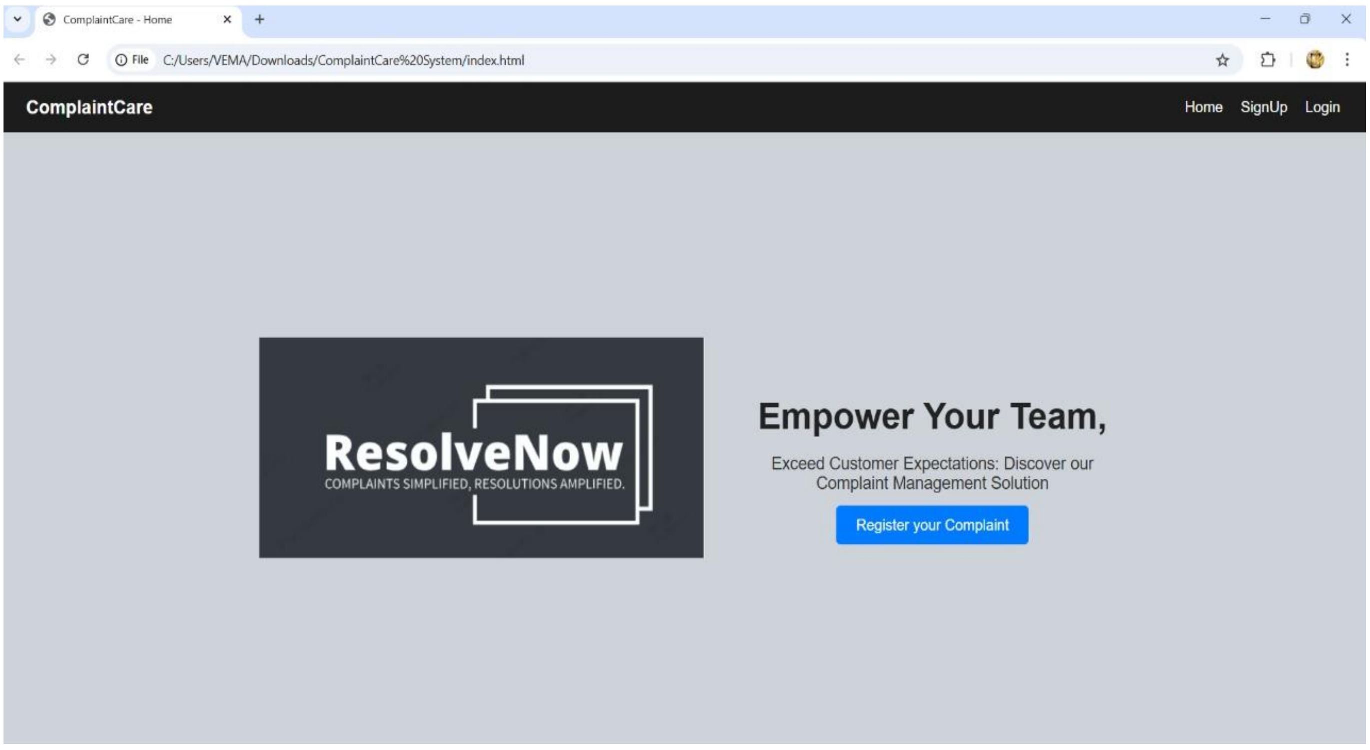
- The current setup uses basic email and password matching.
- There is no token-based authentication or sessions implemented at this stage.
- After login, the user's details can be stored on the frontend (e.g., in localStorage) to maintain the login state. Recommendations for Improvement:

To enhance security in the future, it is recommended to:

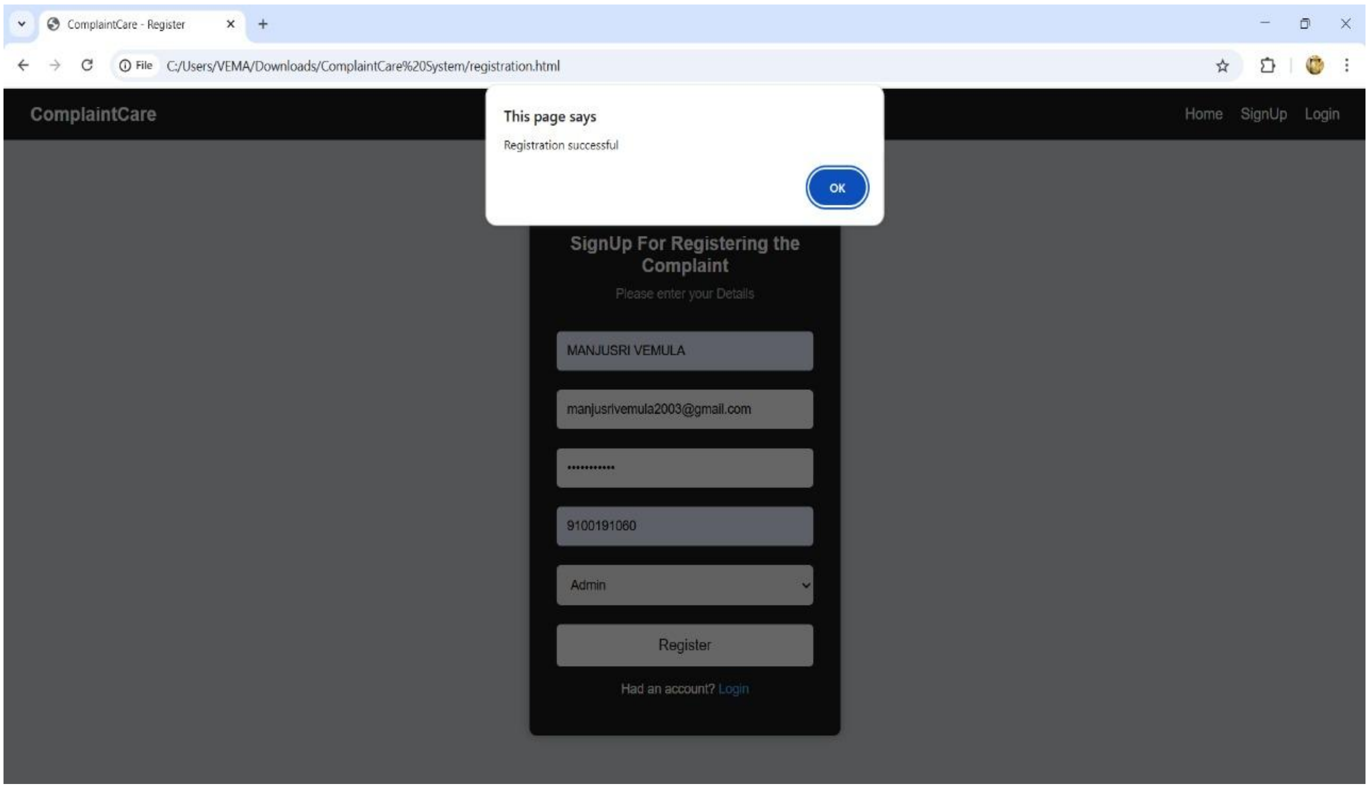
- Implement JWT (JSON Web Token) authentication.
- Use middleware to protect private API routes.
- Store tokens securely (e.g., in localStorage or HTTP-only cookies).

8. User Interface

Home page:


ComplaintCare - Home
C:/Users/VEMA/Downloads/ComplaintCare%20System/index.html
ComplaintCare
Home
SignUp
Login
ResolveNow
COMPLAINTS SIMPLIFIED, RESOLUTIONS AMPLIFIED.
Empower Your Team,
Exceed Customer Expectations: Discover our Complaint Management Solution
Register your Complaint

Registration Page:


ComplaintCare - Register

C:/Users/VEMA/Downloads/ComplaintCare%20System/registration.html

ComplaintCare

Home SignUp Login

This page says

Registration successful

OK

SignUp For Registering the Complaint

Please enter your Details

MANJUSRI VEMULA

manjusrivemula2003@gmail.com

•••••••••••

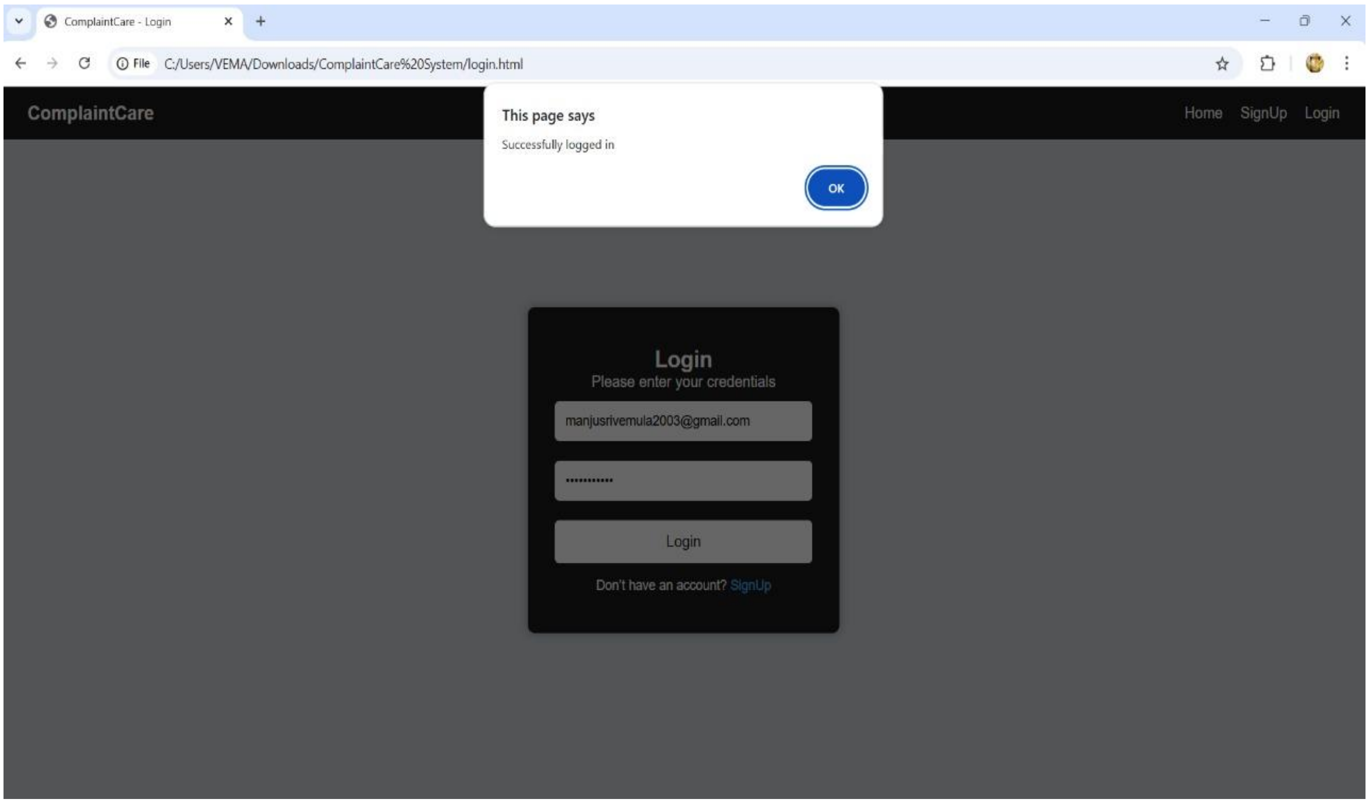
9100191080

Admin

Register

Had an account? Login

Login Page:


ComplaintCare - Login

C:/Users/VEMA/Downloads/ComplaintCare%20System/login.html

ComplaintCare

Home SignUp Login

This page says

Successfully logged in

OK

Login

Please enter your credentials

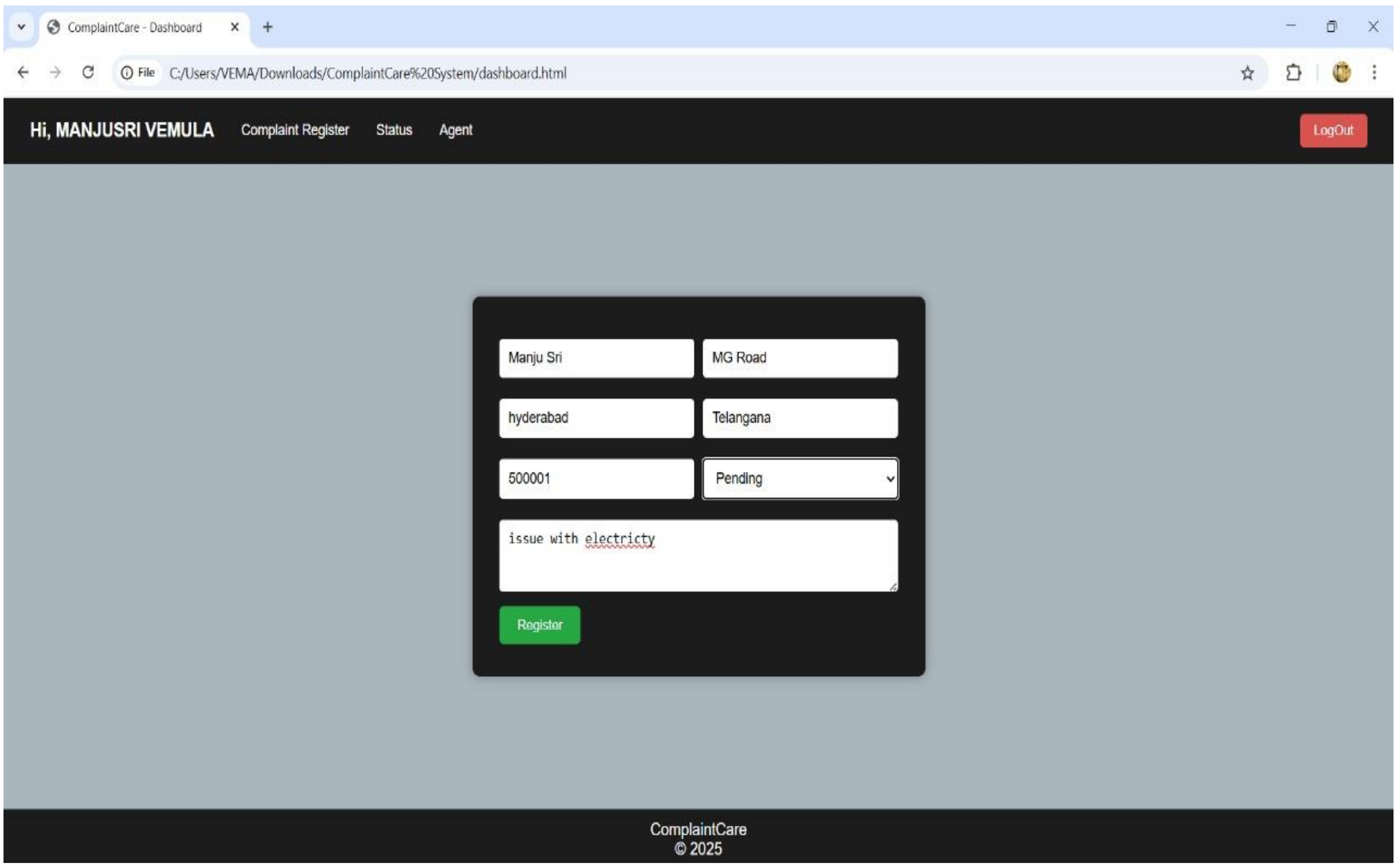
manjusrivemula2003@gmail.com

•••••••••••

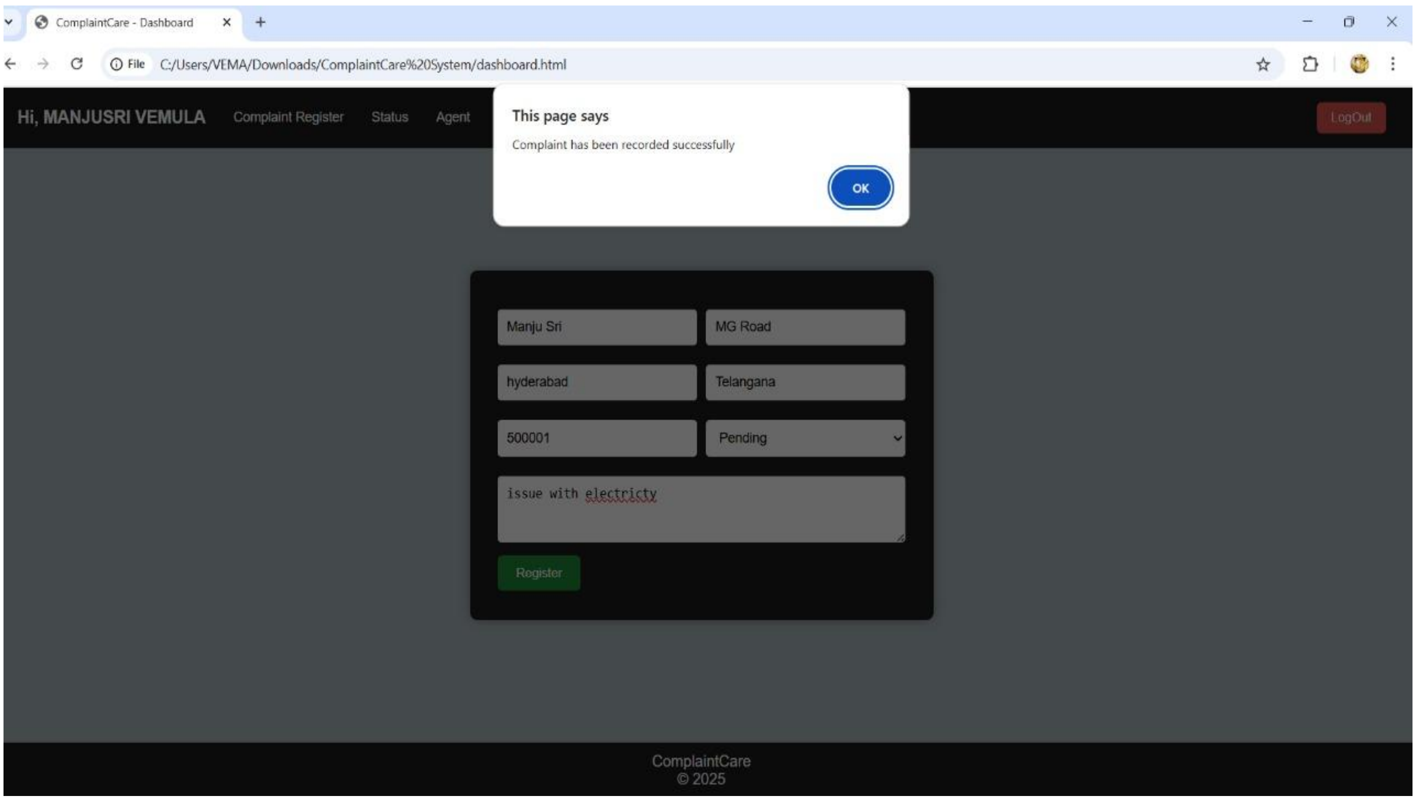
Login

Don't have an account? SignUp

Dashboard Page(To register Complaints):


ComplaintCare - Dashboard
C:/Users/VEMA/Downloads/ComplaintCare%20System/dashboard.html
Hi, MANJUSRI VEMULA
Complaint Register
Status
Agent
LogOut
Register
ComplaintCare
© 2025

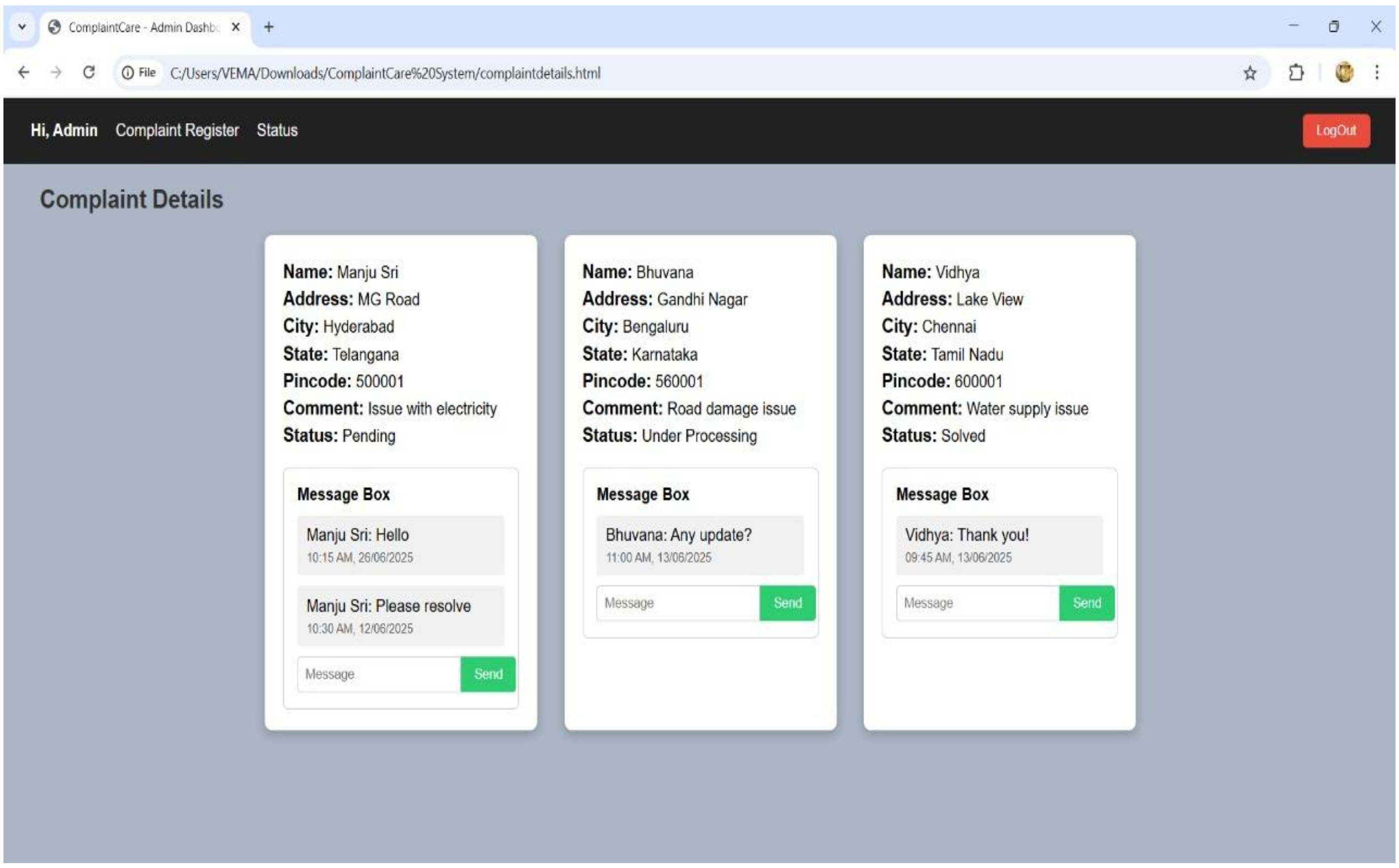
Manju Sri
MG Road
hyderabad
Telangana
500001
Pending
issue with electricty


ComplaintCare - Dashboard
C:/Users/VEMA/Downloads/ComplaintCare%20System/dashboard.html
Hi, MANJUSRI VEMULA
Complaint Register
Status
Agent
LogOut
OK
Register
ComplaintCare
© 2025

This page says
Complaint has been recorded successfully

Manju Sri
MG Road
hyderabad
Telangana
500001
Pending
issue with electricty

ComplaintDetails Page:


ComplaintCare - Admin Dashb
File C:/Users/VEMA/Downloads/ComplaintCare%20System/complaintdetails.html
Hi, Admin
Complaint Register
Status
LogOut

Complaint Details

Name: Manju Sri
Address: MG Road
City: Hyderabad
State: Telangana
Pincode: 500001
Comment: Issue with electricity
Status: Pending

Message Box

Manju Sri: Hello
10:15 AM, 26/06/2025

Manju Sri: Please resolve
10:30 AM, 12/06/2025

Message | Send

Name: Bhuvana
Address: Gandhi Nagar
City: Bengaluru
State: Karnataka
Pincode: 560001
Comment: Road damage issue
Status: Under Processing

Message Box

Bhuvana: Any update?
11:00 AM, 13/06/2025

Message | Send

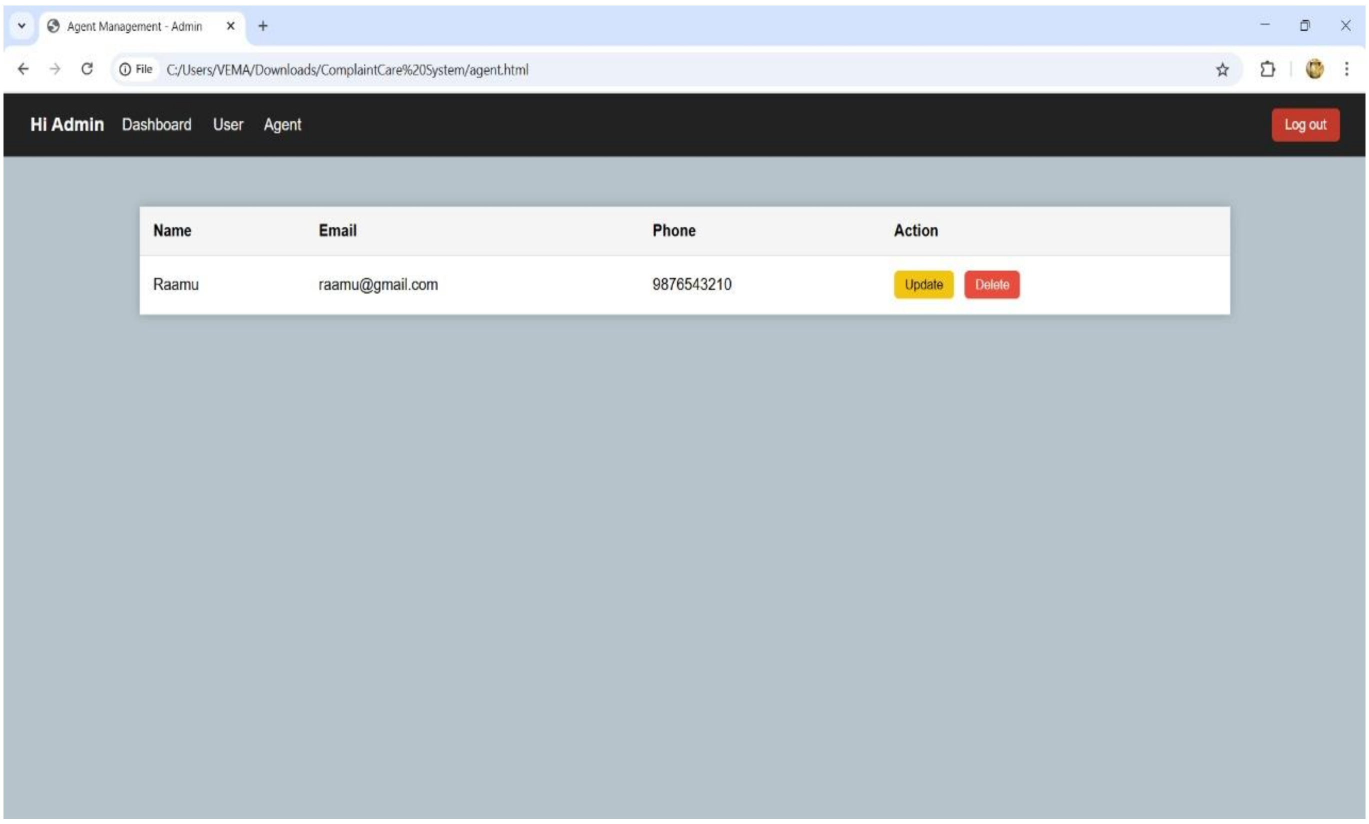
Name: Vidhya
Address: Lake View
City: Chennai
State: Tamil Nadu
Pincode: 600001
Comment: Water supply issue
Status: Solved

Message Box

Vidhya: Thank you!
09:45 AM, 13/06/2025

Message | Send

Agent Page:


Agent Management - Admin
File C:/Users/VEMA/Downloads/ComplaintCare%20System/agent.html
Hi Admin
Dashboard
User
Agent
Log out

Name	Email	Phone	Action
Raamu	raamu@gmail.com	9876543210	Update Delete

9. Testing

- Manual testing was done by using the app (register, login, complaint submission, tracking flow).
- Postman was used to test backend APIs.
- Browser DevTools helped inspect React components and API requests.

10. Screenshots or Demo

Demo Video: Check out a quick demo of ResolveNow in action:
https://youtu.be/tDJkiZ6lpwc

11. Known Issues

- No authentication tokens – Login does not use JWT or sessions, so user sessions are not fully secure.
- No complaint history – Users cannot view past complaints after resolving them.
- Data loss on logout – Complaint drafts or progress may reset when browser data is cleared or user logs out.
- No automated testing – All testing is manual; no test scripts are in place.
- No real-time updates – Status changes aren't reflected instantly on the user side without refreshing the page.

12. Future Enhancements

- Use Jest for frontend tests.
- Use Supertest for backend API testing.
- Integrate video conferencing features using WebRTC API.
- Implement role-based access control for different user types (agent, admin, user).
- Enhance notification system with SMS and in-app alerts.