ResolveNow - Complaint Management System

1. Project Overview

ResolveNow is a comprehensive full-stack web application designed to manage and resolve user complaints efficiently. It is built with scalability and ease-of-use in mind, enabling users to raise concerns while empowering administrators and agents to manage, track, and resolve them efficiently. The project focuses on role-based access, smooth complaint handling workflows, and real-time updates to ensure transparency. By integrating technologies like React, Express.js, and MongoDB, ResolveNow demonstrates a modern architecture suitable for any organization handling internal or external complaints.

2. Key Features

- Role-Based Routing and Access Control: Ensures that users, agents, and administrators access only their permitted functionalities.

- Email Notifications: Automatically notifies users upon successful registration, improving engagement.

- React Context for State Management: Allows seamless sharing of state across components without prop drilling.

- Complaint Tracking System: Users can track the status of each complaint from submission to resolution.

- Modular Design: Enables future scalability and feature enhancements with ease.

3. System Architecture

The application follows a client-server architecture. The frontend, developed using React.js, communicates with the backend built in Express.js. MongoDB serves as the primary database for storing complaint data, user credentials, and agent assignments. Email functionality is powered by Nodemailer to enhance communication. The separation of concerns ensures maintainability and flexibility across components.

Frontend (React.js) <-> Backend (Express.js) <-> MongoDB

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Nodemailer (Email Service)

4. Technology Stack

Frontend: React.js with Tailwind CSS for responsive UI.

Backend: Express.js for routing and logic, Node.js runtime.

Database: MongoDB using Mongoose ODM.

Email Service: Nodemailer for sending user notifications.

Hosting: Vercel (Frontend) and Render/Railway (Backend).

5. User Roles & Functionalities

User:

- Can register and log in to the application.

- Can submit complaints via a structured form.

- Can track the status of submitted complaints.

- Has access to their complaint history for record-keeping.

Agent:

- Can log in to view complaints assigned to them.

- Can update complaint statuses as 'In Progress' or 'Resolved' based on progress.

Admin:

- Can view all complaints raised by users.

- Has control to assign complaints to specific agents.

- Can manage the list of agents by adding, viewing, or removing agents.

6. Security & Access Control

Security is implemented using JWT for authentication and middleware for route protection. Each role (user, agent, admin) has restricted access to resources using role-based routing. Sensitive data like passwords are encrypted using bcrypt, and all API endpoints are validated to prevent unauthorized access or manipulation.

7. Deployment & Demo

The application is deployed on modern cloud platforms. The frontend is hosted using Vercel, allowing continuous integration with GitHub and seamless deployment. The backend runs on services like Render or Railway, providing reliable uptime.

Live Demo: https://complaint-management-system-five.vercel.app/

Demo Video: [Insert link here if available]

8. Conclusion & Future Scope

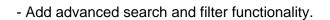ResolveNow presents a robust solution for complaint management by combining clean architecture, modular design, and efficient workflows. It can be adopted by educational institutions, organizations, or companies to streamline issue reporting and resolution.

Future Enhancements:

- Integrate real-time WebSocket notifications.

- Implement analytics dashboard for tracking complaint trends.

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- Add advanced search and filter functionality.

- Introduce multi-language support.

- Role-based dashboard statistics for better insights.