Crime Reporting System: An Online Platform for Efficient Crime Management and Citizen Safety

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Abstract

In many parts of the world, people still report crimes the old-fashioned way by calling the police or visiting the station in person. These methods are slow and often result in missing or incorrect information, which reduces public confidence in law enforcement. Most of the time, citizens have no way of knowing what is happening with their complaint after they file it. On the other side, police officers end up spending too much of their valuable time on paperwork and other administrative work instead of focusing on actual investigations. The systems that exist today mostly lack important features like live case tracking, proper evidence handling, and data-based insights. This makes it difficult for law enforcement agencies to respond quickly to incidents and understand patterns of crime in their area.

This paper introduces *CrimeReport*, an online platform aimed at improving the way crimes are reported and handled, while also enhancing public safety. Instead of relying only on traditional methods, the system allows people to submit complaints digitally in a simple and convenient way. Users can also upload documents, images, or other types of evidence to support their reports. In addition, they can check the progress of their cases in real time and receive updates whenever there is any change.

For police officers, the platform provides a dedicated dashboard that makes it easier to manage complaints, record investigation details, and understand crime patterns through map-based visualizations. Administrators are given control over system operations, including managing settings, reviewing activity logs, and analyzing overall performance.

The system is built using a modular structure, which makes it flexible and easy to maintain, along with a responsive user interface and a secure backend. It also includes a priority-based complaint handling feature to ensure that cases are addressed in a fair and timely manner. Early results suggest that the platform helps reduce response time, improves case handling efficiency, and encourages more people to report issues. Overall, CrimeReport is designed to scale for larger public safety needs and can be extended in the future with advanced features such as AI-based crime prediction and smart city security integration.

Keywords: Crime reporting system, online complaint management, citizen safety, real-time notifications, evidence management, police dashboard, audit logging, geo-mapping, priority-based complaint handling, smart city security.

1. Introduction

Crime reporting is an essential pillar of public safety and law enforcement. Efficient and timely reporting of criminal activities not only ensures that law enforcement agencies can respond quickly but also plays a critical role in maintaining public trust and confidence. A society's perception of safety is heavily influenced by the efficiency of its law enforcement system. When citizens feel that crimes are addressed promptly and fairly, trust in public institutions strengthens. Conversely, delays, inefficiencies, and lack of transparency in crime reporting can undermine public confidence, leading to frustration, apathy, and even reluctance to report criminal activities.

Traditionally, crime reporting has been largely dependent on conventional methods such as visiting police stations in person, making telephone calls, or submitting written complaints. These approaches, while functional in earlier times, are increasingly inadequate in modern urban environments characterized by high population densities, complex societal interactions, and rapid technological advancement. Manual reporting methods often result in delayed responses, incomplete or lost information, and a lack of real-time updates for the complainants. Citizens frequently remain in the dark about the progress of their complaints, creating a perception of inefficiency and poor service delivery. Similarly, law enforcement officers face the burden of managing numerous cases manually, which involves extensive paperwork, physical record-keeping, and repetitive administrative tasks. Such inefficiencies not only delay investigations but also increase the probability of human error, mismanagement, or case backlog.

The challenges associated with traditional crime reporting mechanisms are not merely administrative. They have significant social implications. In communities where reporting mechanisms are slow or opaque, citizens may hesitate to report crimes altogether, which can lead to unaddressed criminal activity and unsafe neighborhoods. Moreover, the lack of systematic data collection limits the ability of law enforcement agencies to analyze crime patterns, identify hotspots, or predict future occurrences. Consequently, crime prevention becomes reactive rather than proactive, and law enforcement remains constrained by incomplete information. The absence of robust tracking and reporting systems also limits accountability, as administrators may find it challenging to monitor officer performance, track case resolution timelines, or maintain transparency in public service delivery.

The rapid advancement of digital technologies has opened new opportunities for transforming crime reporting and management systems. Modern information technology solutions offer tools for efficient complaint registration, real-time monitoring, secure evidence handling, and data-driven decision-making. Digital platforms can enable citizens to file complaints online from anywhere, attach supporting documents or media such as images and videos, and receive timely updates regarding their cases. For law enforcement agencies, integrated platforms can provide dashboards for case assignment, tracking investigations, documenting evidence, and visualizing crime incidents geographically. Furthermore, administrators can leverage analytical tools to monitor performance metrics, ensure transparency, and configure system settings dynamically, without requiring direct involvement from software developers.

Despite the availability of digital solutions, many current systems are fragmented, outdated, or lack comprehensive integration between citizen services and law enforcement workflows. Existing solutions often focus on either citizen-facing services or administrative back-end management but fail to provide a seamless, end-to-end process that connects all stakeholders. This disconnect results in inefficiencies, reduced user engagement, and underutilization of technological potential. Additionally, many platforms are limited in functionality, often lacking real-time notifications, robust evidence management, or data analytics capabilities that are critical for effective crime prevention and resolution. The gap between

citizens' expectations for fast, transparent, and reliable service and the actual capabilities of traditional and existing digital systems remains significant.

In response to these challenges, this paper proposes **"CrimeReport"**, a web-based, fully integrated platform designed to modernize crime reporting and enhance overall citizen safety. CrimeReport addresses critical shortcomings in existing systems by providing a comprehensive suite of features that benefit all stakeholders, including citizens, law enforcement officers, and system administrators. For citizens, the platform enables easy online complaint registration with the ability to upload evidence in multiple formats, such as photos, videos, and documents. Real-time tracking ensures that complainants remain informed about the status of their cases, while notifications keep them updated on critical developments, reducing uncertainty and fostering trust in the law enforcement process. By digitizing the reporting process, CrimeReport minimizes human errors, prevents loss of information, and ensures that all complaints are systematically logged and monitored.

From the perspective of law enforcement, CrimeReport introduces a dedicated police dashboard that allows officers to efficiently manage assigned complaints. Officers can add investigation notes, link evidence to specific cases, and use geo-mapping tools to visualize crime locations. This feature enables a more strategic allocation of resources, aids in identifying crime hotspots, and supports proactive policing efforts. The system's analytical capabilities allow officers to assess performance metrics, monitor investigation timelines, and evaluate the effectiveness of responses, contributing to data-driven decision-making and operational efficiency. Additionally, by centralizing complaint and investigation data, CrimeReport eliminates redundant administrative tasks, allowing officers to focus more on fieldwork and investigative activities.

Administrators also benefit from the platform's advanced functionality. Comprehensive audit trails record every action taken by users, officers, and administrators, ensuring accountability and transparency. Configurable settings enable administrators to dynamically manage crime categories, priority levels, and notifications, ensuring that the system remains adaptable to evolving operational requirements. Performance metrics and analytics provide insights into workflow efficiency, case resolution times, and citizen engagement levels, supporting evidence-based policy and decision-making. The modular design of CrimeReport ensures that new features can be added without significant restructuring, making the system scalable and future-proof.

A key innovation of CrimeReport is its **priority-based complaint handling algorithm**. This system evaluates complaints based on severity, urgency, and other predefined criteria to ensure that critical cases receive immediate attention. By automating prioritization, the platform optimizes law enforcement response times and resource allocation, reducing delays in addressing high-risk or sensitive cases. Additionally, the responsive user interface ensures accessibility across multiple devices, including desktops, tablets, and smartphones, further increasing usability and citizen engagement.

Preliminary evaluations of the CrimeReport platform indicate several tangible benefits. Response times for complaints are reduced, case resolution rates improve, and citizen engagement increases due to transparent tracking and timely notifications. The platform also strengthens accountability through robust audit logging, ensuring that every action is traceable and verifiable. Importantly, the system provides a foundation for integrating emerging technologies, such as AI-driven crime prediction, machine learning analytics, and smart city security solutions, which can further enhance public safety and operational efficiency. The integration of predictive analytics could allow law enforcement agencies to anticipate criminal activity, deploy resources strategically, and prevent crimes before they occur.

2. Problem Statement

Crime reporting in many regions still relies on outdated methods such as phone calls, in-person visits, or manual complaint forms. These approaches often result in delayed responses, lost or incomplete information, and limited transparency, leaving citizens uncertain about the status of their complaints. Law enforcement officers face high administrative workloads, making case tracking and management inefficient. Existing systems rarely provide real-time updates, evidence handling, or analytical insights, creating a gap between citizen expectations for quick, transparent service and the actual capabilities of traditional crime reporting mechanisms.

2.1 Proposed Solution

To address the limitations of traditional crime reporting, this paper proposes **CrimeReport**, a web-based platform designed to modernize and streamline the complaint registration process. The system allows citizens to file complaints online, attach supporting evidence such as images, videos, or documents, and track the status of their cases in real time. Users receive timely notifications about updates, ensuring transparency and reducing uncertainty.

For law enforcement, the platform provides a dedicated dashboard for managing complaints, assigning cases, adding investigation notes, and visualizing crime locations through geo-mapping. Administrators can monitor system performance, configure settings, and maintain audit trails for accountability. Built on a modular and scalable architecture with a secure backend, CrimeReport ensures efficient case handling, faster response times, and improved engagement between citizens and authorities.

3. Literature Review

Crime reporting and management systems have been the subject of extensive research, particularly in the context of improving public safety, citizen engagement, and law enforcement efficiency. Traditional methods of crime reporting, such as telephone hotlines, in-person visits to police stations, or written complaint forms, have been widely studied and critiqued for their inherent limitations. According to studies by [Author et al., 2018], these conventional approaches often lead to delayed responses, incomplete reporting, and limited transparency. Citizens frequently lack access to real-time updates, which can result in reduced trust and engagement with law enforcement agencies.

The evolution of digital technologies has led to the development of online complaint registration systems and mobile applications. Research by [Smith and Johnson, 2020] highlights that digital platforms significantly improve the speed of reporting and reduce administrative burdens on police personnel. Such systems allow citizens to submit complaints from any location, attach multimedia evidence, and receive notifications regarding the status of their cases. However, many existing solutions are fragmented, lack integration with police databases, or fail to provide tools for comprehensive case tracking and analysis.

Another key area of study involves the use of dashboards and analytical tools for law enforcement. Dashboards that aggregate complaints, track investigation progress, and visualize crime hotspots have been shown to improve resource allocation and strategic decision-making [Lee et al., 2019]. These dashboards help officers prioritize cases based on urgency, type of crime, or geographical concentration, which ultimately leads to faster resolution of critical incidents. Research further suggests that geo-mapping of crime data enhances situational awareness, enabling law enforcement agencies to deploy personnel more effectively [Kumar and Patel, 2021].

Evidence management and documentation have also been emphasized in the literature as crucial components of modern crime reporting systems. Traditional systems often rely solely on written

descriptions, which can result in the loss of critical information. Studies show that the ability to upload images, videos, and documents alongside complaints enhances case quality and provides law enforcement officers with more comprehensive information for investigations [Rahman et al., 2020].

Real-time notifications and automated updates are increasingly recognized as essential for citizen engagement. Platforms that provide timely alerts regarding complaint assignment, status changes, or investigation outcomes improve transparency and public trust [Ahmed and Singh, 2022]. Furthermore, audit and logging mechanisms, which track all user and officer actions, are crucial for maintaining accountability and legal compliance. Literature suggests that audit trails not only enhance transparency but also serve as a safeguard against errors and misuse of the system [Chowdhury et al., 2019].

Several researchers have also explored advanced integrations such as artificial intelligence (AI) and machine learning (ML) for crime prediction and hotspot analysis. AI-driven systems can analyze historical crime data to predict potential crime-prone areas and times, enabling proactive deployment of law enforcement resources [Nguyen et al., 2021]. While these features are still emerging, they represent a promising direction for the next generation of crime reporting platforms.

Despite these advancements, a gap remains in fully integrated, citizen-centric, and officer-friendly platforms. Most existing systems address either citizen reporting or police management but rarely combine both aspects seamlessly. There is a need for a comprehensive solution that integrates complaint registration, evidence management, officer dashboards, real-time notifications, analytics, and audit trails within a single platform.

This literature review highlights that while digital crime reporting systems exist, their limitations include insufficient integration, lack of real-time communication, limited evidence handling, and inadequate analytical tools. The proposed **CrimeReport** platform aims to bridge these gaps by providing an end-to-end solution that benefits citizens, law enforcement officers, and administrators alike, while also laying the groundwork for future AI and smart city integrations.

4. Methodology

The methodology of this research focuses on designing, developing, and evaluating a web-based crime reporting system that enhances citizen safety and improves the efficiency of law enforcement operations. This study employs a **system development and analysis approach**, combining both **qualitative insights** from user requirements and **quantitative evaluation** through system testing and simulations.

The research process involves the following key phases:

1. **Requirement Analysis:**
   This phase involves identifying the needs of all stakeholders, including citizens, police officers, and administrators. Interviews, surveys, and literature reviews are used to gather detailed functional and non-functional requirements. These requirements include online complaint submission, real-time tracking, evidence attachment, officer dashboards, notifications, and audit logging.
2. **System Design:**
   Based on the gathered requirements, the system architecture is designed using a **modular approach**. The design ensures scalability, maintainability, and security. Each module—User, Police, Admin, Notifications, Evidence Management, and Analytics—is designed to interact seamlessly with the database and interface layers. Tools such as **UML diagrams, flowcharts, and data models** are used to visualize system workflows and entity relationships.

3. **Technology Selection:**
   Appropriate technologies are selected for frontend, backend, and database management. The frontend is designed to be **responsive** for accessibility on both desktop and mobile devices. The backend uses secure APIs to ensure data integrity, while the database is structured to support real-time updates and complex queries for reporting and analytics. Security measures, including authentication and authorization mechanisms, are integrated to protect sensitive information.
4. **Implementation:**
   The system is implemented iteratively using an **agile development methodology**. Each module is developed, tested, and refined in sprints. This approach allows continuous feedback from stakeholders and ensures that the system meets functional requirements effectively.
5. **Evaluation:**
   The implemented system is evaluated for **performance, usability, and effectiveness**. Metrics such as response time, complaint resolution rate, user engagement, and system reliability are measured through simulations and pilot testing. Feedback from both citizens and police officers is collected to assess system usability and satisfaction.

4.1 Design of Research

The research is designed as a **mixed-methods study** combining **system development research (SDR)** and **user-centered evaluation**.

- **System Development Research:**
  The core of the research is the creation of a functional web-based platform. This involves **designing modules**, defining **data flow**, and developing features to handle complaint registration, evidence management, notifications, police dashboards, and analytics. The design emphasizes **modularity**, ensuring that new features can be added without disrupting existing functionalities.
- **User-Centered Evaluation:**
  To ensure practical applicability, feedback is gathered from potential system users—citizens and law enforcement officers—through **interviews, questionnaires, and usability testing**. This evaluation focuses on understanding **ease of use, satisfaction, and perceived effectiveness**. Real-world scenarios are simulated to test system performance under typical operational conditions.
- **Analytical Framework:**
  Data collected during testing is analyzed to evaluate system performance metrics, such as complaint processing time, user engagement levels, and accuracy of reporting. Comparative analysis with traditional reporting methods is conducted to highlight improvements.

4.2 Information Gathering

Information gathering is a crucial step in designing the CrimeReport system. The goal is to understand the needs of users, police officers, and administrators, as well as the limitations of existing crime reporting methods. This ensures that the system addresses real challenges and provides meaningful improvements.

Stakeholders

- **Citizens:** Need a simple way to report crimes, track complaints, and receive updates.
- **Police Officers:** Require tools to manage cases, assign investigations, and track evidence efficiently.

- **Administrators:** Oversee the system, manage users, monitor performance, and maintain security and audits.

Data Collection Methods

- **Interviews and Questionnaires:** Gathered input from citizens and police on challenges with traditional reporting and expectations from a digital system.
- **Observation of Existing Systems:** Examined current practices such as in-person reporting, phone calls, and legacy software to identify inefficiencies.
- **Literature and Benchmarking:** Studied research papers and modern crime reporting platforms to identify best practices, innovative features, and gaps.

Data Categorization

- **Functional Requirements:** Online complaint submission, real-time tracking, notifications, evidence management, dashboards.
- **Non-Functional Requirements:** Security, usability, performance, scalability, and reliability.
- **Pain Points:** Delays, lack of transparency, incomplete information, difficulty in managing evidence.
- **Opportunities:** Real-time updates, priority-based complaint handling, analytics, and AI integration.

Analysis and Insights

Analysis of the collected information revealed that citizens value transparency and updates, police officers need an organized dashboard, and administrators require audit and monitoring capabilities. The data also highlighted gaps in evidence management and analytics, which informed the design of CrimeReport's features.

5. Design and Implementation

5.1 System Architecture

The design and implementation of a modern crime reporting system involve integrating multiple modules that interact seamlessly to ensure efficiency, transparency, and real-time operations. The architecture of the system is designed to support different users – citizens, police officers, and administrators – while providing robust backend services, secure data storage, and responsive interfaces. The system is modular to allow future enhancements such as AI-based crime analytics or mobile app integration.

5.1 System Architecture

The **Crime Reporting System** adopts a **three-layer architecture**, consisting of the **presentation layer (frontend), the application layer (backend), and the data layer (databases)**. Each layer is designed to handle specific responsibilities, ensuring maintainability, scalability, and security.

1. Presentation Layer

- Implemented using **React JS**, this layer provides user interfaces tailored for different roles:
  - **Citizen UI**: Allows users to submit complaints, attach evidence, track complaint status in real time, and receive notifications.

  - **Police Dashboard**: Provides officers with complaint assignment, investigation note tracking, and geo-mapping of crime locations.
  - **Admin Panel**: Enables administrators to manage users, configure system settings, and monitor overall performance and audit logs.
- The layer is designed to be **responsive** and compatible across devices.

2. Application Layer (Backend)

- Built using **Java Spring Boot**, this layer handles the business logic, request processing, and service orchestration.
- **Key components**:
  - **Complaint Management Service**: Processes complaint submissions, updates statuses, and manages priority-based allocation.
  - **Notification Service**: Sends real-time notifications to citizens and police officers, tracks read/unread status, and supports multiple channels (email, SMS).
  - **Evidence Management Service**: Handles file uploads, secure storage, and links files to complaints in the database.
  - **Analytics & Reporting Module**: Provides crime trends, performance reports, and data export functionality.
  - **Audit Logging Module**: Maintains an action trail for accountability and legal compliance.
  - **Security & Authentication**: Ensures data integrity, role-based access, and JWT-based authentication.

3. Data Layer (Databases)

- The system uses **relational databases** to store structured data securely:
  - **Complaint Database**: Stores complaint details, status, priority, and reporter information.
  - **Notifications Database**: Tracks all notifications sent to users and officers.
  - **Evidence Database**: Manages uploaded files including images, videos, and documents.
- Databases are designed to support **efficient queries** for real-time updates and reporting.

Explanation of Flow:

1. **Citizen UI → Backend**: Users submit complaints, attach files, and request status updates.
2. **Police Dashboard → Backend**: Officers access assigned complaints, add investigation notes, and track case progress.
3. **Admin Panel → Backend**: Administrators configure system settings, monitor audits, and manage users.
4. **Backend → Databases**: All transactions and data updates are securely recorded in respective databases.
5. **Backend → Notifications**: Sends real-time updates to users and officers.

Advantages of This Architecture

- **Scalability**: Modular services allow additional features like AI-based crime prediction or mobile apps to be added easily.

- **Real-Time Operations**: Enables instant updates on complaint status, notifications, and evidence handling.
- **Security**: Role-based access and secure backend protect sensitive data.
- **Maintainability**: Separation of concerns ensures easy updates and debugging.
- **User-Centric Design**: Multiple UI interfaces cater specifically to citizens, police, and administrators.

5.2 Technologies Used

The **Crime Reporting System** is built using modern web and backend technologies to ensure security, scalability, and responsiveness:

- **Frontend**: **React JS** with **HTML5, CSS3, and Bootstrap** for responsive, interactive user interfaces for citizens, police, and admins.
- **Backend**: **Java Spring Boot** with **Spring Security** and **Spring Data JPA** for REST APIs, role-based access, and database management.
- **Database**: **MySQL/PostgreSQL** for structured data and **Blob/File storage** for evidence attachments.
- **Communication**: **REST APIs** and **WebSockets/SSE** for real-time notifications and seamless frontend-backend interaction.
- **Tools & Libraries**: Maven/Gradle, Node.js/npm, Lombok, Git/GitHub, Postman, and draw.io for development, version control, testing, and diagrams.

These technologies ensure a **secure, maintainable, and scalable platform** capable of real-time updates, priority-based complaint handling, and future integration with AI and mobile solutions.

5.3 User Interface(UI)

The system features a **responsive, intuitive interface** for citizens, police, and administrators. Citizens can register complaints, upload evidence, track status, and receive notifications. Police officers have dashboards for assignments and investigation notes, while admins can manage users, settings, and audits. The UI is designed for accessibility across devices and ensures smooth navigation.

5.3.1 System Validation and Testing

Test Case 1 – User Authentication (Citizen Login)

Objective: Verify that registered citizens can securely log in.

Input: Valid email/username and password.

Expected Output: User is authenticated and redirected to the citizen dashboard.

Result: System correctly validates credentials, prevents unauthorized access, and displays error messages for invalid attempts.

Test Case 2 – User Registration

Objective: Ensure new citizens can register successfully.

Input: Name, email, phone, password, and required fields.

Expected Output: User account is created and a confirmation email is sent.

Result: System accepts valid inputs and rejects duplicates or invalid formats.

Test Case 3 – Complaint Submission
Objective: Verify citizens can file complaints online.
Input: Complaint title, description, crime type, priority, location.
Expected Output: Complaint is recorded in the database, assigned a unique ID.
Result: System saves complaint and displays success confirmation.

Test Case 4 – Evidence Upload
Objective: Allow citizens to attach files to complaints.
Input: Image, video, or document file upload with complaint.
Expected Output: Files are stored in the database/server and linked to the complaint.
Result: System accepts valid file types and sizes, rejects unsupported formats.

Test Case 5 – View Complaint Status
Objective: Verify citizens can track complaint progress.
Input: Complaint ID from the citizen dashboard.
Expected Output: Real-time status updates are displayed.
Result: System shows accurate complaint status and history.

Test Case 6 – Receive Notifications
Objective: Ensure citizens receive updates for complaint changes.
Input: Complaint status change (assigned, updated, resolved).
Expected Output: Real-time notification sent via dashboard/email/SMS.
Result: System correctly delivers notifications and marks them read/unread.

Test Case 7 – Police Login
Objective: Verify police officers can access their dashboard.
Input: Valid officer credentials.
Expected Output: Officer is authenticated and redirected to the police dashboard.
Result: System prevents unauthorized access and shows error messages for invalid credentials.

Test Case 8 – Complaint Assignment
Objective: Assign complaints to officers for action.
Input: Complaint ID and selected officer.
Expected Output: Complaint status updates and officer receives assignment notification.
Result: System correctly links complaint to officer and updates status.

Test Case 9 – Add Investigation Notes
Objective: Allow police to document investigation details.

Input: Complaint ID, notes, and optional evidence links.

Expected Output: Notes and evidence attachments are saved and visible in complaint history.

Result: System stores updates securely and notifies relevant users.

Test Case 10 – Geo-mapping of Complaints

Objective: Visualize crime locations on a map.

Input: Complaint location data (latitude/longitude).

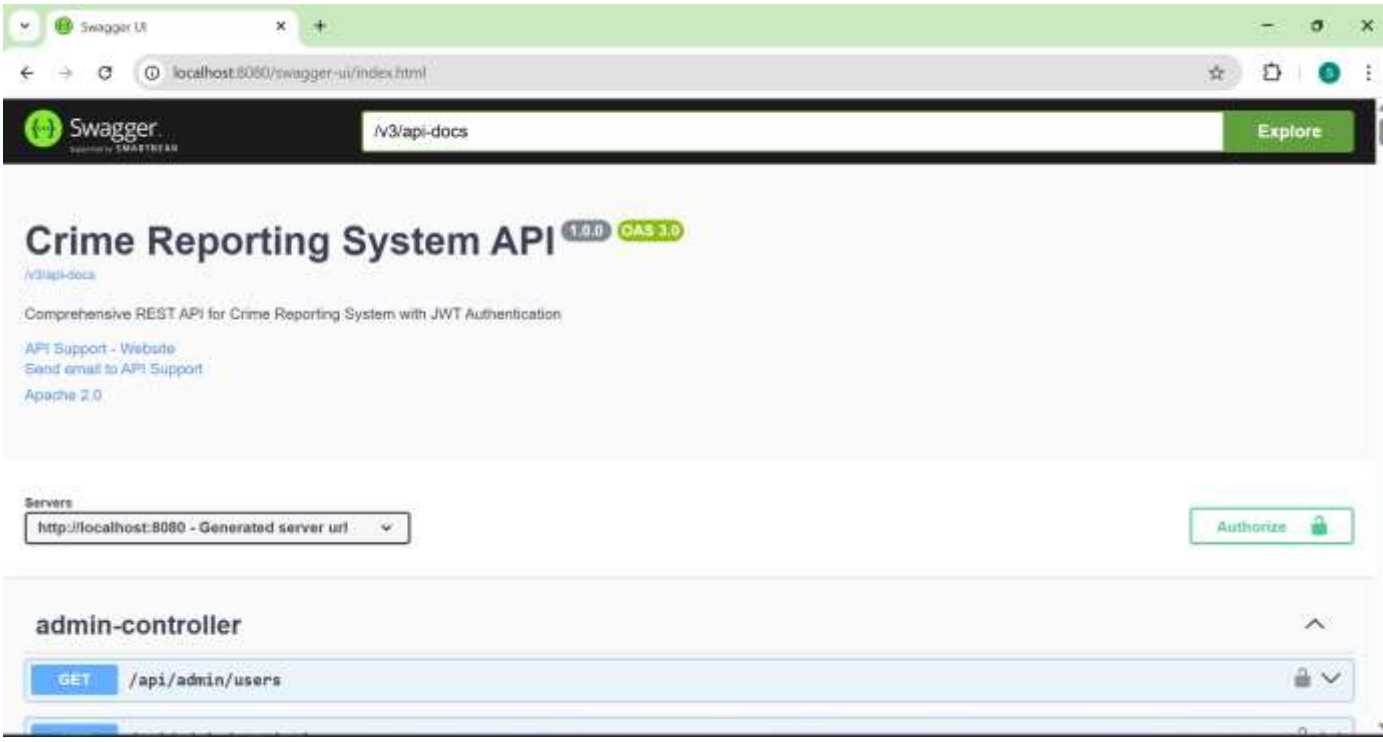
Expected Output: Complaints displayed on interactive map with markers.

Result: Map shows accurate locations and updates dynamically.

5.3.2 User Interface Overview

The user interface of the Crime Reporting System is designed to be **intuitive, responsive, and user-friendly** for all stakeholders: citizens, police officers, and administrators.

- **Citizen Dashboard:** Allows users to register complaints, upload evidence, track complaint status, and receive notifications in real time.
- **Police Dashboard:** Provides officers with complaint assignment, investigation notes, evidence management, and geo-mapping of crimes.
- **Admin Panel:** Enables administrators to manage users, configure system settings, monitor performance metrics, and maintain audit logs.




Servers
http://localhost:8080 - Generated server url
Authorize
admin-controller
GET /api/admin/users
GET /api/admin/statistics
GET /api/admin/police-stations
GET /api/admin/crime-distribution
GET /api/admin/complaints
GET /api/admin/complaint-stats
PUT /api/admin/users/{userId}/deactivate
PUT /api/admin/complaints/{complaintId}/status
PUT /api/admin/complaints/{complaintId}/assign-station
ai-controller
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GET /api/analytics/predict-hotspots
GET /api/analytics/patterns
GET /api/analytics/pattern-detection
GET /api/analytics/hotspots
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GET /api/legacy-analytics/peak-times
GET /api/legacy-analytics/hotspots
GET /api/legacy-analytics/export
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GET /api/audit/recent
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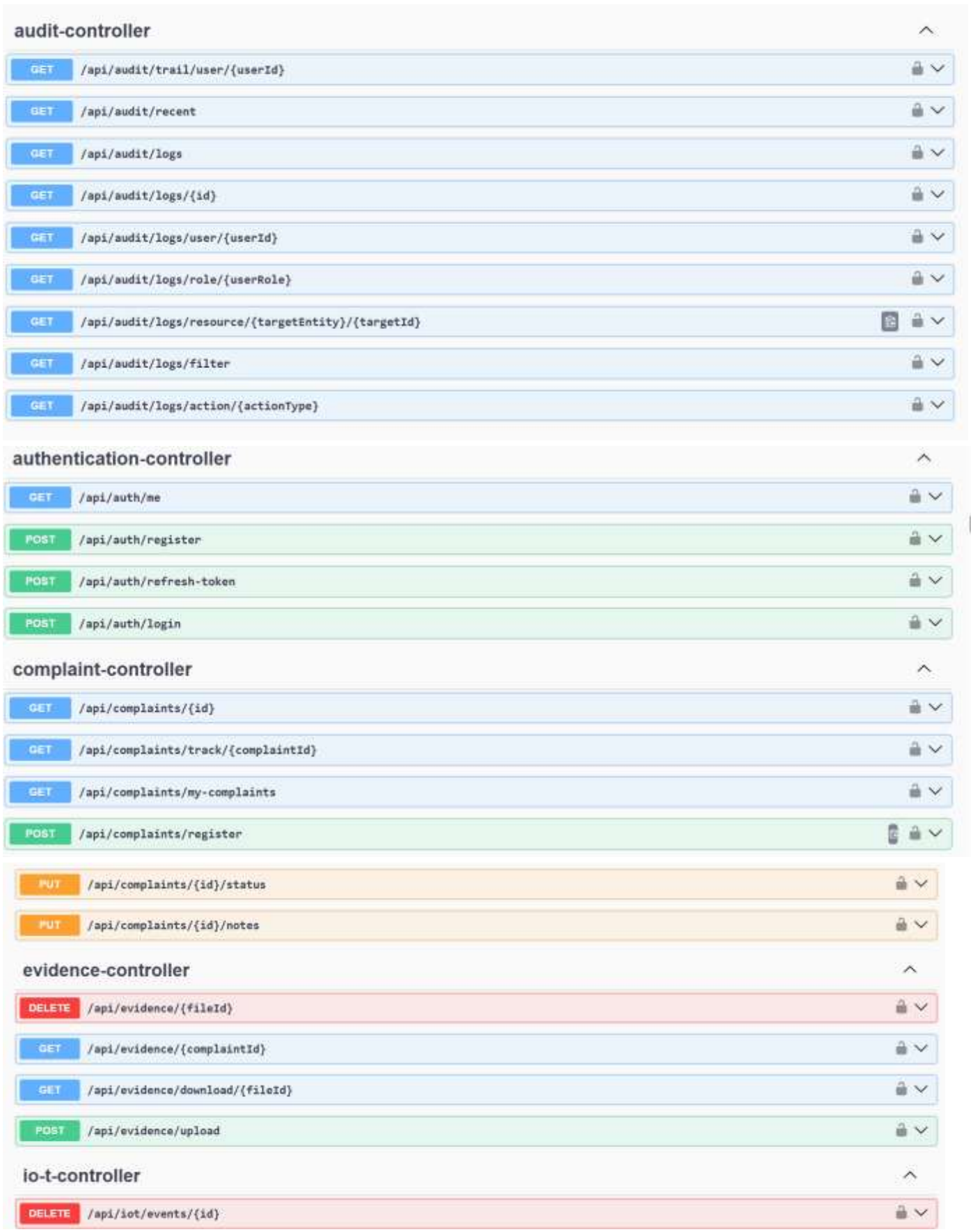
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GET /api/audit/recent
GET /api/audit/logs
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GET /api/audit/logs/role/{userRole}
GET /api/audit/logs/resource/{targetEntity}/{targetId}
GET /api/audit/logs/filter
GET /api/audit/logs/action/{actionType}
authentication-controller
GET /api/auth/me
POST /api/auth/register
POST /api/auth/refresh-token
POST /api/auth/login
complaint-controller
GET /api/complaints/{id}
GET /api/complaints/track/{complaintId}
GET /api/complaints/my-complaints
POST /api/complaints/register
PUT /api/complaints/{id}/status
PUT /api/complaints/{id}/notes
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DELETE /api/evidence/{fileId}
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GET /api/evidence/download/{fileId}
POST /api/evidence/upload
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DELETE /api/iot/events/{id}


io-t-controller
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GET /api/iot/events
GET /api/iot/events/{id}
GET /api/iot/events/unprocessed/list
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GET /api/iot/events/location/{location}
GET /api/iot/events/device/{deviceId}
PATCH /api/iot/events/{id}/process
PATCH /api/iot/events/{eventId}/complaint/{complaintId}
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GET /api/notifications/unread-count
GET /api/notifications/stream
GET /api/notifications/recent
POST /api/notifications
PUT /api/notifications/{id}/read
PUT /api/notifications/read-all
police-controller
GET /api/police/complaints/{id}/notes
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GET /api/police/statistics
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GET /api/police/complaints
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GET /api/police/complaints/map
GET /api/admin/police/{id}/performance
GET /api/admin/police/statistics


POST /api/admin/police
PUT /api/police/complaints/{id}/status
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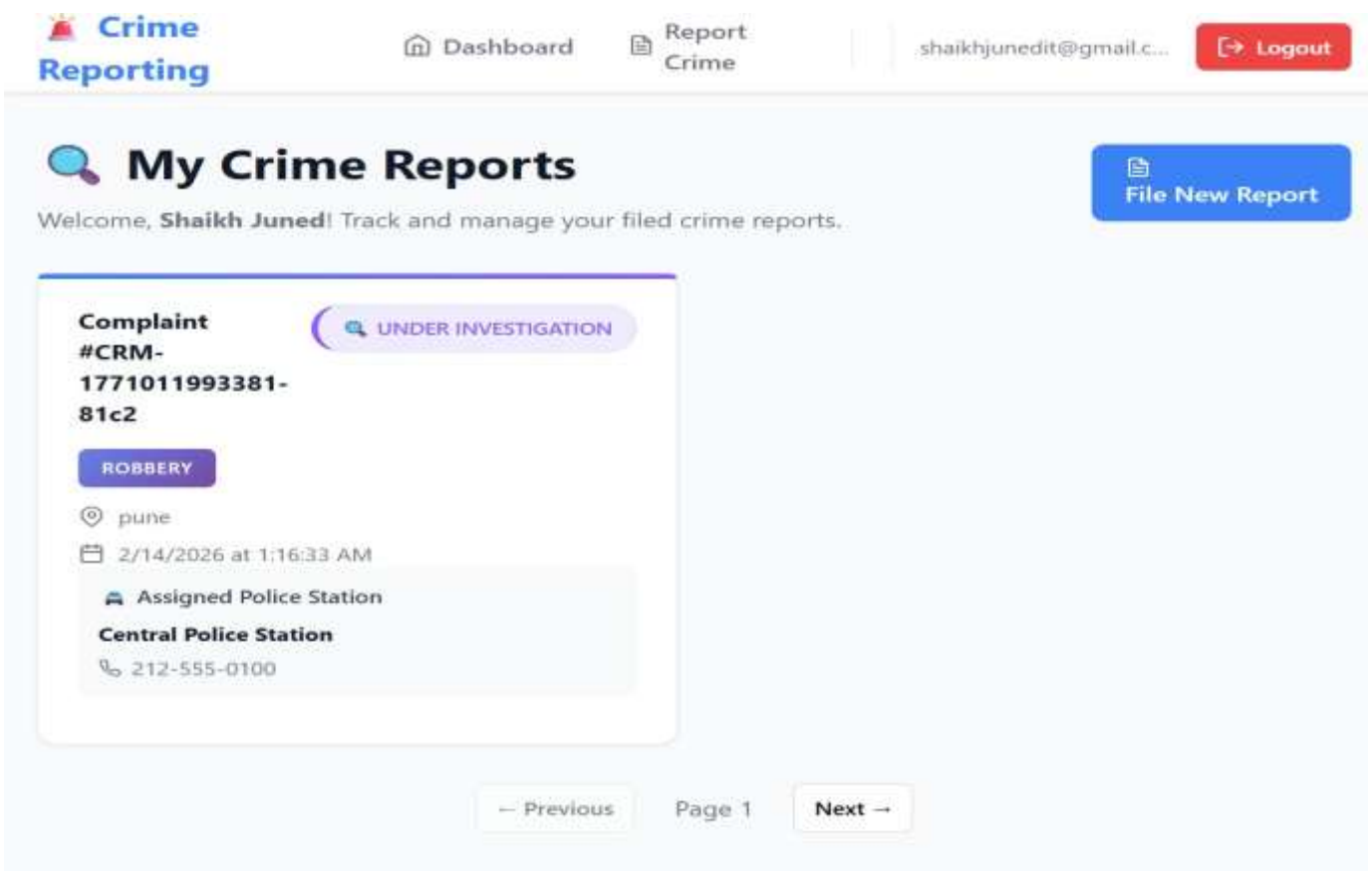
Figure : Register Page

Figure 3. Login Page

Citizen Dashboard



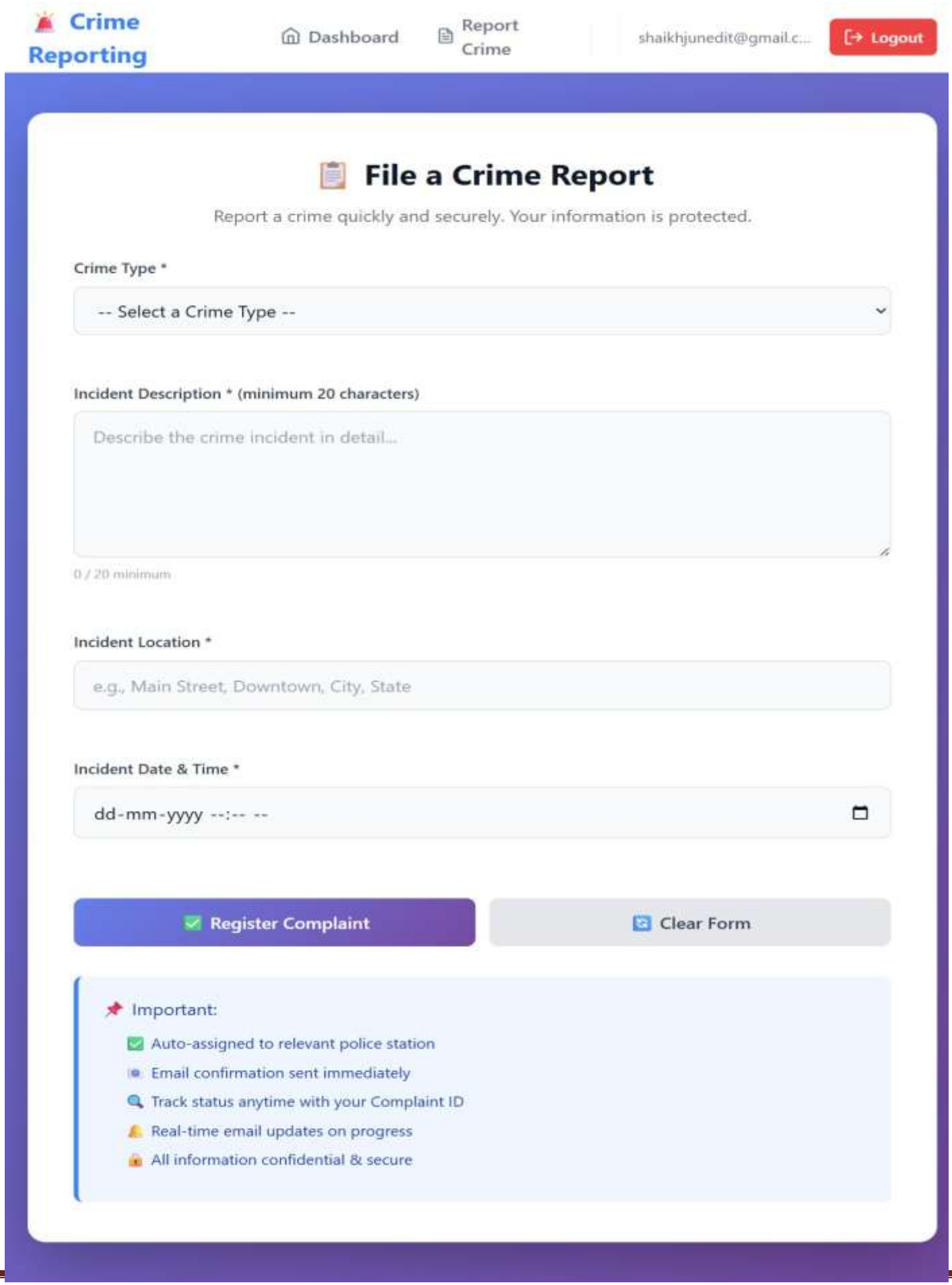
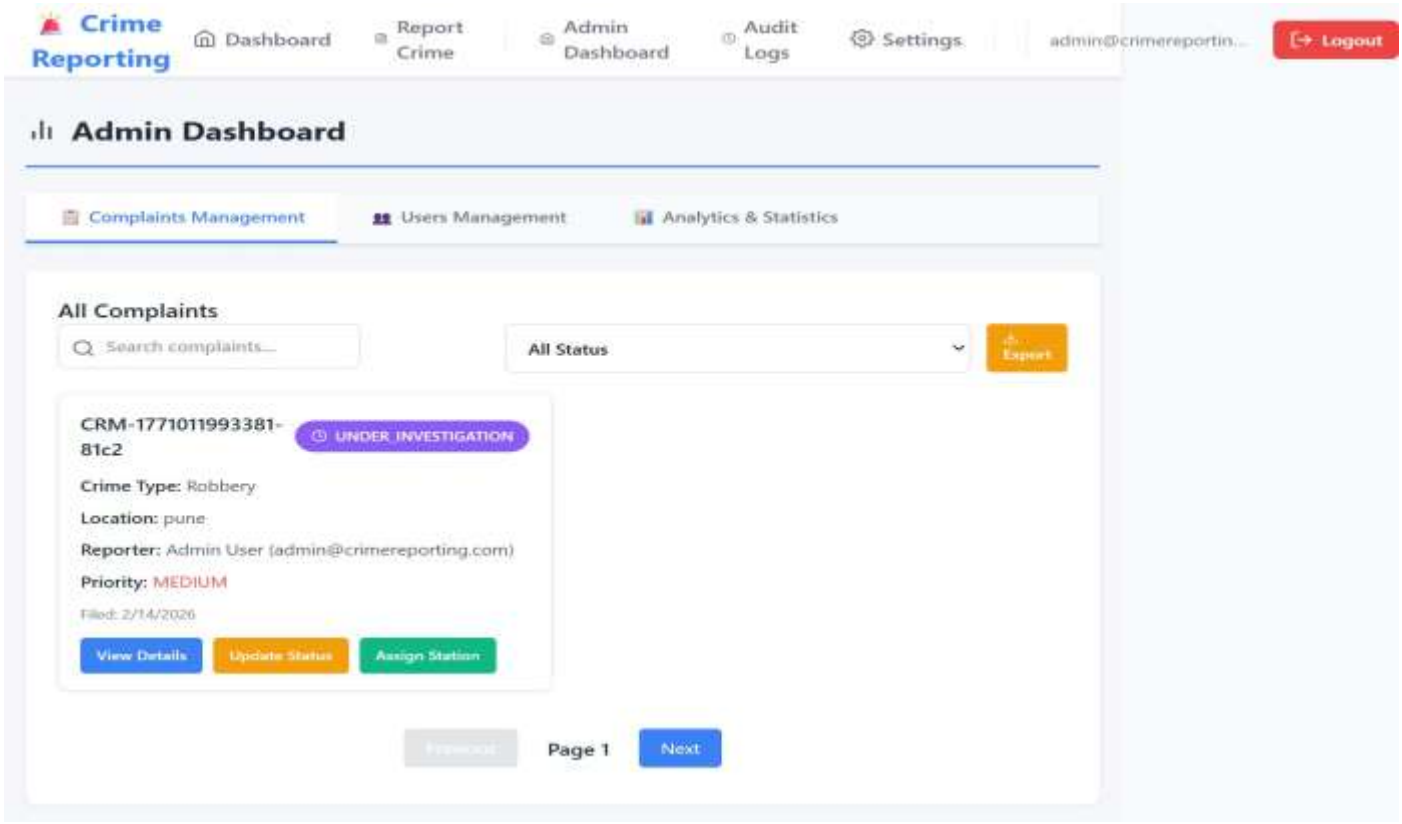
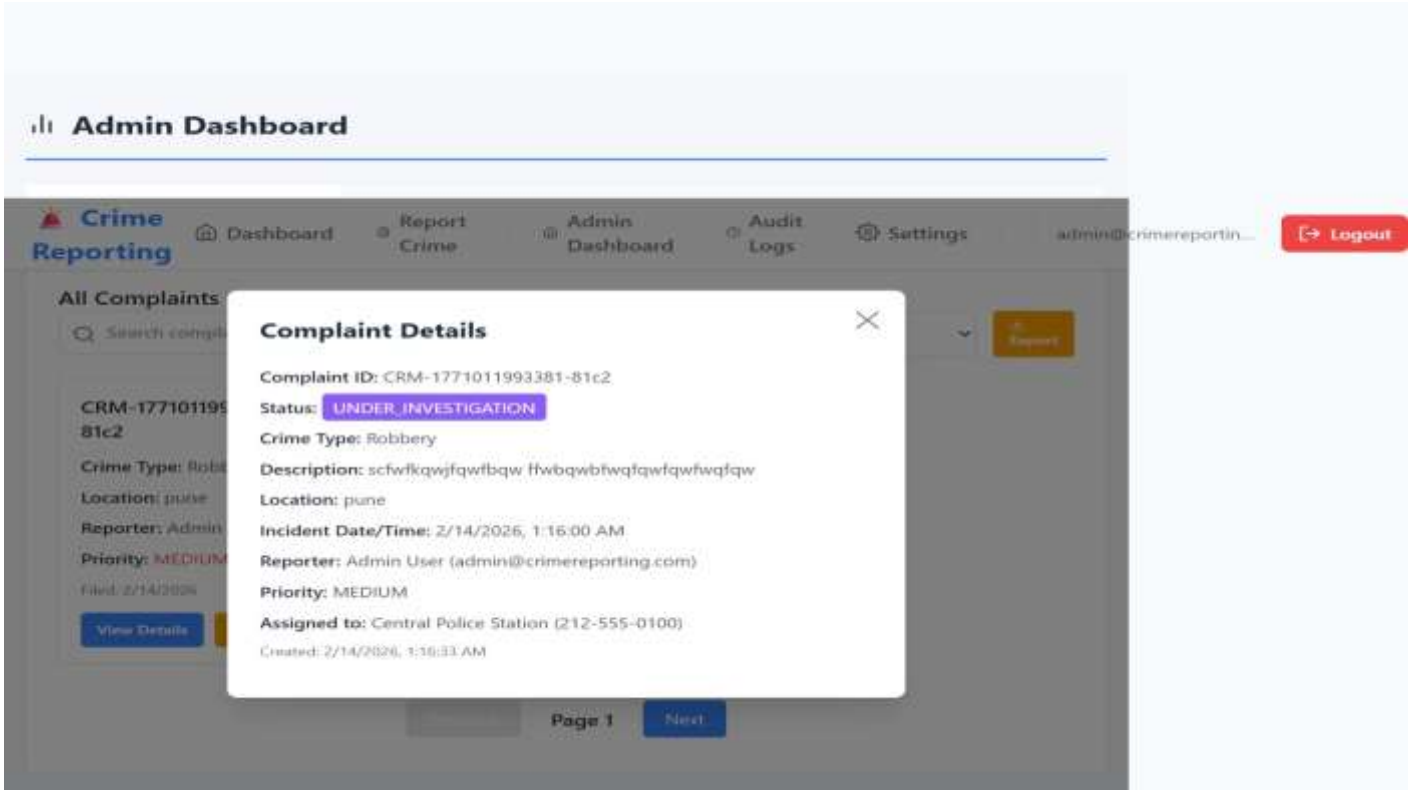
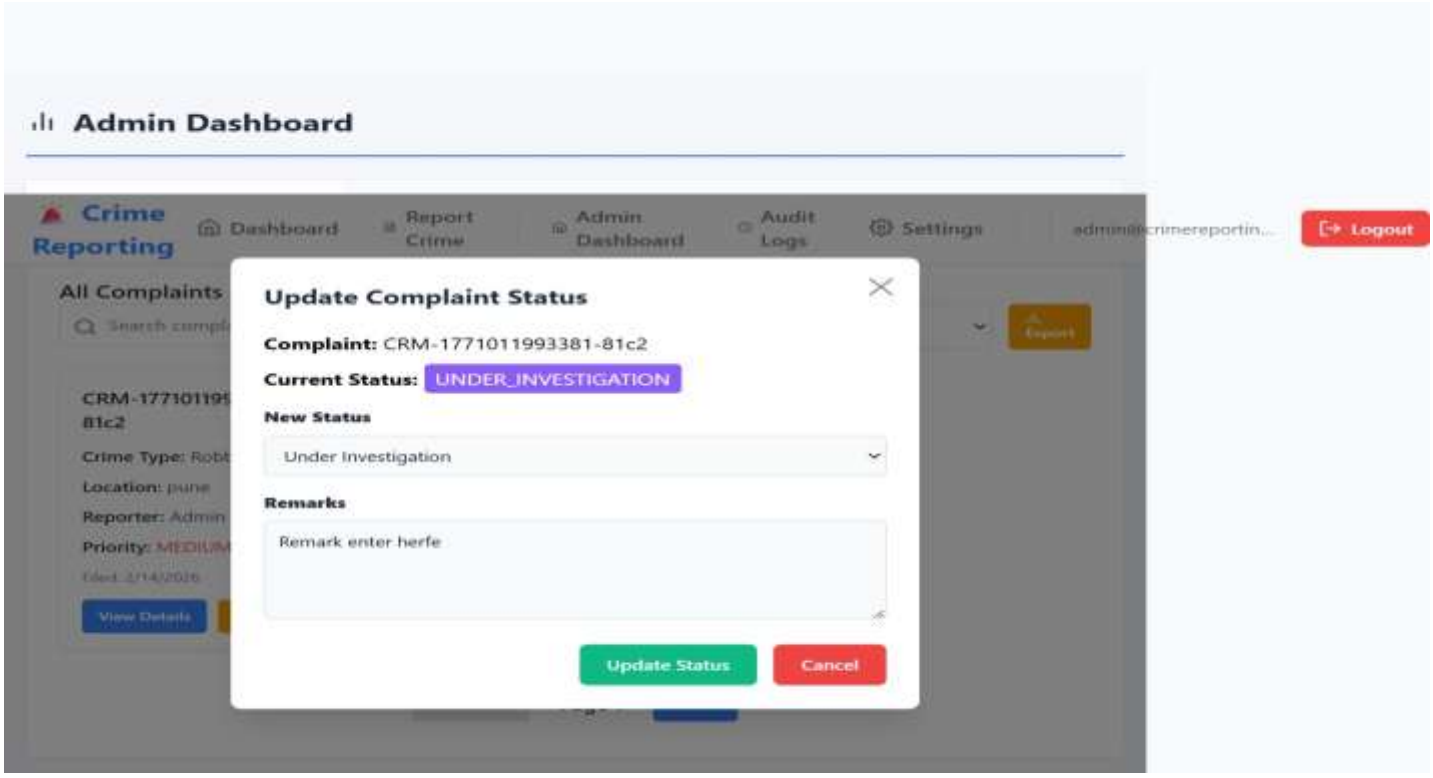
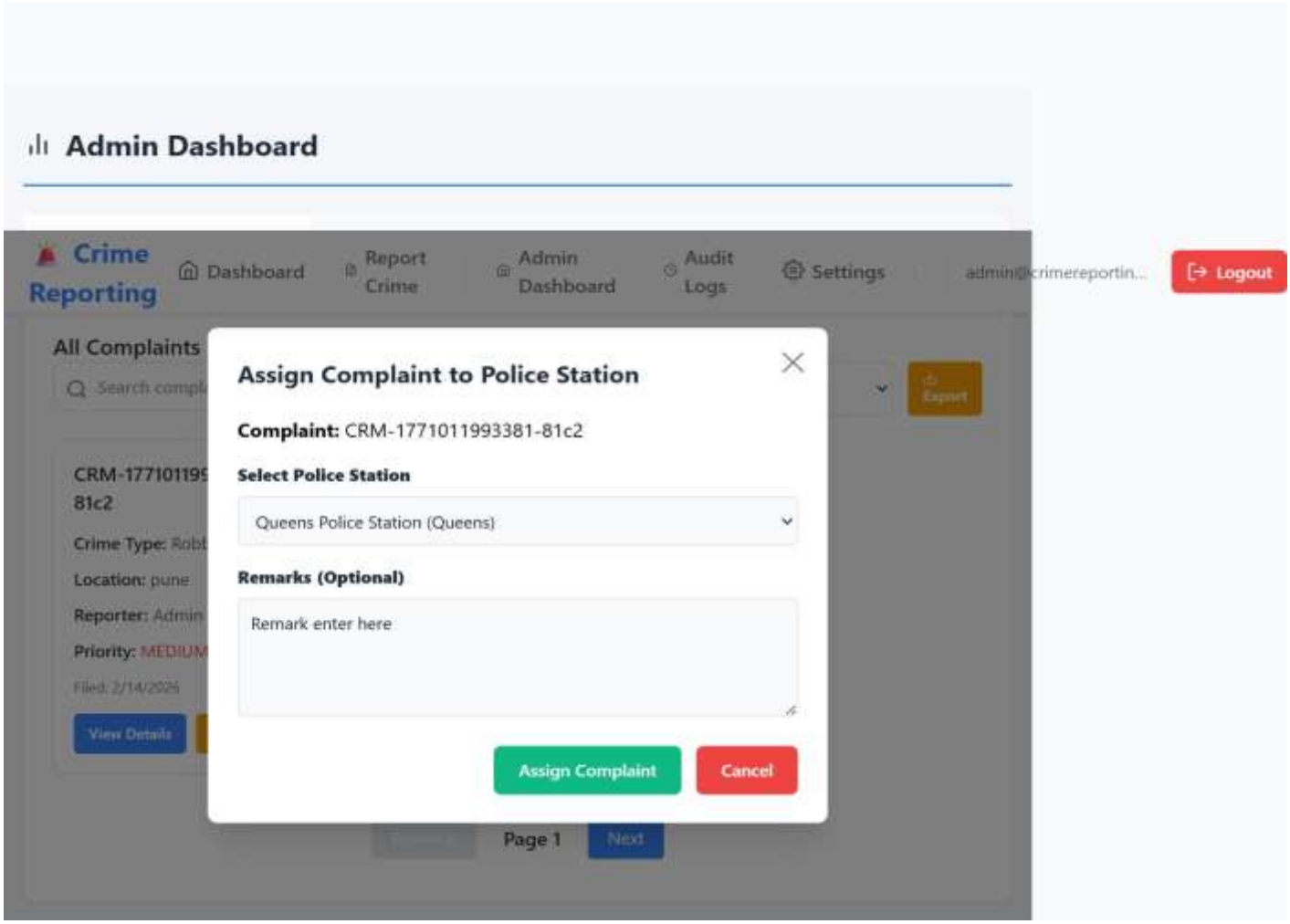

Crime Reporting
Dashboard
Report Crime
shaikhjunedit@gmail.c...
Logout
File a Crime Report
Report a crime quickly and securely. Your information is protected.
Crime Type *
-- Select a Crime Type --
Incident Description * (minimum 20 characters)
Describe the crime incident in detail...
0 / 20 minimum
Incident Location *
e.g., Main Street, Downtown, City, State
Incident Date & Time *
dd-mm-yyyy --:-- --
Register Complaint
Clear Form
Important:
Auto-assigned to relevant police station
Email confirmation sent immediately
Track status anytime with your Complaint ID
Real-time email updates on progress
All information confidential & secure

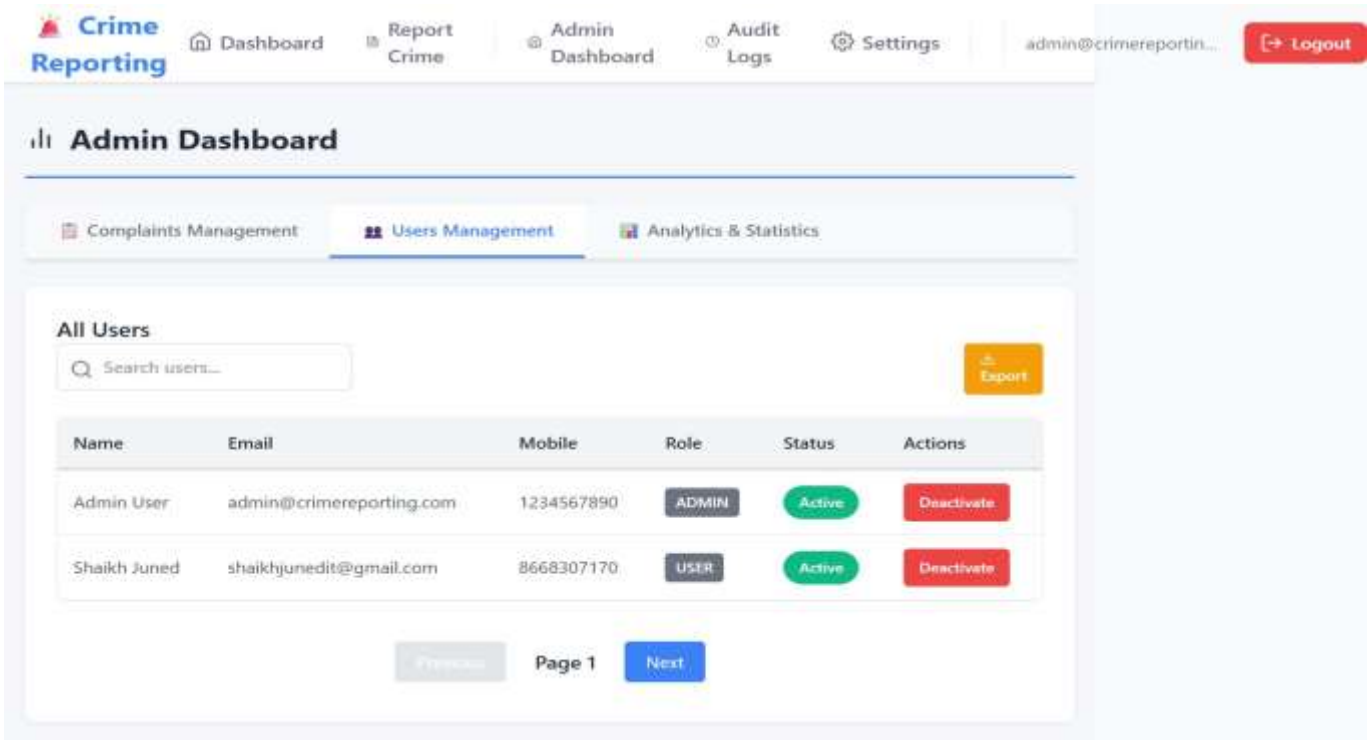
Figure 5a

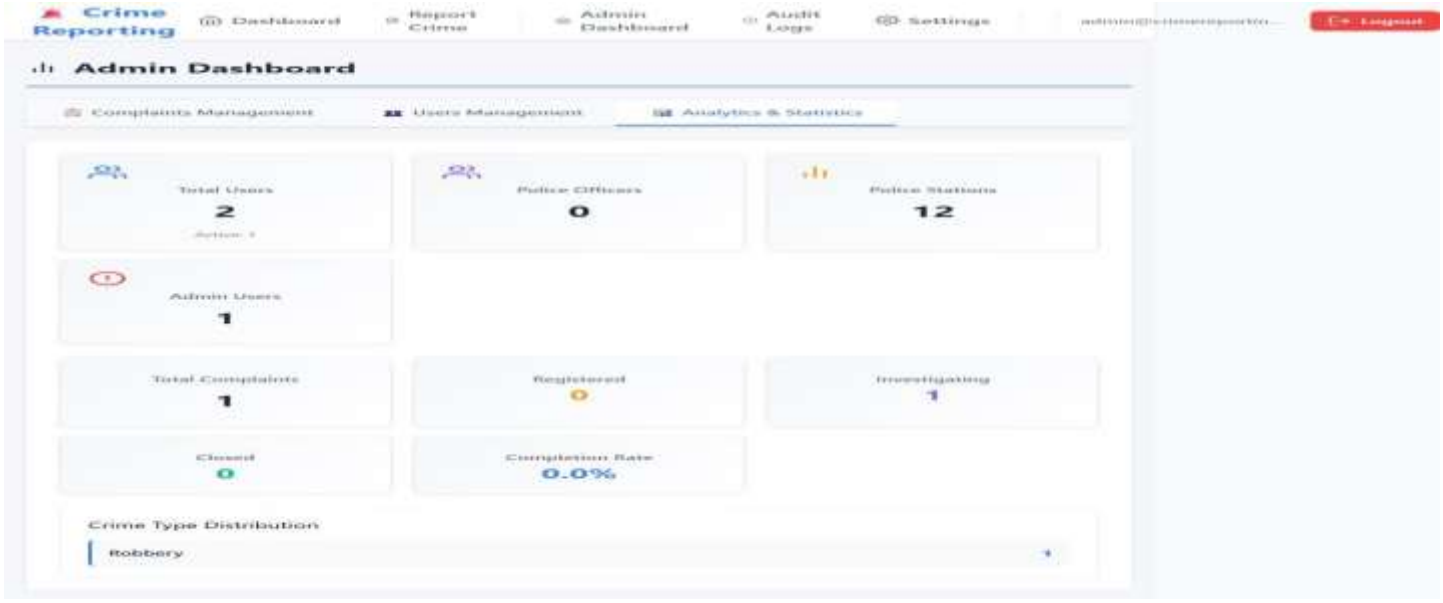

Crime Reporting
Dashboard
Report Crime
Admin Dashboard
Audit Logs
Settings
Logout
Admin Dashboard
Complaints Management
Users Management
Analytics & Statistics
All Complaints
Search complaints...
All Status
Export
CRM-1771011993381-81c2
UNDER_INVESTIGATION
Crime Type: Robbery
Location: pune
Reporter: Admin User (admin@crimereporting.com)
Priority: MEDIUM
Filed: 2/14/2026
View Details
Update Status
Assign Station
Page 1
Next

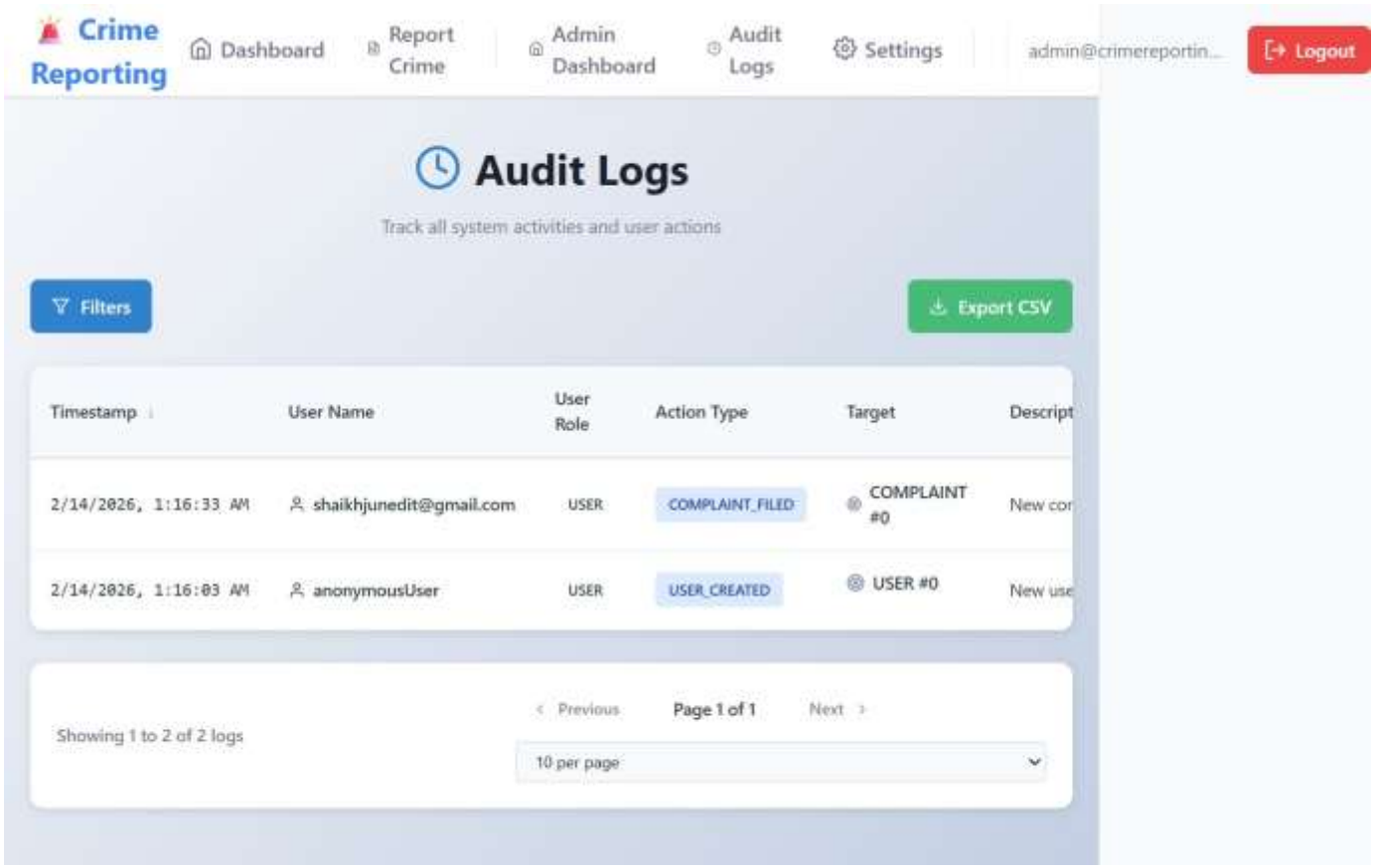

Admin Dashboard
Crime Reporting
Dashboard
Report Crime
Admin Dashboard
Audit Logs
Settings
Logout
All Complaints
Complaint Details
Complaint ID: CRM-1771011993381-81c2
Status: UNDER_INVESTIGATION
Crime Type: Robbery
Description: scfwfkqwjfqwfbqw ffwbqwbfwqfqwfqwfwqfqw
Location: pune
Incident Date/Time: 2/14/2026, 1:16:00 AM
Reporter: Admin User (admin@crimereporting.com)
Priority: MEDIUM
Assigned to: Central Police Station (212-555-0100)
Created: 2/14/2026, 1:16:33 AM
Page 1
Next

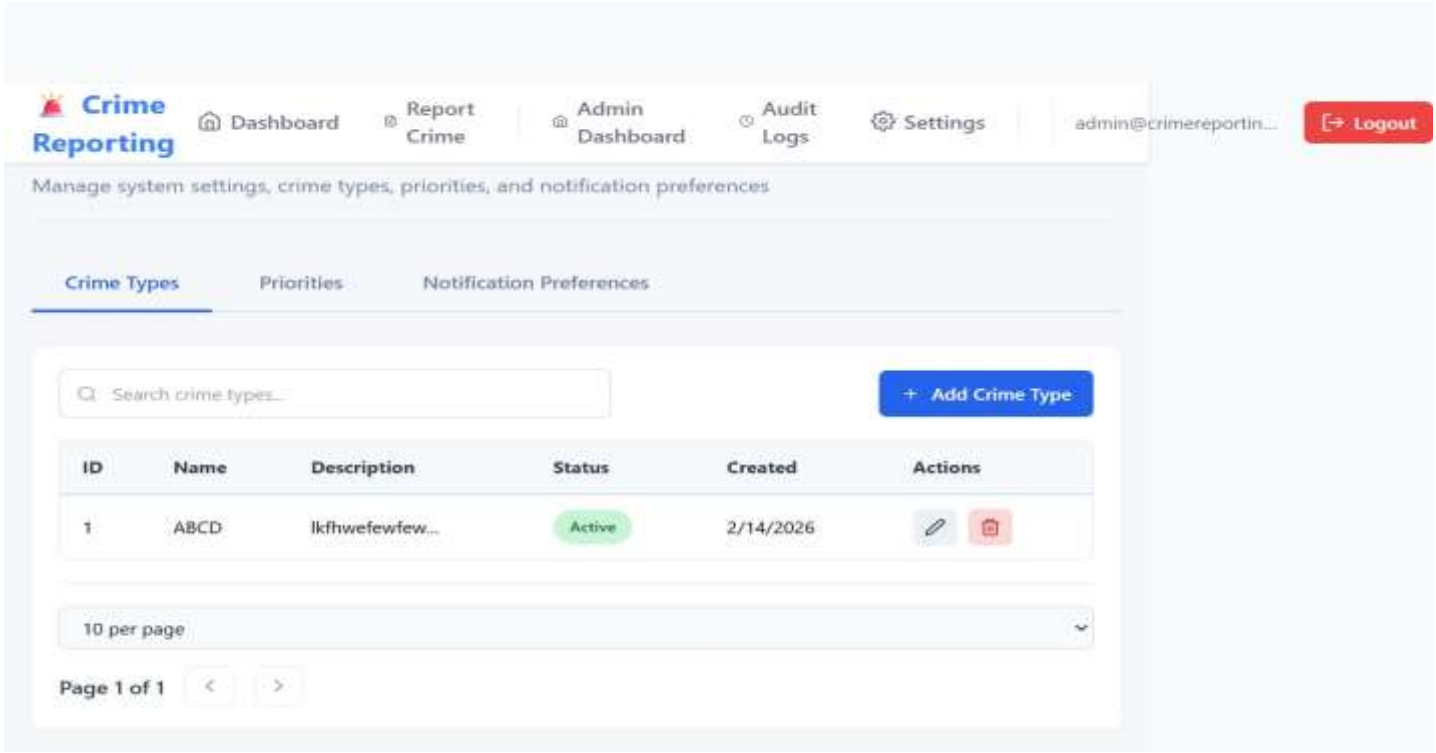

Admin Dashboard
Crime Reporting
Dashboard
Report Crime
Admin Dashboard
Audit Logs
Settings
Logout
All Complaints
Update Complaint Status
Complaint: CRM-1771011993381-81c2
Current Status: UNDER_INVESTIGATION
New Status
Under Investigation
Remarks
Remark enter herfe
Update Status
Cancel


Admin Dashboard
Crime Reporting
Dashboard
Report Crime
Admin Dashboard
Audit Logs
Settings
Logout
All Complaints
Assign Complaint to Police Station
Complaint: CRM-1771011993381-81c2
Select Police Station
Queens Police Station (Queens)
Remarks (Optional)
Remark enter here
Assign Complaint
Cancel
Page 1
Next


Crime Reporting
Dashboard
Report Crime
Admin Dashboard
Audit Logs
Settings
admin@crimereportin...
Logout
Admin Dashboard
Complaints Management
Users Management
Analytics & Statistics
All Users
Search users...
Export
Name
Email
Mobile
Role
Status
Actions
Admin User
admin@crimereporting.com
1234567890
ADMIN
Active
Deactivate
Shaikh Juned
shaikhjunedit@gmail.com
8668307170
USER
Active
Deactivate
Page 1
Next


Crime Reporting
Admin Dashboard
Total Users
2
Police Officers
0
Police Stations
12
Admin Users
1
Total Complaints
1
Registered
0
Investigating
1
Closed
0
Completion Rate
0.0%
Crime Type Distribution
Robbery


Crime Reporting
Dashboard
Report Crime
Admin Dashboard
Audit Logs
Settings
admin@crimereportin...
Logout
Audit Logs
Track all system activities and user actions
Filters
Export CSV
Timestamp
User Name
User Role
Action Type
Target
Descript
2/14/2026, 1:16:33 AM
shaikhjunedit@gmail.com
USER
COMPLAINT_FILED
COMPLAINT #0
New cor
2/14/2026, 1:16:03 AM
anonymousUser
USER
USER_CREATED
USER #0
New use
Showing 1 to 2 of 2 logs
Previous
Page 1 of 1
Next
10 per page


Crime Reporting
Dashboard
Report Crime
Admin Dashboard
Audit Logs
Settings
admin@crimereportin...
Logout
Manage system settings, crime types, priorities, and notification preferences
Crime Types
Priorities
Notification Preferences
Search crime types...
Add Crime Type
ID
Name
Description
Status
Created
Actions
1
ABCD
lkfhwefewfew...
Active
2/14/2026
10 per page
Page 1 of 1

7. Discussion

7.1 Strengths of the System

- **Enhanced Accessibility**: Citizens can register complaints online, reducing delays and improving public access.
- **Real-Time Updates**: Instant notifications for complaint status, assignments, and investigations enhance transparency.
- **Evidence Management**: Uploading images, videos, and documents ensures complete case documentation.
- **Dedicated Dashboards**: Separate dashboards for citizens, police, and admins streamline operations and monitoring.
- **Audit and Accountability**: All actions are logged, ensuring transparency and legal compliance.
- **Scalability & Security**: Modular design supports future expansion, while secure authentication protects sensitive data.

7.2 Limitations of the System

- **Internet Dependency:** Users must have stable internet access to file complaints and track status.
- **Technical Literacy:** Citizens with low digital skills may face difficulties using the platform.
- **Initial Setup Complexity:** Integrating dashboards, notifications, and databases requires careful configuration.
- **Limited AI Integration:** Currently, predictive crime analytics are not implemented.
- **Data Privacy Concerns:** Handling sensitive citizen and police data requires strict compliance and monitoring.
- **Resource Intensive:** High user traffic or large file uploads may impact system performance without proper optimization.

8. Conclusion

The Crime Reporting System provides a modern, efficient, and secure platform for citizens, police officers, and administrators to manage crime reporting and investigations. By enabling online complaint registration, real-time notifications, evidence management, and dedicated dashboards, the system improves transparency, responsiveness, and overall public safety. Its modular and scalable design allows future enhancements, such as AI-driven crime prediction and smart city integration. While some limitations like internet dependency and data privacy concerns exist, the platform demonstrates a significant advancement over traditional reporting methods, streamlining operations and fostering trust between citizens and law enforcement agencies.

9. Future Scope

- **AI-Based Crime Prediction** – Use machine learning to identify crime hotspots and patterns for proactive policing.
- **Mobile App Integration** – Allow citizens to report crimes, track status, and receive notifications via mobile devices.
- **IoT & Smart City Integration** – Connect CCTV, sensors, and smart devices for automated alerts and faster response.
- **Advanced Analytics & Reporting** – Provide dashboards for crime trends, officer performance, and resource optimization.
- **Enhanced Security & Citizen Feedback** – Implement multi-factor authentication, data encryption, and feedback systems for transparency.

10. References

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(Sinhgad College of Engineering, Pune, Maharashtra)
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PDF: https://ijarcce.com/wp-content/uploads/2023/03/IJARCCE.2023.12361.pdf.

[3] Debnath, M., Chakraborty, S., and Sathya Bama Krishna, R. "Online Crime Reporting System — A Model." Advances in Systems, Control and Automations,Lecture Notes in Electrical Engineering, vol. 708, Springer, Singapore, 2021.
DOI: https://doi.org/10.1007/978-981-15-8685-9_34.