
Software Requirements and Design Document

For

Courts Management System

Prepared by

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Organization: Justice Flow

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1. Introduction

1.1 Purpose

The purpose of this project is to enhance the efficiency and transparency of court operations by integrating all aspects of court management into a singular, cohesive digital platform. This project aims to streamline processes, reduce administrative burdens, and improve overall accessibility within the judicial process. Ultimately, the project will foster a more efficient, transparent, and accessible judicial system, delivering substantial benefits to legal professionals, court staff, and the public.

1.2 Product Scope

The scope of this product can be seen in a few different aspects.

Integration Aspect

The system will unify various aspects of court management into a single digital platform, allowing for seamless interaction between different processes such as case filing and document handling. This integration is crucial for streamlining court operations and improving overall efficiency.

User Interface Aspect

A well-designed, intuitive interface will be developed to ensure that both legal professionals and the public can easily navigate and utilize court services. This will enhance user experience and reduce the learning curve associated with using the new system.

Automation Aspect

By automating repetitive and time-consuming tasks, the system will help reduce the administrative burden on court staff. Automation will also help minimize human errors and improve the accuracy of case management.

Real-Time Tracking Aspect

The system will provide real-time updates on case progress and court schedules. This feature will allow stakeholders to track the status of cases and receive timely notifications, improving transparency and communication.

1.3 Title

The title of our project is "**Courts Management System**". This title shows the system's classification as software that caters to the management of judicial courts and hearings.

1.4 Objectives

There are four main objectives for this project. They are as follows:

1) Efficiency:

The first objective is to accelerate judicial processes by eliminating inefficiencies through digital tools. Streamlining workflows and automating tasks will lead to quicker case resolution and reduced processing times.

2) Accessibility:

By digitizing court services, the system aims to make them more accessible to everyone involved in the judicial process. This includes clients who need to file cases, lawyers who need to manage documents, and judges who need to access case information.

3) Transparency:

Improved transparency will be achieved by making case information and court operations more visible and understandable to all stakeholders. This transparency will help rebuild public trust in the justice system by ensuring fair and open processes.

4) Reliability:

The system ensures that justice is delivered consistently and without unnecessary delays. By addressing manual processing and administrative errors, the system will help provide a more dependable judicial experience.

1.5 Problem Statement

The current judicial system faces significant challenges due to outdated practices, leading to inefficiencies that slow down the entire process. These inefficiencies manifest as extended wait times for justice, contributing to a slower overall process and diminishing public confidence in the system. The need for a streamlined, modernized solution is apparent to mitigate these delays and enhance the efficiency of the judicial workflow.

Manual processes exacerbate the problems by introducing the risk of errors and potential corruption. The manual handling of case files not only leads to time-consuming procedures but also contributes to a backlog of cases, further delaying justice. Additionally, the lack of transparency in the system creates difficulties for clients and legal professionals in tracking case progress. This fragmented approach results in frustration and a perception of unfairness among stakeholders. Furthermore, without a centralized digital solution, accessing case information is challenging, leading to delays and miscommunication, and making it difficult for stakeholders to stay informed and engaged in the judicial process.

The project aims to address these issues by implementing an automated, digital solution that enhances the efficiency and transparency of case management. By centralizing case information and streamlining processes, the project will reduce delays, minimize errors, and improve accessibility for all stakeholders. The feasibility of this project is high, given the advancements in digital technologies and their successful implementation in various sectors to address similar inefficiencies and transparency issues.

(To summarize our major issues are Inefficiencies, Manual Processes, Lack of Transparency, and Inadequate Access.)

2. Overall Description

2.1 Product Perspective

The Courts Management System is a comprehensive digital platform designed to revolutionize the way court operations are managed. This product integrates various aspects of court management into a unified system, enabling seamless interaction between processes such as case filing, document handling, scheduling, and communication. The system is built on modern technologies to ensure scalability, reliability, and security, providing a robust solution that can adapt to the evolving needs of the judicial system. By transitioning from a fragmented, manual approach to a cohesive, automated system, the Courts Management System aims to significantly enhance the efficiency, transparency, and accessibility of court services.

2.2 Product Functions

The key functions of the Courts Management System include:

- **Case Management:**
Automates the filing, tracking, and updating of case information, reducing manual workload and minimizing errors.
- **Document Handling:**
Streamlines the management of legal documents, including uploading, storage, and retrieval, ensuring easy access and organization.
- **Scheduling and Calendar Management:**
Provides tools for scheduling court hearings, managing judges' calendars, and sending reminders and notifications.
- **User Interface:**
Delivers an intuitive and user-friendly interface for both legal professionals and the public, enhancing user experience and reducing the learning curve.
- **Real-Time Tracking:**
Offers real-time updates on case progress and court schedules, improving transparency and communication among stakeholders.
- **Reporting and Analytics:**
Generates comprehensive reports and analytics to assist in decision-making and performance monitoring.

2.3 List of Use Cases

The List of use cases is as Follows

- 1) File and Schedule Case(s)
- 2) Track and Manage Updates and Notifications
- 3) Track and Monitor Case(s)
- 4) Register with a Bar
- 5) Submit a Document or Transcript
- 6) Schedule a Hearing or Witness
- 7) Review a Document and Log Judgement
- 8) Perform IT system maintenance
- 9) Re-Open Case(s)
- 10) Close Case(s)

2.4 Extended Use Cases

The List of Extended use cases is as Follows

- 1) File and Schedule Case(s)

Component	Description								
<i>Use case name</i>	File and Schedule								
<i>Scope</i>	Courts Management System								
<i>Level</i>	User Goal								
<i>Primary actor</i>	Registrar, Court Administrator, Lawyer								
<i>Stakeholders and interests</i>	Court Administrator Judge Lawyers Client								
<i>Preconditions</i>	The Registrar, Court Administrator, or Lawyer are logged into the system and has verified that all required case information (case type, involved parties, court jurisdiction, etc.) is ready for entry.								
<i>Postcondition</i>	A new case is filed in the system, assigned a unique case number, and scheduled with a judge and court date.								
<i>Main success scenario</i>	<table border="0"> <thead> <tr> <th style="text-align: center;">Actor Action</th> <th style="text-align: center;">System Responsibility</th> </tr> </thead> <tbody> <tr> <td>The Primary Actor initiates the case filing process.</td> <td>The system prepares to accept case details.</td> </tr> <tr> <td>The Primary Actor provides case details.</td> <td>System Makes a case & Displays the Cases relevant to the provided details</td> </tr> <tr> <td>The Primary Actor Selects the Case , Schedules it and files it.</td> <td>The system updates records to the Database and send notifications to all relevant parties.</td> </tr> </tbody> </table>	Actor Action	System Responsibility	The Primary Actor initiates the case filing process.	The system prepares to accept case details.	The Primary Actor provides case details.	System Makes a case & Displays the Cases relevant to the provided details	The Primary Actor Selects the Case , Schedules it and files it.	The system updates records to the Database and send notifications to all relevant parties.
Actor Action	System Responsibility								
The Primary Actor initiates the case filing process.	The system prepares to accept case details.								
The Primary Actor provides case details.	System Makes a case & Displays the Cases relevant to the provided details								
The Primary Actor Selects the Case , Schedules it and files it.	The system updates records to the Database and send notifications to all relevant parties.								

<i>Extensions</i>	<p>A. If the Primary Actor enters incomplete or invalid data, the system notifies the Registrar and prompts them to correct the errors before proceeding with the case filing.</p> <p>B. If the Primary Actor discards the changes and actions the system discards all saved data.</p>
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2) Track and Manage Updates and Notifications

Component	Description								
<i>Use case name</i>	Track and Manage Updates and Notifications								
<i>Scope</i>	Courts Management System								
<i>Level</i>	User Goal								
<i>Primary actor</i>	Court Administrator, Client, Judge								
<i>Stakeholders and interests</i>	All Actors								
<i>Preconditions</i>	The Court Administrator, Judge or Client is logged into the system.								
<i>Postcondition</i>	The System has been updated and has sent notifications according to the user's actions.								
<i>Main success scenario</i>	<table border="1"> <thead> <tr> <th>Actor Action</th> <th>System Responsibility</th> </tr> </thead> <tbody> <tr> <td>The Primary Actor chooses to view all their notifications</td> <td>The system prepares and displays all notifications sent to the user.</td> </tr> <tr> <td>The Primary Actor Views a single Notification</td> <td>System Provides & Displays the Notification Details.</td> </tr> <tr> <td>The Primary Actor reads the notification, performs or approves any specified</td> <td></td> </tr> </tbody> </table>	Actor Action	System Responsibility	The Primary Actor chooses to view all their notifications	The system prepares and displays all notifications sent to the user.	The Primary Actor Views a single Notification	System Provides & Displays the Notification Details.	The Primary Actor reads the notification, performs or approves any specified	
Actor Action	System Responsibility								
The Primary Actor chooses to view all their notifications	The system prepares and displays all notifications sent to the user.								
The Primary Actor Views a single Notification	System Provides & Displays the Notification Details.								
The Primary Actor reads the notification, performs or approves any specified									

	<p>actions, and closes the notification.</p> <p>The system marks the notification as read and sends any required Notifications to all relevant parties according to actions performed by the user applicable to the nature of the notification.</p>
<i>Extensions</i>	A. If the Primary Actor enters incomplete or invalid data, the system notifies the Registrar and prompts them to correct the errors before proceeding .

3) Track and Monitor Case(s)

Component	Description				
<i>Use case name</i>	File and Schedule				
<i>Scope</i>	Courts Management System				
<i>Level</i>	User Goal				
<i>Primary actor</i>	Court Administrator, Registrar, Client, Lawyer, Judge				
<i>Stakeholders and interests</i>	Court Administrator, Registrar, Judge, Lawyers, Client				
<i>Preconditions</i>	The Primary Actor is logged into the system.				
<i>Postcondition</i>	The System has been updated and relevant case details have been provided to the primary actor.				
<i>Main success scenario</i>	<table> <thead> <tr> <th>Actor Action</th> <th>System Responsibility</th> </tr> </thead> <tbody> <tr> <td>The Primary Actor chooses to view a case.</td> <td>The system prepares to accept case details.</td> </tr> </tbody> </table>	Actor Action	System Responsibility	The Primary Actor chooses to view a case.	The system prepares to accept case details.
Actor Action	System Responsibility				
The Primary Actor chooses to view a case.	The system prepares to accept case details.				

	<p>The Primary Actor provides case details.</p> <p>System Provides & Displays the Case details and provides options to track and monitor the case</p>
	<p>The Primary Actor performs changes and updates the case details.</p> <p>The system Updates the case details , and the database.</p>
<i>Extensions</i>	A. If the Primary Actor enters incomplete or invalid data, the system notifies the Registrar and prompts them to correct the errors before proceeding .

4) Register with a Bar

Component	Description				
<i>Use case name</i>	Register with a Bar				
<i>Scope</i>	Courts Management System				
<i>Level</i>	User Goal				
<i>Primary actor</i>	Registrar, Lawyer				
<i>Stakeholders and interests</i>	Bar Association				
<i>Preconditions</i>	The Primary Actor is logged into the system.				
<i>Postcondition</i>	The System has been updated and relevant application details have been provided to the primary actor and all .				
<i>Main success scenario</i>	<table border="1"> <thead> <tr> <th>Actor Action</th> <th>System Responsibility</th> </tr> </thead> <tbody> <tr> <td>The Primary Actor chooses to register with a bar.</td> <td></td></tr> </tbody> </table>	Actor Action	System Responsibility	The Primary Actor chooses to register with a bar.	
Actor Action	System Responsibility				
The Primary Actor chooses to register with a bar.					

	<p>The system prepares to accept application details.</p> <p>The Primary Actor either provides application details for themselves or approves another application.</p> <p>The system sends the application to the Bar Association and sets its status.</p> <p>The Primary Actor is notified of their application status</p> <p>The system Updates the application details and the database.</p>
<i>Extensions</i>	A. If the Primary Actor enters incomplete or invalid data, the system notifies the Primary Actor and prompts them to correct the errors before proceeding .

5) Submit a Document or Transcript

Component	Description
<i>Use case name</i>	Submit a Document or Transcript
<i>Scope</i>	Courts Management System
<i>Level</i>	User Goal
<i>Primary actor</i>	Registrar, Lawyer, Probation Officer
<i>Stakeholders and interests</i>	Court Administrator, Judge, Client, Juror
<i>Preconditions</i>	The Primary Actor is logged into the system.
<i>Postcondition</i>	The System has received and saved the document/transcript successfully.

<i>Main success scenario</i>	Actor Action The Primary Actor chooses to submit a document. System Responsibility The system prepares to accept case details to select a specific case.
<i>Extensions</i>	A. If the Primary Actor enters incomplete or invalid data, the system notifies them and prompts them to correct the errors before proceeding .

6) Schedule a Hearing or Witness

Component	Description
Use case name	Schedule a Hearing or Witness
Scope	Courts Management System
Level	User Goal
Primary actor	Court Administrator, Registrar, Lawyer, Witness
Stakeholders and interests	Judge, Juror
Preconditions	The Primary Actor is logged into the system.

<i>Postcondition</i>	The System has scheduled the hearing successfully.	
<i>Main success scenario</i>	<p>Actor Action</p> <p>The Primary Actor chooses to schedule a hearing or witness.</p>	<p>System Responsibility</p> <p>The system prepares to accept details to schedule a hearing or witness for a specific case.</p>
	<p>The Primary Actor provides the required details.</p>	<p>The system provides options to schedule the hearing or witness accordingly.</p>
	<p>The Primary Actor schedules the hearing/witness according to the available option.</p>	<p>The system updates the details on the database and sends notifications to all relevant parties.</p>
<i>Extensions</i>	<p>A. If the Primary Actor enters incomplete or invalid data, the system notifies them and prompts them to correct the errors before proceeding .</p>	

7) Review a Document and Log Judgement

Component	Description
<i>Use case name</i>	Review a Document and Log Judgement
<i>Scope</i>	Courts Management System
<i>Level</i>	User Goal
<i>Primary actor</i>	Judge, Registrar, Jurors

<i>Stakeholders and interests</i>	Registrar , Client, Court Administrator									
<i>Preconditions</i>	The Primary Actor is logged into the system.									
<i>Postcondition</i>	The Documents have been reviewed and the judgement has been logged successfully.									
<i>Main success scenario</i>	<table border="1"> <thead> <tr> <th>Actor Action</th> <th>System Responsibility</th> </tr> </thead> <tbody> <tr> <td>The Primary Actor chooses to review a document or log a judgment.</td> <td>The system prepares to accept details to fetch the documents and log the judgement.</td> </tr> <tr> <td>The Primary Actor provides the required details.</td> <td>The system provides the required documents and the option to Log a judgment.</td> </tr> <tr> <td>If the Primary Actor decides to log a judgment, they provide a file to the system.</td> <td>The system updates the details in the database and sends notifications to all relevant parties.</td> </tr> </tbody> </table>		Actor Action	System Responsibility	The Primary Actor chooses to review a document or log a judgment.	The system prepares to accept details to fetch the documents and log the judgement.	The Primary Actor provides the required details.	The system provides the required documents and the option to Log a judgment.	If the Primary Actor decides to log a judgment, they provide a file to the system.	The system updates the details in the database and sends notifications to all relevant parties.
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If the Primary Actor decides to log a judgment, they provide a file to the system.	The system updates the details in the database and sends notifications to all relevant parties.									
<i>Extensions</i>	A. If the Primary Actor enters incomplete or invalid data, the system notifies them and prompts them to correct the errors before proceeding .									

8) Perform IT system maintenance

Component	Description
<i>Use case name</i>	Perform IT system maintenance

<i>Scope</i>	Courts Management System								
<i>Level</i>	User Goal								
<i>Primary actor</i>	IT Administrator								
<i>Stakeholders and interests</i>	none								
<i>Preconditions</i>	The Primary Actor is logged into the system.								
<i>Postcondition</i>	IT System Maintenance is performed successfully.								
<i>Main success scenario</i>	<table border="0"> <thead> <tr> <th style="text-align: center;">Actor Action</th> <th style="text-align: center;">System Responsibility</th> </tr> </thead> <tbody> <tr> <td>The IT Administrator starts the system maintenance session.</td> <td>The system generates reports for cases, judges, and Lawyers. The System then provides the option to download these reports.</td> </tr> <tr> <td>The IT Administrator downloads the required reports.</td> <td>The system provides the chosen report documents (.pdf files).</td> </tr> <tr> <td>The IT Administrator ends the system maintenance session.</td> <td>The system exits from the Maintenance session.</td> </tr> </tbody> </table>	Actor Action	System Responsibility	The IT Administrator starts the system maintenance session.	The system generates reports for cases, judges, and Lawyers. The System then provides the option to download these reports.	The IT Administrator downloads the required reports.	The system provides the chosen report documents (.pdf files).	The IT Administrator ends the system maintenance session.	The system exits from the Maintenance session.
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The IT Administrator downloads the required reports.	The system provides the chosen report documents (.pdf files).								
The IT Administrator ends the system maintenance session.	The system exits from the Maintenance session.								
<i>Extensions</i>									

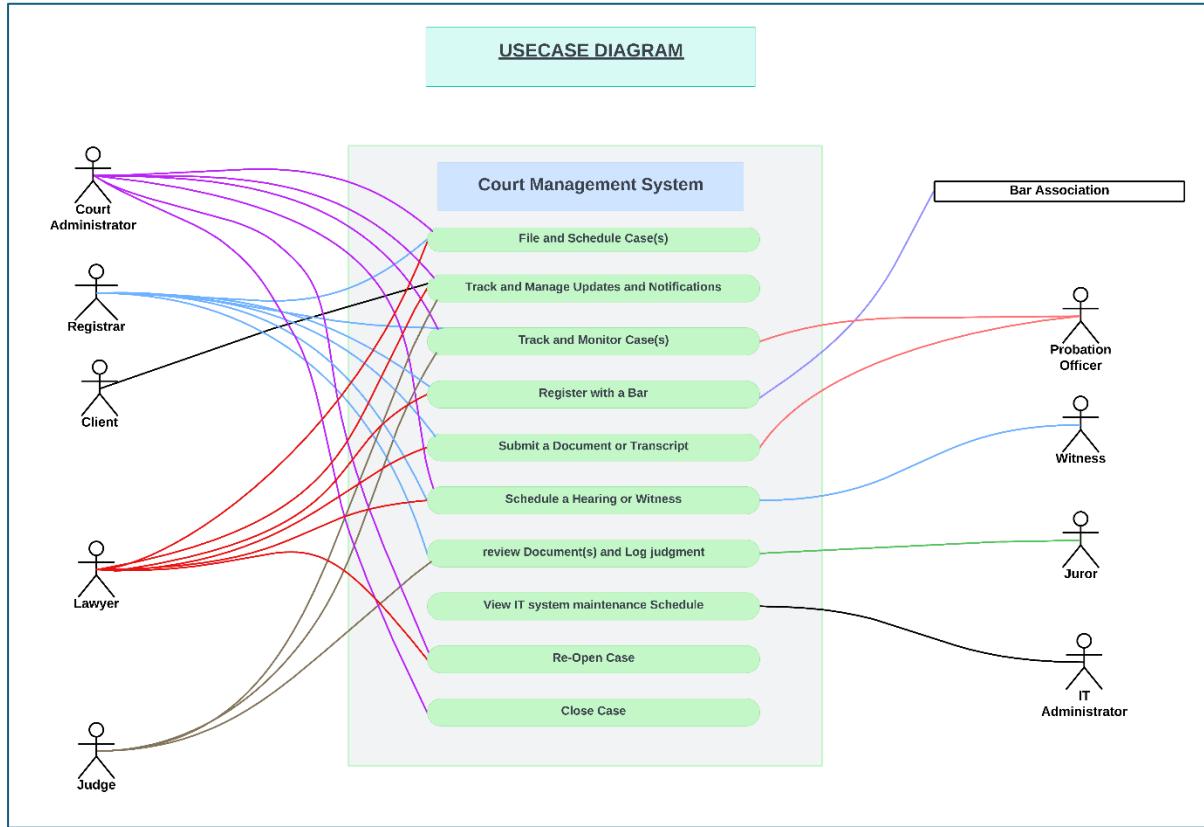
9) Re-Open Case(s)

Component	Description								
<i>Use case name</i>	Re-Open Case								
<i>Scope</i>	Courts Management System								
<i>Level</i>	User Goal								
<i>Primary actor</i>	Lawyer, Court Administrator								
<i>Stakeholders and interests</i>	Judge, Juror, Client, Registrar, Probation Officer and witness								
<i>Preconditions</i>	The Primary Actor is logged into the system.								
<i>Postcondition</i>	The case is reopened in the system.								
<i>Main success scenario</i>	<table border="0"> <thead> <tr> <th>Actor Action</th> <th>System Responsibility</th> </tr> </thead> <tbody> <tr> <td>The Primary Actor prompts the system to reopen a case</td> <td>The system displays all closed cases for the user to choose.</td> </tr> <tr> <td>The Primary Actor chooses a case to re-open.</td> <td>The system updates the case's status and sends notifications for its approval.</td> </tr> <tr> <td>The Primary actor is notified of the changes and the case's status</td> <td>The system saves all changes and updates in the database. It also sends notifications to all relevant parties.</td> </tr> </tbody> </table>	Actor Action	System Responsibility	The Primary Actor prompts the system to reopen a case	The system displays all closed cases for the user to choose.	The Primary Actor chooses a case to re-open.	The system updates the case's status and sends notifications for its approval.	The Primary actor is notified of the changes and the case's status	The system saves all changes and updates in the database. It also sends notifications to all relevant parties.
Actor Action	System Responsibility								
The Primary Actor prompts the system to reopen a case	The system displays all closed cases for the user to choose.								
The Primary Actor chooses a case to re-open.	The system updates the case's status and sends notifications for its approval.								
The Primary actor is notified of the changes and the case's status	The system saves all changes and updates in the database. It also sends notifications to all relevant parties.								
<i>Extensions</i>									

10) Close Case(s)

Component	Description						
<i>Use case name</i>	Close Case						
<i>Scope</i>	Courts Management System						
<i>Level</i>	User Goal						
<i>Primary actor</i>	Court Administrator						
<i>Stakeholders and interests</i>	Judge, Juror, Lawyer, Client, Registrar, Probation Officer and witness						
<i>Preconditions</i>	The Primary Actor is logged into the system.						
<i>Postcondition</i>	The Case is closed in the system						
<i>Main success scenario</i>	<table border="0"> <thead> <tr> <th>Actor Action</th> <th>System Responsibility</th> </tr> </thead> <tbody> <tr> <td>The Court Administrator prompts the system to close a case</td> <td>The system displays all open cases for the user to choose from.</td> </tr> <tr> <td>The Court Administrator chooses a case to close.</td> <td>The system updates the case's status, sends notifications to all relevant parties, and updates the database</td> </tr> </tbody> </table>	Actor Action	System Responsibility	The Court Administrator prompts the system to close a case	The system displays all open cases for the user to choose from.	The Court Administrator chooses a case to close.	The system updates the case's status, sends notifications to all relevant parties, and updates the database
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The Court Administrator chooses a case to close.	The system updates the case's status, sends notifications to all relevant parties, and updates the database						
<i>Extensions</i>							

2.5 Use Case Diagram



3. Other Nonfunctional Requirements

3.1 Performance Requirements

To use the product/software the user will require a device that runs the Windows operating system, supports JavaFX applications, and has internet access to the product's dedicated server.

Besides these basic performance requirements, any device with decent Wi-Fi and graphics drivers will run the application smoothly.

3.2 Safety Requirements

Courts Management System has to ensure the integrity and security of sensitive judicial data. The system must include robust error-handling mechanisms to prevent

data loss and ensure data integrity. It should also provide secure backups and disaster recovery plans to protect against data corruption, loss, or unauthorized access, ensuring continuous operation even in the event of system failures.

3.3 Security Requirements

Security is a critical aspect of the Courts Management System. The system must implement strict access control measures to protect sensitive information. This includes role-based access controls, encryption of data at rest and in transit, and secure authentication protocols. Regular security audits and vulnerability assessments should be conducted to identify and mitigate potential security risks, ensuring compliance with legal and regulatory standards.

3.4 Software Quality Attributes

The Courts Management System is designed using the GRASP design pattern. It possesses various key software quality attributes to ensure its effectiveness and efficiency. One primary attribute is **maintainability**, which allows the system to be easily updated and modified to meet evolving legal requirements and user needs.

Reliability ensures that the system operates correctly and consistently, maintaining the integrity of court operations. Additionally, **usability** ensures that court staff find the system intuitive and user-friendly, minimizing training time and errors. The design emphasizes high **cohesion** and low **coupling** to ensure that system components are well-organized and interact minimally, which simplifies maintenance and enhances system reliability.

The system's **scalability** allows it to handle increasing amounts of data and users as the judicial system expands. **Controller classes** play a crucial role in the design, providing better encapsulation and separation of concerns. These classes handle the interactions between the system's components, ensuring a clear separation of responsibilities and enhancing the **encapsulation** of business logic.

By focusing on these attributes, the Courts Management System not only meets current functional requirements but is also prepared to adapt to future challenges and developments in the legal landscape. The strategic use of GRASP principles ensures a robust, efficient, and scalable system that supports the critical operations of the judiciary.

3.5 Business Rules

The Business Rules are as follows

1) Compliance with Legal Standards:

Adhere to all relevant legal and regulatory requirements governing judicial processes.

2) Data Privacy:

Ensure that all personal and sensitive information is handled per data protection laws.

3) Case Management Procedures:

Follow standardized protocols for case filing, tracking, and updating.

4) Reporting Standards:

Generate reports that comply with judicial reporting standards.

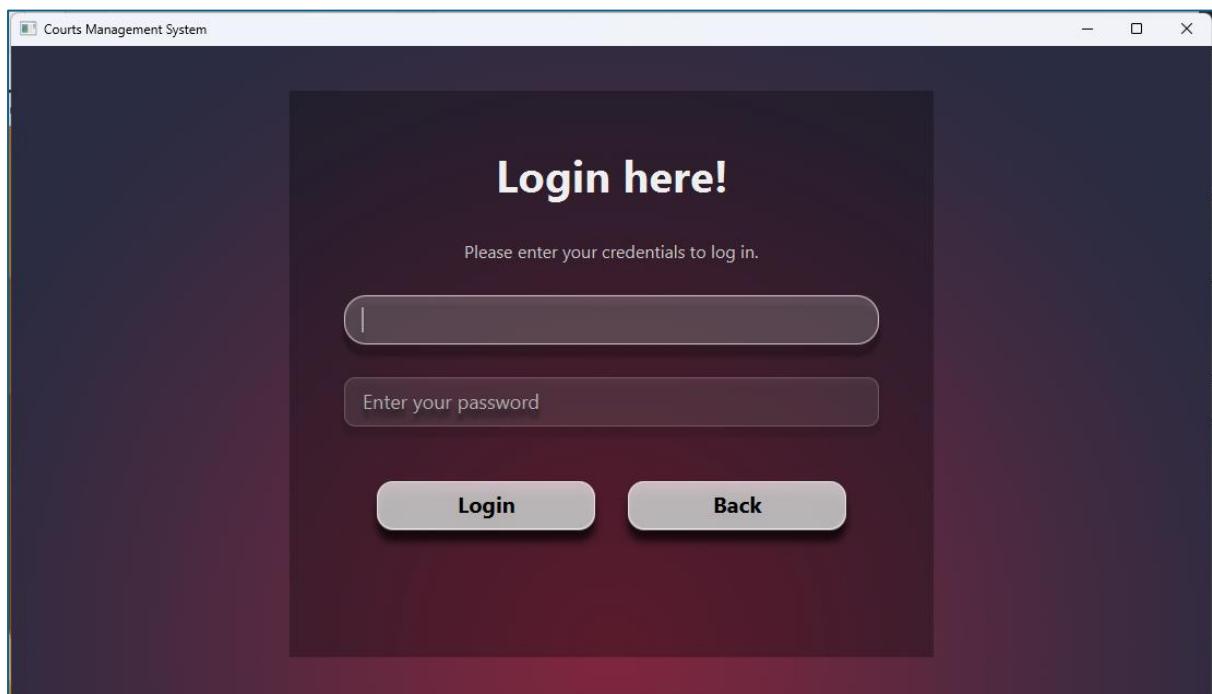
5) Customizable Business Rules:

Allow for the customization of rules to accommodate different jurisdictions' specific needs.

3.6 User Interfaces

The System Provides us with multiple User interfaces, with different functionalities for each type of user. Let's walk through the main ones here.

1) Login / Register



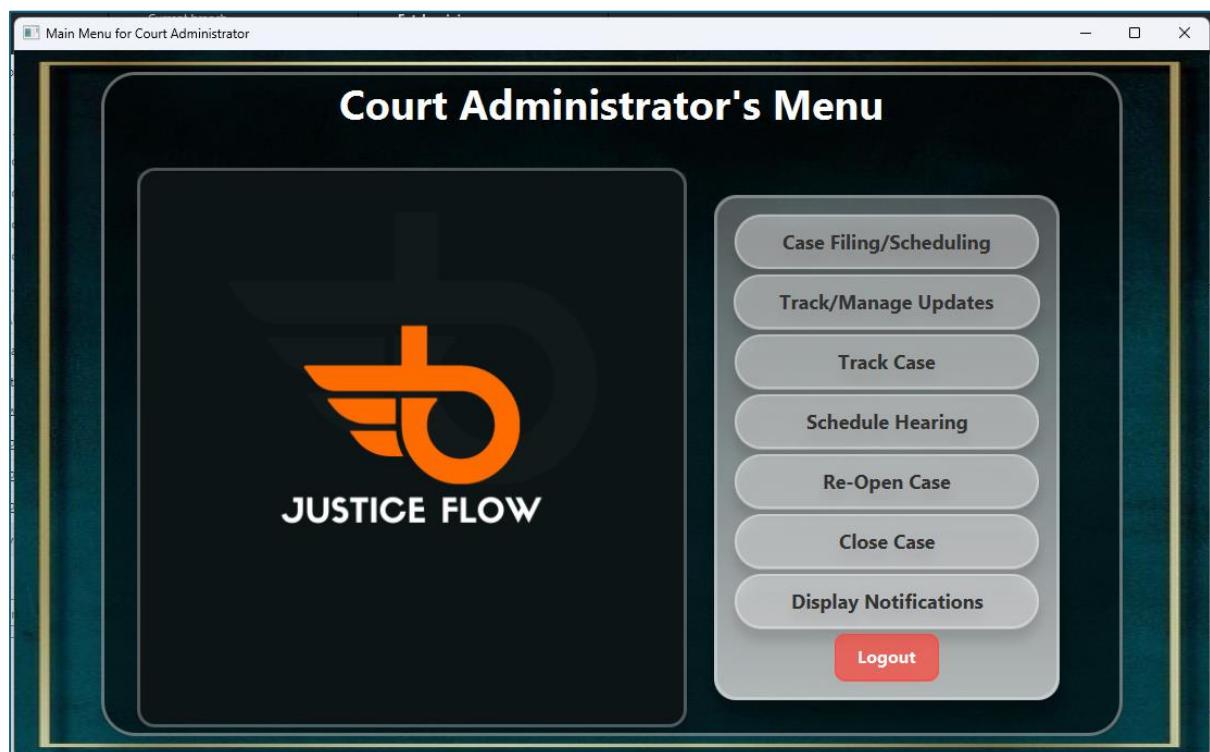
2) Register a new User

The screenshot shows a registration form titled "Register a New User". The form fields include:

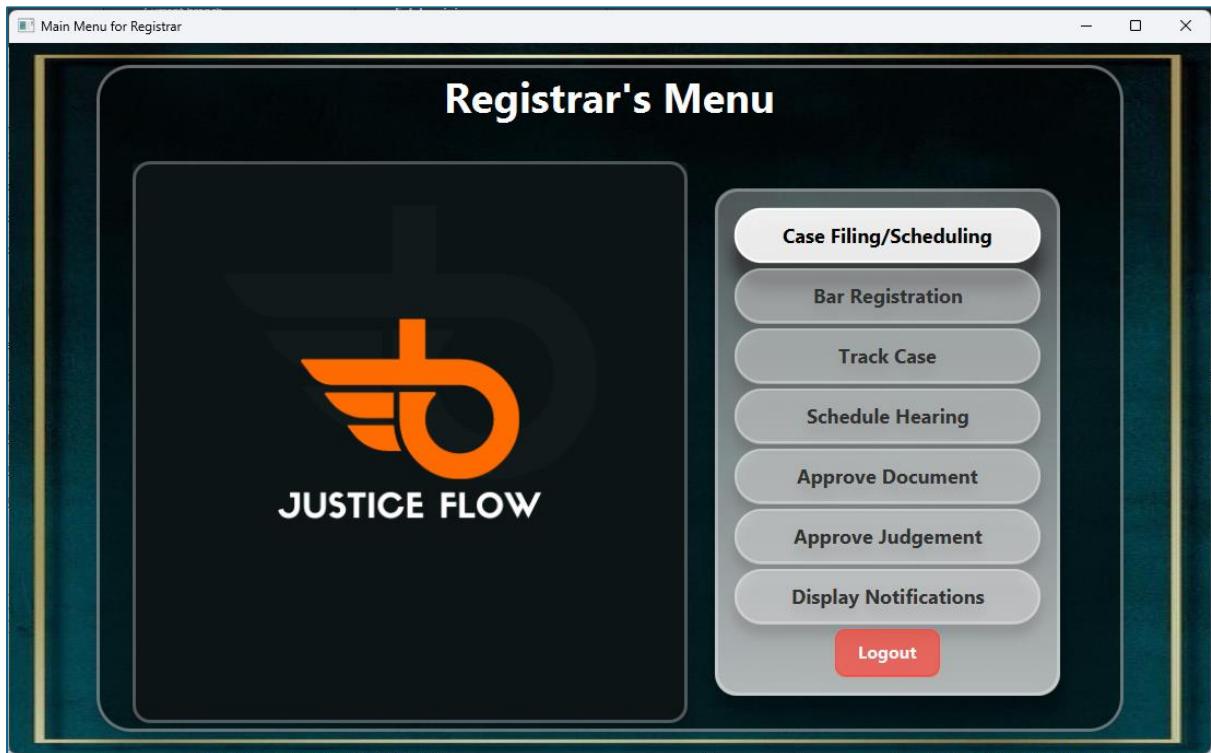
- First Name: [Input field]
- Last Name: [Input field] - placeholder: Enter last name
- Email: [Input field] - placeholder: Enter email
- Phone Number: [Input field] - placeholder: Enter phone number
- Username: [Input field] - placeholder: Enter username
- Password: [Input field] - placeholder: Enter password
- Date of Birth: [Input field] - placeholder: Select date of birth [Calendar icon]
- Gender: [Input field] - placeholder: Select gender [Dropdown arrow]
- Role: [Input field] - placeholder: Select role [Dropdown arrow]

At the bottom right are two buttons: "Register" (green) and "Back" (red).

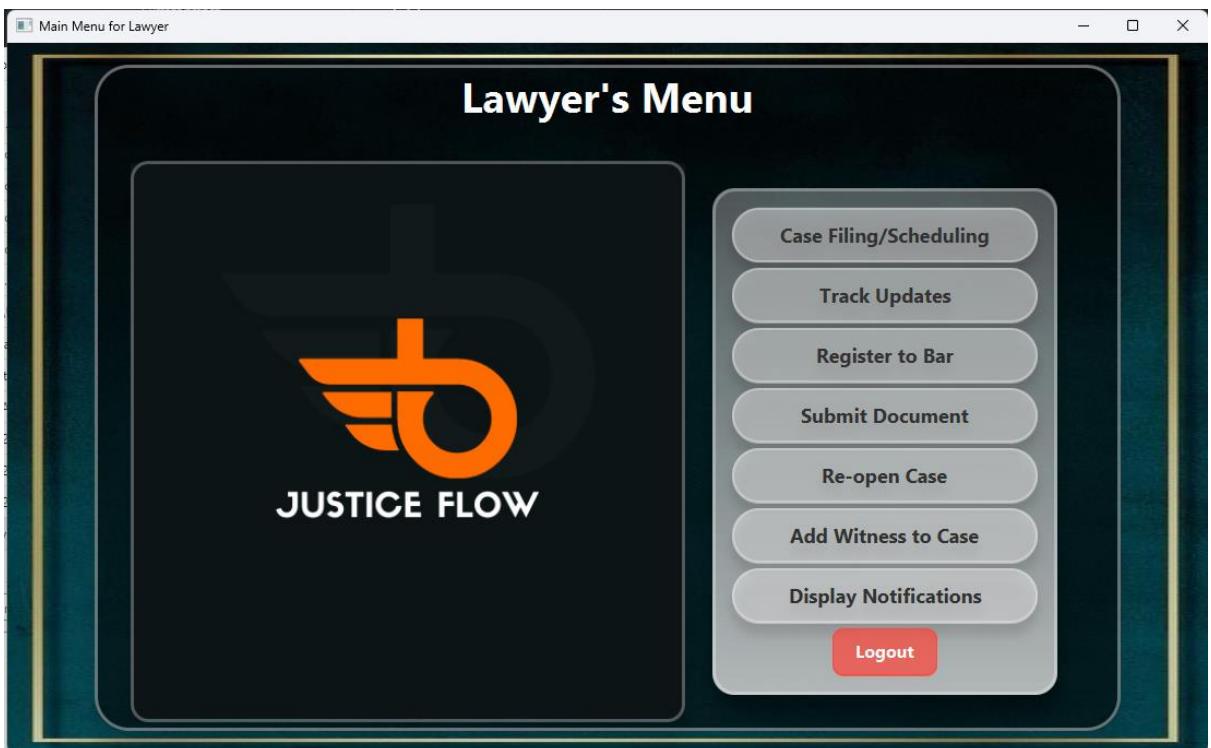
3) Court Administrator's menu



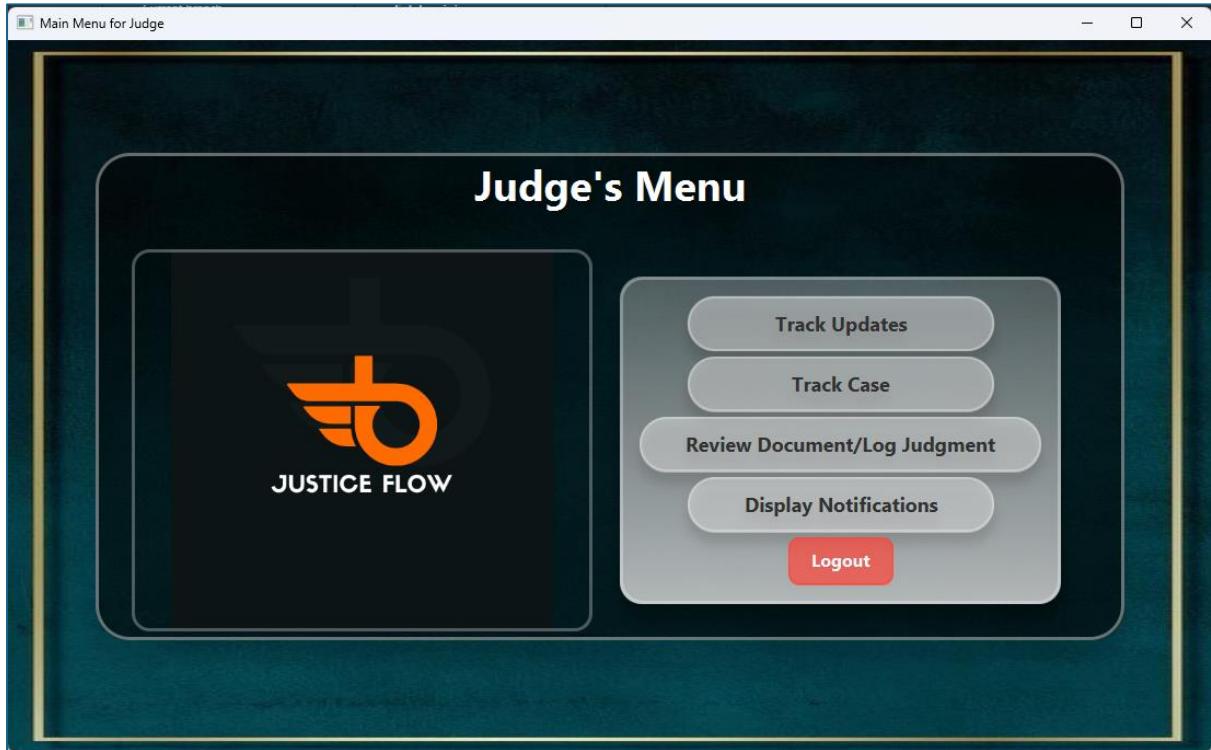
4) Registrar's Menu



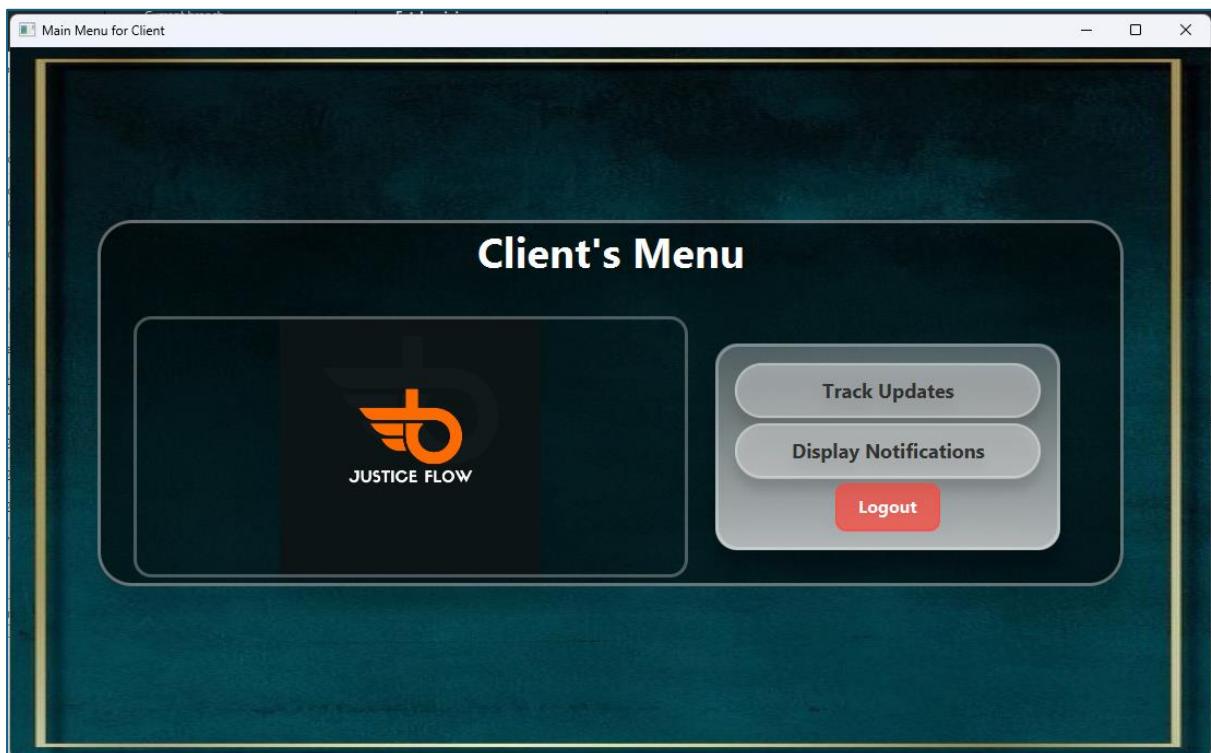
5) Lawyer's Menu



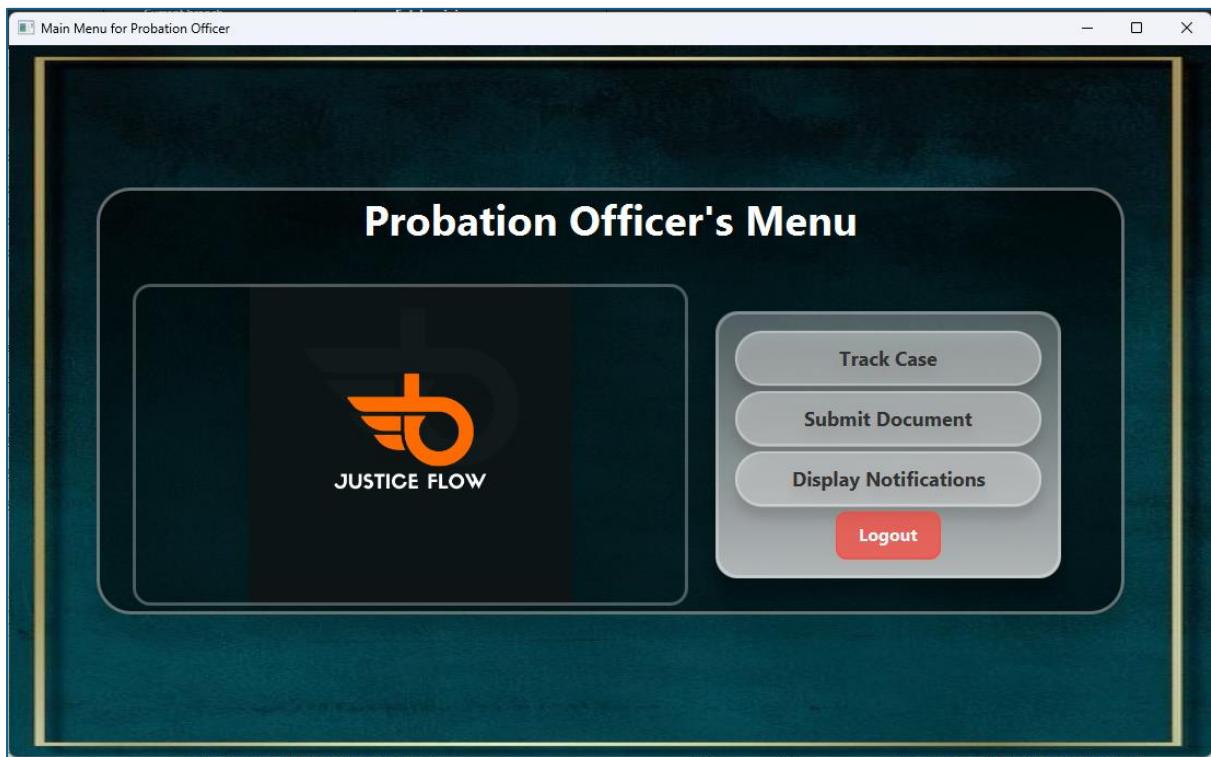
6) Judge's Menu



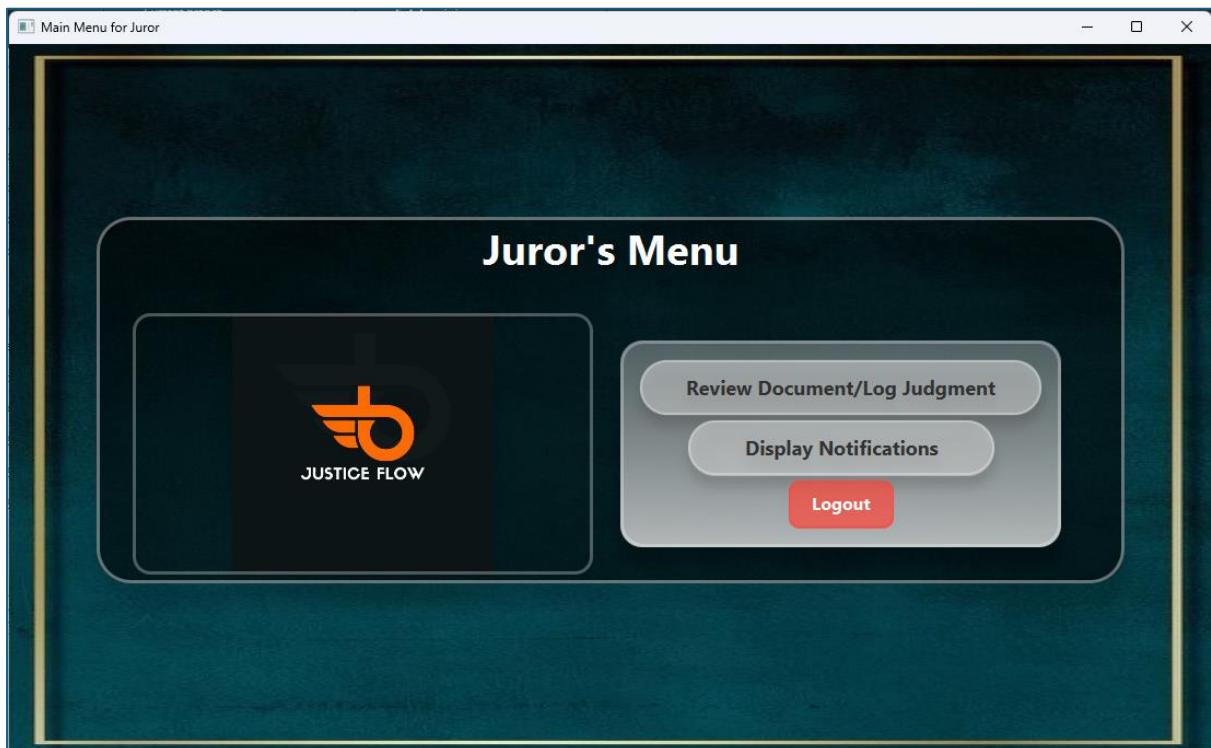
7) Client's menu



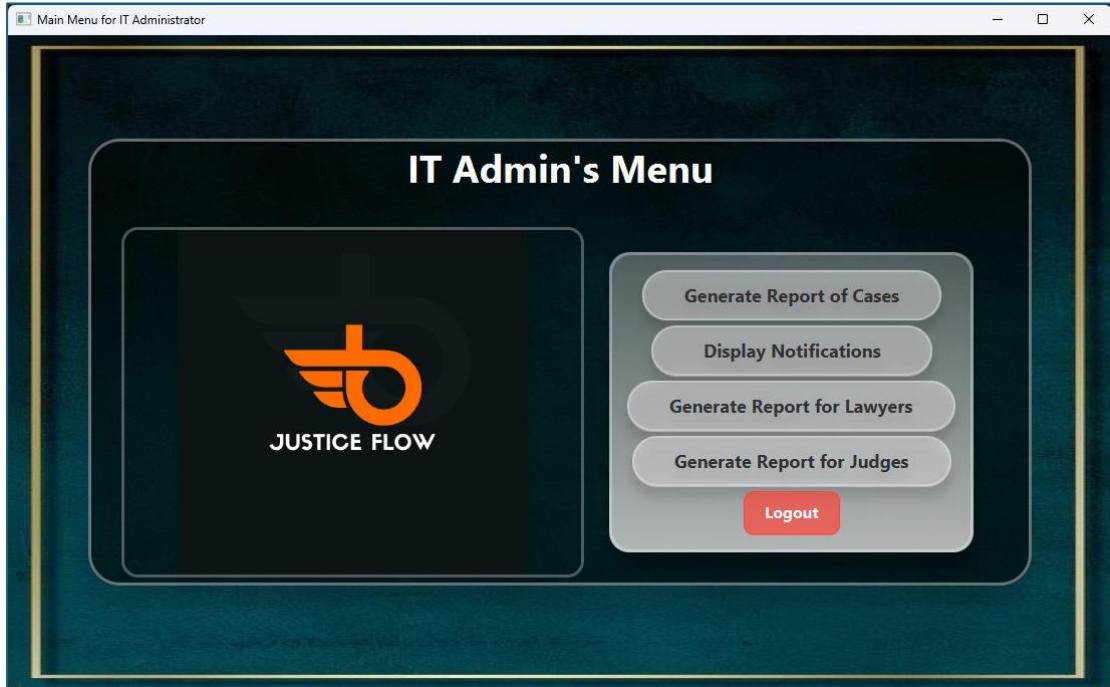
8) Probation Officers Menu



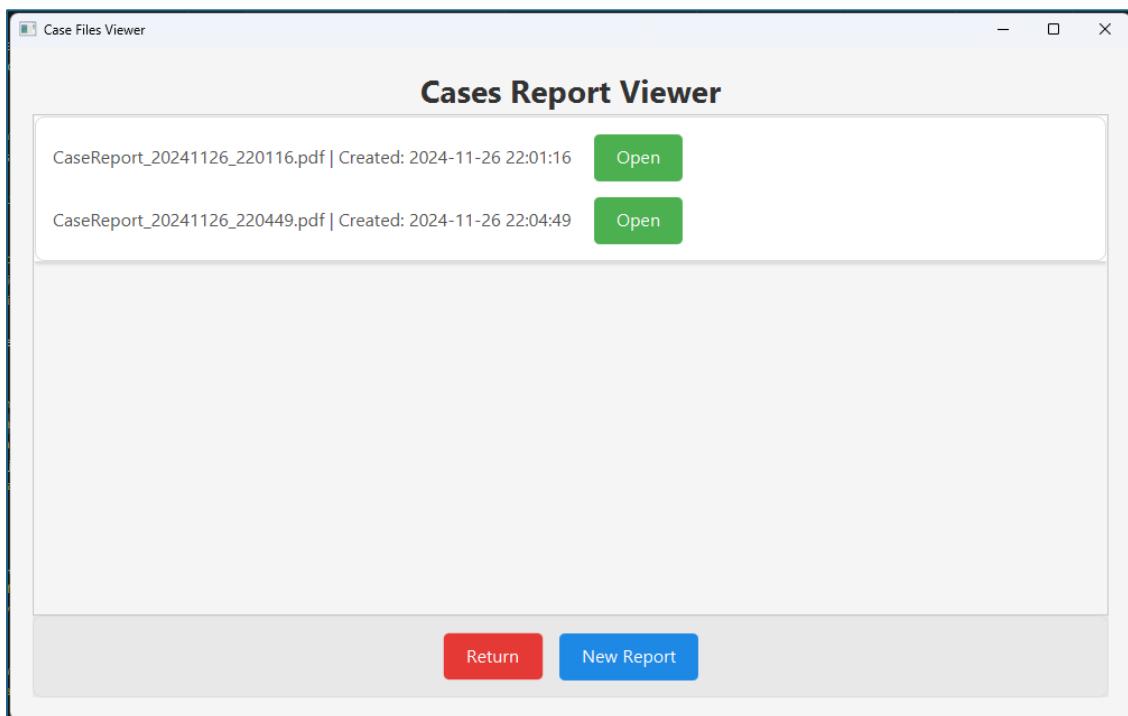
9) Juror's Menu



10) IT Admin's Menu



11) Case Report Viewer



12) Notification Center

The screenshot shows two windows. The main window is titled "Notification Center" and lists three notifications. Each notification card includes a "Show Details" button. The third notification card is expanded, showing a detailed view in a modal window titled "Notification Details". The modal displays the following information:

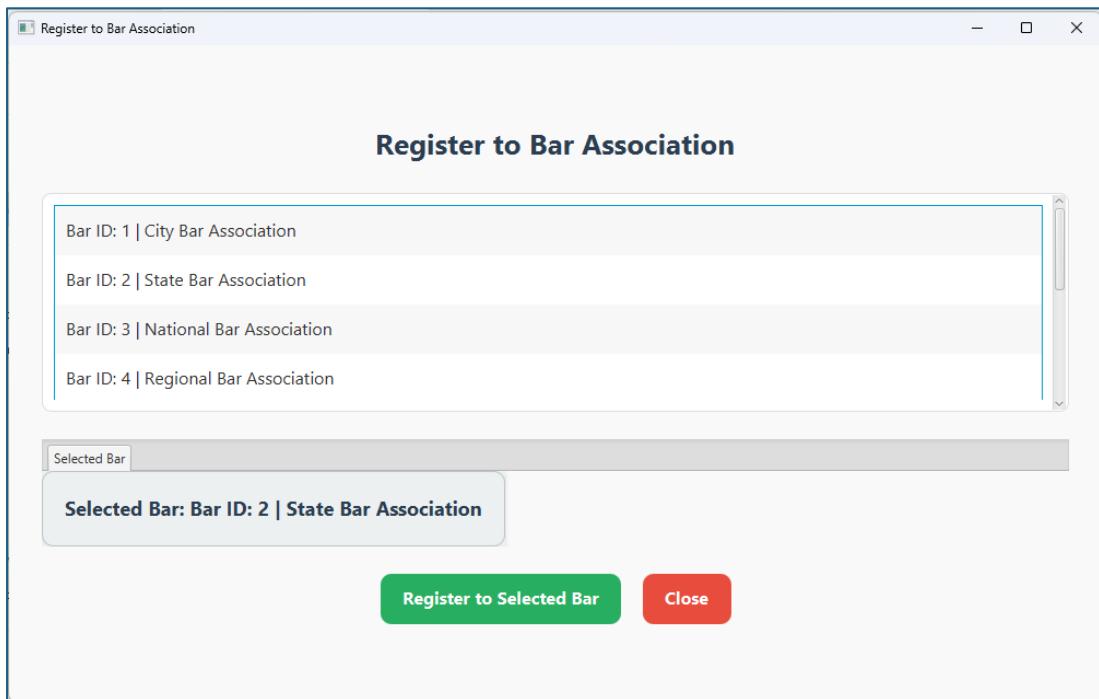
Notification ID:	17
Case Title:	123
Recipients:	lawyer
Sender:	admin
Sender Type:	Court Administrator
Message:	Slot for Case : 123 is added for Date : 2024-12-07!

Both the main window and the modal have a "Close" button at the bottom.

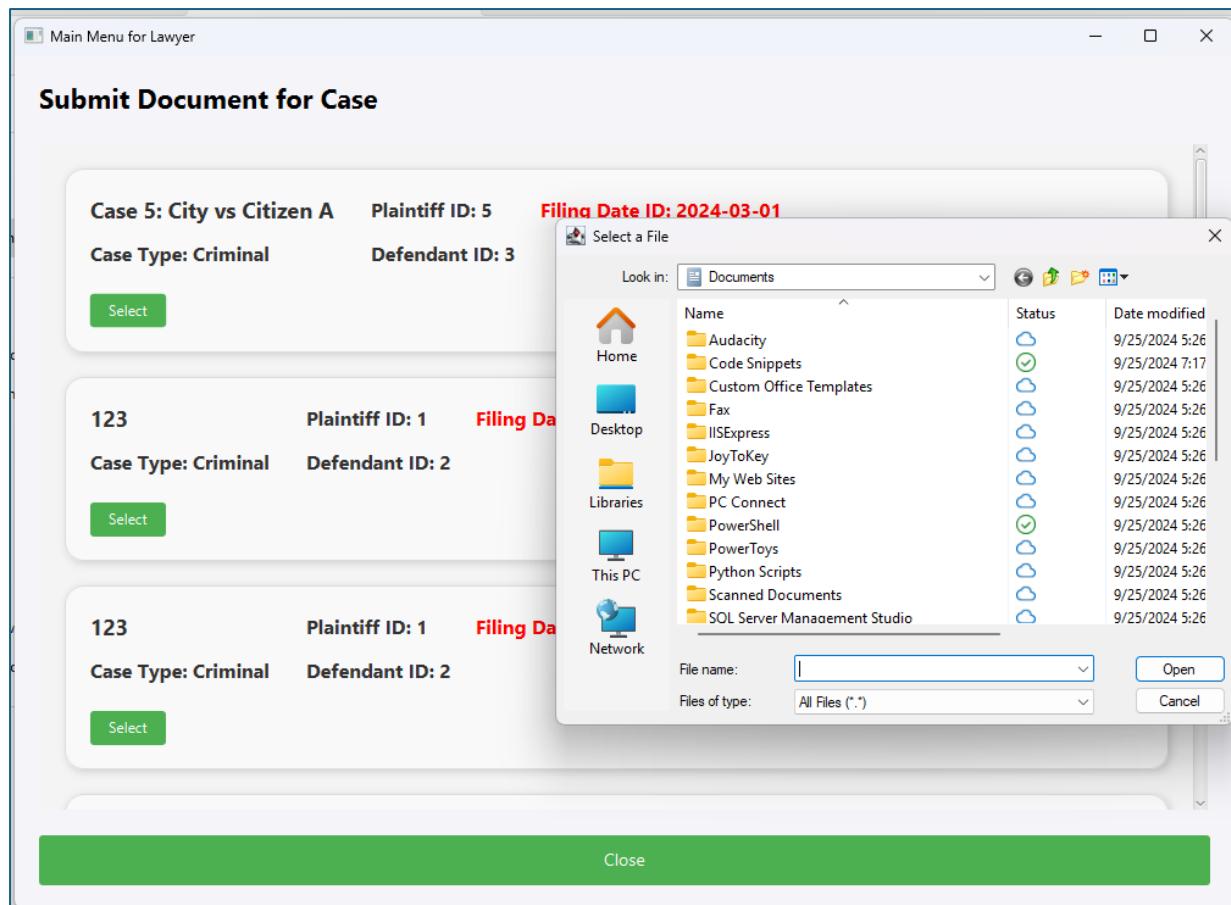
13) File a New Case

The screenshot shows a "File New Case" form window. On the left, there is a dark sidebar containing input fields for "Case Title", "Case Type" (set to "Civil"), "Filing Date", "Court Date", "Plaintiff ID", and "Defendant ID". Below these fields are "Close" and "Submit" buttons. On the right side of the form, there is a large, stylized illustration of an open book. Inside the book, a classical building with columns and a statue of justice holding scales is visible, set against a background of blue and white light effects.

14) Register to a Bar



15) Submitting a Document



16) Edit Case Details

The screenshot shows a Windows application window titled "Update Case Data". The main title bar says "Edit Case Details".

The left side of the window contains form fields:

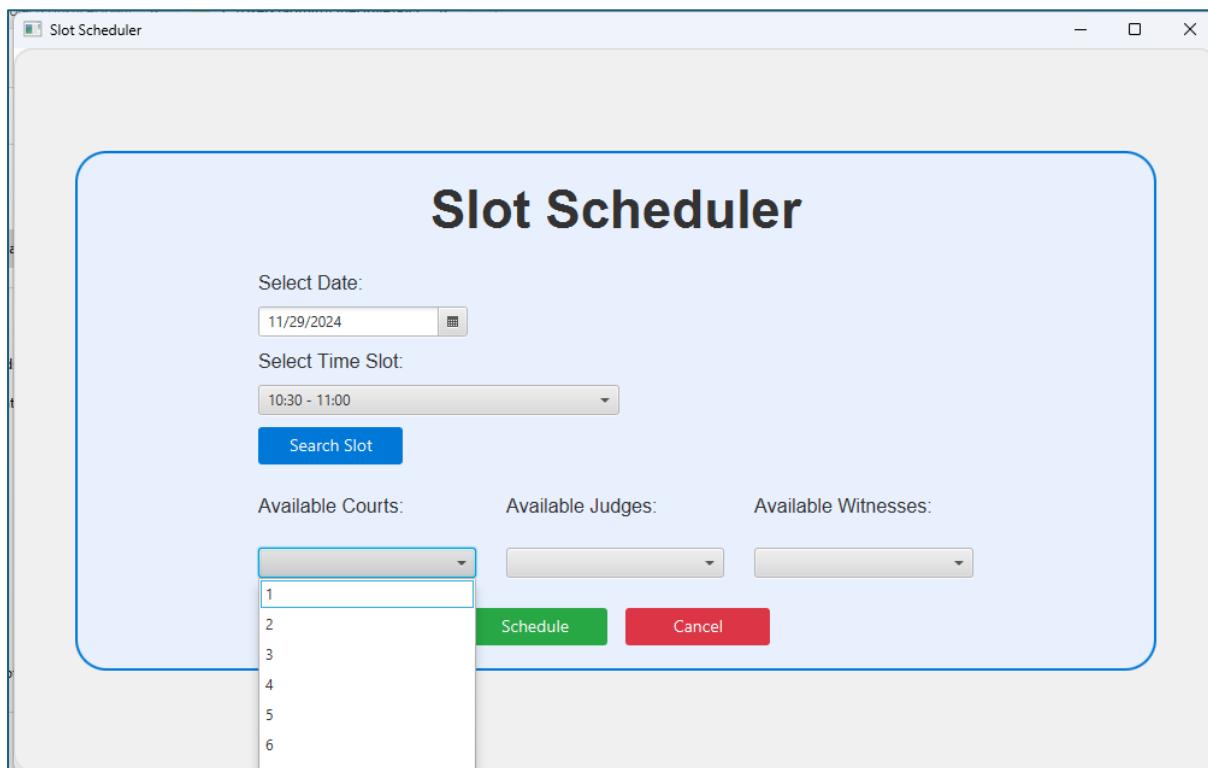
- Case 1: John Doe vs Jane Doe
- Civil
- Opened
- Select Plaintiff
- Select Defendant
- Select Lawyer

At the bottom are "Save Changes" and "Return" buttons.

The right side of the window is divided into sections:

- Actions** buttons: Manage Schedules, Manage Witnesses.
- Slot Details** section: Shows four slots for November 27, 2024, from 10:00 to 10:30, all in Courtroom 1.

17) Slot Scheduler



18) Register Witness

Witness Registration

Register Witness

First Name:

Last Name:

Date of Birth:

Gender:

Address:

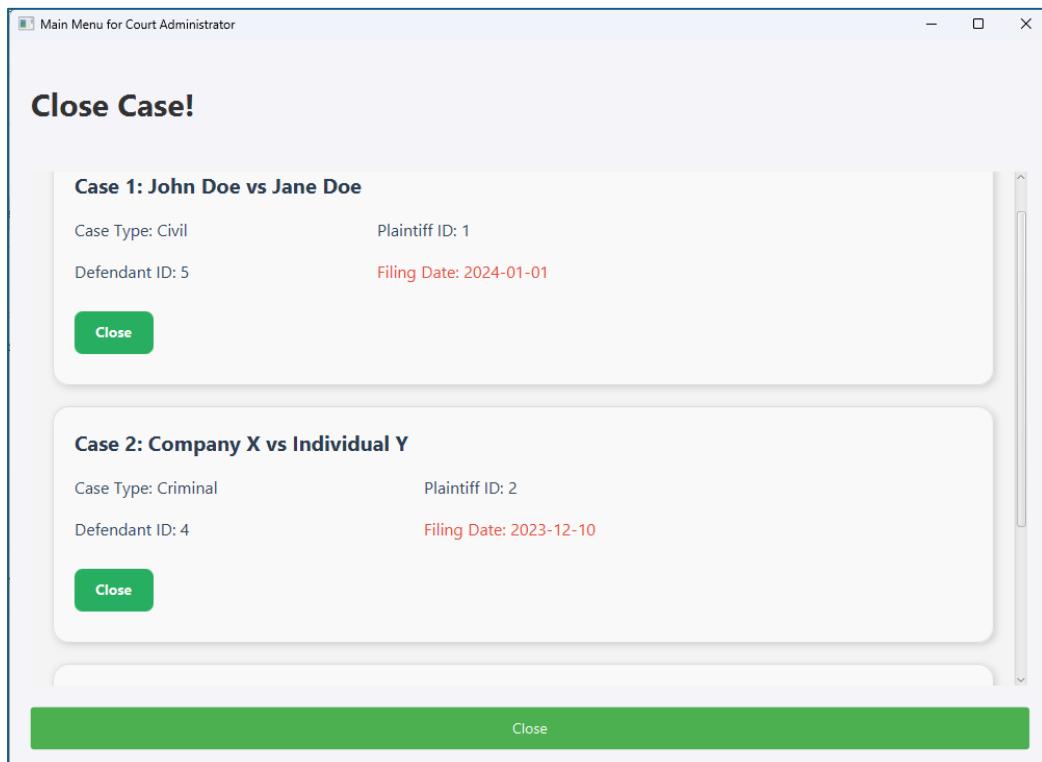
Phone Number:

Email:

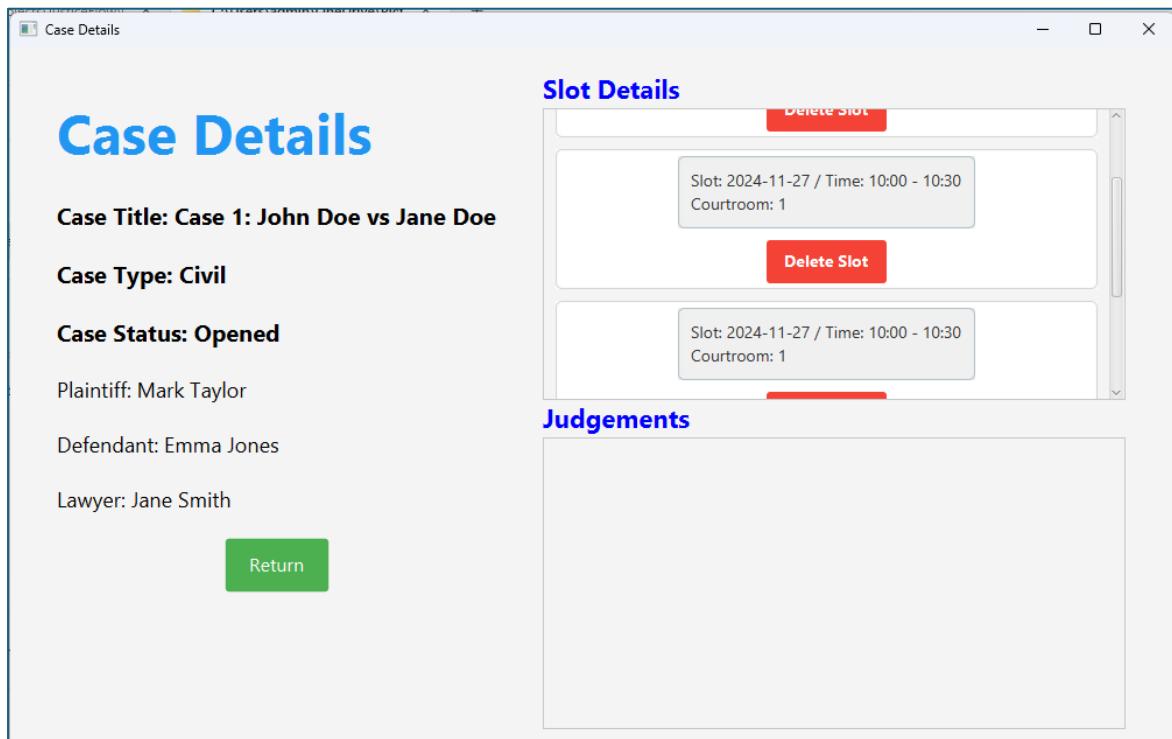
Username:

Password:

19) Close Case



20) Case Details



4. Domain Model

The Courts Management System domain focuses on enhancing judicial processes through technology. It includes functionalities like case management, document handling, and scheduling, aiming to improve efficiency, transparency, and accessibility for all court stakeholders.

The following figure shows us the Domain Model.

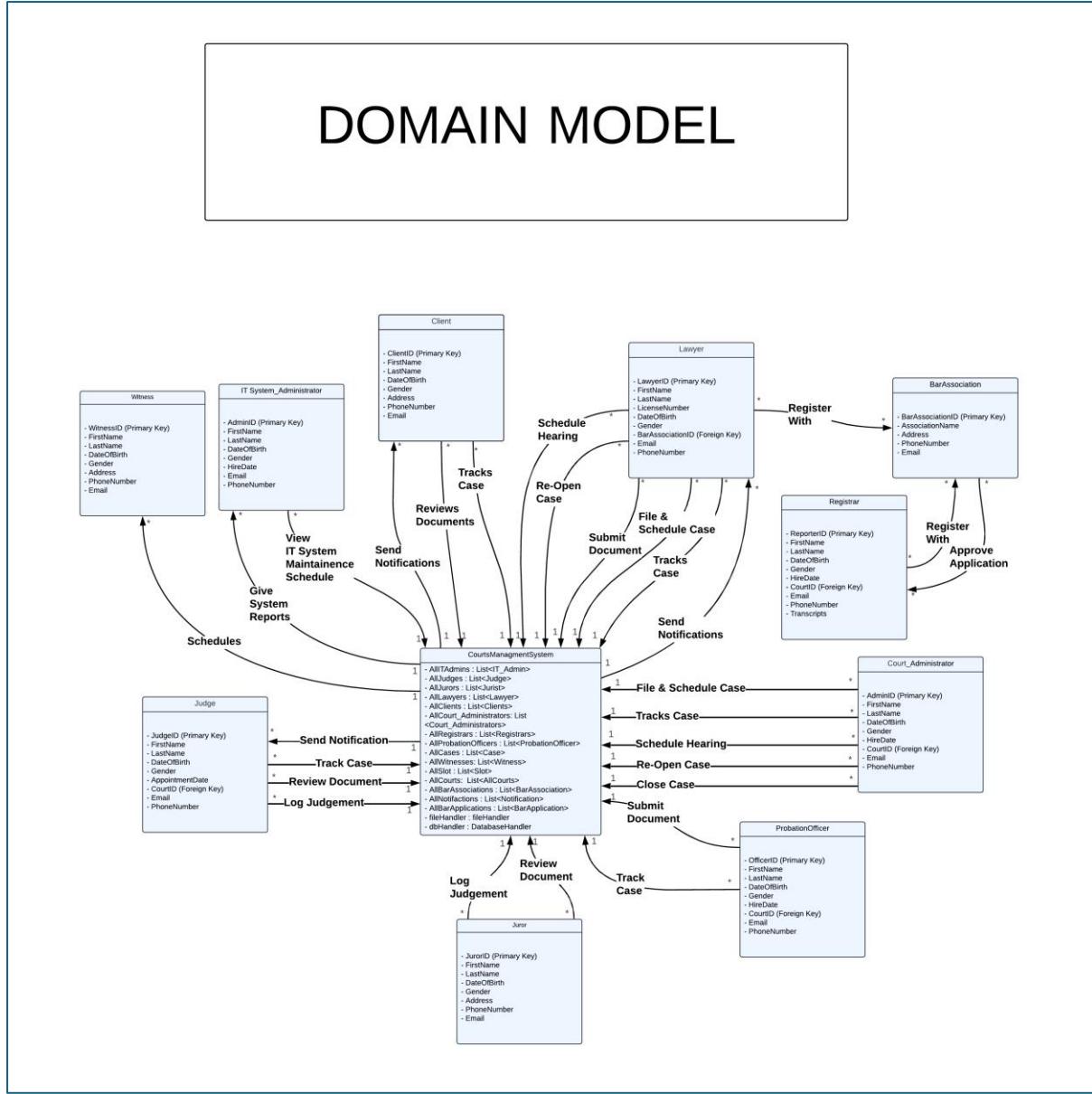


Fig 4.1: Domain for Courts Management System

5. System Sequence Diagram

The Sequence Diagrams are made according to use cases and are as follows.

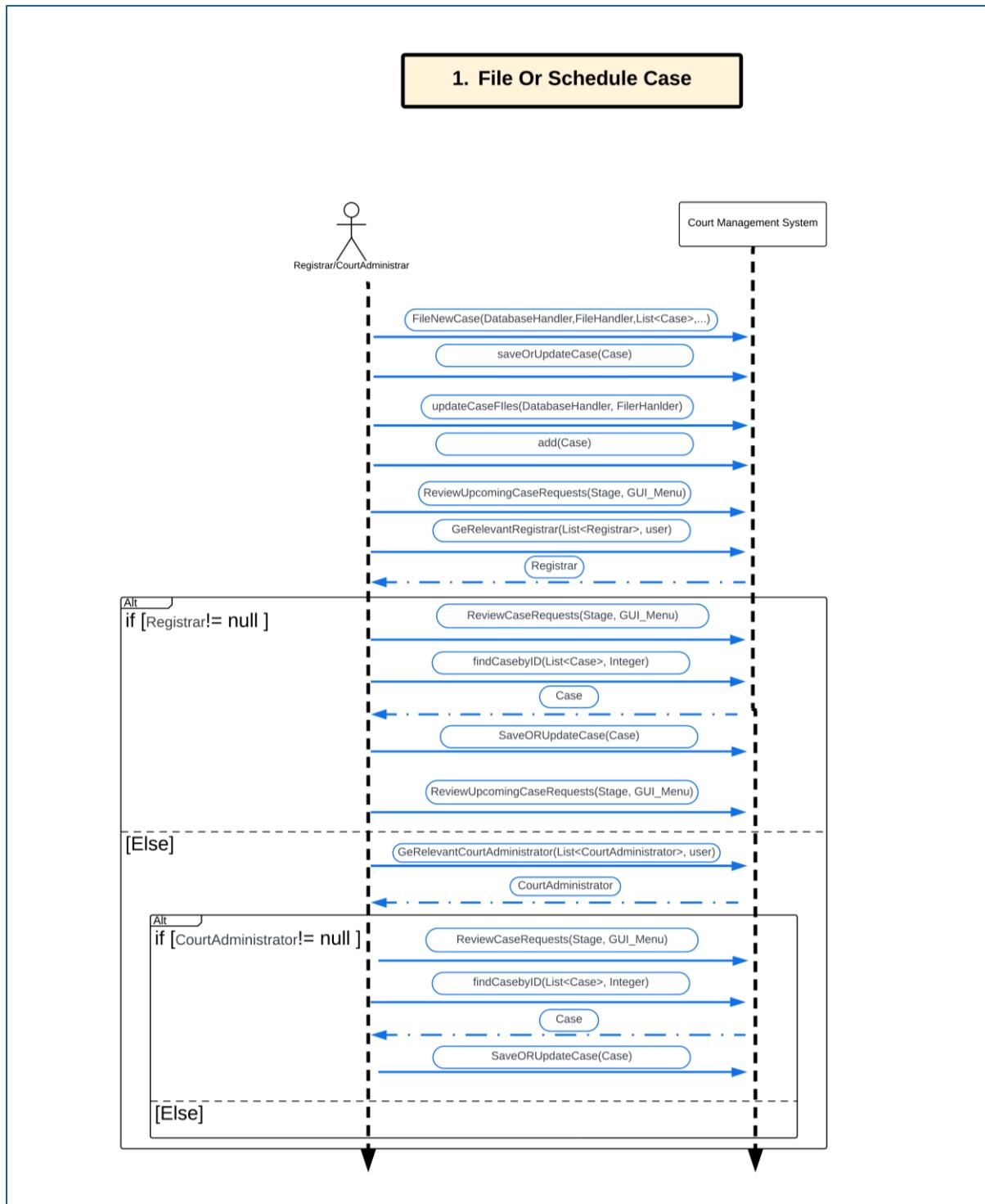


Fig 6.1: System Sequence Diagram for Use Case #1

2. Track and Manage Updates & Notifications

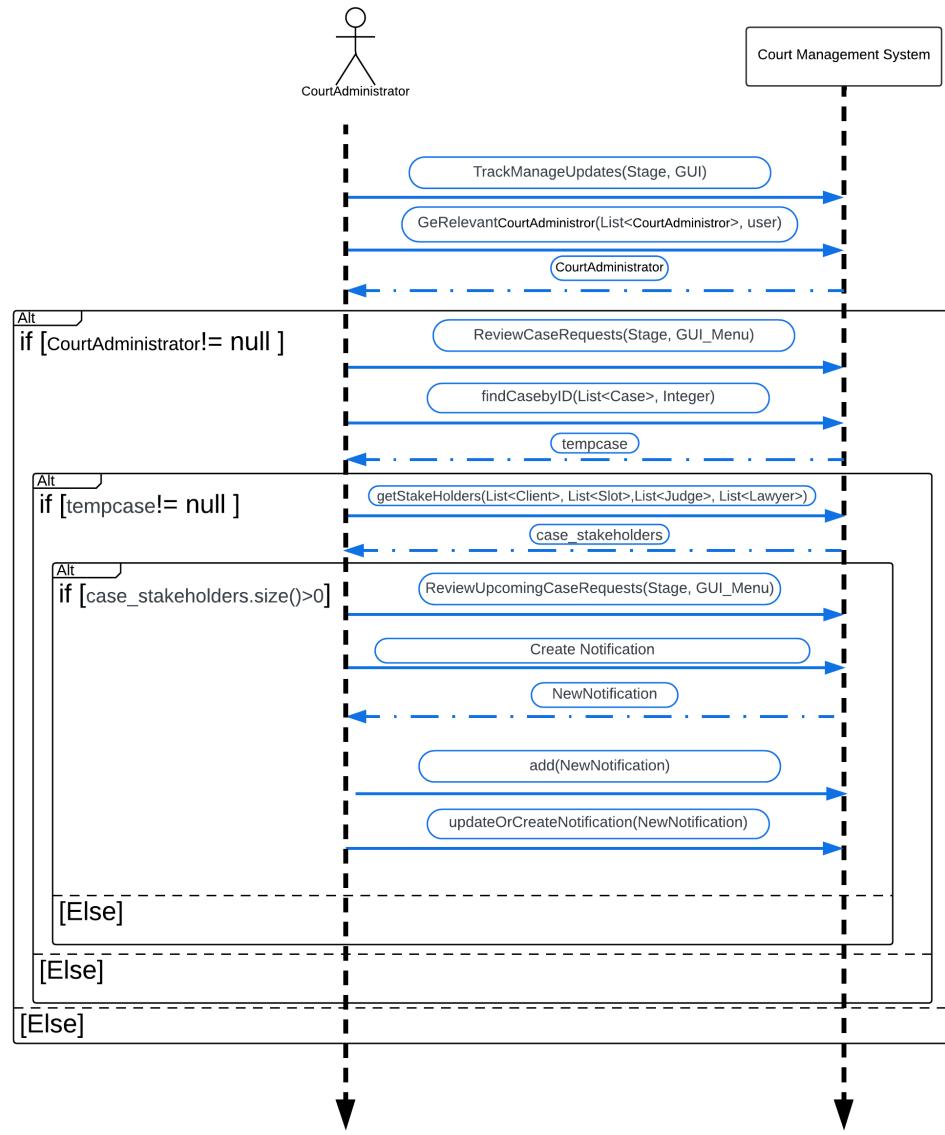


Fig 6.2: System Sequence Diagram for Use Case #2

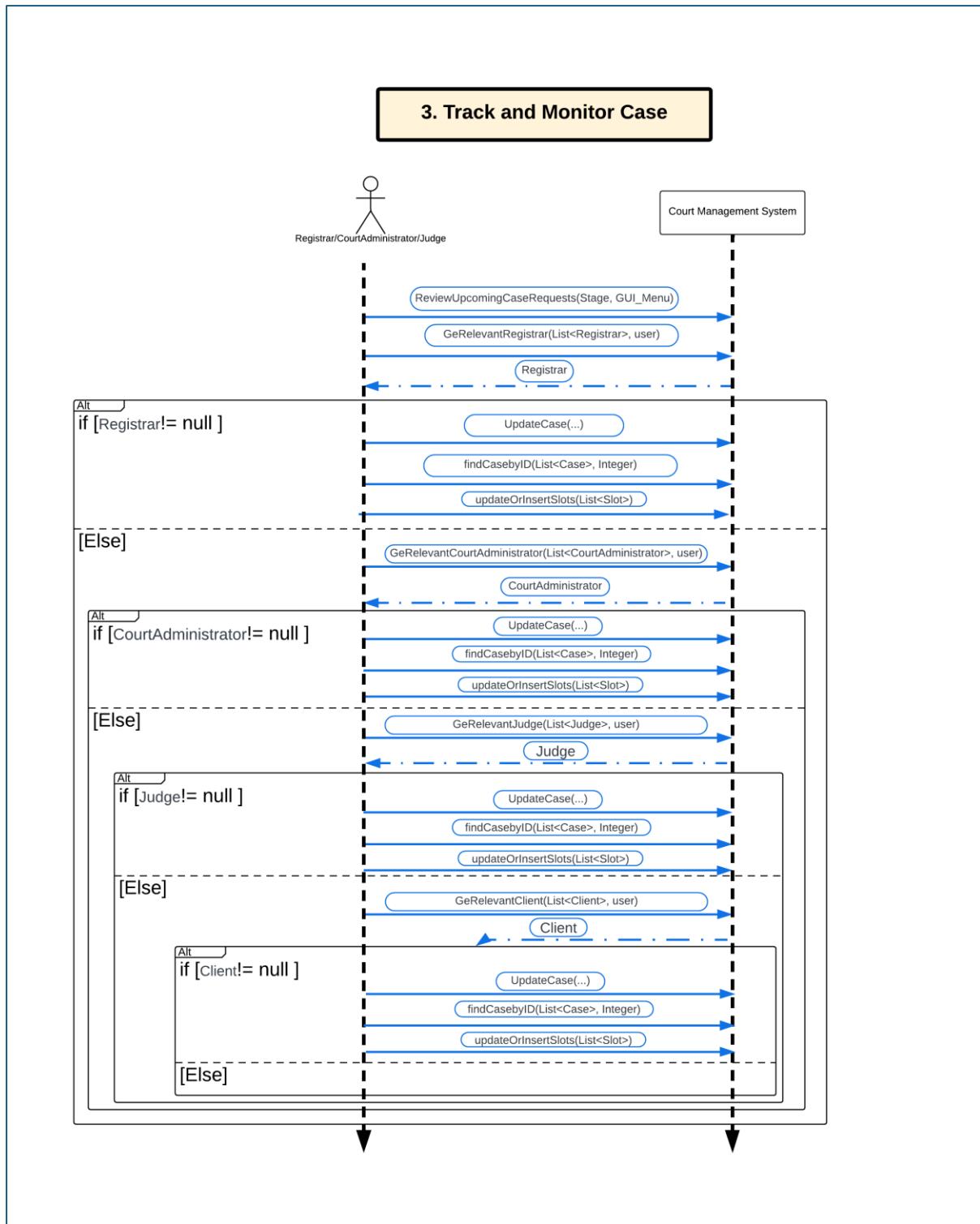


Fig 6.3: System Sequence Diagram for Use Case #3

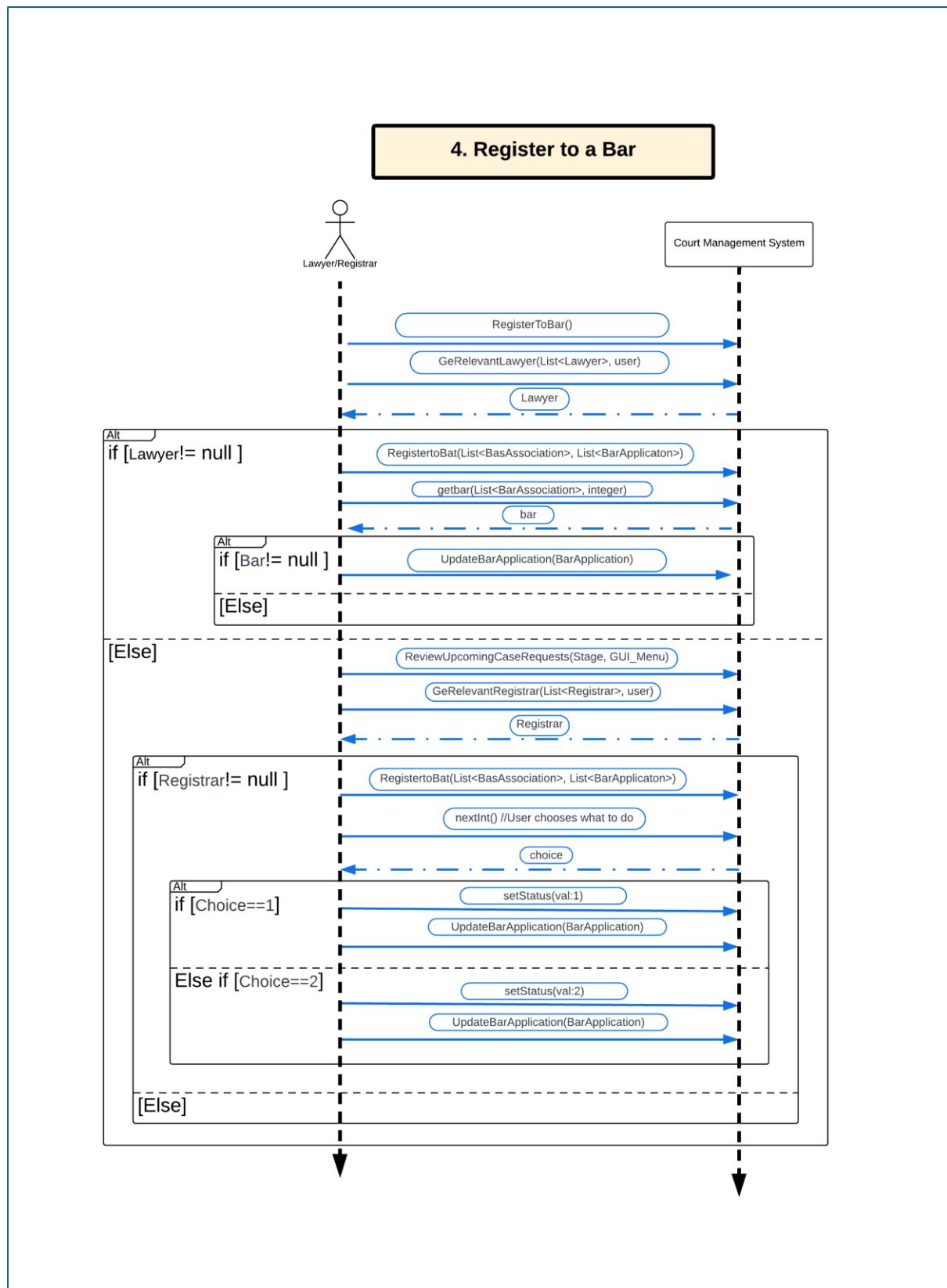


Fig 6.4: System Sequence Diagram for Use Case #4

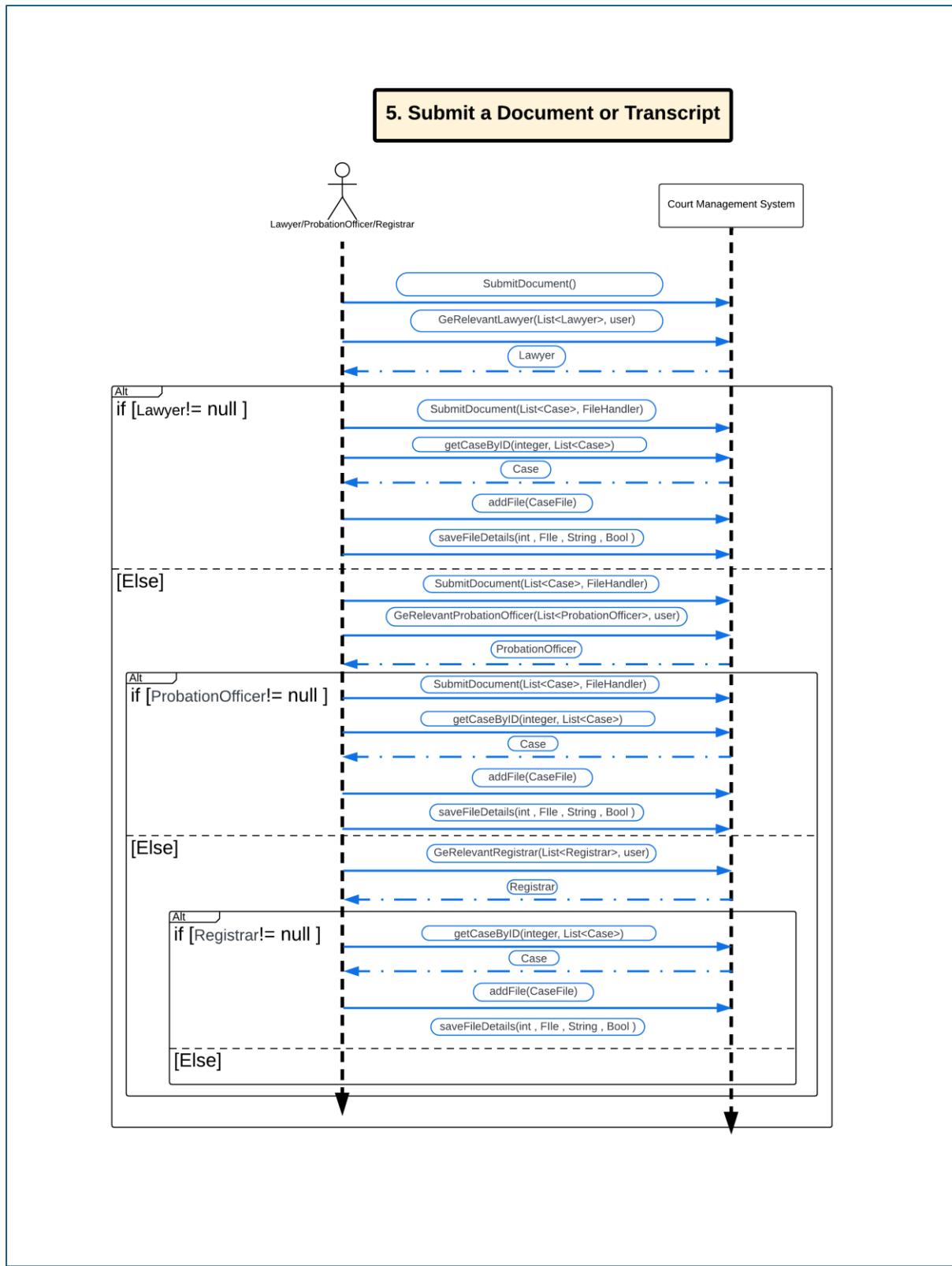


Fig 6.5: System Sequence Diagram for Use Case #5

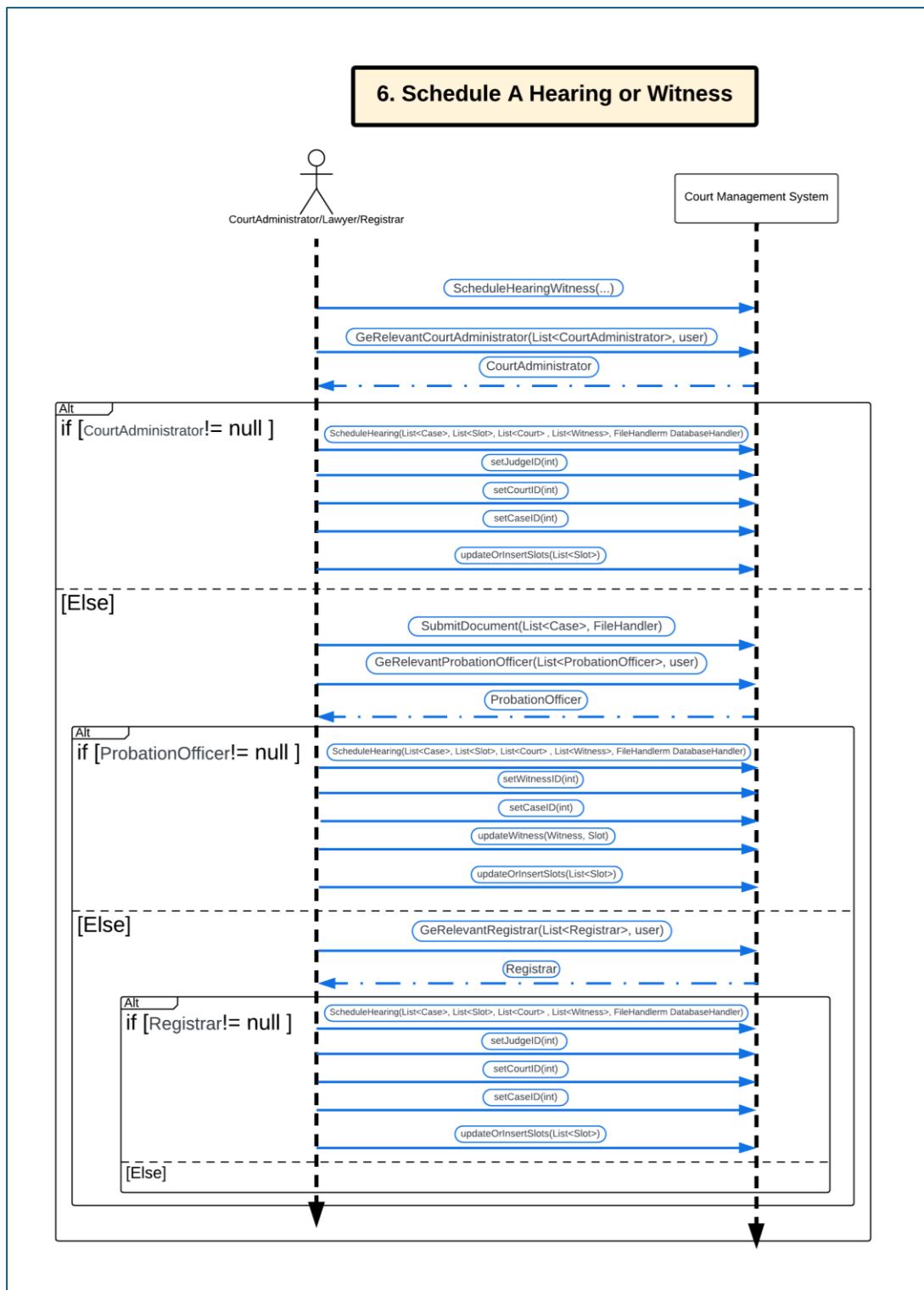


Fig 6.6: System Sequence Diagram for Use Case #6

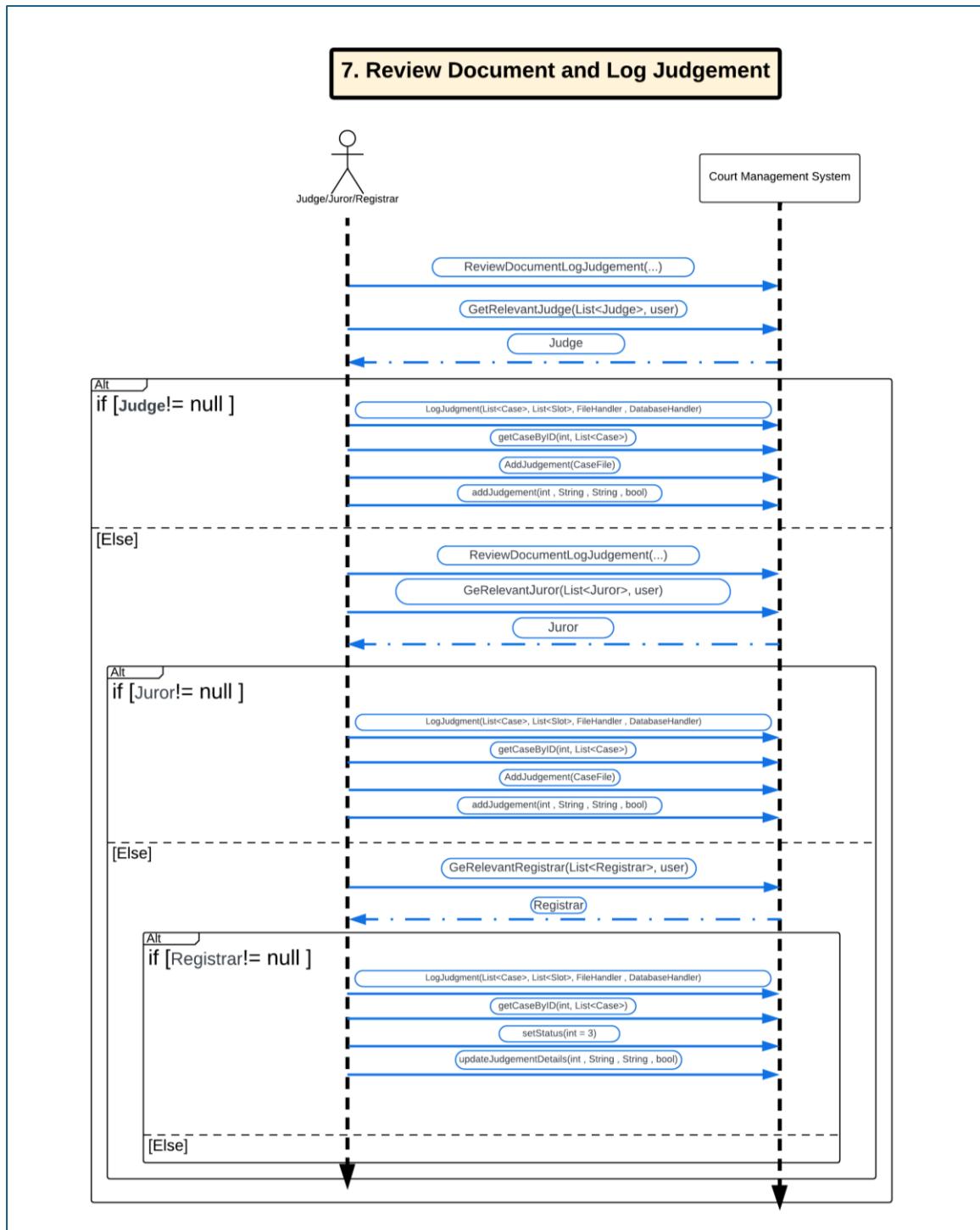


Fig 6.7: System Sequence Diagram for Use Case #7

8. View IT System maintenance Schedule

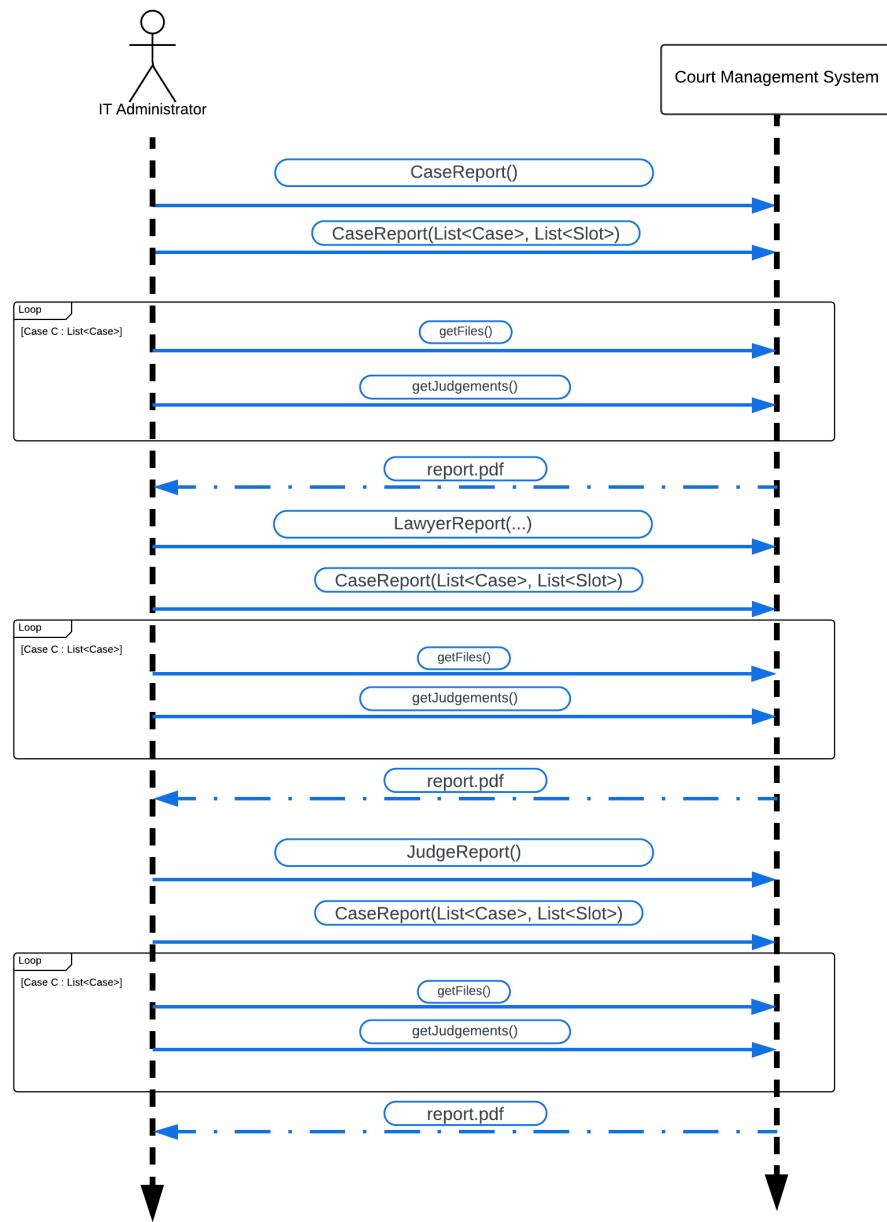


Fig 6.8: System Sequence Diagram for Use Case #8

9. Re-Open Case

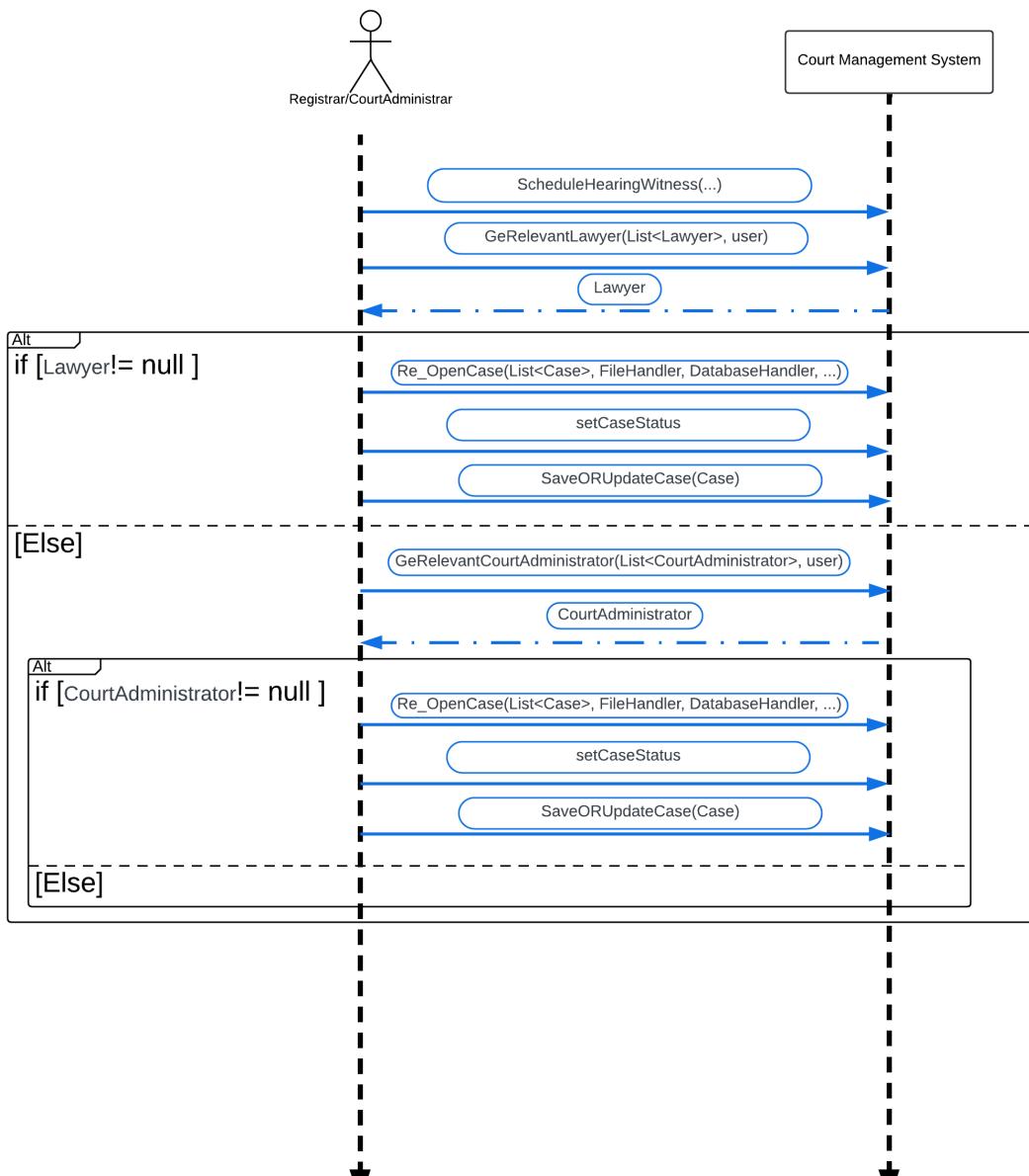


Fig 6.9: System Sequence Diagram for Use Case #9

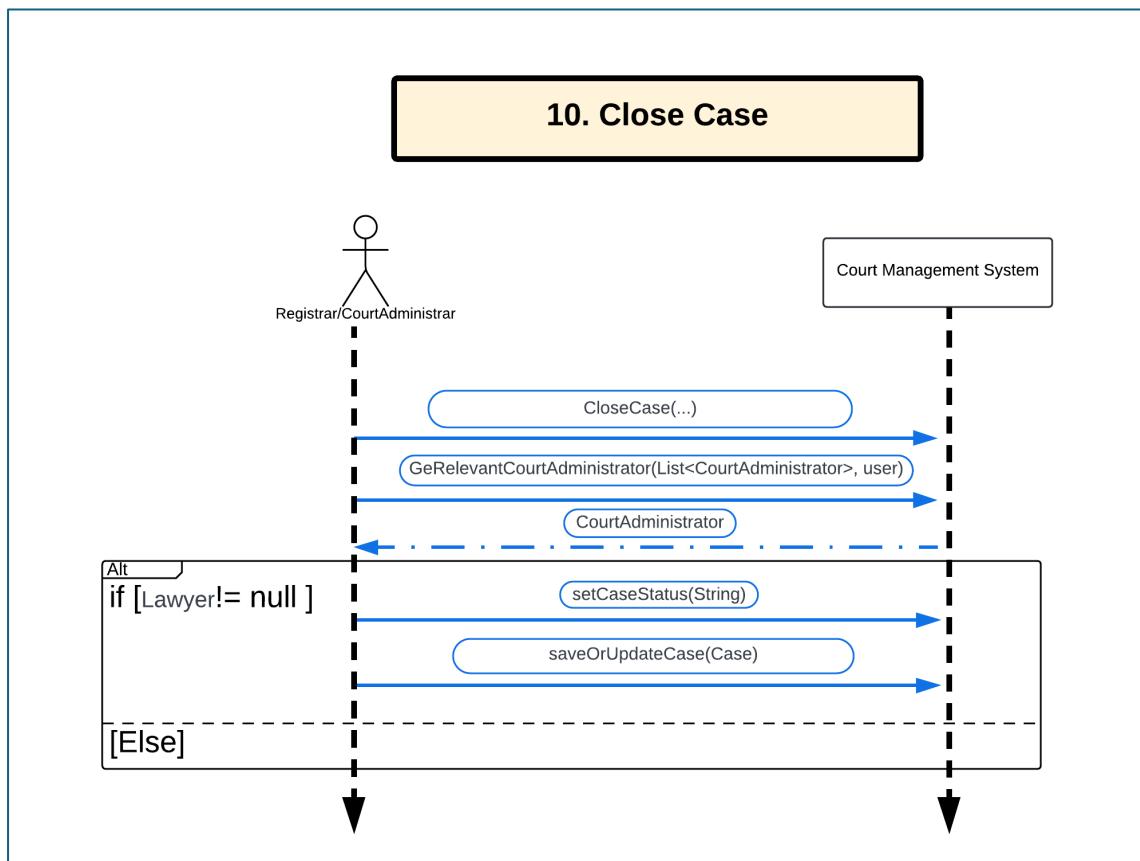


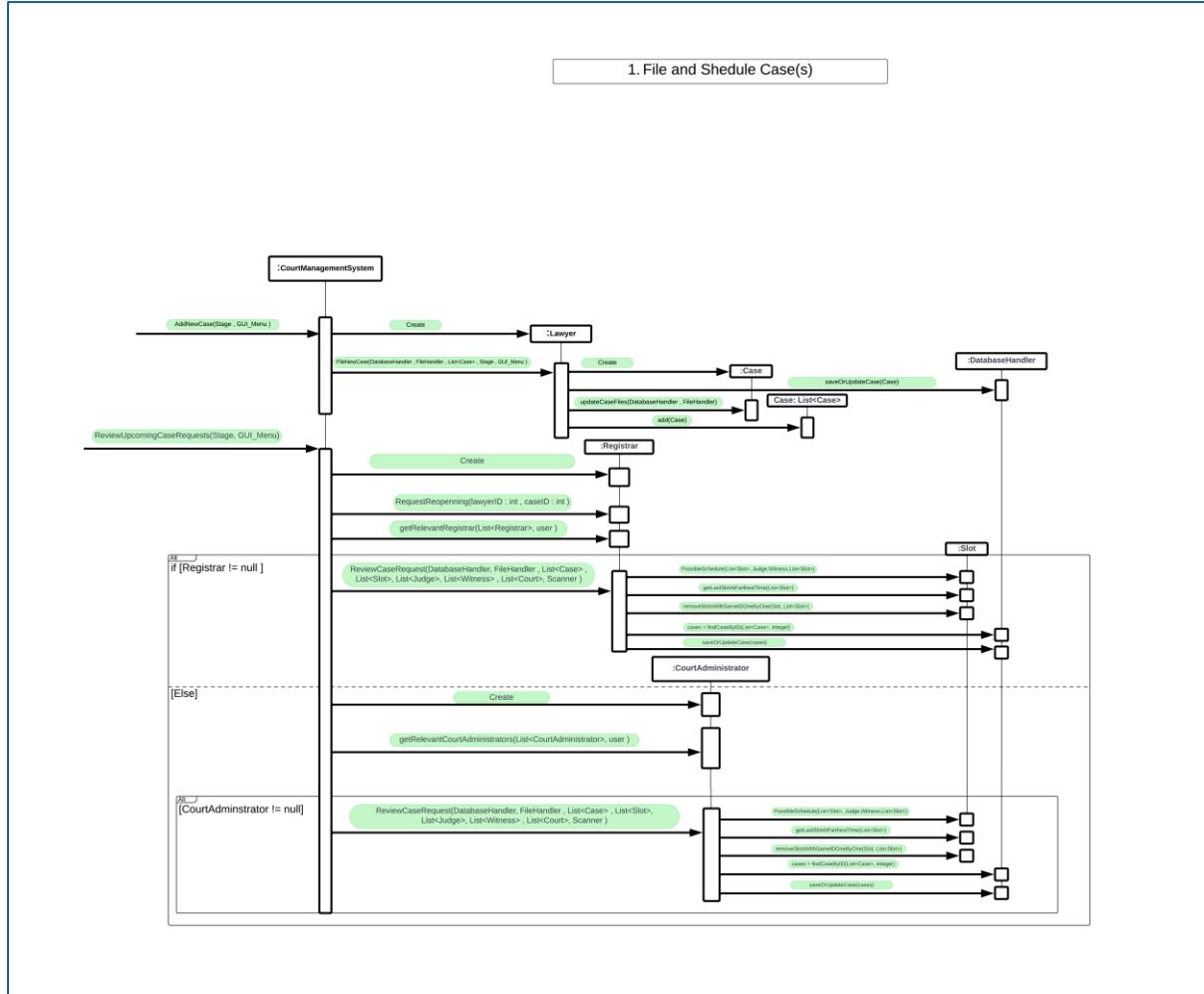
Fig 6.10: System Sequence Diagram for Use Case #10

6. Sequence Diagram

The Sequence Diagrams are made according to use cases and are as follows.

1) File and Schedule Case(s)

Fig 6.1: Sequence Diagram for Use Case #1



2) Track and Manage Updates and Notifications

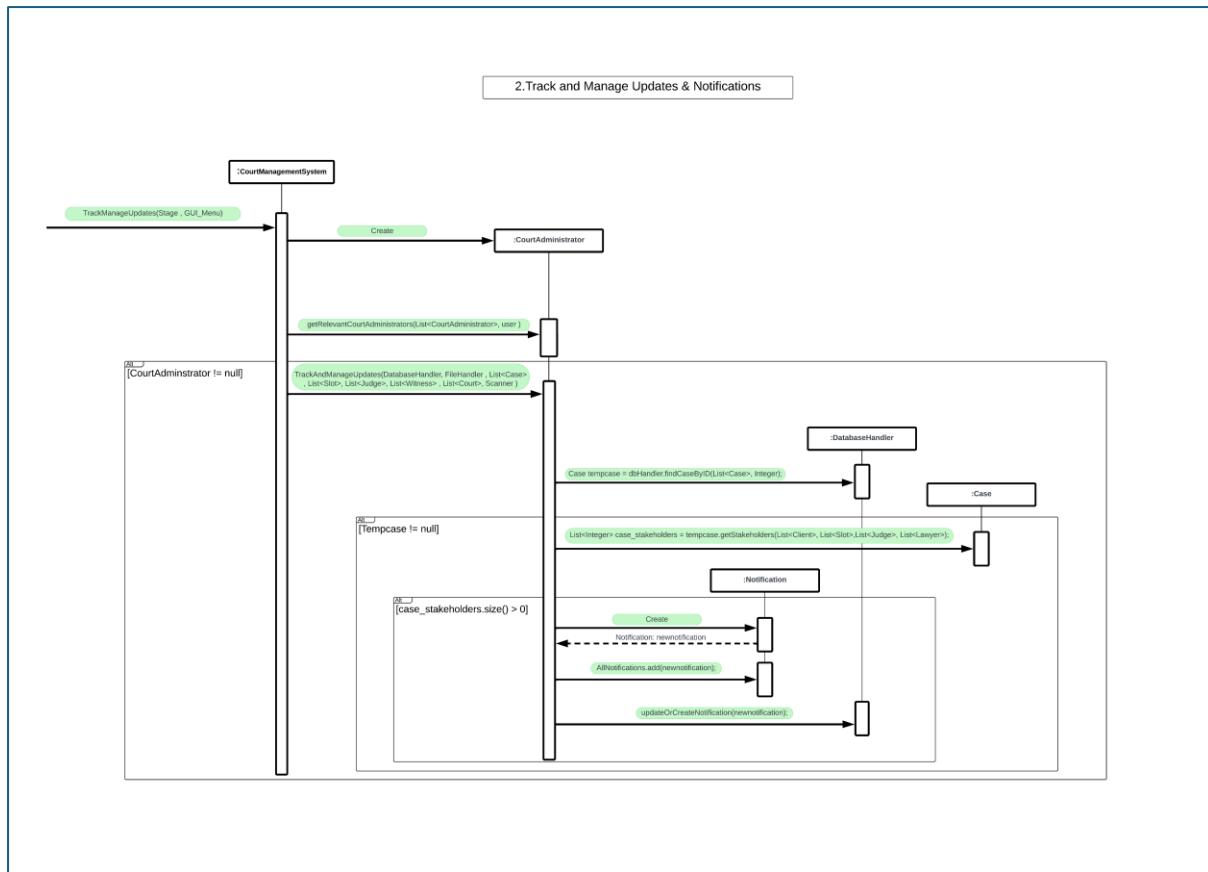


Fig 6.2: Sequence Diagram for Use Case #2

3) Track and Monitor Case(s)

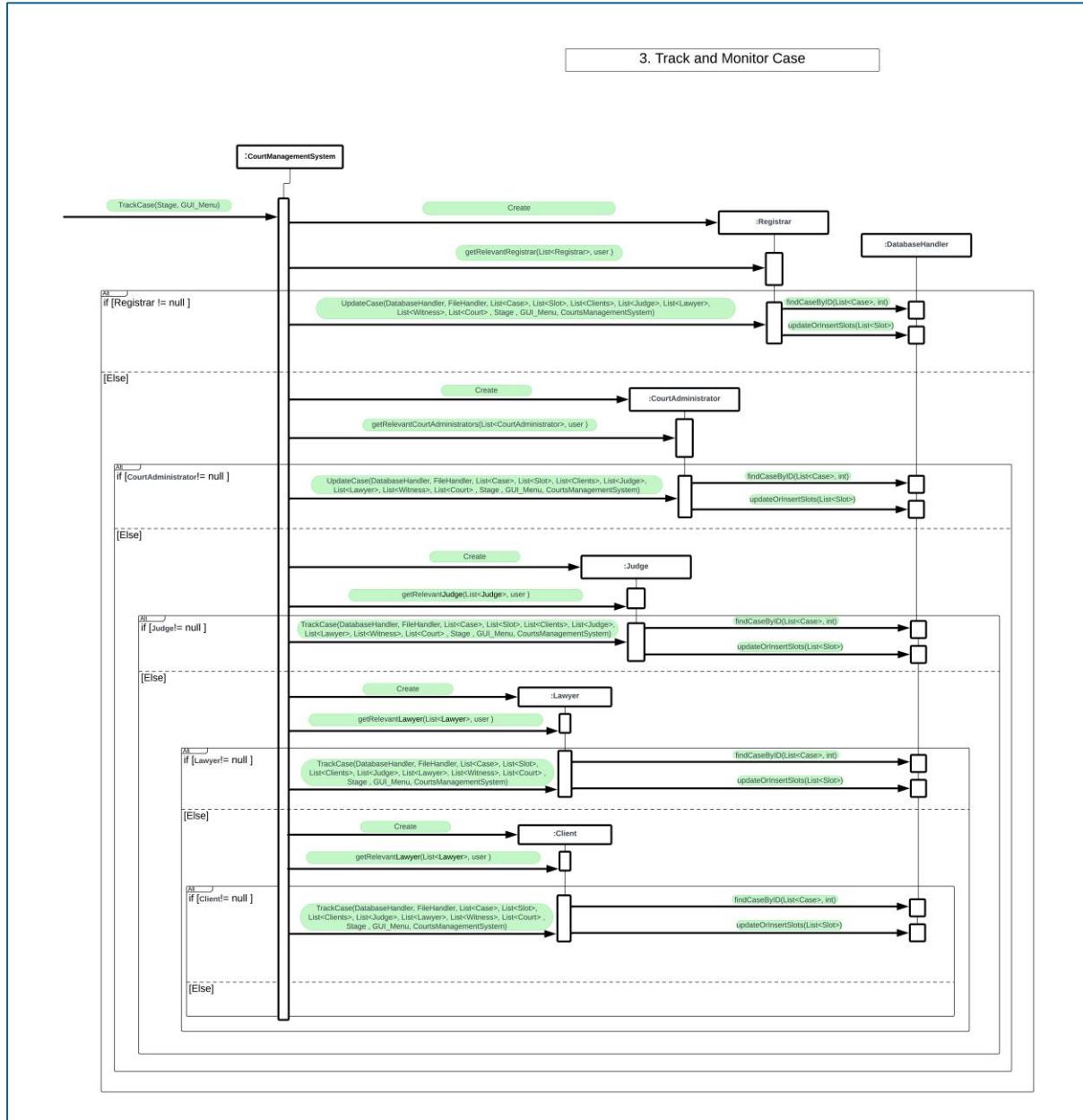


Fig 6.3: Sequence Diagram for Use Case #3

4) Register with a Bar

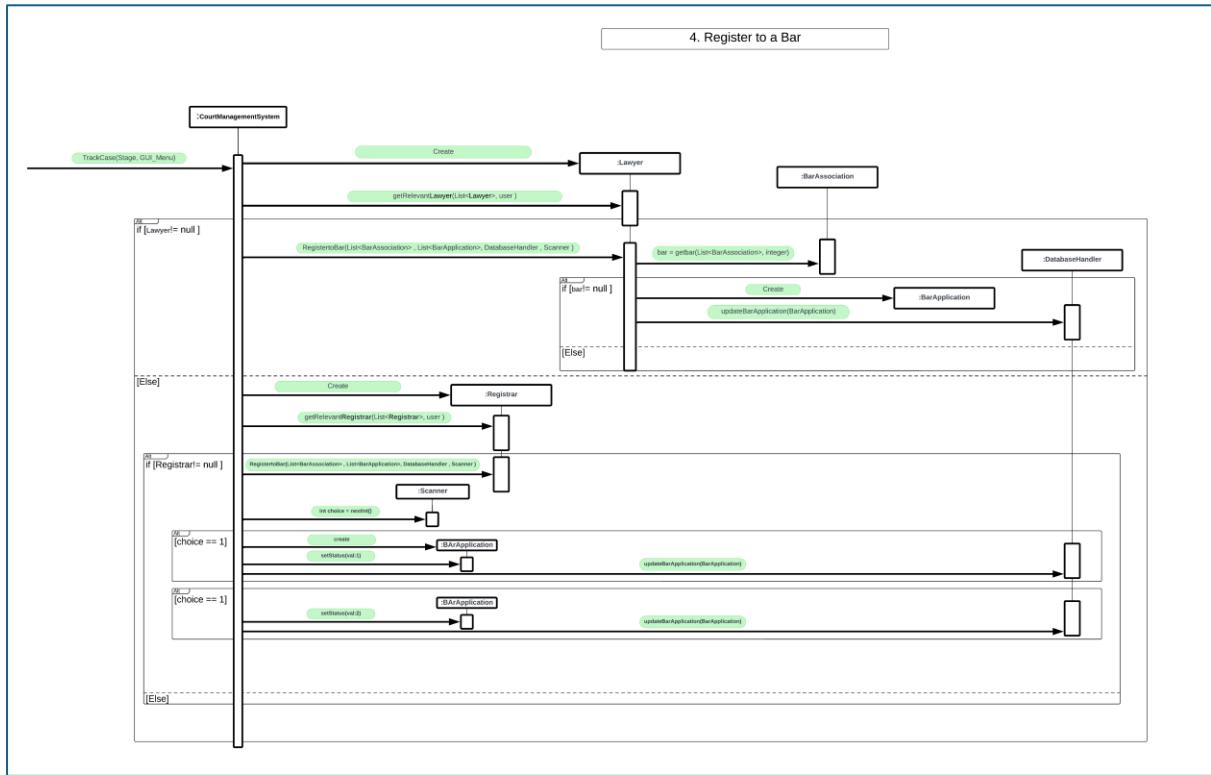


Fig 6.4: Sequence Diagram for Use Case #4

5) Submit a Document or Transcript

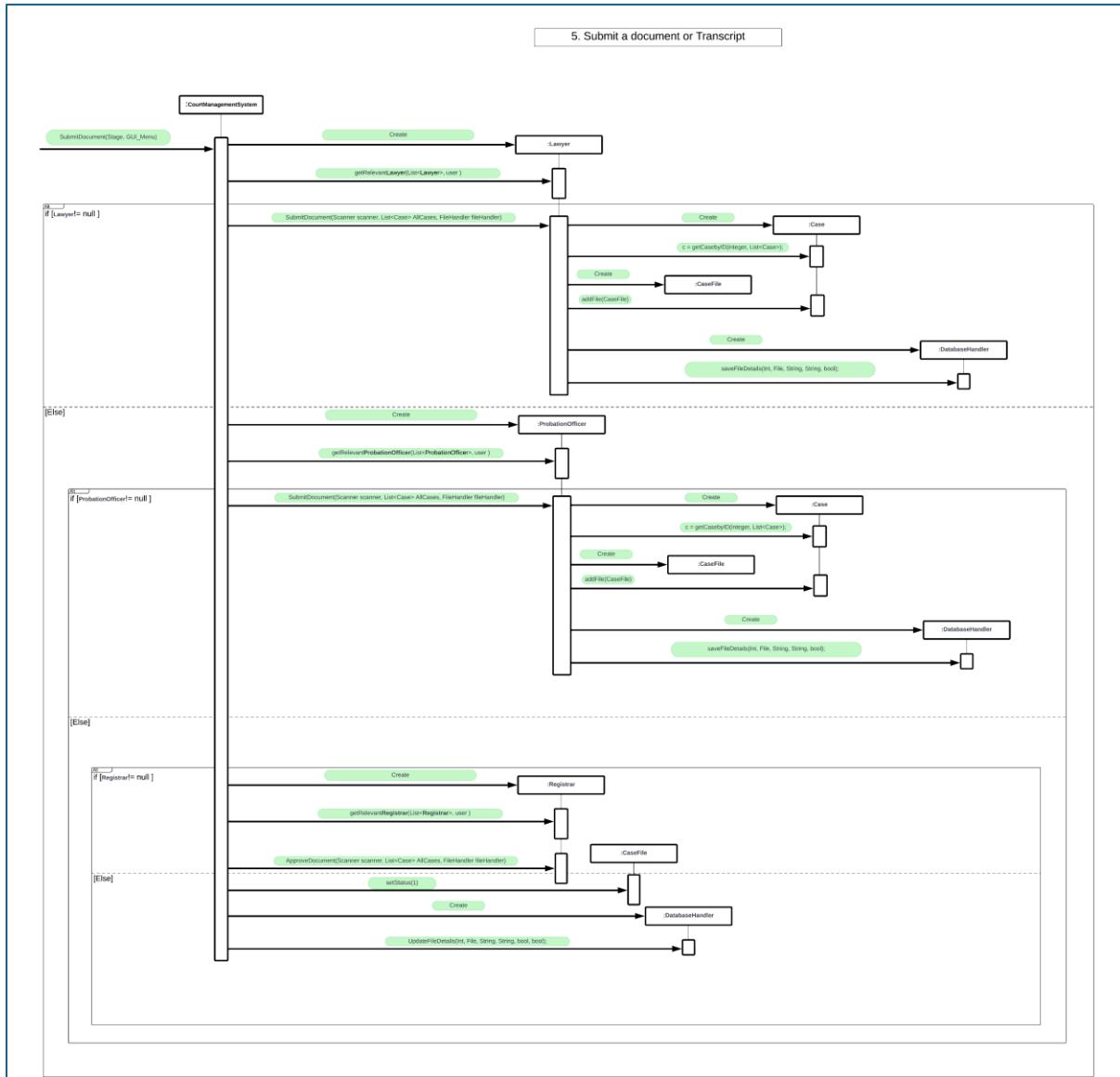


Fig 6.5: Sequence Diagram for Use Case #5

6) Schedule a Hearing or Witness

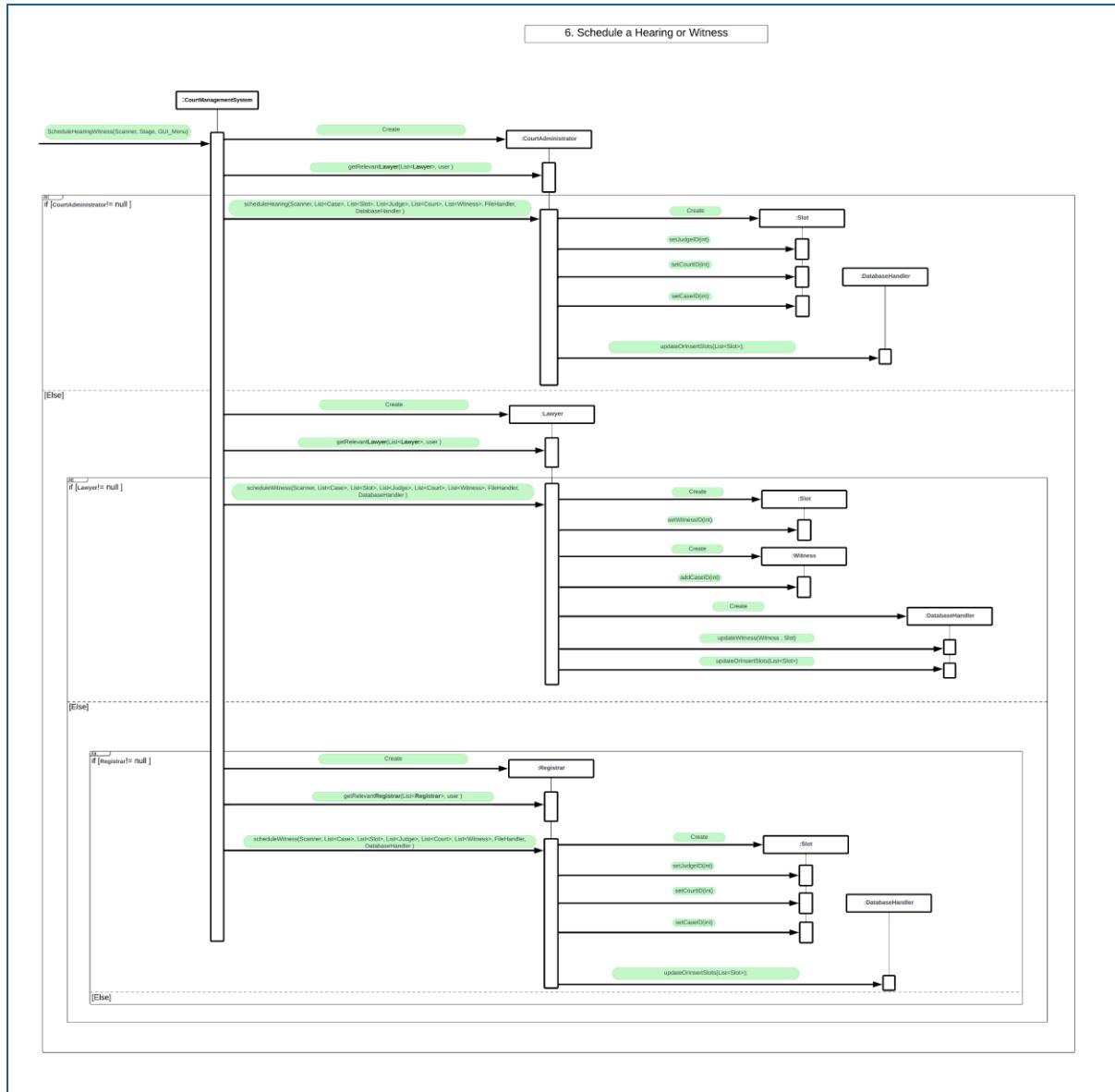


Fig 6.6: Sequence Diagram for Use Case #6

7) Retrieve a Document / Judgement

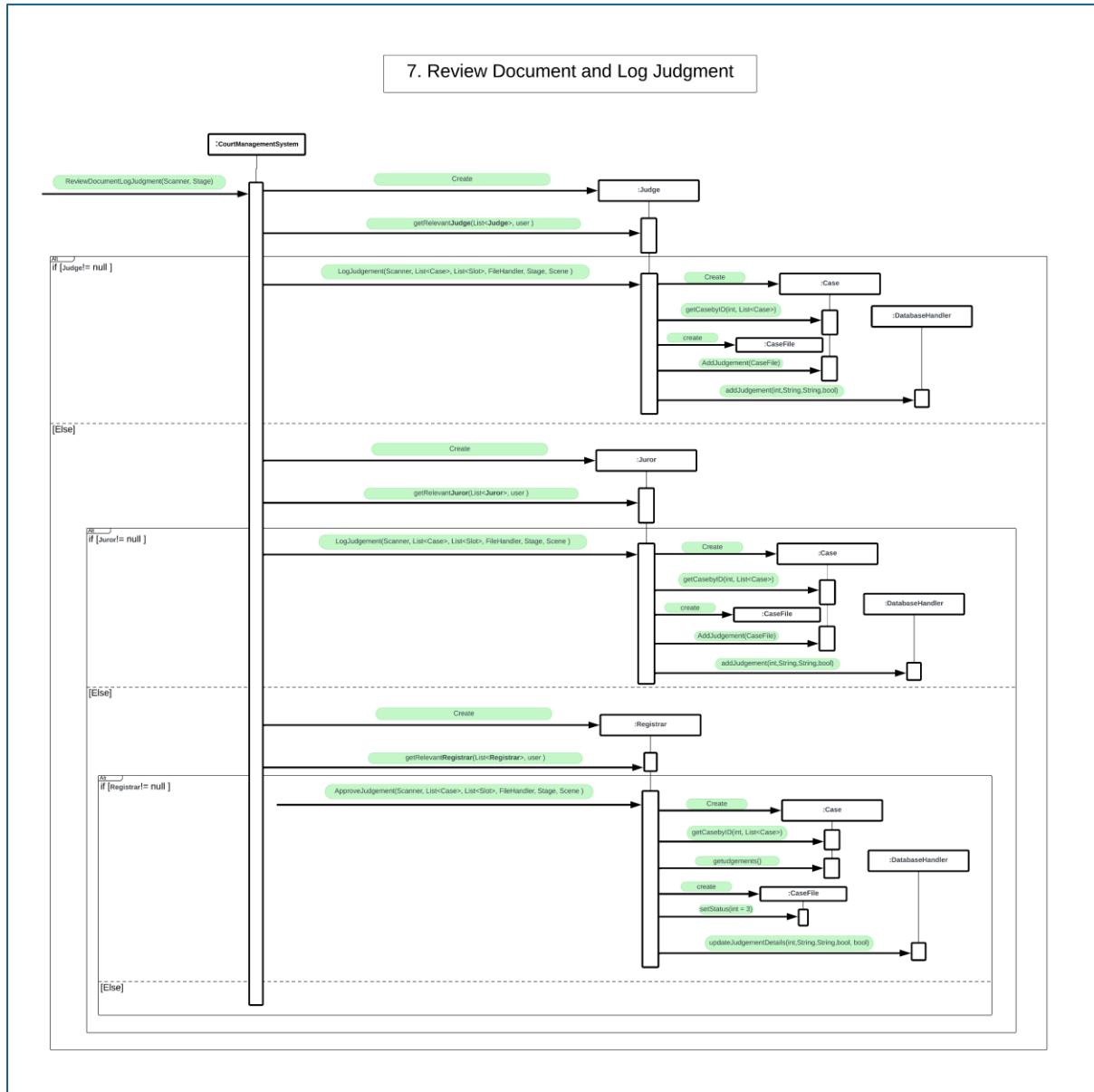


Fig 6.7: Sequence Diagram for Use Case #7

8) Perform IT system maintenance

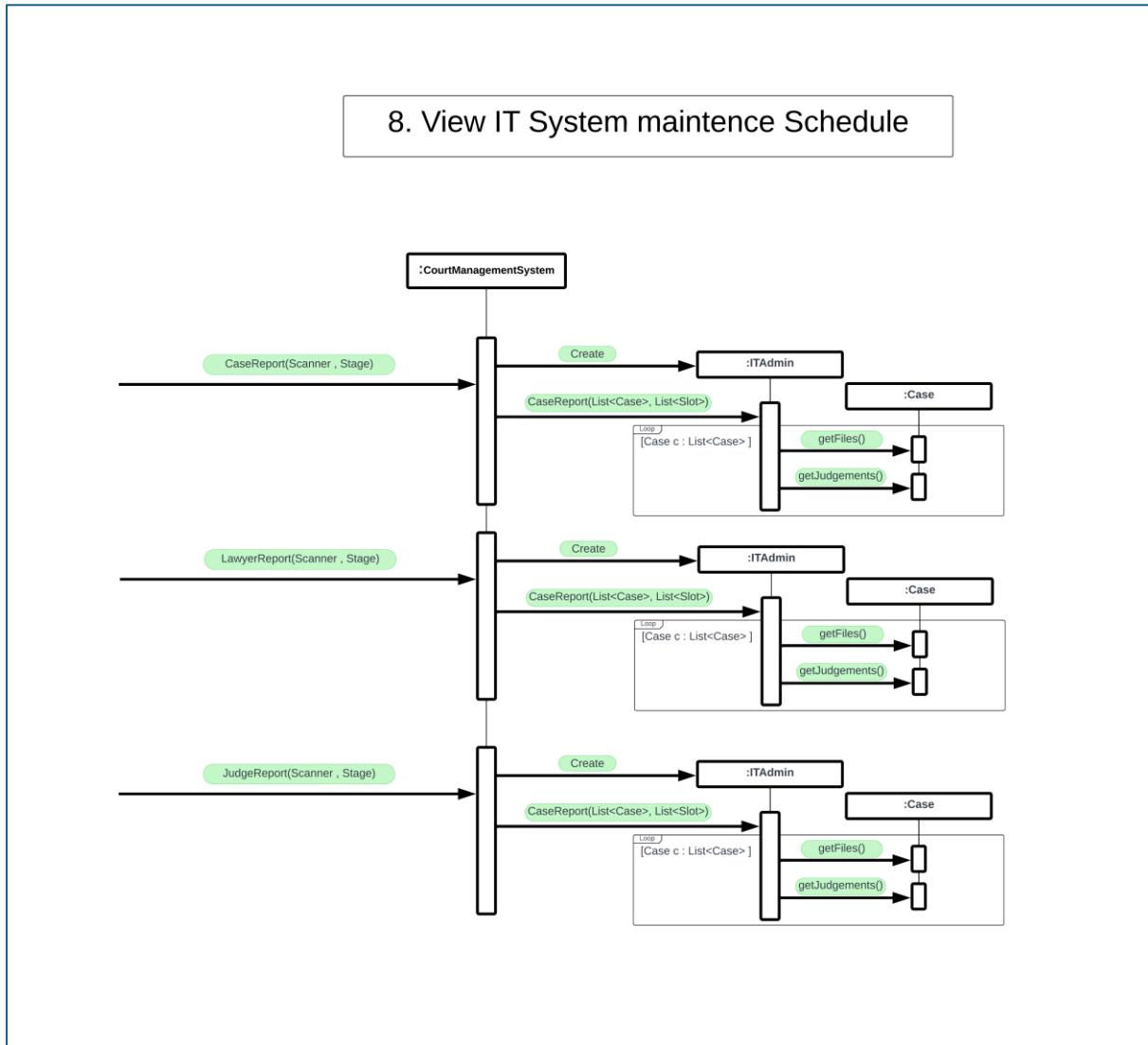


Fig 6.8: Sequence Diagram for Use Case #8

9) Appeal and Reopen Case(s)

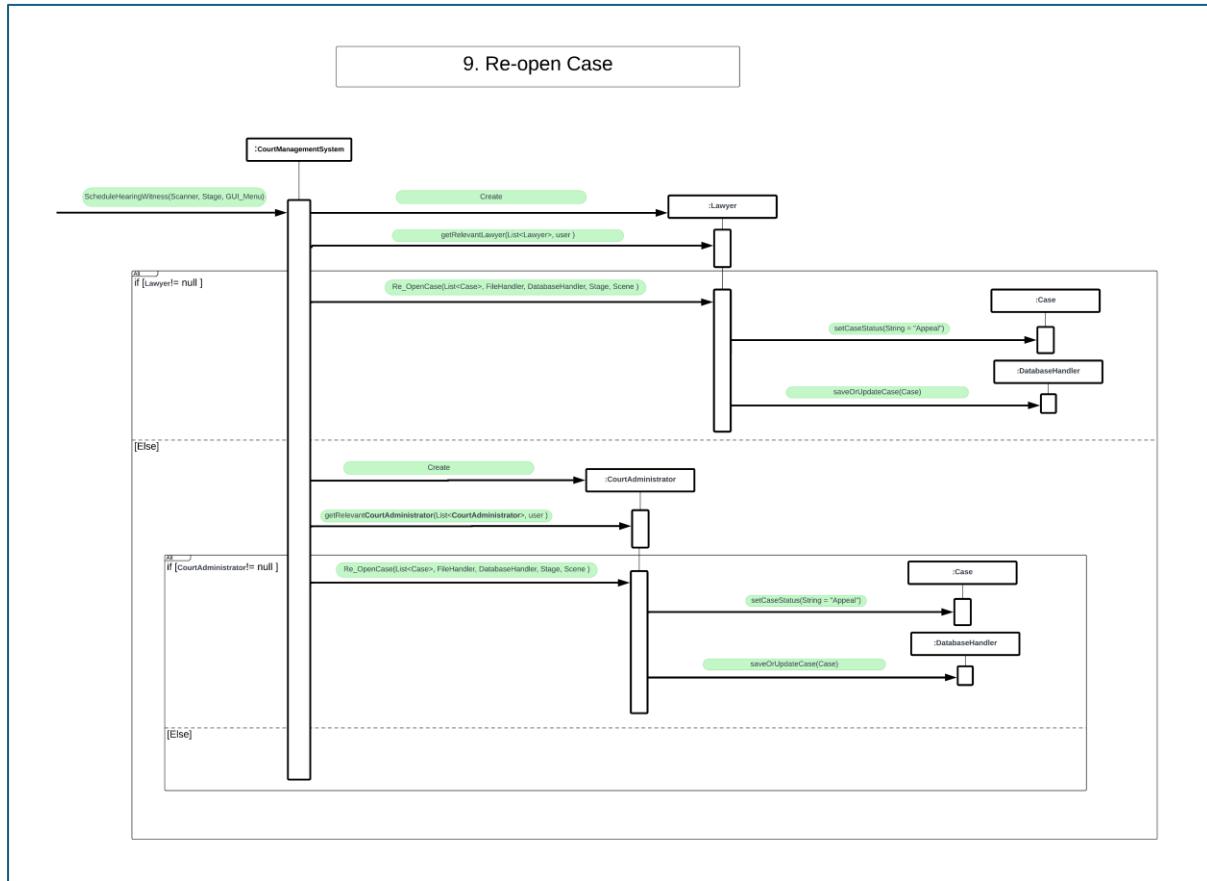


Fig 6.9: Sequence Diagram for Use Case #9

10) Archive and Retrieve Case(s)

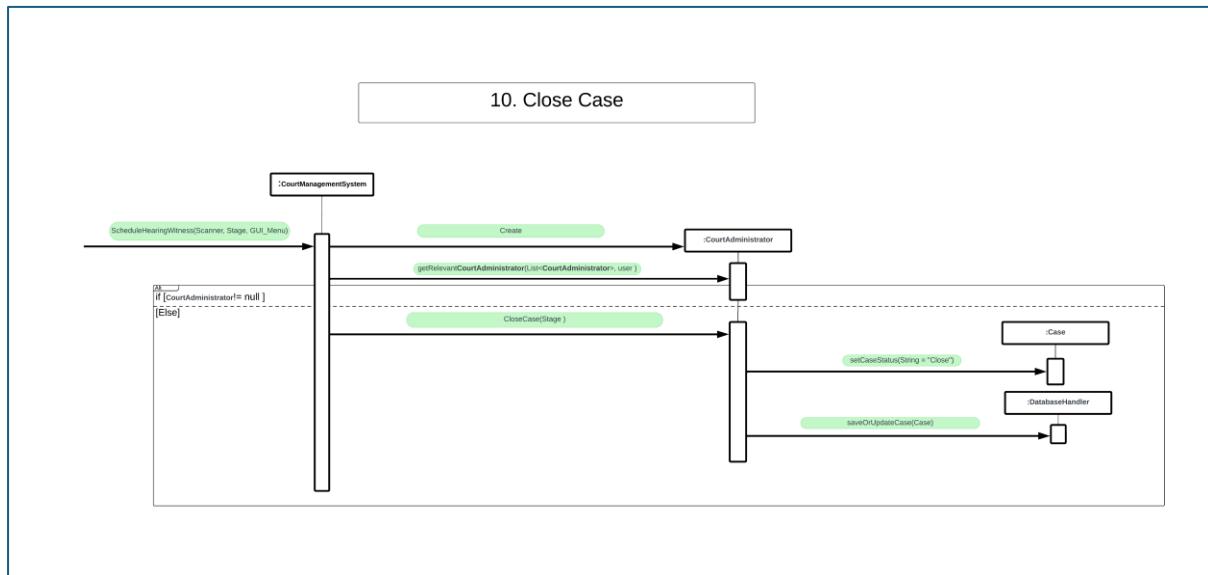


Fig 6.10: Sequence Diagram for Use Case #10

7. Class Diagram

The Class Diagram focuses on visually representing the structure of a system, showing the system's classes, their attributes, operations, and the relationships among objects. It serves as a blueprint for the system, providing a clear, organized view of how different components interact, which is essential for efficient design and implementation.

You can view the Class Diagram in Fig 7.1.

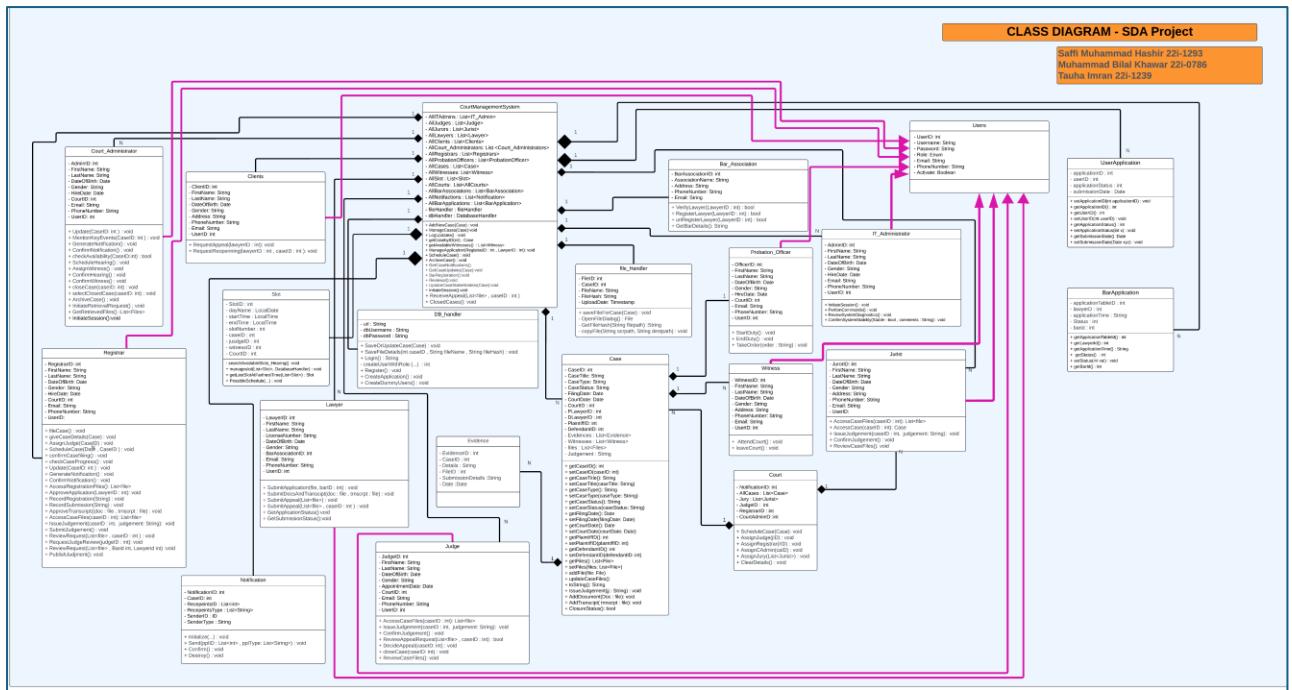


Fig: 7.1 : Class Diagram for Courts Management System.

8. Component Diagram

The following diagram is a component diagram for the court management system. It is divided into three major components (Interface, Courts Management System, and Client), each with two sub-components. Overall, this diagram shows that this system is a combination of an Interface component for interaction, a client component (the user of this product), and the Court Management System (C.M.S) component, which is the major software product used to manage courts and legal activities.

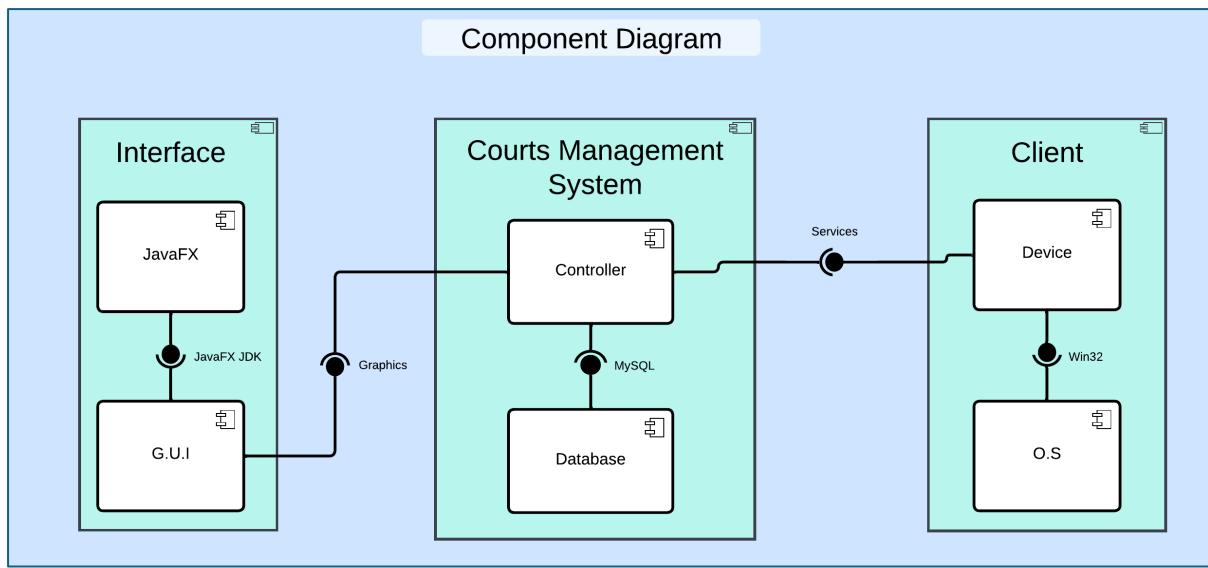


Fig 8.1: Component Diagram for Courts Management System

Going over the diagram, the Interface component uses the JavaFX sub-component to provide a JavaFX JDK (Java Development Kit) for the G.U.I (Graphical User Interface) sub-component. The G.U.I component then provides the Graphics to the Controller sub-component of the C.M.S component. The Controller sub-component uses MySQL from the Database sub-component. The Client component consists of a Device subcomponent that uses the Win32 from the O.S (Operating System) sub-component to allow the client component to act the user of the product. The Final relation is that the Client's Device sub-component uses the services provided by the C.M.S's Controller sub-component, allowing the user to use the Courts Management System.

(G.U.I: Graphical User Interface, O.S: Operating System, JDK: Java Development Kit, C.M.S: Courts Management System)

9. Package Diagram

9.1 Use case Package Diagram

This package diagram focuses on categorizing the use cases into packages as shown below. The Actors and use cases are linked to show which packages they interact with. There is no concept of Primary and Secondary actors here. There are only two packages, 'System' – for all system actions and 'Case' – for all actions related to a case.

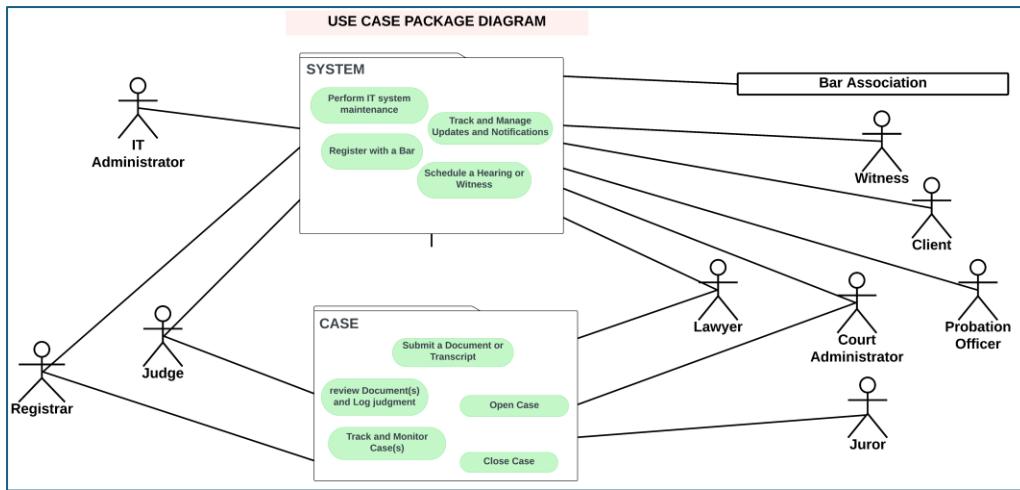


Fig 9.1: Use Case Package Diagram for Courts Management System

9.2 UML Package Diagram

This package diagram focuses on categorizing the classes from the class diagram into packages as shown below. Related Classes have been grouped into bigger packages used by the major package named “SYSTEM”. Here the SYSTEM package contains the class relevant to business logic and three helper classes (Slot, Court, and UserApplication). The dotted lines with arrows showcase the dependency of the SYSTEM package on other packages. The labeling on these lines shows us two things.
 <<import>>: publicly accessing the classes/Packages
 <<access>>: having to request access to from the package/class

In the Diagram only the DATABASE Package, handling classes related to database management, has a <<access>> nature of dependency with the SYSTEM package. All the other packages have a <<import>> dependency style with the SYSTEM package.

Furthermore, all classes for the actors are in the USER package. The Notification Package is independent. All packages related to a case are in the CASE package, and the BAR package has all packages associated with Bar Associations.

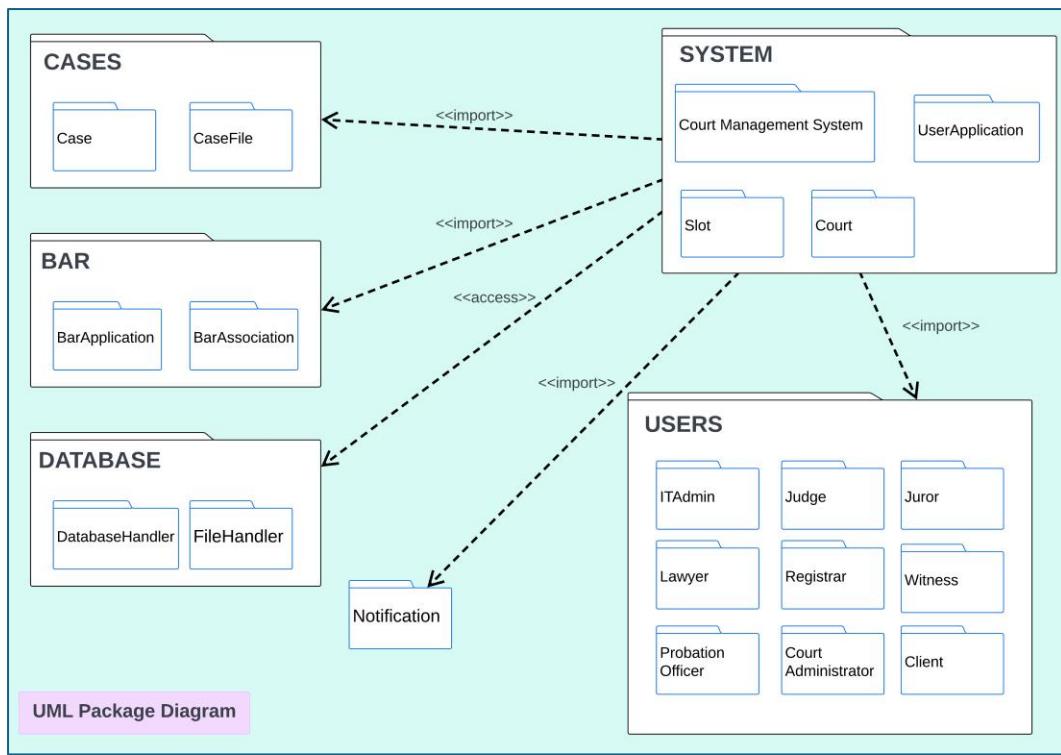


Fig 9.2: UML Package Diagram for Courts Management System

10. Deployment Diagram

The following Deployment Diagram for the Courts management system consists of three Nodes and multiple Artifacts. The Nodes are the Boxes that represent Hardware/devices, and the Artifacts represent the software files and data present on the Nodes

The Details are as follows :

21) Client – Node (The User's Device)

- Artifacts present:
 - JavaFX Application (*the .exe app that runs on the client's system*)
 - JDK (Java Development Kit) (*software requirements for the Java application*)
 - Windows Operating System

22) Application Server – Node (the Web server containing code)

- Artifacts present:
 - Courts Management System (*Business Logic handling code files*)
 - JDBC Driver (Java Database Connectivity) (*software requirements for Java Database operations*)
 - JDK (Java Development Kit) (*Software requirements for the Java application*)

- Windows Operating System

23) Database Server – Node (Server containing the Database)

- Artifacts present:

- MySQL (*The relational Database management system*)
- Database (*The digitally stored data*)
- Windows Operating System

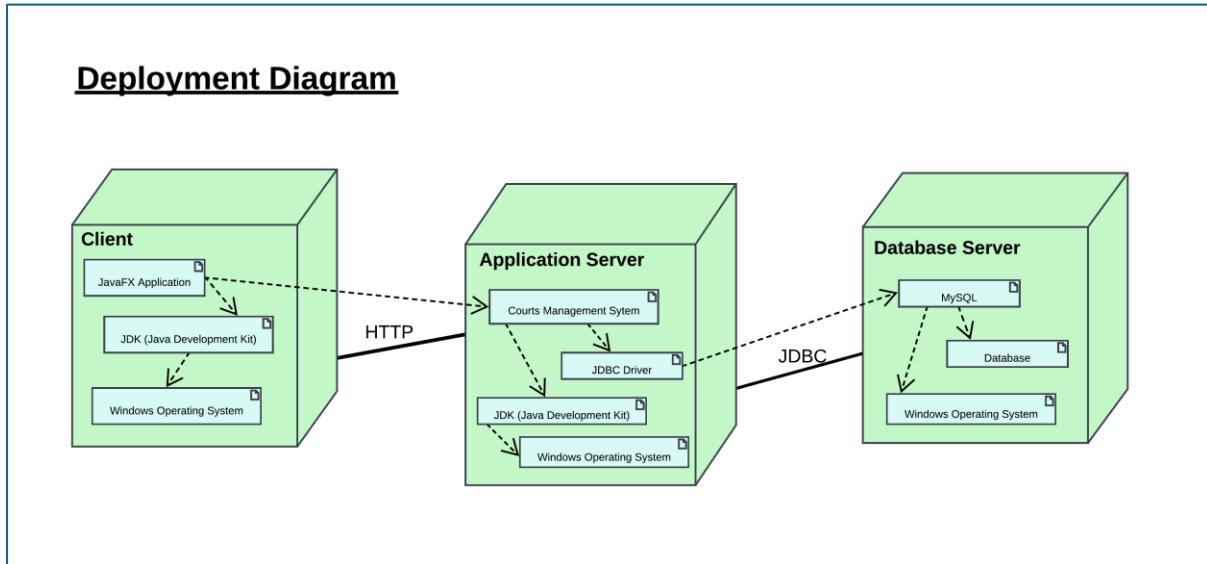


Fig 10.1: Deployment Diagram for Courts Management System

The dotted Lined Arrows show the required dependencies between artifacts.

The Connections with Nodes are as follows

- 1) HTTP (between Client & Application Server)

The standard *Hyper Text Transfer Protocol* that is used in Computer Networks to communicate between clients and servers.

- 2) JDBC (between Application & Database Server)

The Java Database Connectivity API that is used to Link and communicate with the Database of a Java program/application.