सत्यमेव जयते

NYAYA-SARTHI

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Building Smarter, Faster Courts.

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Building Smarter, Faster Courts –
Where Truth Gets Justice.

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Problem Statement

Development of software for streamlining the listing of cases through Differentiated Case Flow Management

Aim

To develop an **AI-integrated middleware** solution focused on **prioritizing** and **optimizing** case scheduling through a Differentiated Case Flow Management System. This solution should seamlessly integrate into the existing e-court web portal of the Indian Judiciary.

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Objectives

1) Implementation of DCFM system

To use technology to handle administrative difficulties, freeing up time for judges and assisting in prompt case listing, resulting in faster case disposition

2) Efficient Case Prioritization

Effectively prioritize cases, decreasing dependency on chronological sequence and ensuring cases flow quickly through the system.

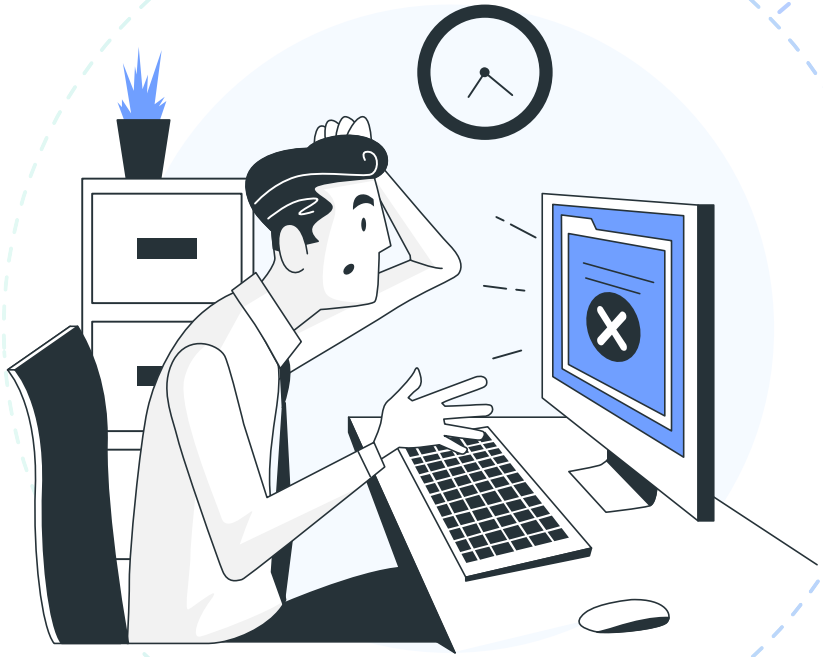
3) Integration with the existing system

Efficiently and seamlessly integrate the innovative software solution with the existing e-court system, ensuring enhanced functionality

4) Case Disposal Time Reduction

Reduce and estimate the time gap between distinct case occurrences, consequently accelerating the total case disposal process.

Proposed Solution



Case E-Filing System

Upon a legal case registration, generation of an e-file, enabling swift documentation and organized record creation for the case

AI Based Case Prioritization

Efficiently manage cases with a centralized dashboard and prioritization of cases done using AI/ML Model

Judicial Override

Granting judges the authority to modify scheduled case orders, ensuring flexibility and fairness in exceptional circumstances.

Our Users

1

Lawyer / Litigant

Role: These two users can file cases online through the portal

2

Court Admin

Role: The court admin can view all the registered cases and has the authority to initialise the **Scheduling** Process

3

Court Judge

Role: Supreme Judge with authority to review and **adjust case priorities**, thus changing the order

DCFM Process

STEP 1

1

Case E-Filing

Lawyer/Litigant files case online through the centralized dashboard

STEP 2

2

Priority Assignment

AI-based model assigns case priority considering complexity, duration, urgency, nature, and party's age.

STEP 3

3

Streamlining of cases

Efficiently streamline cases with the Multi-Level Queue Algorithm, dynamically adjusting priorities for fair scheduling.

STEP 4

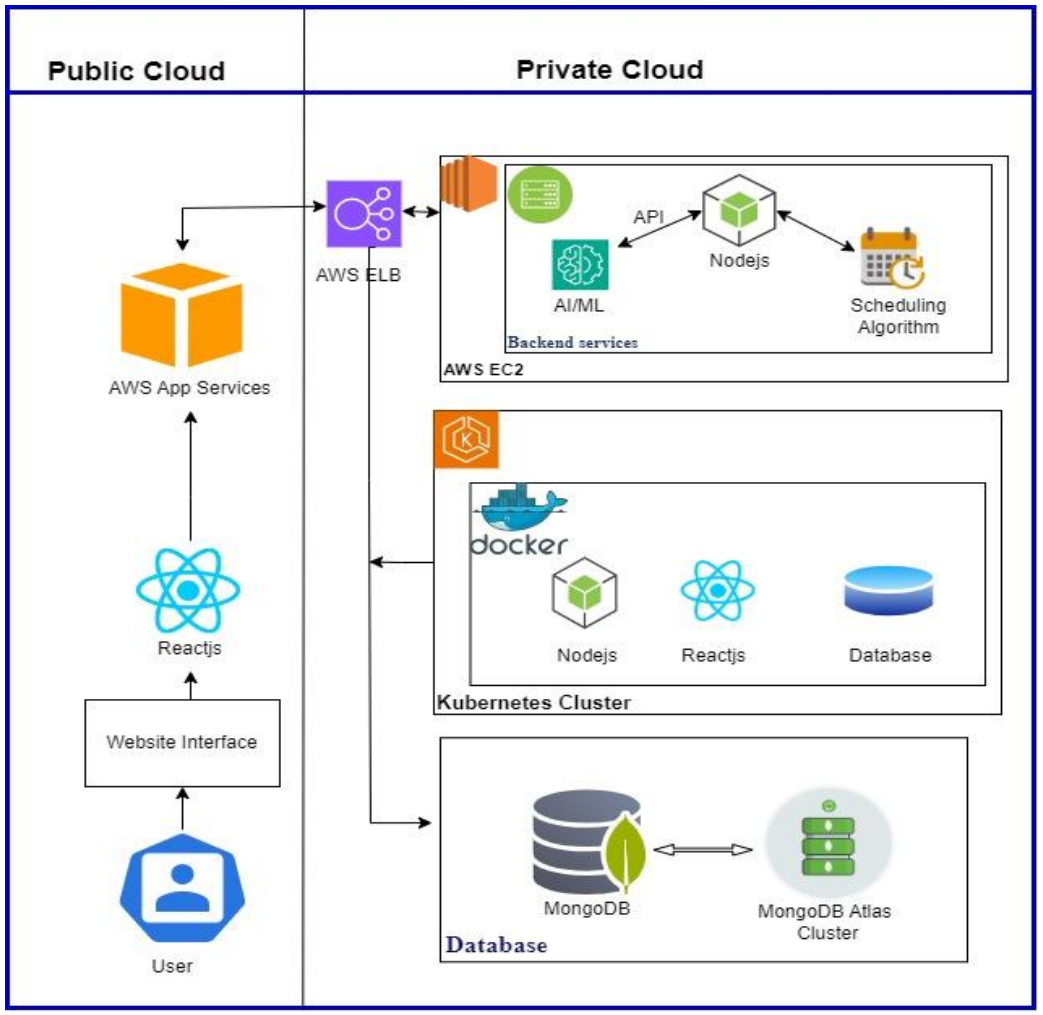
4

Rescheduling of cases

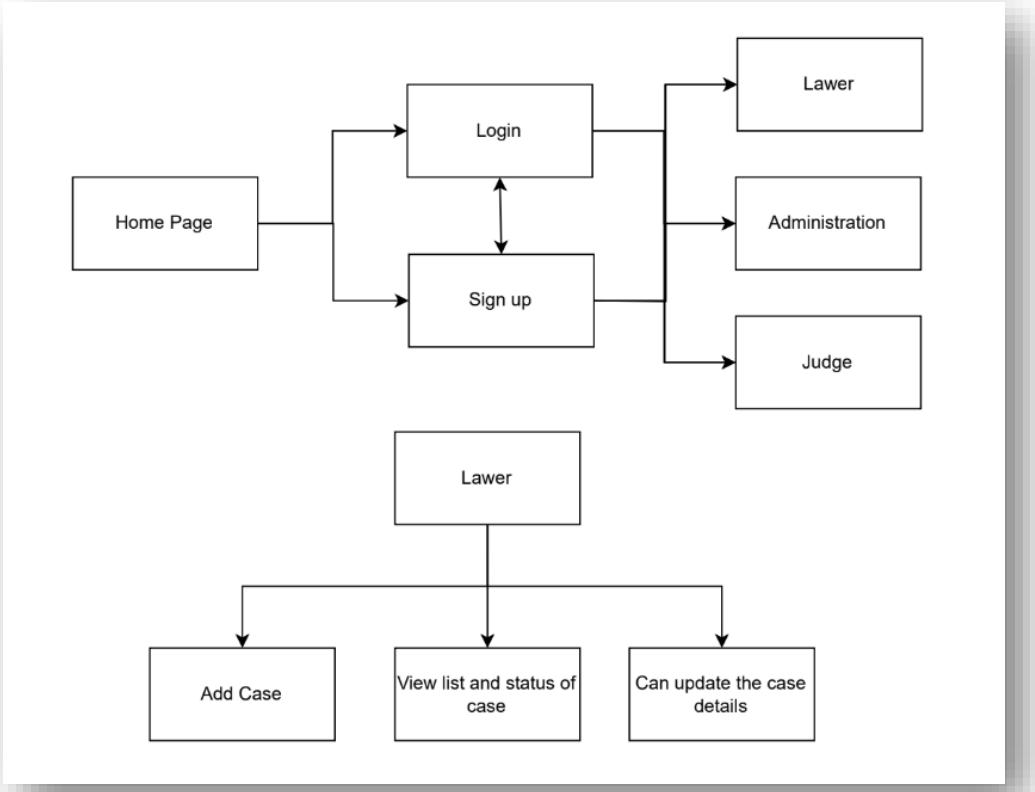
The judge can change the severity of cases, affecting the order in which streamlined proceedings are handled.

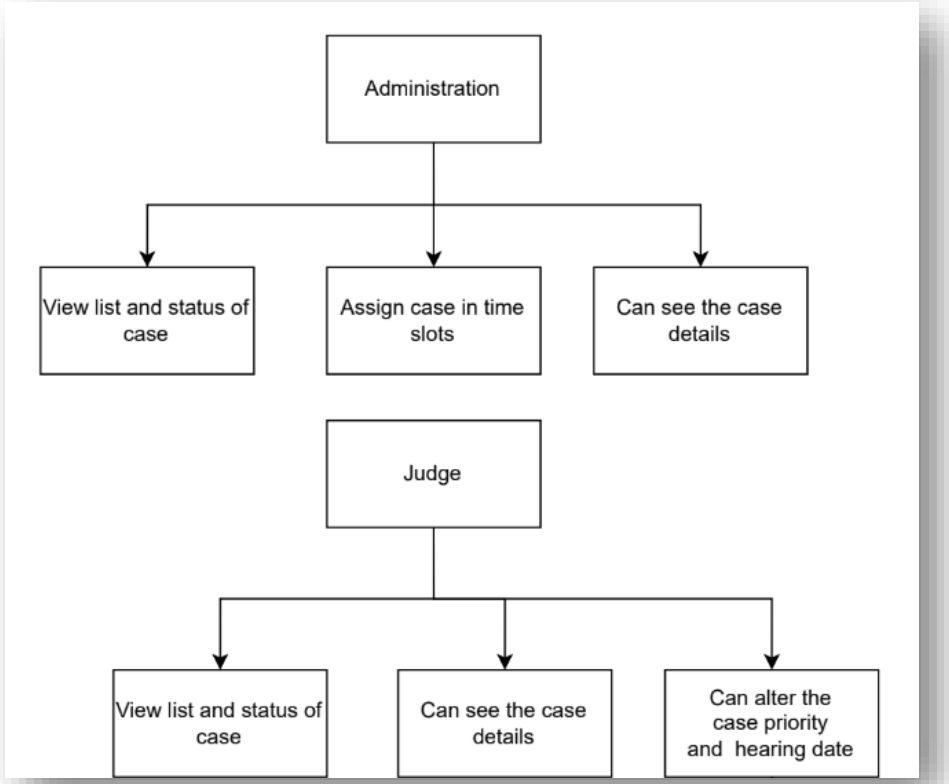
Use Case Diagram

System Architecture



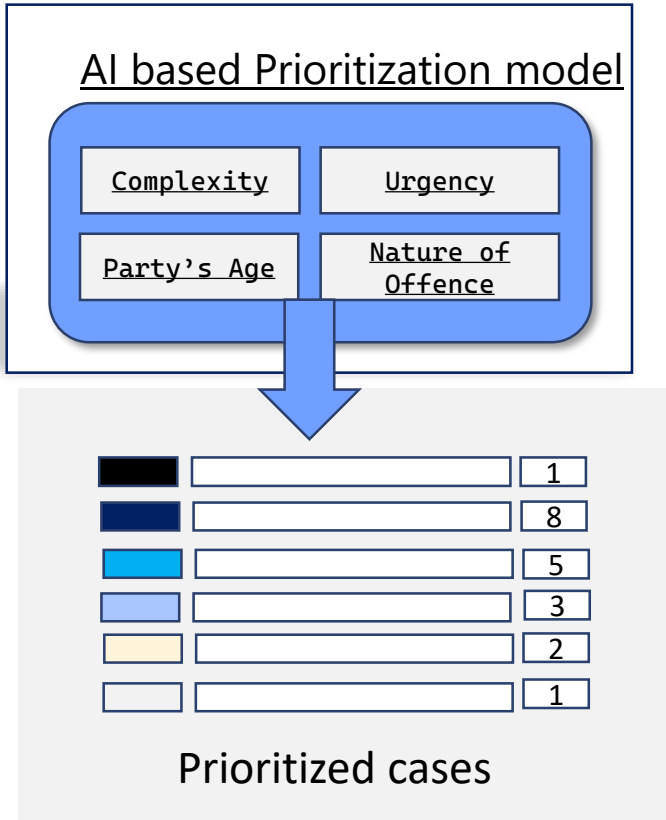
Website Flow Diagram





AI/ML Model

The prioritization of registered cases involves utilizing an **ML model developed with the LLM Model.** This model is **trained** using comprehensive **datasets that encompass all Indian Penal codes and laws**, followed by **fine-tuning process.**



MLQ Algorithm

The registered cases are sorted in three separate queues: **urgent, moderate and low**. A certain number of cases from each queue is taken and one set of cases is formed, this pattern keeps on repeating until all cases are scheduled. This ensures that the cases with low priority are not ignored and all cases are scheduled fairly.

Urgent Priority

This category has the maximum no. of cases in a set

Moderate Priority

This category has moderate no. of cases in a set

Low Priority

This category has the minimum no. of cases in a set

Deployment

Docker

We leverage Docker technology for the purpose of containerization and the creation of images. Docker plays a pivotal role in our project by providing a platform that facilitates the seamless packaging, deployment, and scaling of applications in isolated containers.

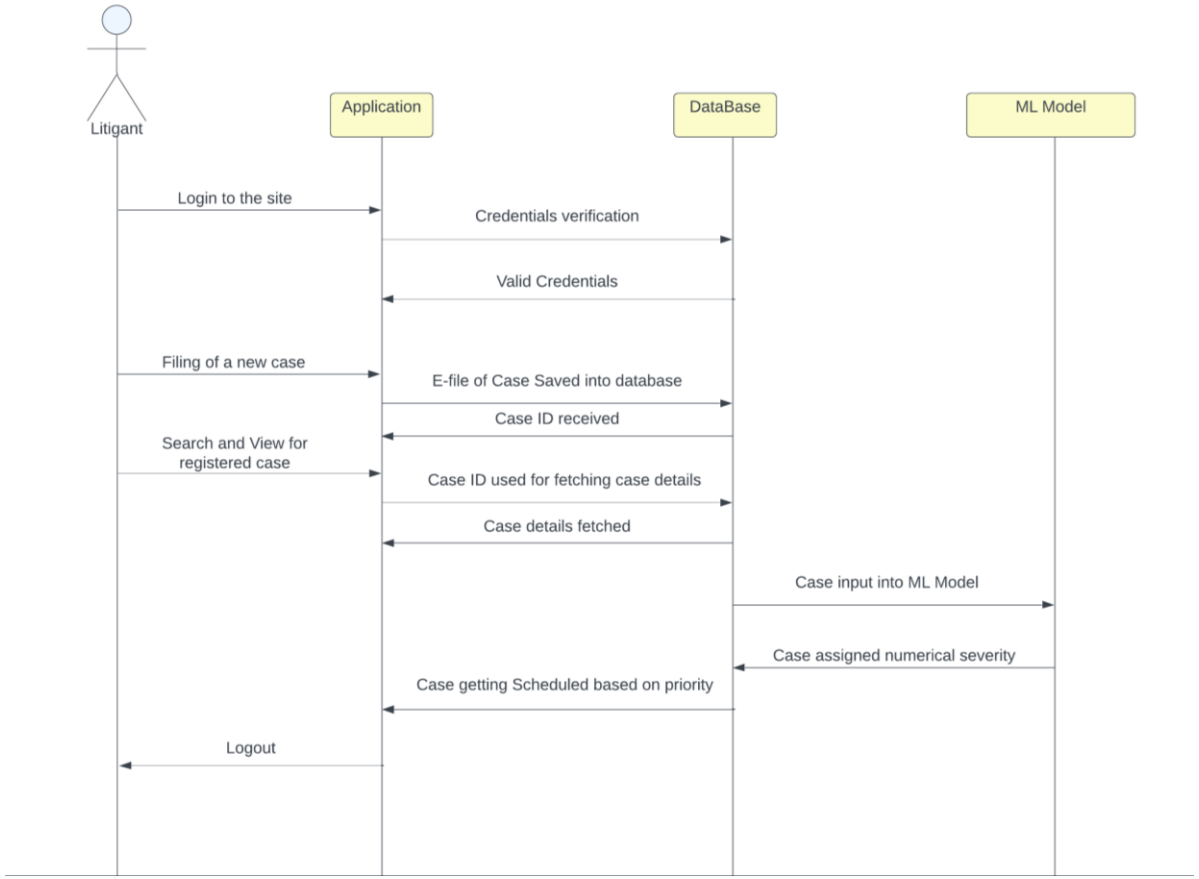
Kubernetes (K8s)

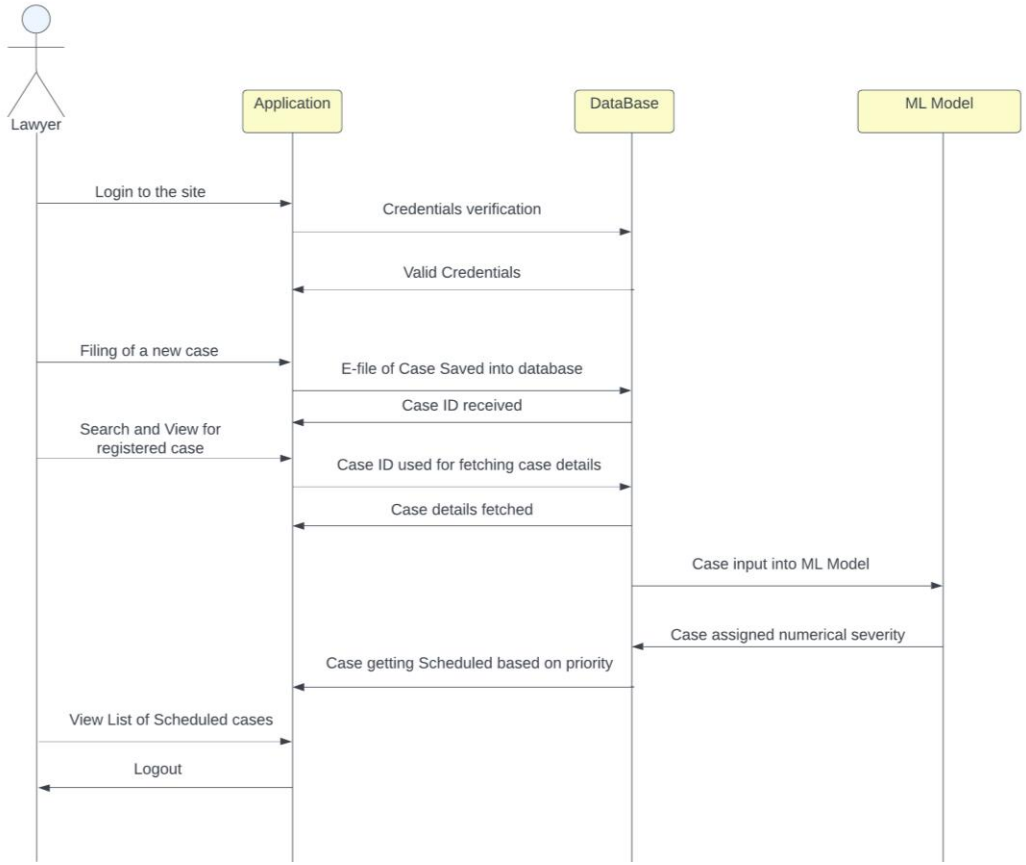
Kubernetes for seamless container orchestration and automated scaling. We can efficiently manage deployments, optimize resource utilization, and foster a modular, easily maintainable architecture, enhancing the overall reliability and efficiency of our system.

AWS

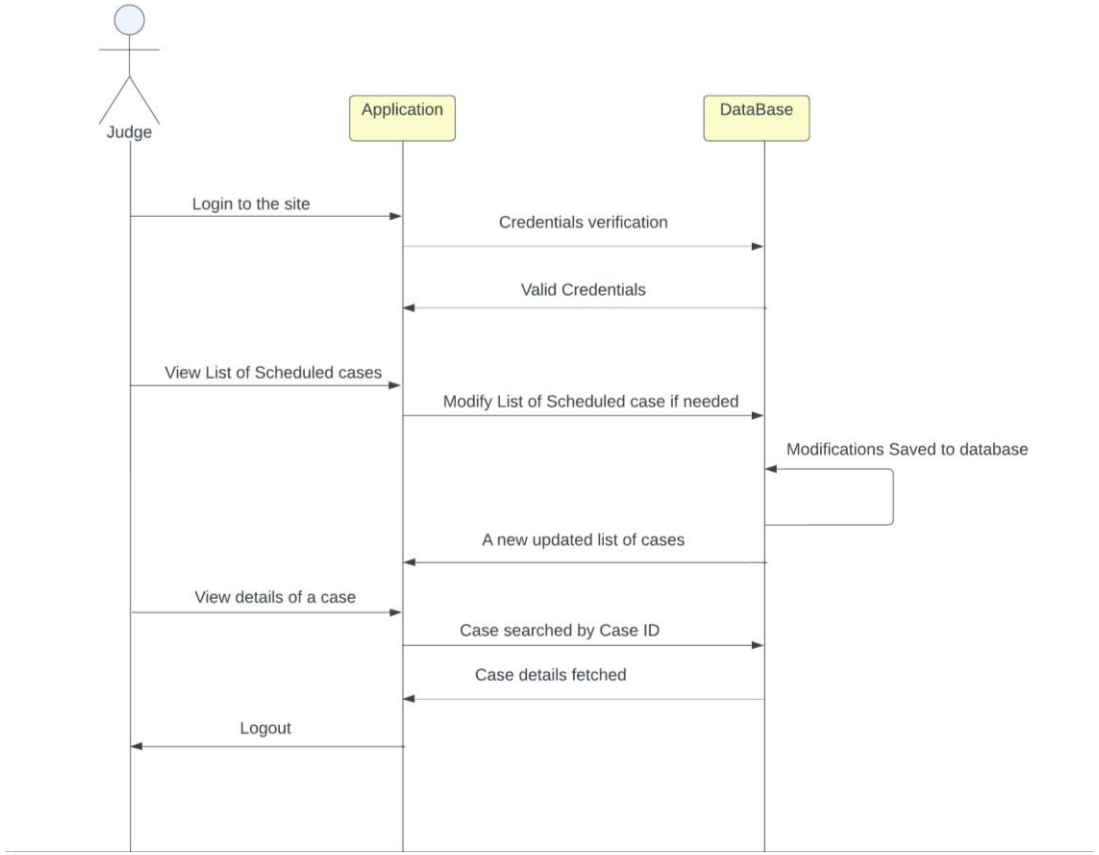
Initially, for testing purposes, our project is hosted on AWS. As we progress, we've containerized it, and AWS serves as a reliable backup deployment option, ensuring flexibility and redundancy in our deployment strategy.

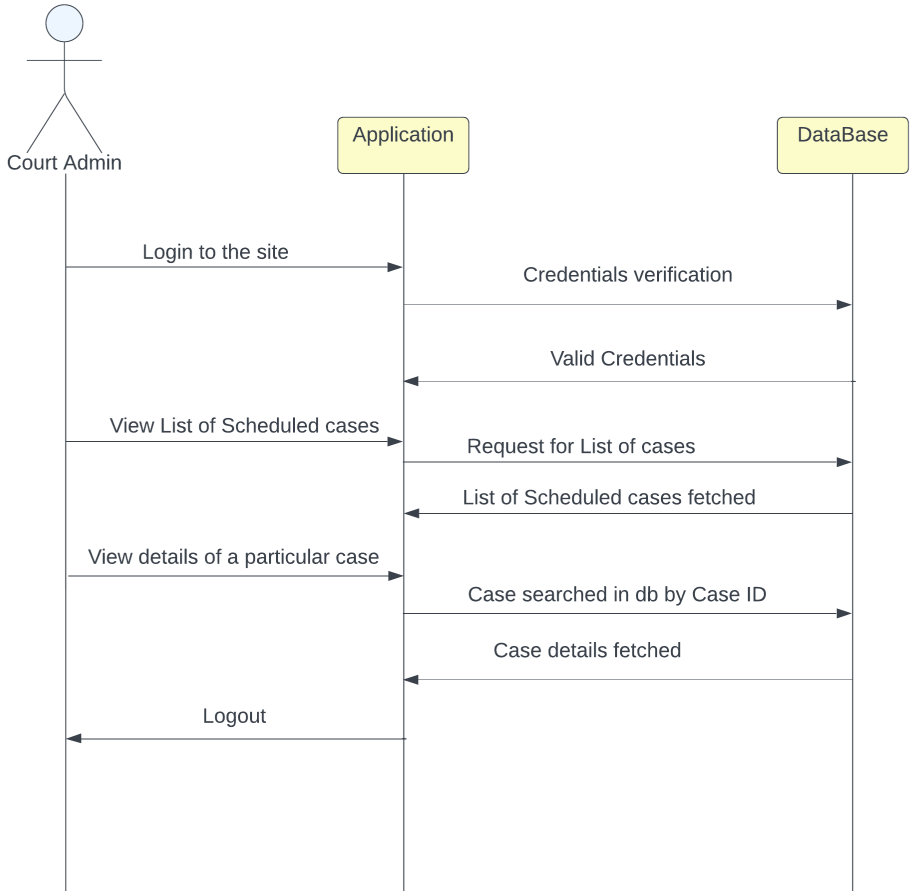
Sequence Diagram





Sequence Diagram





FuturePlan

01 Dedicated AI Law Assistant

Introducing our Dedicated AI Law Assistant – a specialized **chatbot tailored for legal needs,** offering precise legal insights and research assistance to streamline workflows and support legal professionals.

02 Multi-lingual Support

Our product boasts multi-lingual support, ensuring **accessibility for users in diverse languages**. This feature enhances user experience and extends the reach of our product to a global audience.

03 Deployment and Scaling

Container orchestration using **Kubernetes** and deployment on **AWS EKS**

03 Upgrade MLQ Algorithm to MLFQ

To upgrade our MLQ Scheduling Algorithm to **MLFQ (Multi-Level Feedback Queue)** for better scheduling and including the **Aging Process.**

Business Model

" Flexible Subscription plan based on law firms requirement and **No fee for Government**. "

Pay per cases

PaaS For Courts

SaaS for law firms.

Conclusion

Summarizing it all, Differentiated Case Flow Management (**DCM**) will **reduce waiting times** between case events, making the process more **predictable and efficient for quicker case disposal**. Additionally, the use of the **MLF** algorithm ensures fairness in managing case priorities, optimizing both short and long processes for better system efficiency.

Together, these advancements **promise a transformative improvement** in the Indian legal system, enhancing fairness, efficiency, and timely resolution of cases.