JISS

Problem statement and Project Details

Judiciary Information System Software

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Outline

The Problem Statement

Problems and Challenges

Project Design

Screenshots

Assumption

Reviewing Challenging Use Cases

Demo

Next Steps

The Problem Statement

- It is proposed to build a software, Judiciary Information System Software (‘JISS’) to manage court cases and make past cases data easily accessible.

Salient Details of the problem in brief

- Stores all ongoing and previous court cases in a database.
- Users can login as Registrar, Judge or Lawyers,where details for each user is conveniently stored in a databases.
- The Registrar being the admin can add/delete accounts
- Schedule hearings based on free slots ,computed and shown by the software.
- The other users will have facilities for accessing past information conveniently.

Description of the SRS

- Introduction and purpose
- Overall Description
- Interface Requirements
- System Features
- Other Non functional Requirements

The Major Challenges

- The challenges to build JISS are summarized after analysing the problem statement proposal and development.

Programming Language Used

For Backend: Python(Flask)

- Flask-login manager
- Flask-sqlalchemy

For Frontend :ReactJS

- Capability to easily write dynamic web pages
- Libraries like AG-Grid,react-bootstrap

Challenges

- As we had developed the frontend and backend separately we needed to pass data between the frontend and the backend.
- So we came up with the idea of JSON objects. All the data passed back and forth between frontend and backend were in the form of JSON strings.This helped us to ensure consistency.

Challenges

Main Challenges

- Integration between frontend and backend was a challenge
- Getting accustomed to new Library and frameworks by looking up documentation and stackoverflow,felt a bit out of the comfort zone

Challenges

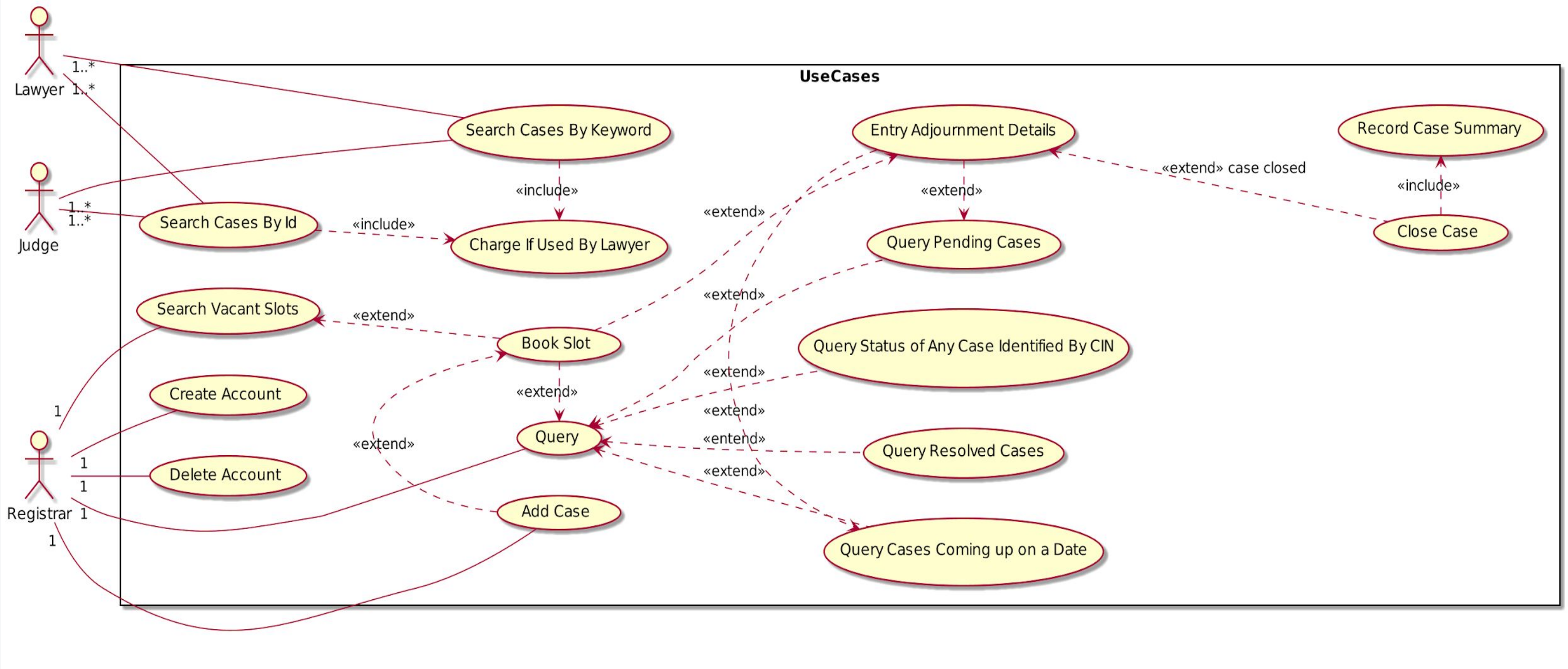
- Debugging in React seemed a bit difficult as setState functions are not performed synchronously.This was later fixed by Doing a call back to the setState function.
- Also redirection to other pages on submission was a bit difficult as different methods based on react version was available on the net.This was finally done by using withRouter() and history.push() functions

The Project Design

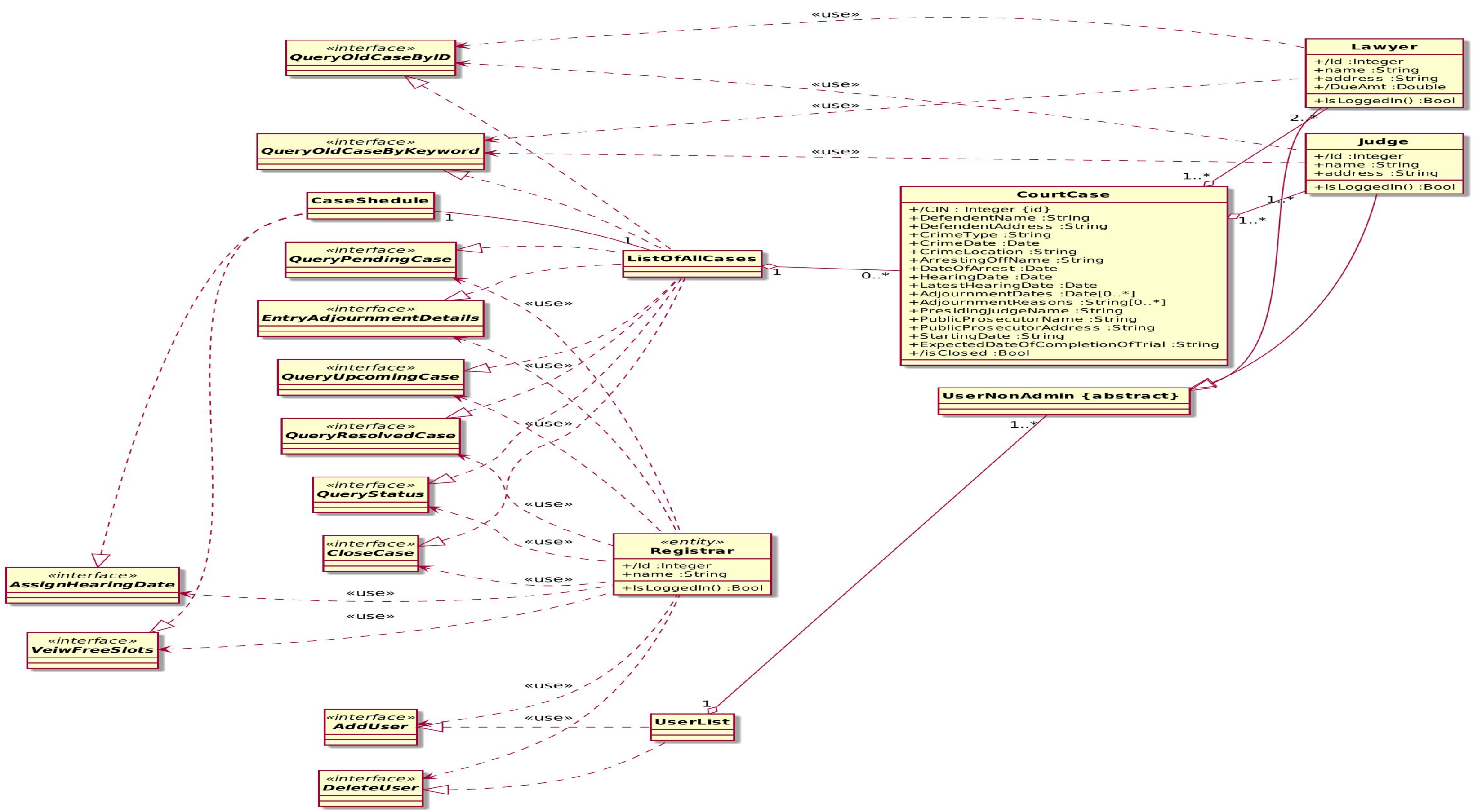
- This Class Diagram and Use Diagram are created at design phase.

  These roughly represents design principles that are adhered to during implementation of JISS.

Use case Diagram



Class Diagram



«interface»
QueryOldCaseByID

«interface»
QueryOldCaseByKeyword

CaseShedule

«interface»
QueryPendingCase

«interface»
EntryAdjournmentDetails

«interface»
QueryUpcomingCase

«interface»
QueryResolvedCase

«interface»
QueryStatus

«interface»
CloseCase

«interface»
AssignHearingDate

«interface»
VeiwFreeSlots

«interface»
AddUser

«interface»
DeleteUser

ListOfAllCases

«entity»
Registrar
+/Id :Integer
+name :String
+IsLoggedIn() :Bool

UserList

Lawyer
+/Id :Integer
+name :String
+address :String
+/DueAmt :Double
+IsLoggedIn() :Bool

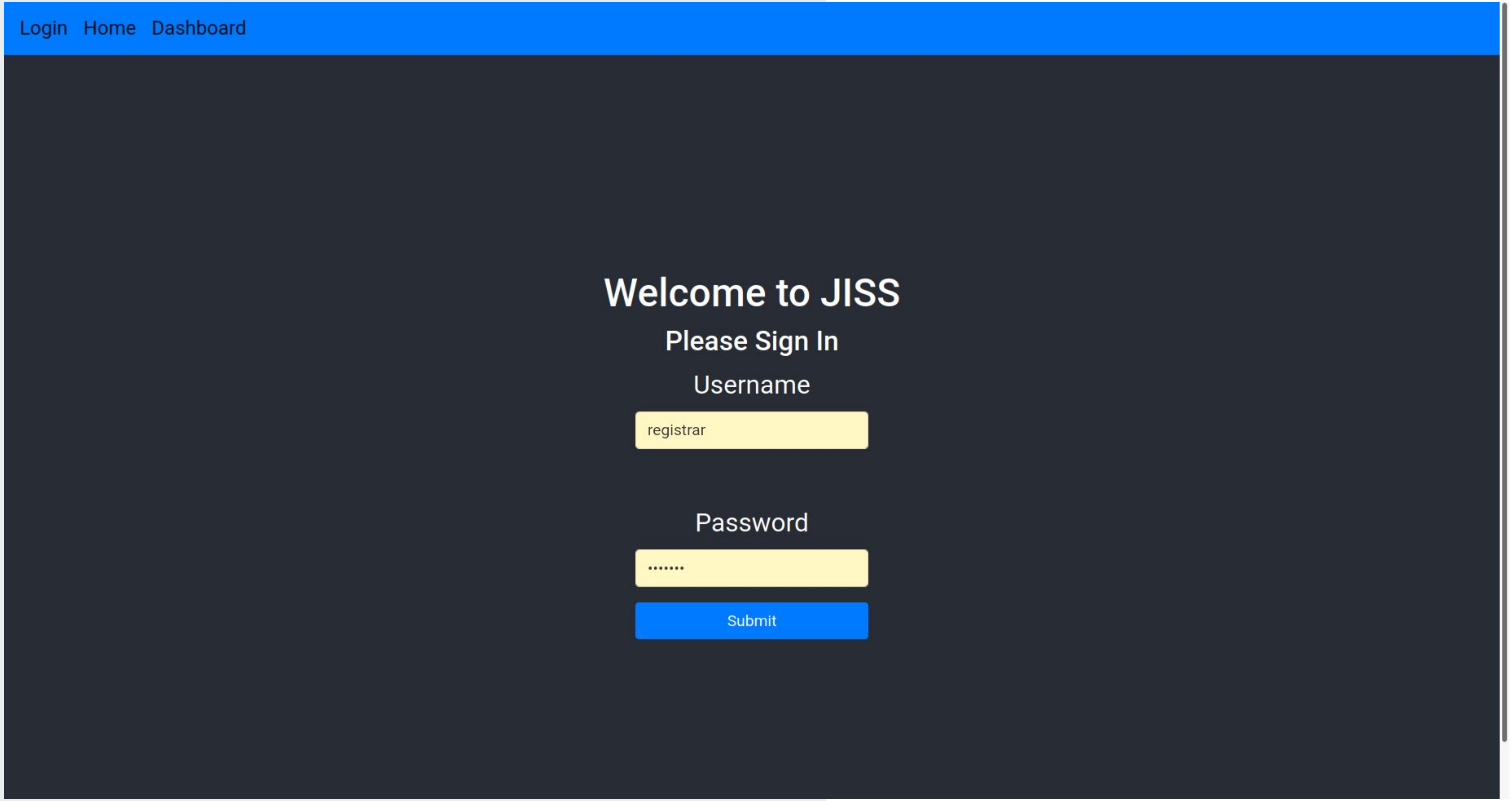
Judge
+/Id :Integer
+name :String
+address :String
+IsLoggedIn() :Bool

CourtCase
+/CIN : Integer {id}
+DefendentName :String
+DefendentAddress :String
+CrimeType :String
+CrimeDate :Date
+CrimeLocation :String
+ArrestingOffName :String
+DateOfArrest :Date
+HearingDate :Date
+LatestHearingDate :Date
+AdjournmentDates :Date[0..*]
+AdjournmentReasons :String[0..*]
+PresidingJudgeName :String
+PublicProsecutorName :String
+PublicProsecutorAddress :String
+StartingDate :String
+ExpectedDateOfCompletionOfTrial :String
+/isClosed :Bool

UserNonAdmin {abstract}

ScreenShots

Login Page



Welcome to JISS

Please Sign In

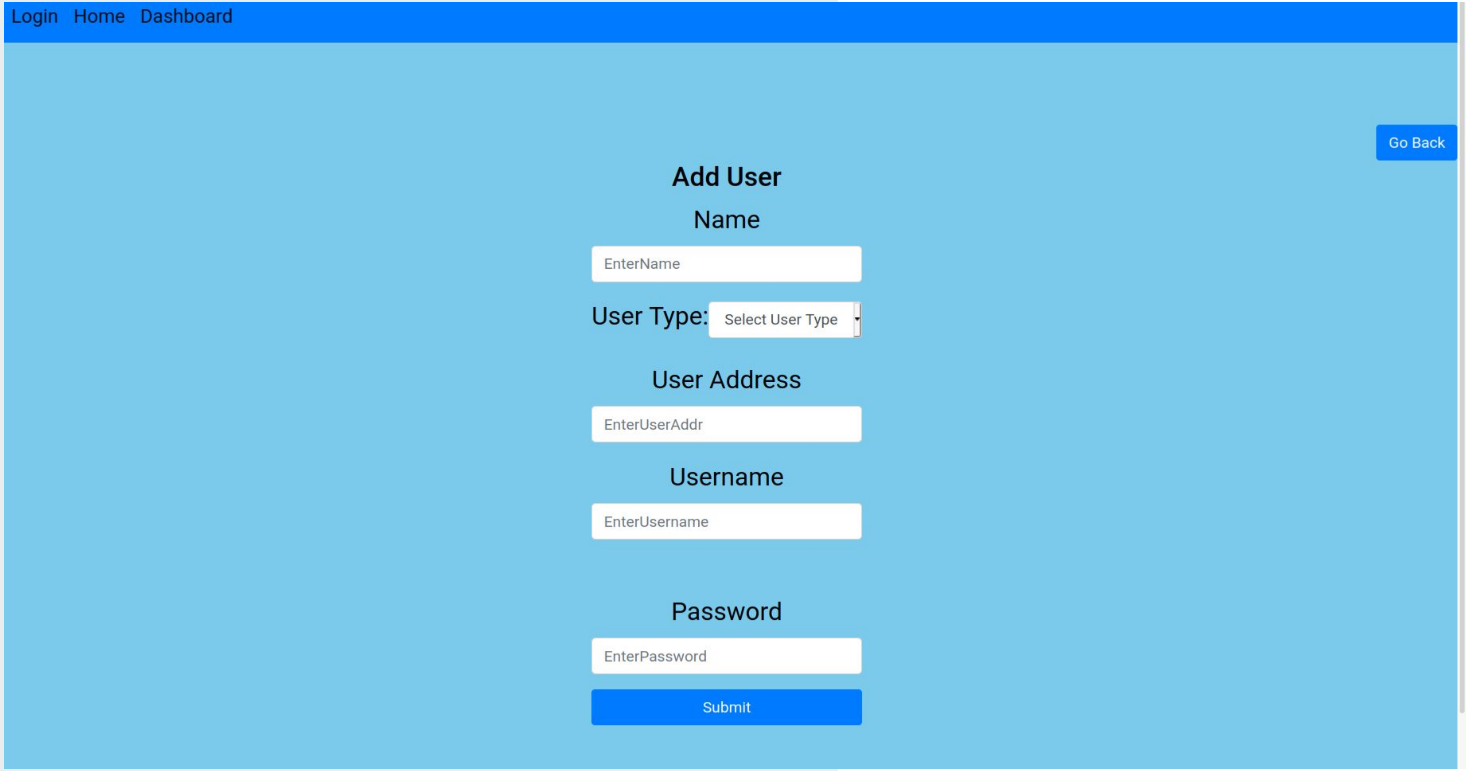
Username

registrar

Password

•••••••

Add User



Add User

Name

EnterName

User Type: Select User Type

User Address

EnterUserAddr

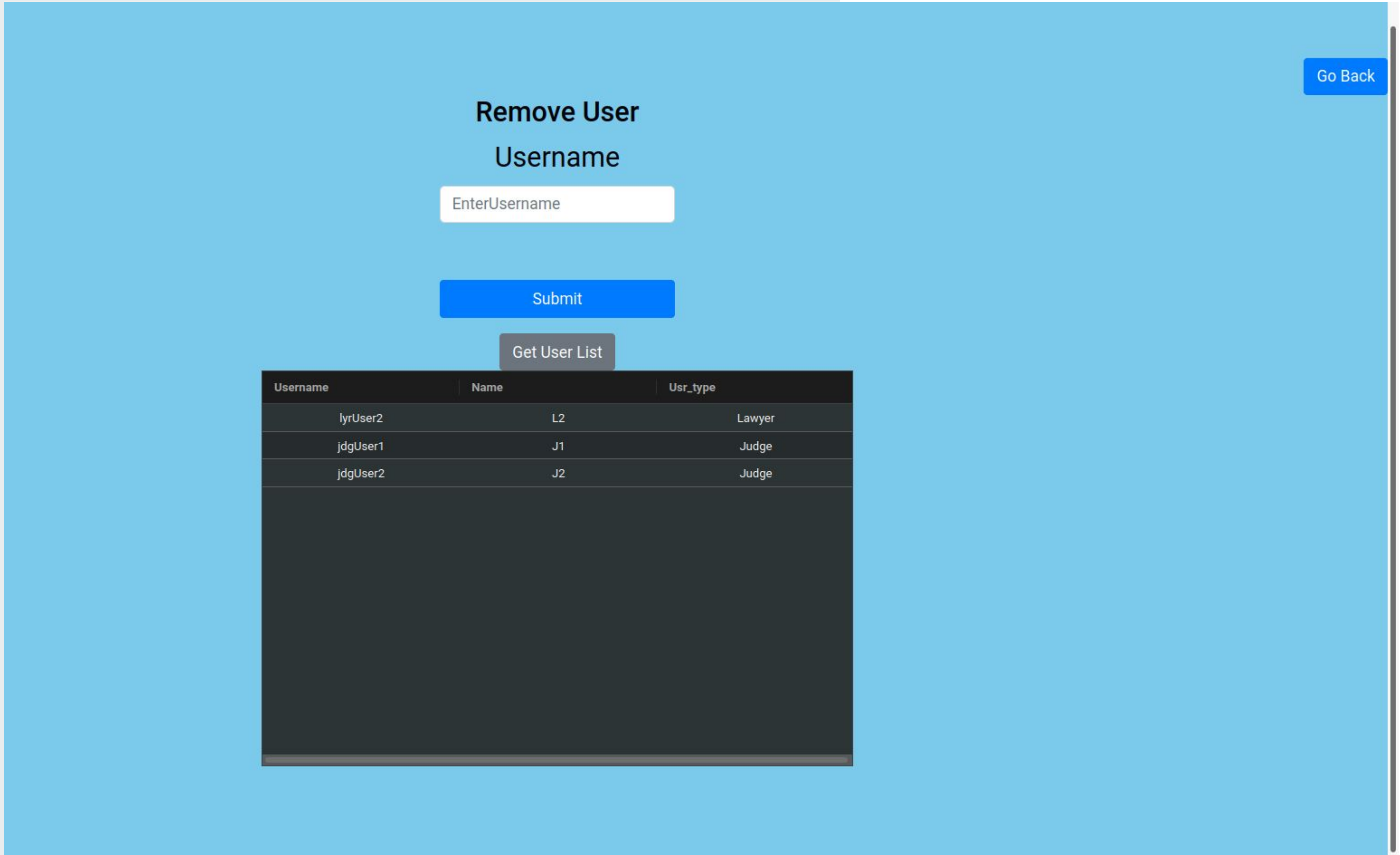
Username

EnterUsername

Password

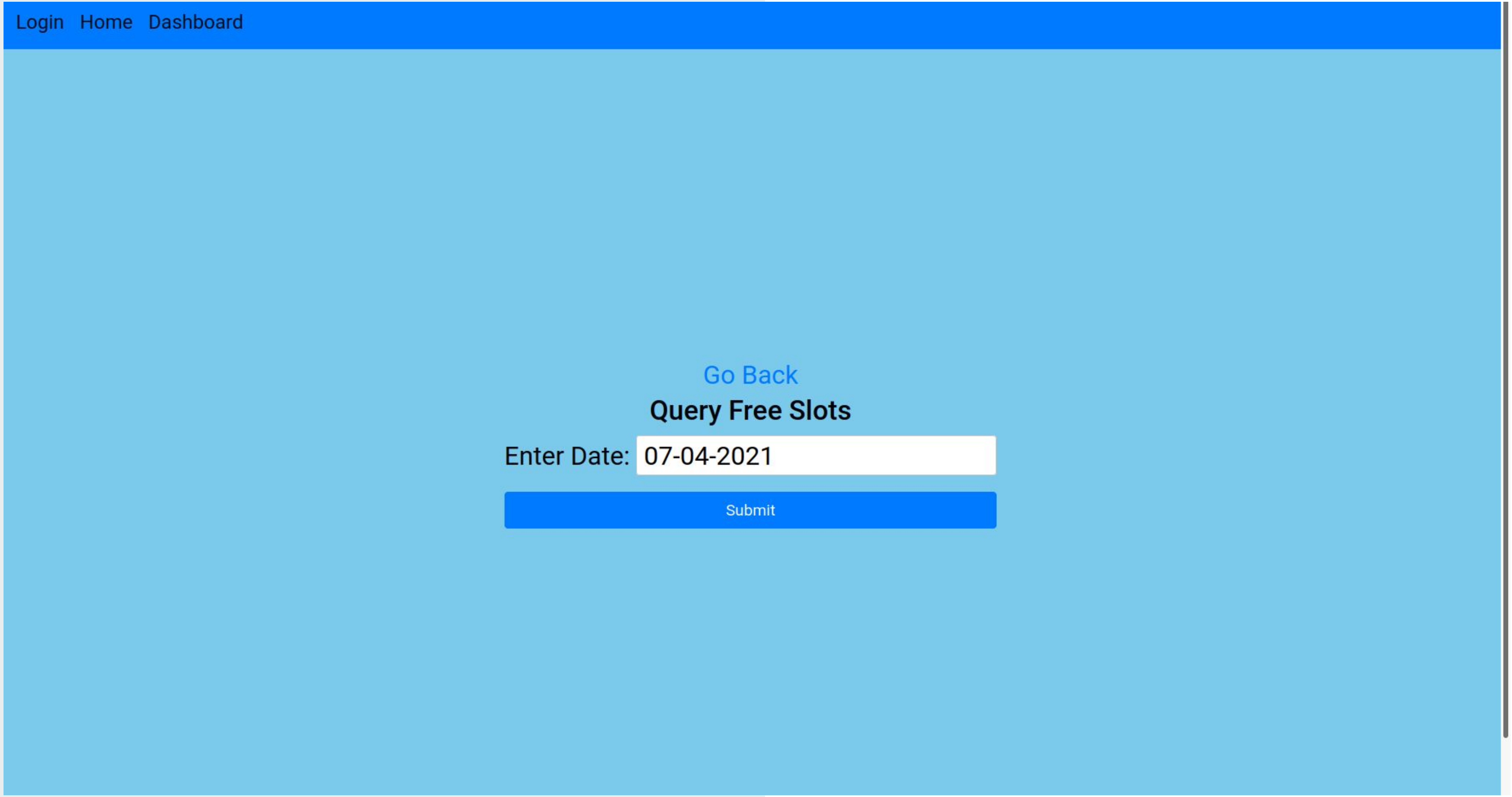
EnterPassword

Remove user



Username	Name	Usr_type
lyrUser2	L2	Lawyer
jdgUser1	J1	Judge
jdgUser2	J2	Judge

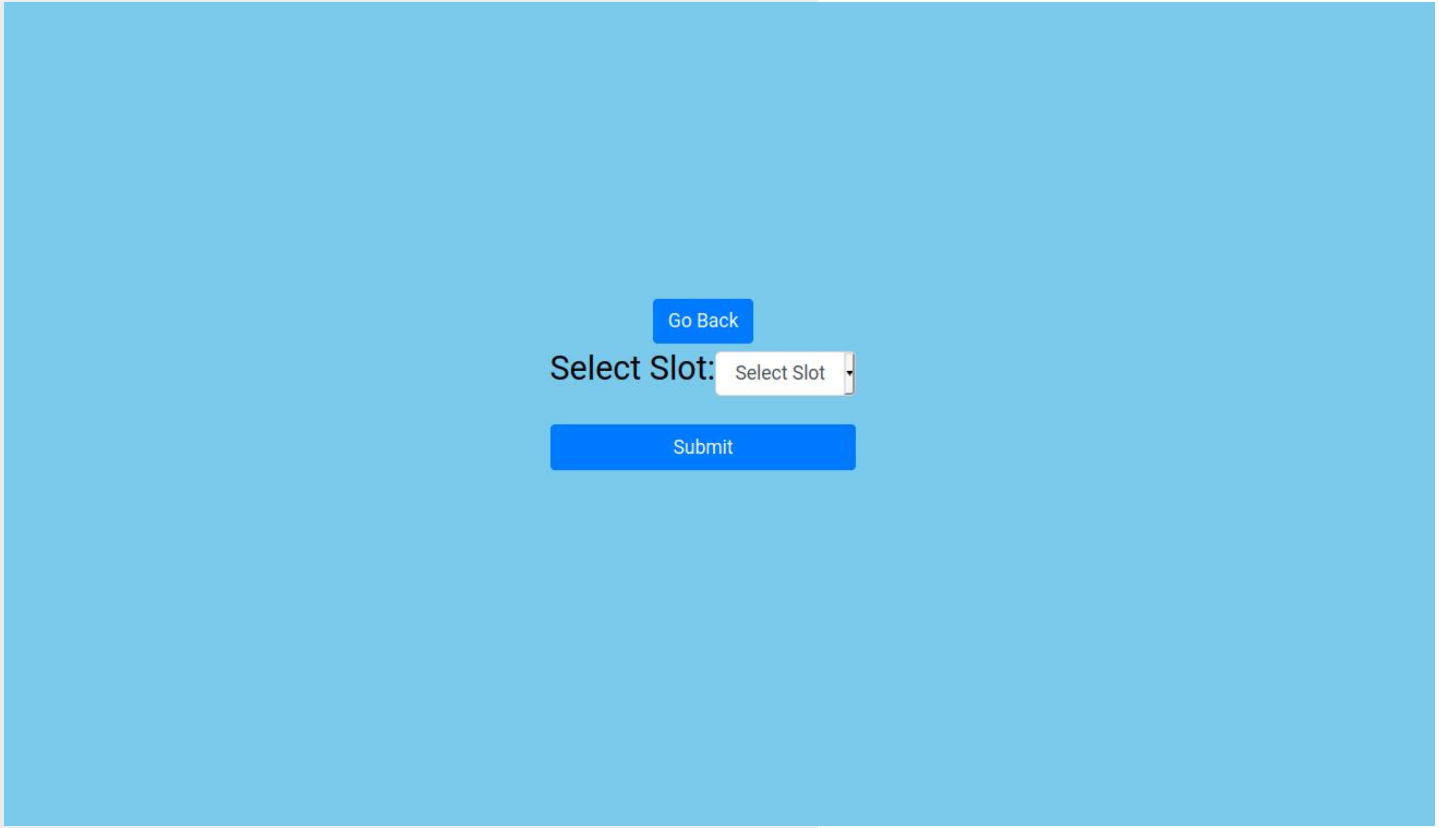
Query Slots 1



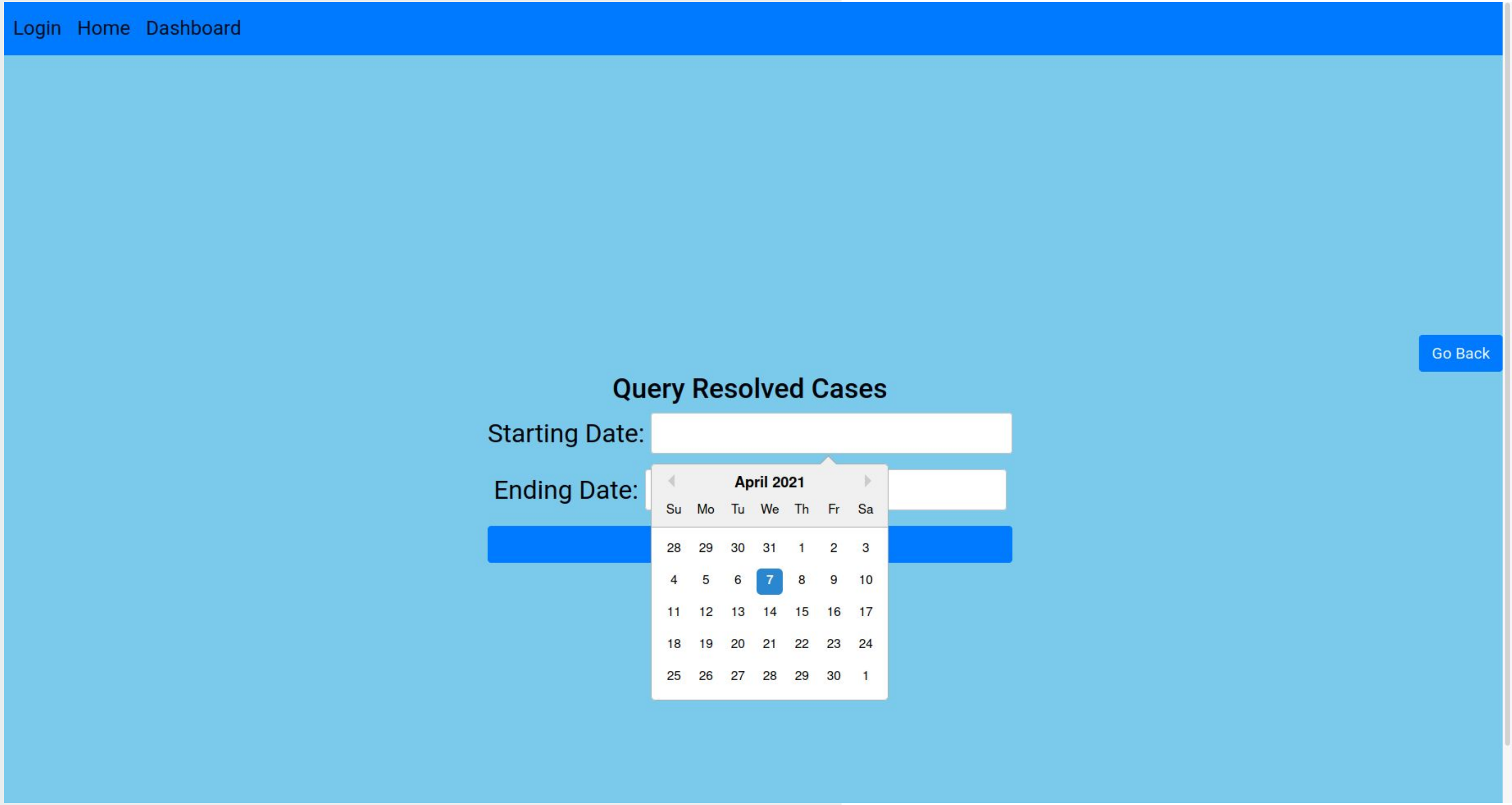
Query Free Slots

Enter Date: 07-04-2021

Query free slots 2



Query resolved Cases -1



Query Resolved Cases

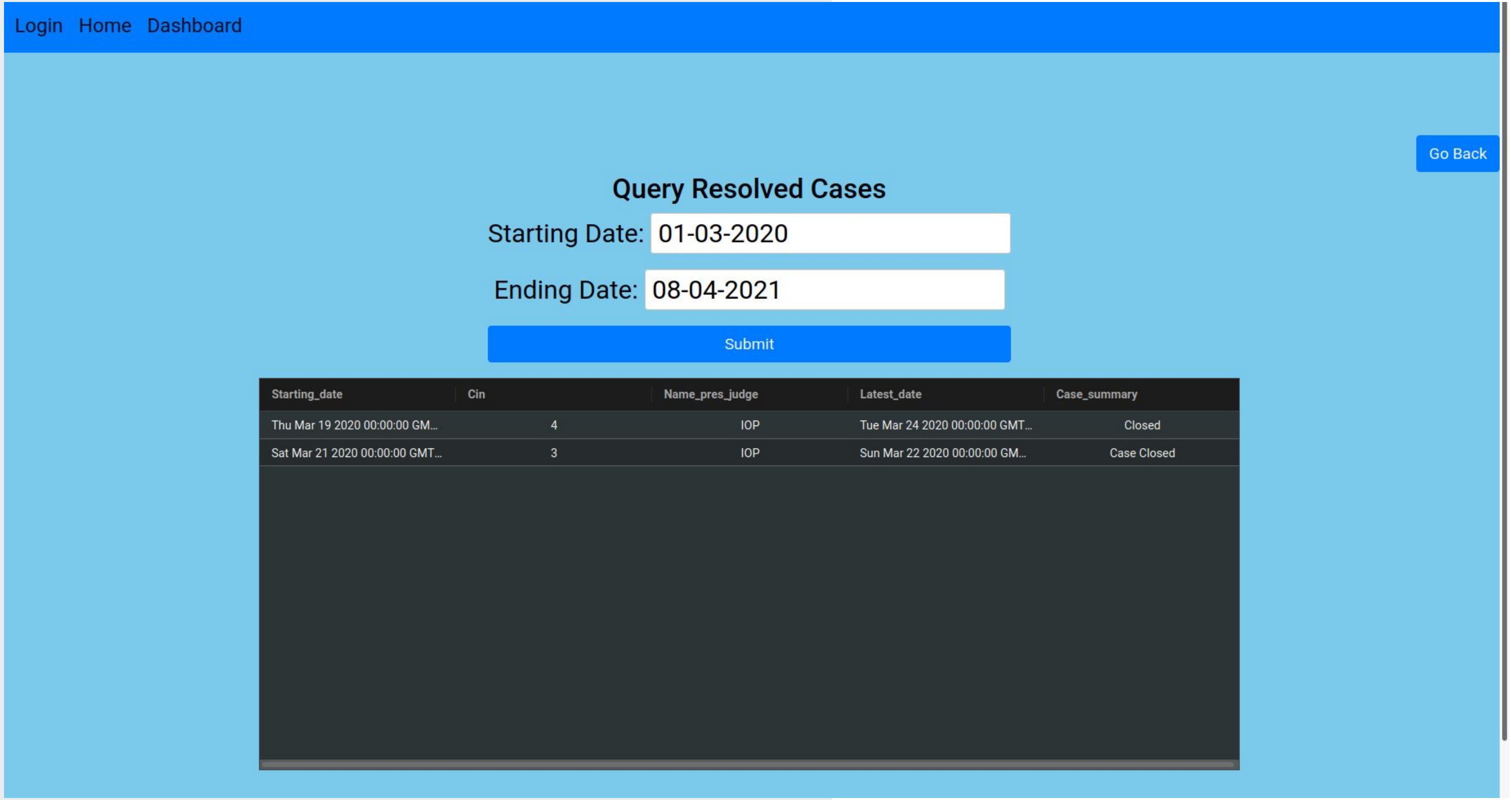
Starting Date:

Ending Date:

April 2021

Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1

Query Resolved Cases-2



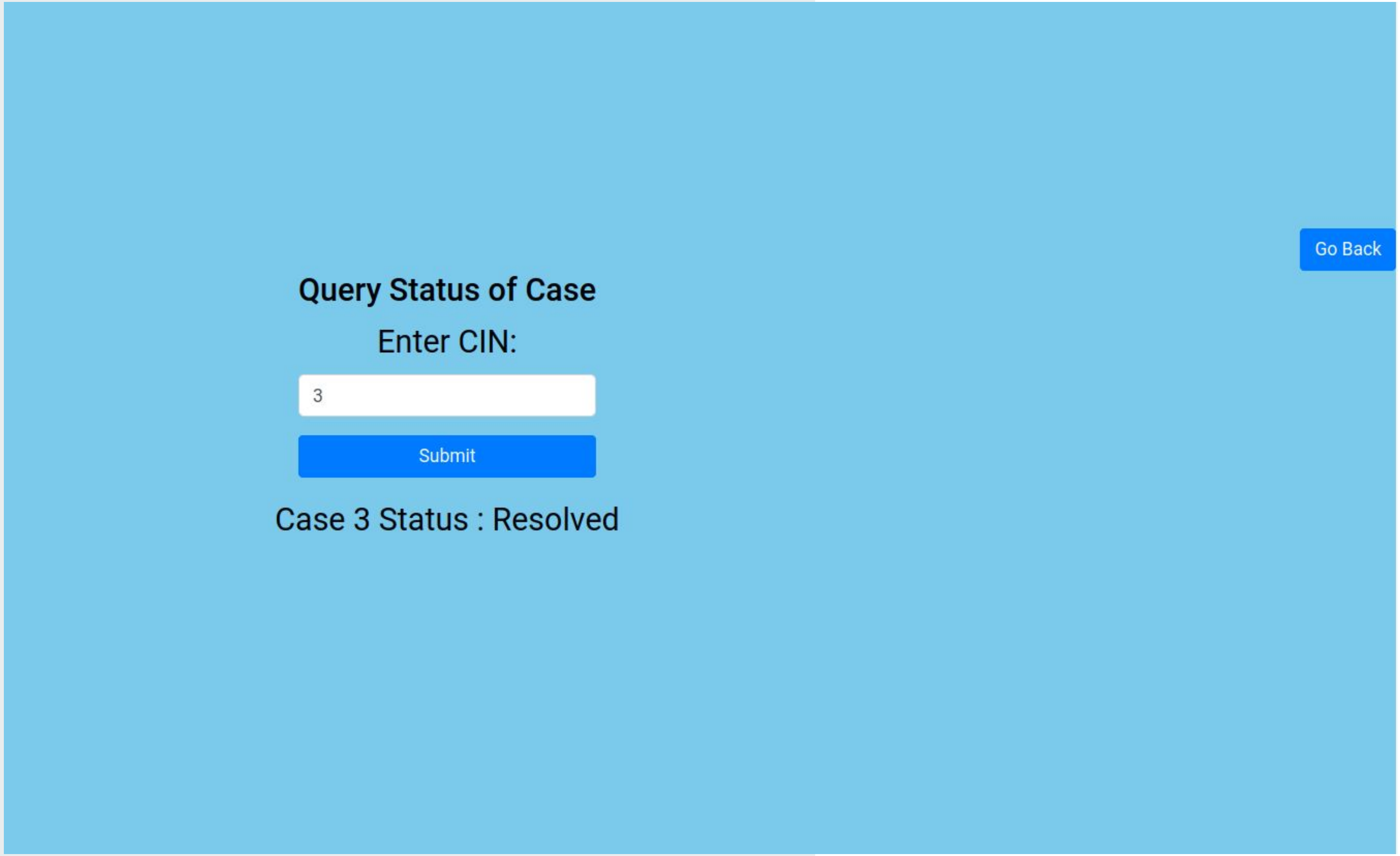
Query Resolved Cases

Starting Date: 01-03-2020

Ending Date: 08-04-2021

Starting_date	Cin	Name_pres_judge	Latest_date	Case_summary
Thu Mar 19 2020 00:00:00 GM...	4	IOP	Tue Mar 24 2020 00:00:00 GMT...	Closed
Sat Mar 21 2020 00:00:00 GMT...	3	IOP	Sun Mar 22 2020 00:00:00 GM...	Case Closed

Query Status



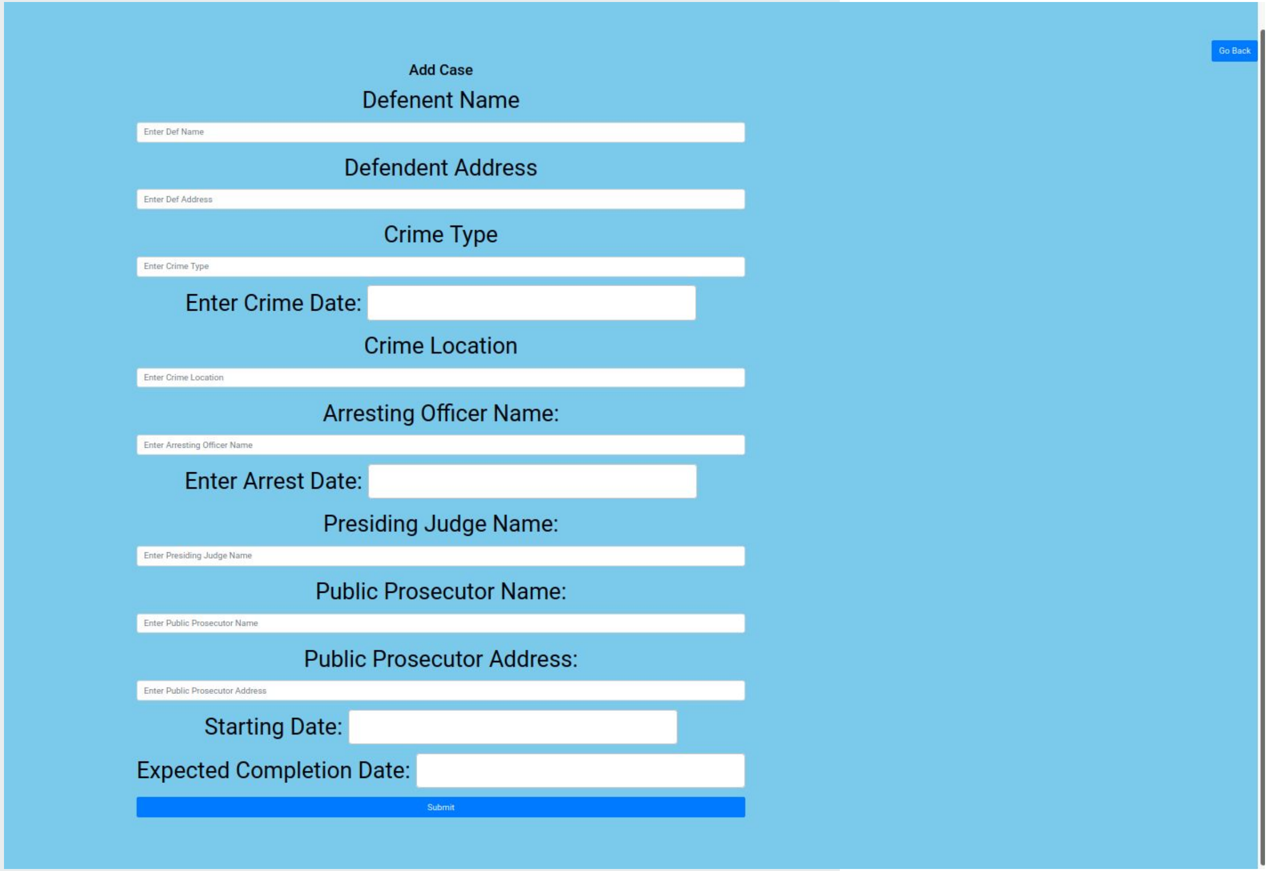
Query Status of Case

Enter CIN:

3

Case 3 Status : Resolved

Add Case



Add Case

Defenent Name

Enter Def Name

Defendent Address

Enter Def Address

Crime Type

Enter Crime Type

Enter Crime Date:

Crime Location

Enter Crime Location

Arresting Officer Name:

Enter Arresting Officer Name

Enter Arrest Date:

Presiding Judge Name:

Enter Presiding Judge Name

Public Prosecutor Name:

Enter Public Prosecutor Name

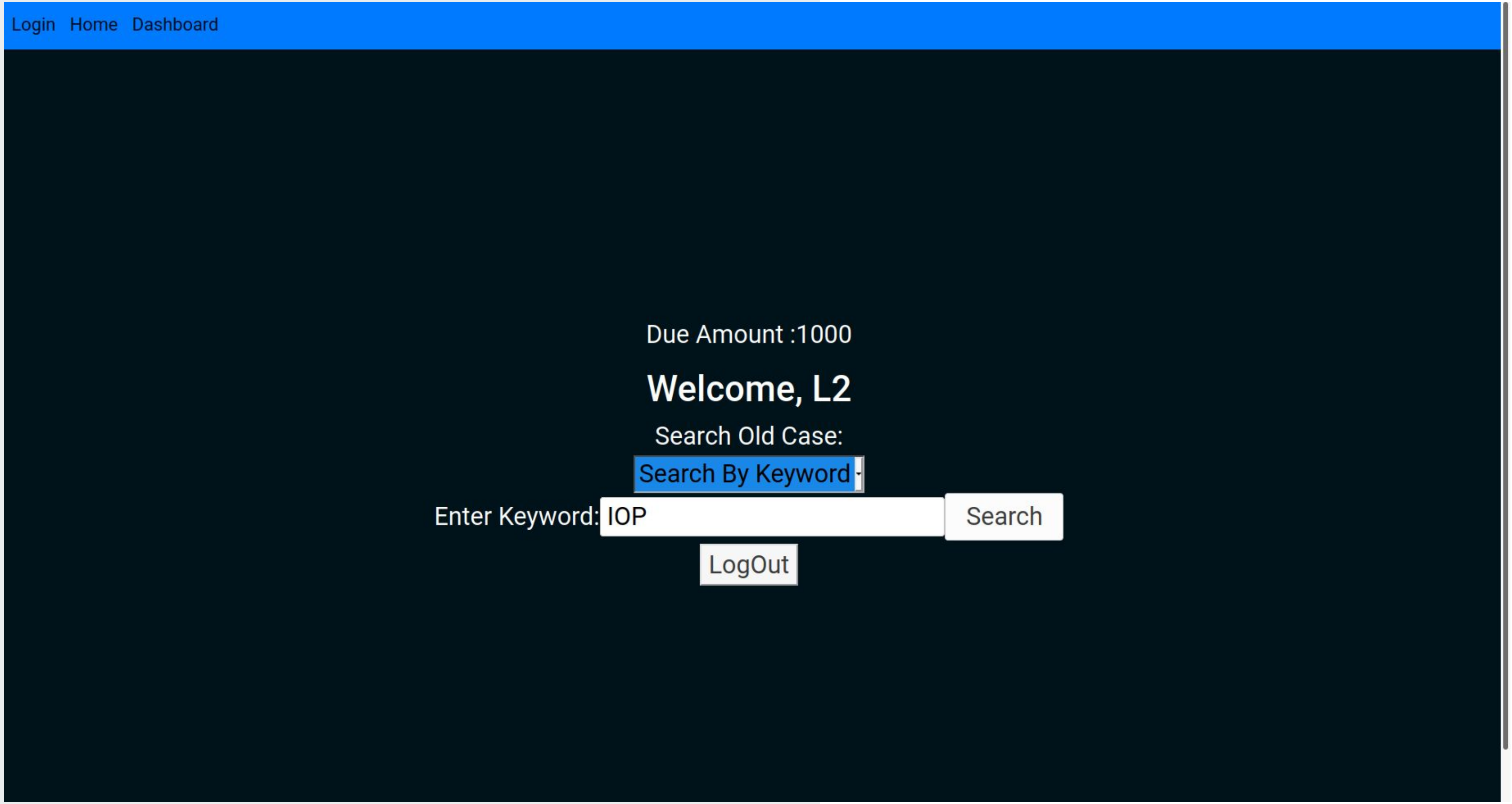
Public Prosecutor Address:

Enter Public Prosecutor Address

Starting Date:

Expected Completion Date:

Search by Key Lawyer



Due Amount :1000

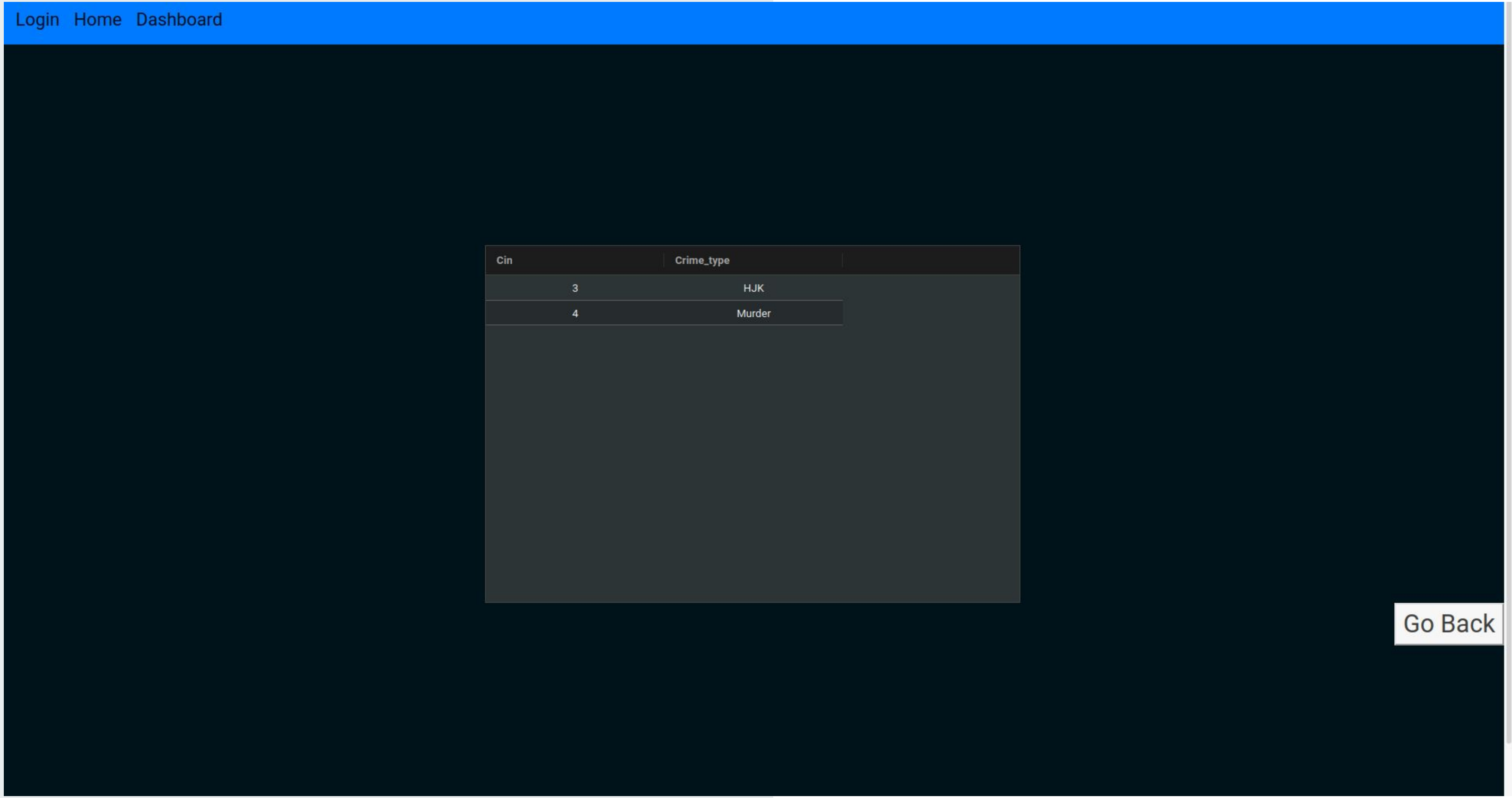
Welcome, L2

Search Old Case:

Search By Keyword

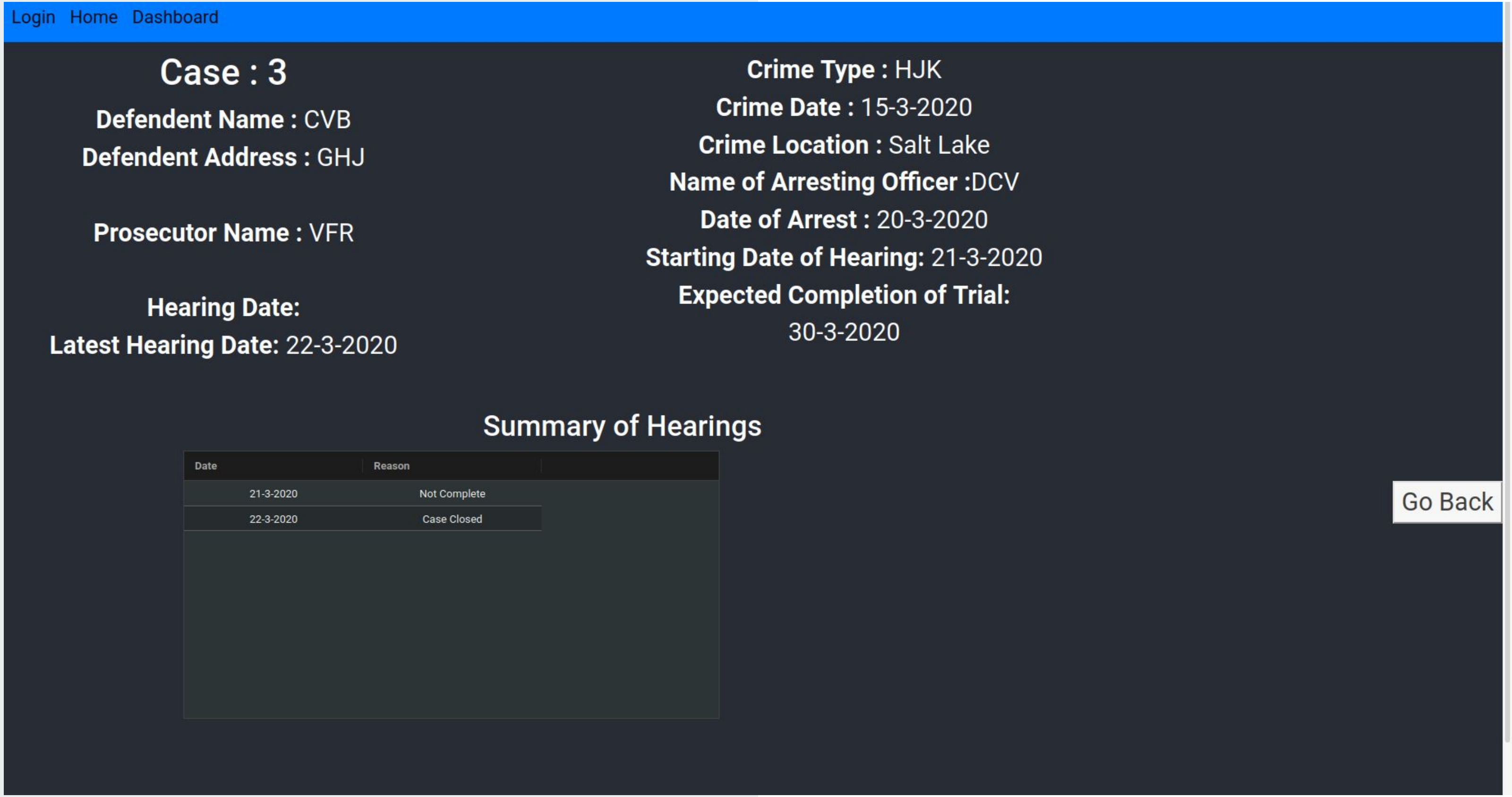
Enter Keyword: IOP

Search by Key Lawyer



Cin	Crime_type
3	HJK
4	Murder

Search by Key Lawyer



Case : 3

Defendent Name : CVB

Defendent Address : GHJ

Prosecutor Name : VFR

Hearing Date:

Latest Hearing Date: 22-3-2020

Crime Type : HJK

Crime Date : 15-3-2020

Crime Location : Salt Lake

Name of Arresting Officer :DCV

Date of Arrest : 20-3-2020

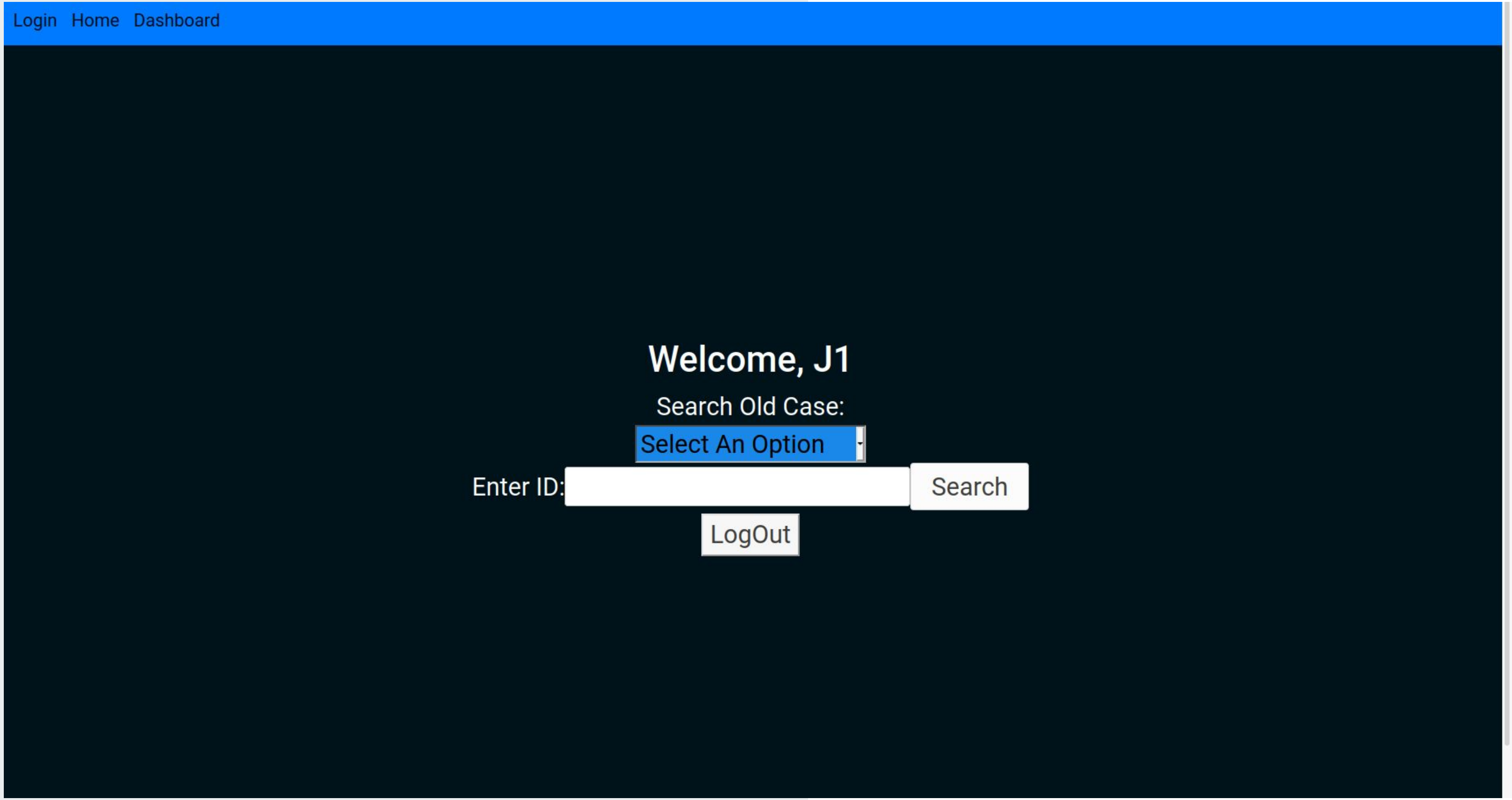
Starting Date of Hearing: 21-3-2020

Expected Completion of Trial: 30-3-2020

Summary of Hearings

Date	Reason
21-3-2020	Not Complete
22-3-2020	Case Closed

Search by Id Judge



Welcome, J1

Search Old Case:

Enter ID:

Assumptions

1. There are 5 slots in a day : indexed 1 through 5
2. For Lawyer:
   a. Charge of Rs. 200 applied for searching by keyword
      And Rs 100 for each case viewed in details.
   b. Charge of Rs. 100 applied for searching by Id
3. As the current JISS is in early stage of collecting datas and building databases, The cases run asynchronously.

Reviewing Challenging Use Cases :

- Storing the password of the the users (registrar/lawyer/judge) inside the database
  - Initially we thought about encrypting and decrypting which is very unsafe.
  - Then we used **hashing**. We hashed the passwords using python’s bcrypt library.

- Searching by keyword inside the Database :
    - We queried inside the entire database to get a list of all the cases.
    - Then from each case we **created a string** by adding all the relevant fields , i.e Hearing Details, Crime Type etc.
    - Then we searched for the keyword in the string.

Next Steps

- The response and functioning of the web application is quite good. Now the frontend can be more attractive.
- While this projects meets the requirements as mentioned in the problems statement, there can be other useful functionalities like setting up notification for upcoming hearings, keeping track of holidays, another kind of user(plaintiff/defendant) to be able to view progress of their cases.
- In the future it can be hosted on some hosting platform.

Questions

References

React : https://reactjs.org/docs/hello-world.html

Flask: https://pythonbasics.org/flask-rest-api/

SqlAlchemy: https://flask-sqlalchemy.palletsprojects.com/en/2.x/quickstart/

Testing : https://docs.pytest.org/en/stable/getting-started.html

Thank You