

D-COURT

-Judiciary is not a mockery anymore!

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Abstract- A revolutionary mobile application that uses IBM's Watson Analytics tool to help Judges to quickly deliver the right judgment. The application contains repository of cases of the past. Watson Analytics tool figures out the cases relating to an ongoing case. This also serves to be invaluable to the budding lawyers. Using this application will definitely reduce the cumbersome job of maintaining paper files, enables quick retrieval of desired information which in turn avoids a case being prolonged.

Keywords--- NJDG: National Judicial Data Grid, CRN: Case Registration Number, BCEN: Bar Council Enrolment Number, BCDB: Bar Council Database, IVR: Interactive Voice Response, UID: Unique Identity

I. INTRODUCTION

M-Court is an application that helps in delivering justice in a short span without compromising with the very moral of our Indian Judiciary System – “Innocents must not be punished”. In India, a small case goes for almost 5-8 years and big cases go around for 15-20 years. This delay in justice is unjust. So the motive of this application is to digitize the entire proceedings of a court so as to avoid a case being prolonged. By digitizing and indexing court files, judges, prosecutors, and defense attorneys can quickly search for and obtain the specific cases they need, right when they need them. Staff members no longer need to search among thousands of paper-based court records kept in storage. And they don't need to worry about lost or damaged files. Another tedious job in present system is that the scheduling of cases is not transparent. This application provides access to a transparent and dynamic scheduling system by providing access to others' calendars; court dates can be easily scheduled.

In this current scenario where the number of judges is in shortage, it is a compelling need to utilize the available man-power efficiently. The concept here is, if time taken to pronounce judgment of a case is reduced, efficiency of the judge is enhanced as he/she can handle more number of cases.

Courts can more easily manage cases from beginning to end. By digitizing paper processes, information about the case can be seamlessly transferred from the police department to the prosecutor and defense attorney and then to the judge at the start of the trial. If the defendant is convicted, the file can then be digitally transferred to the prison or parole office, with each relevant official obtaining the real-time information needed to keep the case moving forward. Once the case is disposed, the statistics are recorded into NJDG portal. The final report of the judgment is uploaded in the court's web portal.

The technology stack required for developing this application is cited in section 2.

II. TECHNOLOGIES REQUIRED

For the implementation of the proposed system we require various technologies such as Java Programming Language, JSP, Android SDK, Apache Tomcat, VisualIVR, Cloud Computing, Data Analytics tool, Encryption & Decryption and a MySQL database.

A. Android SDK

Android is a stack of software such as operating system, middleware and key application. This combination of software can be used in mobile phones by using Android Software Development Kit (SDK). Android SDK provides Application Program Interface (API's) which are required to develop Android applications using Java.

B. Java

Java is the best purely Object Oriented Programming language as it is platform independent, i.e., it uses Java Virtual Machine to run the java bytecode. Business Logic of this application uses Java code.

C. Cloud Computing

By migrating files to IBM cloud, courts obtain the failover needed to make sure court records are always available with the most recent decisions and developments. An HTTP Session Timeout is used in order to provide security.

D. MySQL

The backend that is used for database management is MySQL. Other Database Management Systems like H2, Microsoft SQL can also be used.

E. Data Analytics Tool

Watson Analytics is a smart data analysis and visualization service which is used to quickly discover patterns and meaning in data. With guided data discovery, automated predictive analytics and cognitive capabilities such as natural language dialogue, interaction with data conversationally to get answers that can be easily interpreted are obtained.

F. Visual IVR

Visual IVR (Interactive Voice Response System) provides communication between databases and users. It helps the user in self-servicing. It gives system generated voice commands in order to aid the user in further proceedings.

G. Encryption & Decryption

The encryption is used to hide information into the image so that no one can see that particular information or file. The decryption is used to get the hidden information from an image file.

H. Text-to-Speech

Text to speech abbreviated as TTS is used in this application which comes as a relief to judges and advocates as they no longer have to read voluminous paper records.

The Proposed System is explained in section 3

III. PROPOSED SYSTEM

The proposed system has three major modules - Registration/login module, Protocols for Judges, and Protocols for Advocates.

A. Purpose of Watson Analytic API

It uses Watson Analytics to draw a conclusion to a case. It guides the judge to quickly decipher all possibilities of a scenario and take a call. It drills down through various web repositories to get the previous records of similar cases, it identifies how the judgments for those similar cases were and finally intimates the judge with the best outcome. However, the authority to make the final decision is in hands of the judge.

B. Registration/Login

Existing user can login by providing UID and password. In case of new user, registration has to be done. Enter Name, Date of Birth and Bar Council Enrollment Number. The details given above are verified in the Bar Council Database. On successful authentication, an UID is generated and other details that are registered in BCDB like mobile number, email id, year of joining, age, etc., are automatically filled in the respective fields of the registration form. This UID is emailed to the user. UID and password are re-entered for further verification. Registration process is represented as flowchart in Fig 1.

C. Protocols for the Judges

Select the CRN from the list of cases that are currently under him/her concern. Enter Parse Key to read the documents submitted by both the prosecutor and defender. View the next available date from the outlook calendar. Fix a date and notify the same to both the advocates. and if that date is going to be the final date add that information also while sending the notification. Finally, on the D-Day, review all the relevant documents and the judgment copy is sent to the advocates as well as published in court's web portal for future references. These protocols are represented as flowchart in Fig 2.

D. Protocols for advocates

Select the CRN from the list of cases that are handled currently by him/her. Send evidences and other relevant documents to the concerned judge and to the other party's advocate, read the documents submitted by him/her (other party) by entering the Parse Key. These protocols are represented as flowchart in Fig 3.

E. Court Scheduling

By using outlook calendar, judges, clerks, stenographers, court clerks, prosecutors and defense attorneys have access to a transparent and dynamic scheduling system.

The Pros are discussed in section 4.

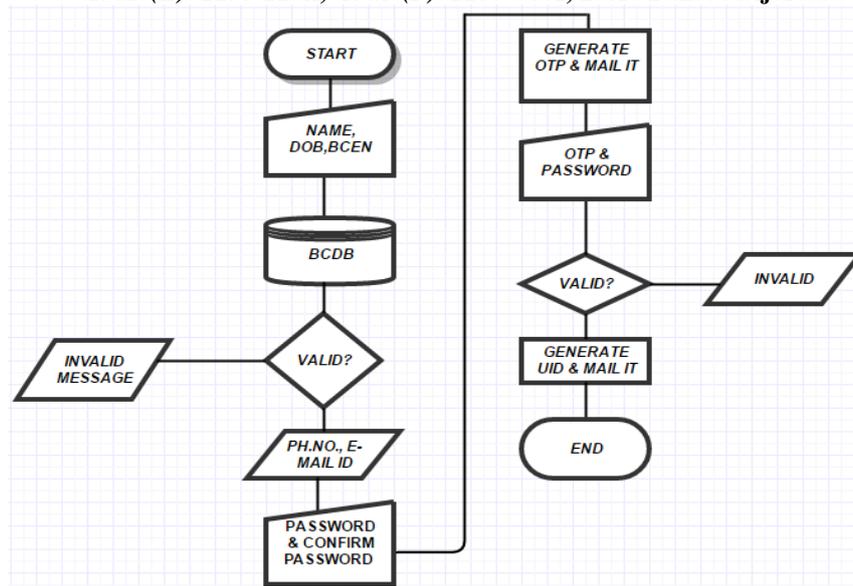


Fig 1 Registration flowchart

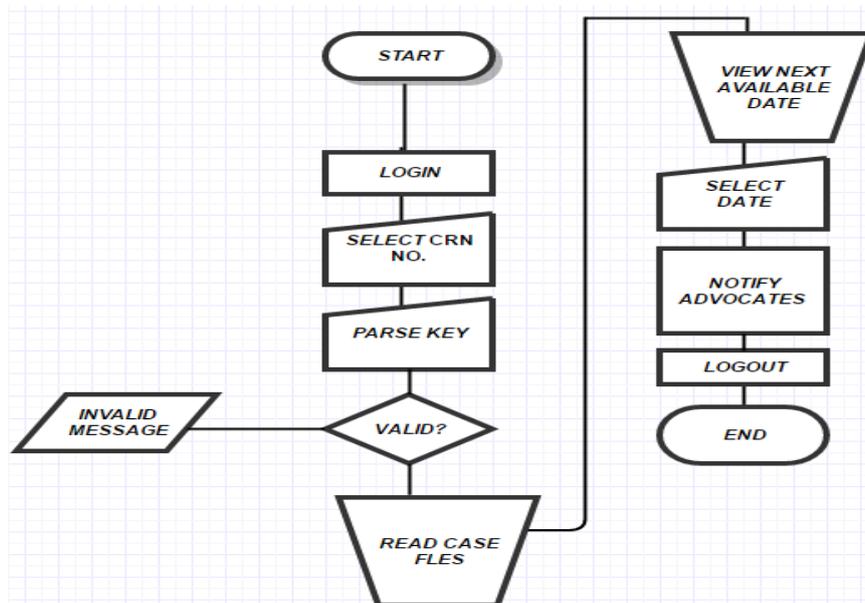


Fig 2 Procedure protocol for judges

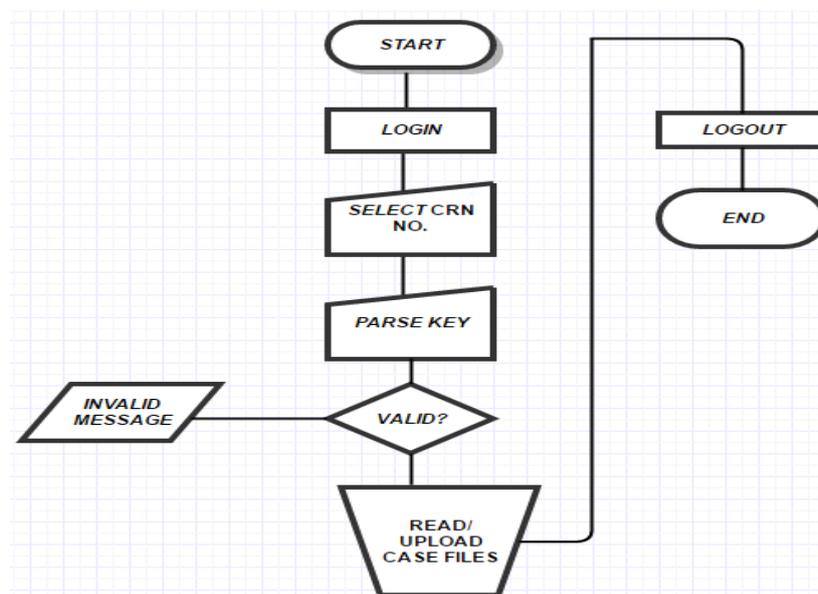


Fig 3 Procedural protocol for advocates

IV. PROS

1. It reduces Man power. It is time and cost efficient.
2. Through data analysis the best result is given by the application itself, which makes the job of the judges easy.
3. Both prosecutors and defense lawyer can get case histories of similar baffling cases without much hassle.
4. The probability of pronouncing the complete judgment is very high.
5. As TTS is used, it comes as a relief to judges and advocates as they need not read voluminous text data anymore.

The Cons are discussed in section 5

V. CONS

This application consumes more memory storage which will slow down the processing speed. However, a few-minutes-wait is better than years-together-wait. The other possible disadvantages can be deciphered only after implementing it on a larger scale.

The Challenges associated with this application is stated below in section 6.

VI. CHALLENGES

Deploying hack-resistance and highly secured system. To support large number of users without much overhead. The Conclusion is covered under section 7.

VII. CONCLUSION

“Justice delayed is Justice denied”. This has become the need of the hour to uphold the integrity of our people’s constitutional rights – to get seamless justice without encouraging unwarranted adjournments. At the same time, some may argue that **“Justice hurried is Justice buried”** and that is why we require digital assistance to get the best result and thereby make life simpler.

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