Internship Report of Swarali Paygude

An Internship Report Submitted to

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Submitted by,

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Project Title

Extraction and Analysis of Data

related to Hiring Process in HR-Tech area

Acknowledgement

Firstly, I would like to thank Sameer Agashe sir for giving me the opportunity to do this internship. Working at Jobmosis Talent Solutions under the guidance of Sameer sir was a new experience, which helped me start developing myself as a professional. He portrayed the perfect balance between professionalism and friendliness, which made me understand that being warm and genial towards your colleagues/employees is good, but showing seriousness and professional attitude where it is due is just as important.

Learning Java programming became interesting with the

video tutorials provided to us by Satyajeet sir, who was our mentor at Jobmosis. His time management and passion towards his work was definitely something to learn from.

Being an intern, I was new to everything at a workplace. My co-interns Eshan,Tanmay and Priya,who had been working there since a few months, helped me with learning new things,explaining the working of the company and solving my doubts.

I would aslo like to thank my college supervisor, Prof Asmita Gorave ma'am, for reviewing my work and helping me with my progress and any kind of difficulties, and for being helpful and understanding in the period of lockdown due to COVID-19.

Abstract

This report is regarding the internship work done by me during the 3-month period at Jobmosis Talent Solutions. This internship was a part of my curriculum of TY Btech in Computer Science department at MIT WPU. The company Jobmosis works in the HR-Tech area, having the motive of

providing a different and more efficient way of conducting the recruitment process for various types of industries. Their main product Litmusblox is an efficient tool which can be used in hiring process. It greatly reduces manual work involved in the process, and automates screening and shortlisting of candidates. It facilitates smooth and smart hiring, saves time and cost for recruitment, and ensures best-fit candidates for the job position.

In the beginning I learnt Java programming through video tutorials and executed short codes for practice. I then spent some time understanding the whole working of the company and their software.

The project I worked on was implemented in Java , used databases and retrieved data using MySQL and JDBC. The code was initially developed in a Maven project on Eclipse IDE, which had the function of detecting keywords from a given job description, with reference to the list of keywords stored in our database on DBVisualizer. The whole JD was scanned for number of occurences of such keywords which were relevant to the industry that the JD belonged to. This helped in getting a clear idea which skills and experiences the JD expects for the job position. This makes it easy for the candidates to understand the JD requirements better and evaluate their suitability for the position. Thus, it helps in making the hiring process easier.

The other project was a generalized login system for the

employees of an organization. It has two main parts- admin login and user login. Only the admin has the authority to add or remove users. He can also update the employee's performance review and rating, based on the employee's performance in the organization. At any time, he can view the list of existing employees and their details. The user home page consists of his own details, of which he can update fields such as phone number and email ID. He will be able to view his performance review on his home page, which is set by the admin. The user can also the change the password for his username at any time.

The projects carried out during the internship taught me a new programming language - Java. From it's syntax to it's concepts and common practices, I got enough practice of Java to use it for any project in future. Implementing the projects in Eclipse was greatly helpful since it provides suggestions for in-built methods and efficient data encapsulation, which makes coding and debugging easier.

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INTRODUCTION

The projects during internship were based on Java, which is a commonly used programming language for backend in the industry. The scope of Java is wide, and to cover all of it was not possible, however it was enough to get me started along the path of Java programming. The main objective was to learn all the basics of it well enough to use it for building small projects in Eclipse.

We had learnt the structure and function of databases, and during the internship, one of the main aims was to apply our knowledge to create and use a database for a particular application. Then, link the database to the backend of the project so that it can be accessed for data retrieval and manipulation.

Another objective was to understand the creation and use of APIs (application programming interfaces). The AWS Lambda service assisted in creating and deploying the API for our project of keyword detection. This API endpoint

was then used to check the output for that code on an app called Postman. This gave me something new to learn, which is being used by hundreds of developers around the world.

REVIEW OF LITERATURE

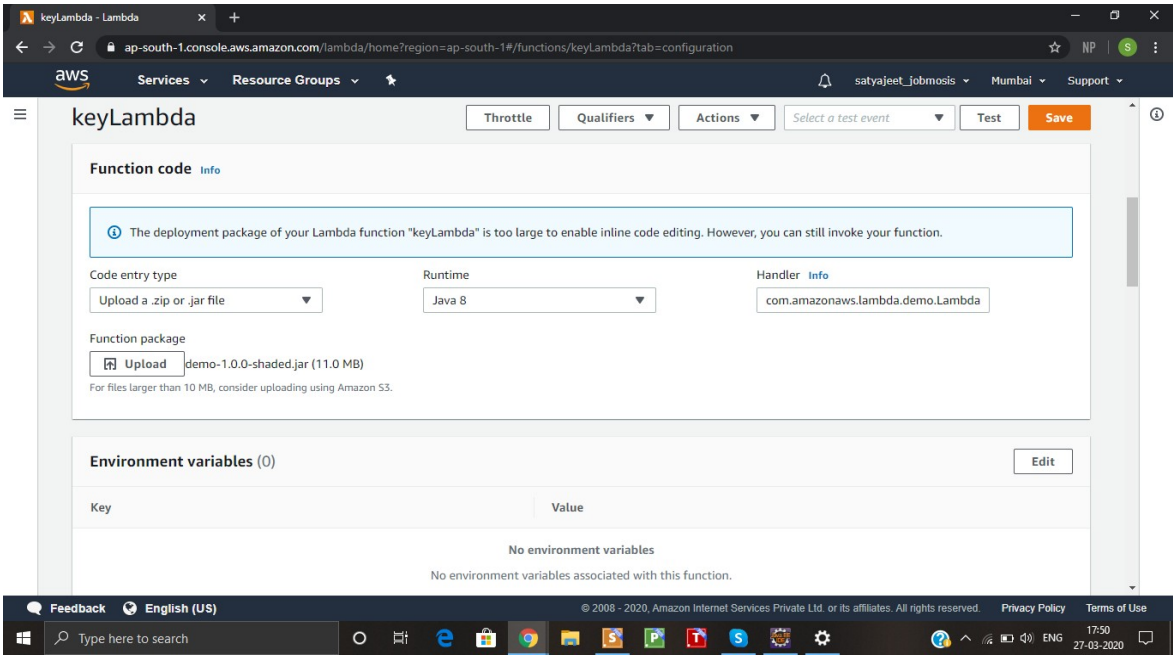
I had read a little about Java programming before starting the internship, since it was a requirement for it. Even after starting the internship, I kept accessing online material on websites for clearing my doubts, finding the exact syntax, learning the different data structures, and other documentation. I referred to websites such as javatpoint.com, geeksforgeeks.org, stackoverflow.com, w3schools.com, docs.oracle.com, etc. I also needed help while implementing some new concepts like hashmaps and arraylists, and the syntax for lambda function handler for the AWS Lambda project.

METHODOLGY/APPROACH

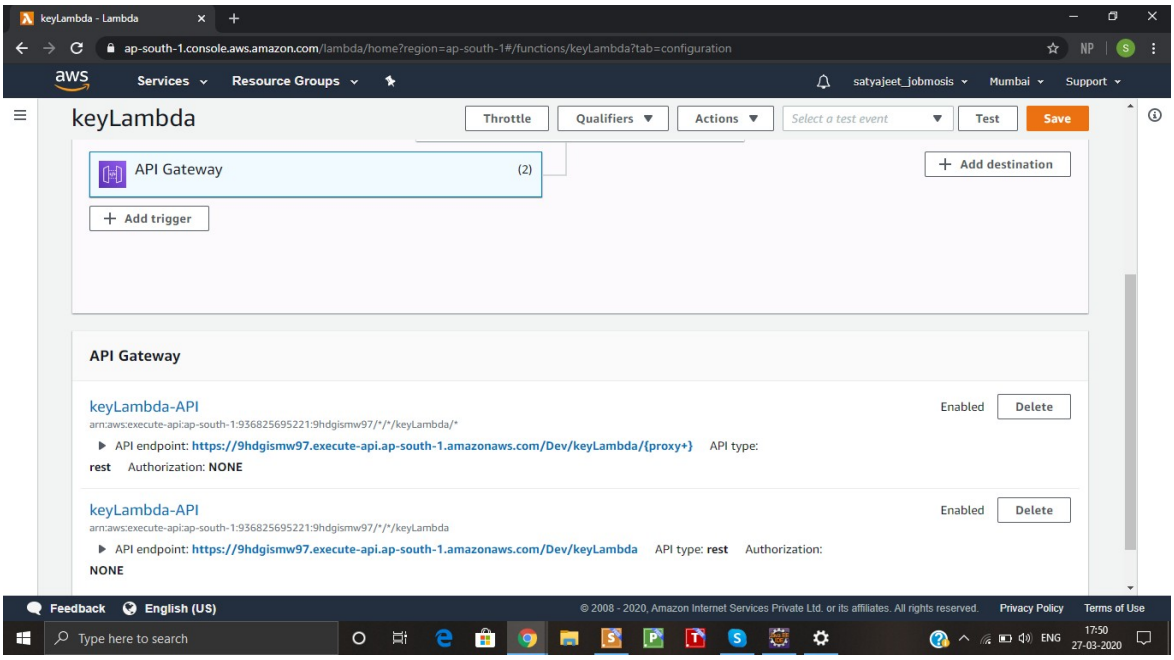
For keyword detection -

This project was implemented as an AWS Lambda project on Eclipse IDE. It was done using Java language and MySQL for querying the database, which was accessed through DBVisualizer. The Java code had the function of detecting keywords, from a list of keywords present in the database, in a given job description as input. We used various concepts and data structures in Java for this purpose, such as JDBC, ArrayLists, HashMaps, regex, PatternMatcher, JSON objects, etc. The detected keywords and their number of occurences in the job description was given as output. The input and output were both expressed as JSon objects.
Other than the main working code, there was a requirement to create a Lambda function handler and an executor for the AWS Lambda project. It consisted of a specific syntax which had to be followed and a set of necessary instructions to be provided for the whole project to be uploaded on AWS Lambda.
The working of the code was first checked on the Eclipse console, and all the errors and exceptions were fixed, by using varied test cases. Then, a jar file was created to be uploaded on AWS Lambda. After uploading, an API Gateway was created, which was then used to create an

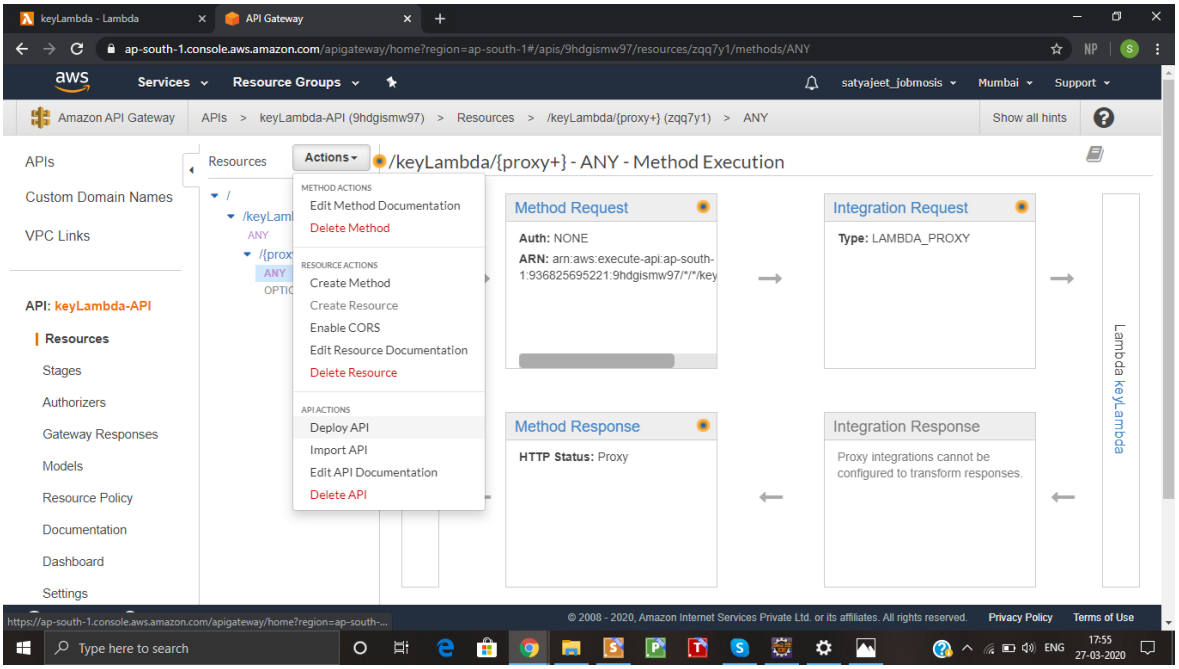
API (application programming interface) and deploy it, by following a set of steps. After completing the process, an API endpoint,ie a URL, was obtained, which could be used to access that API from anywhere . This URL was invoked from the Postman app to gain access to the API. The input was given in the required format on Postman, and the corresponding output could be viewed there itself.



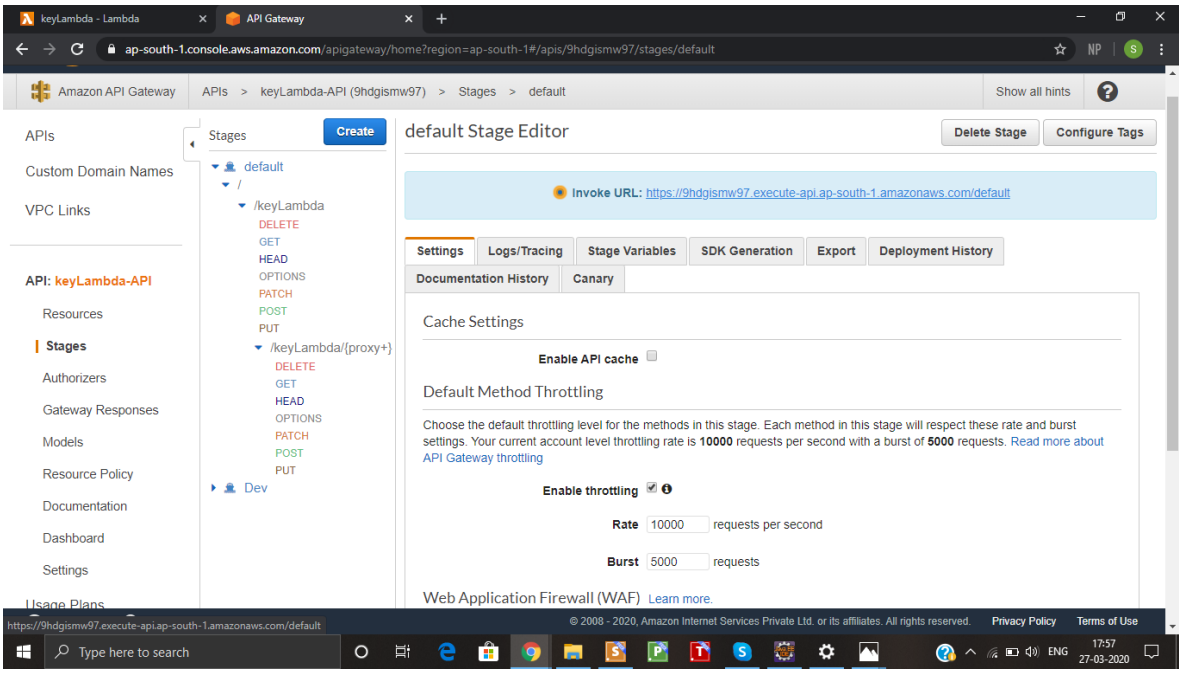
Uploading jar file on AWS Lambda



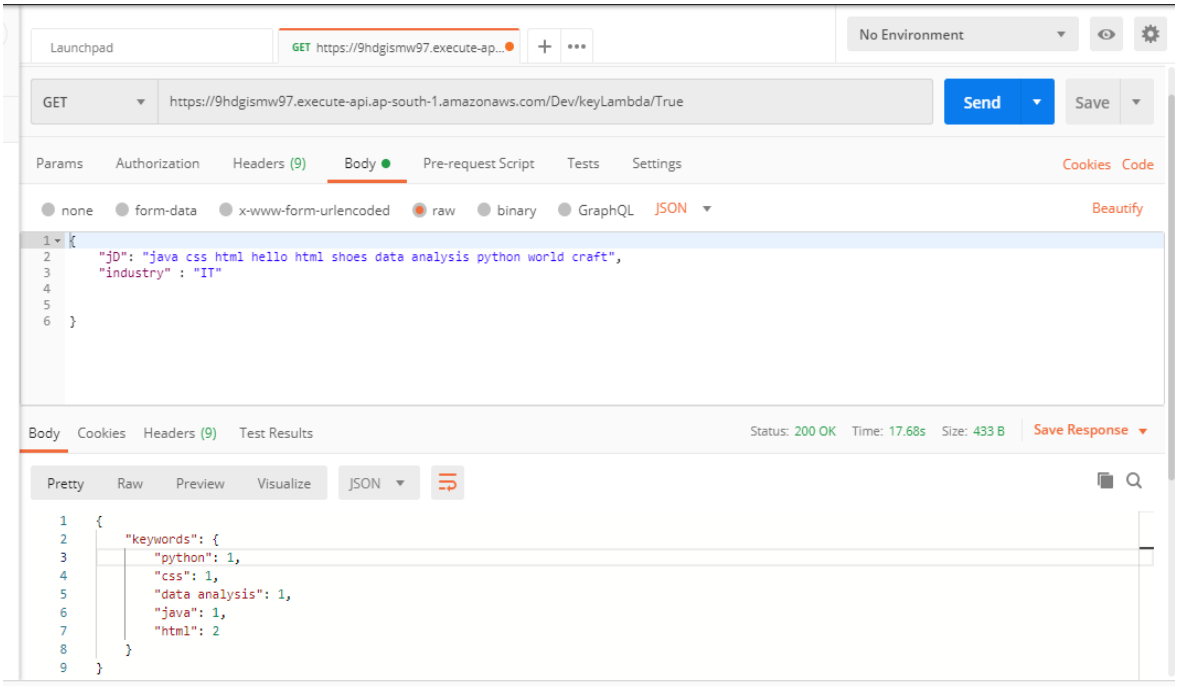
Creating API Gateway



API Deployment



API endpoint(URL) created



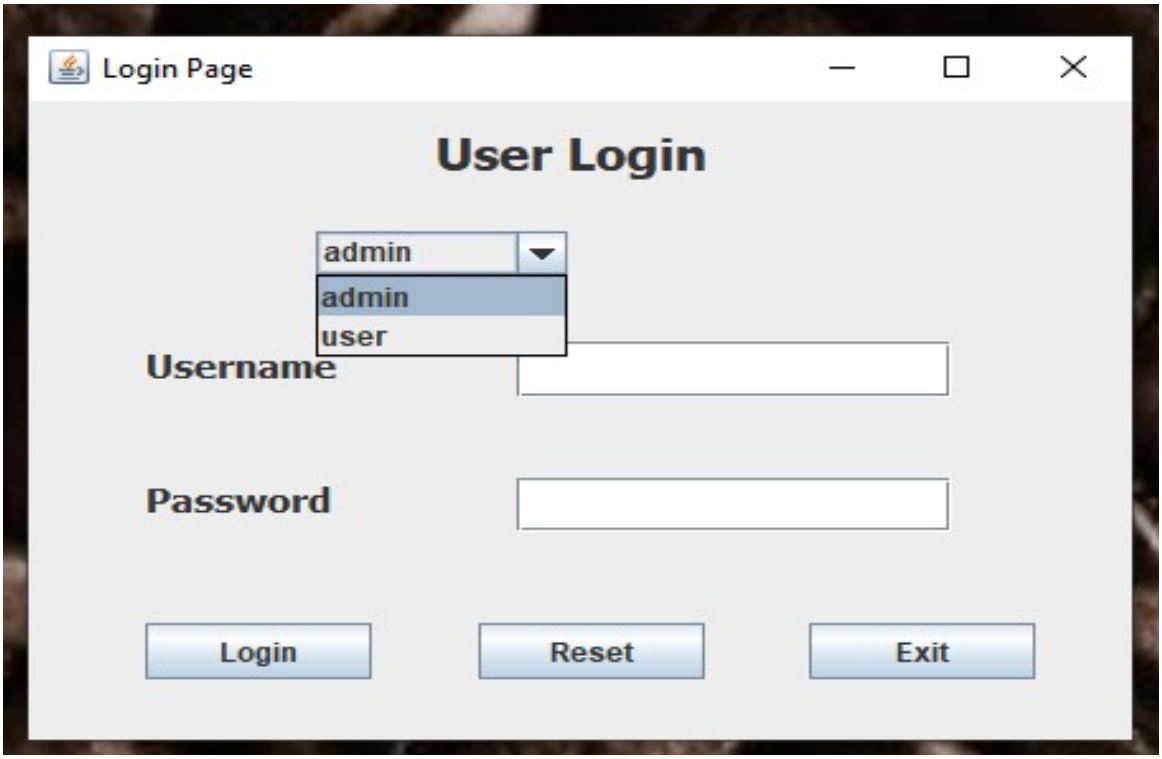
Output on Postman using API endpoint

For employee login system -

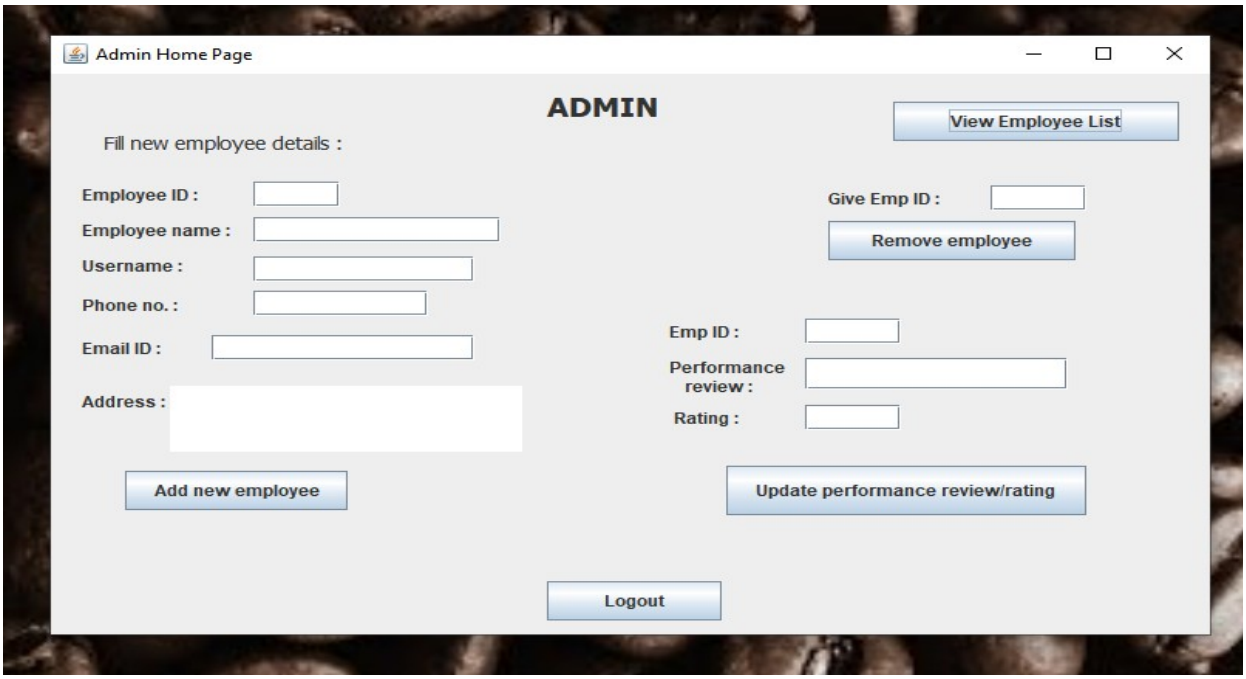
This system was designed for the admin and other users to login and either view some data or update some data. The system was developed through a Java project, using javax.swing package from java for user interface and Java programming and MySQL for backend. The database was created using MySQL Workbench of MySQL Server and connected by JDBC. It was executed on Eclipse IDE. It has separate logins for the admin and the users, ie employees, and admin and user home pages are designed differently.
The admin has the authority to add or remove users, update employee's performance-related details and view the list of all existing users. A new employee can be added as a user by giving his details such as employee ID, employee full name, username, phone number, email ID, address. A default password will be set as the password for a new user, which he can change later. The performance review and rating of an employee can be updated by the admin at any time, for example, if the review is conducted monthly, those fields will be updated every month. An existing employee can be removed from the system by providing the employee ID. The user login for that employee will no longer be valid.

The user will be able to view his own details on his home

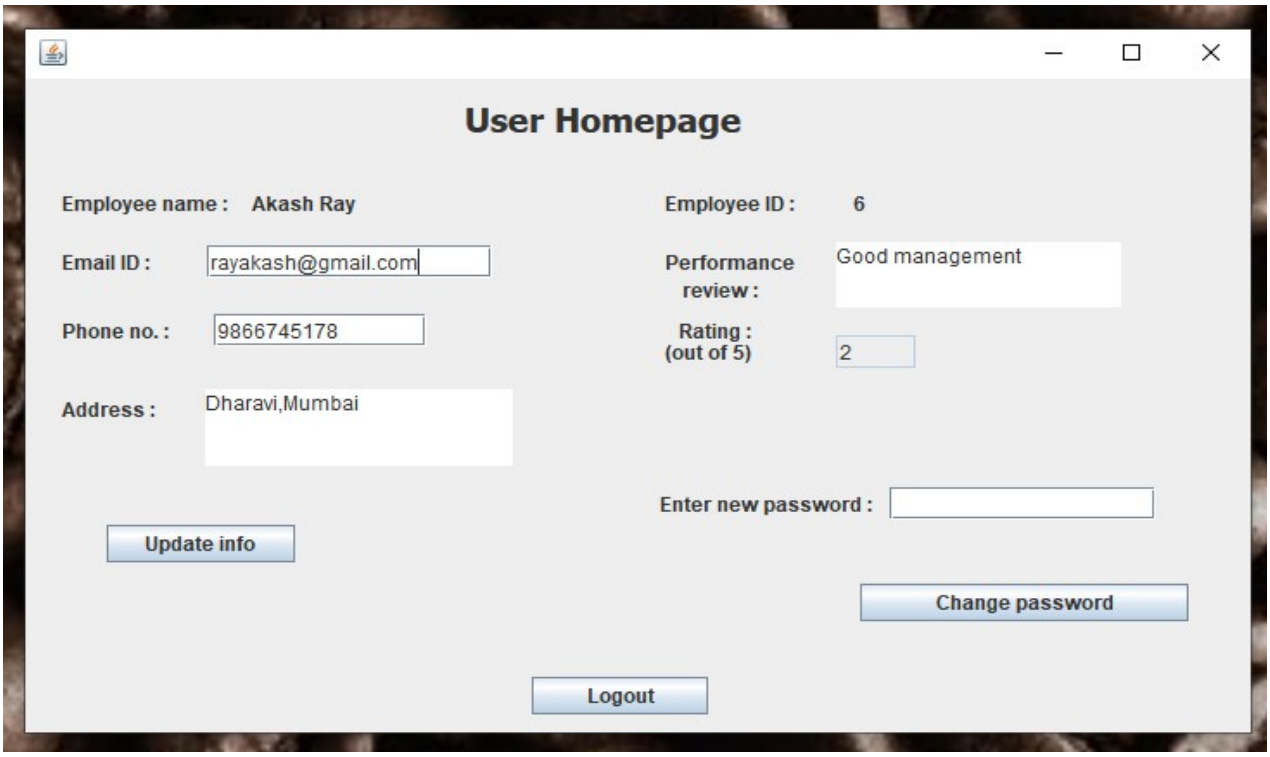
page, and will be able to update his personal information. The user can also change his password at any time. The database will be updated accordingly and will keep track of all the existing employees' details.



Main Login page



Admin home page



User home page of employee with ID=6

ANALYSIS/RESULTS

Given the job description as input, the keywords detected in it and their number of occurences are obtained as output for the keyword extraction project. This result can further be used to understand the requirements of the job in more detail and more accurately. This project can actually be used in any field where you want to find keywords from a given text as input, where you have a list of keywords in your database, that you want to check the text against.

The login system successfully checks the username and the corresponding password and allows user to access his home page, containing his own details, only if the password is correct. The admin and user have different home pages. The changes made by the user in his information or password are recorded in the database. Similarly,the addition or removal of employee profiles done by the admin is also successfully recorded in the database. The removed employee will no longer have a valid login username. The changes made will be reflected

immediately and can be viewed by the admin in the employee list on his home page. As a result, the system will keep track of all the existing employees, and their information, in the organization.

CONCLUSIONS AND RECOMMENDATIONS

Both the projects were built using Java, which is a widely used and an important object oriented language in computer science. Various features, methods and packages of Java were explored and incorporated in these projects. Along with that, the importance of databases and SQL in any kind of application was understood, since it is the core component of any system to be developed. It was also learnt that the error handling and debugging is as important as the actual coding, since the application cannot work efficiently without that.

Java consists of many different packages, some of which can be used for front end. That is, Java can be used for back end as well as front end. Object oriented programming is an effective tool for creating different applications and systems. Further, creating an API of any application makes it very easy for any other applications to

use it's functionality as required. An API is a software intermediary that allows two applications to communicate with each other, which makes the request-response process easier. Hence, it is a commonly used tool in the software industry.