

SKILL/JOB RECOMMENDER APPLICATION

A NAALAIYATHIRAN PROJECT REPORT

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CHAPTER 1

INTRODUCTION

1.1. PROJECT OVERVIEW

Having lots of skills but wondering which job will best suit you? Don't need to worry! We have come up with a skill recommender solution through which the fresher or the skilled person can log in and find the jobs by using the search option or they can directly interact with the Chatbot and get their dream job.

To develop an end-to-end web application capable of displaying the current job openings based on the user skillset. The user and their information are stored in the Database. An alert is sent when there is an opening based on the user skillset. Users will interact with the Chatbot and can get the recommendations based on their skills. We can use a jobsearch API to get the current job openings in the market which will fetch the data directly from the webpage.

1.2. PURPOSE OF THIS PROJECT

- Students/Job seekers can get the desired job based on their skill set.
- We can share the profiles with companies and generate the revenue by providing them best profiles.
- We can provide the application for job seekers in a subscription based.
- Integrating a Chatbot will helpful for the students to interact with this web application to seek a particular job

CHAPTER 2

LITERATURE SURVEY

2.1 EXISTING SOLUTION

- <https://www.hirist.com/login>
- <https://www.linkedin.com>

2.2 REFERENCES

1. “Students / Job seekers find their desired job based on their Skillset”

Reference link: https://www.researchgate.net/publication/272802616_A_survey_of_job_recommender_systems

Description:

The Internet-based recruiting platforms become a primary recruitment channel in most companies. The recommender system technology aims to help users in finding items that match their personnel interests. This article will present a survey of e-recruiting process and existing recommendation approaches for building personalized recommender systems for candidates/job matching.

2. “Integrating Intelligent CHATBOT for Job recommendation application”

Reference link: https://www.researchgate.net/publication/360820692_Intelligent_Chatbot

Description:

A Chatbot is a software application that replaces a live human agent to conduct a conversation via text or text to speech. In this system, we demonstrate a chatbot that uses Artificial Intelligence to produce dynamic responses to online client enquiries.

This web-based platform provides a vast intelligent base that can help humans to solve problems. The Chatbot recognizes the user's context, which prompts an intended response. Its objective is to reduce human dependency in every organization and reduce the need for different systems for different processes.

3. “A Study of LinkedIn as an Employment Tool for Job Seeker & Recruiter”

Reference link: [Journal homepage: www.ijrpr.com](http://www.ijrpr.com) ISSN 2582-7421

Description:

LinkedIn has become one of the most known social networking portals in terms of global professional connections, networking, job postings, hiring and much more in relevance to employment opportunities.

This research was an attempt to identify the utility of Linked in on selection and recruitment. Also, this study has taken the employers’ and the prospective candidates for job and employees’ perspective, including factors such as recruitment, selection, job opportunities, internal official communication on Linked-in, professional networking, ease of access, less expensive communication tool etc.

4. "Cloud storage and sharing services"

Reference link: <https://www.ijresm.com/>

Description:

To create a web application that sends files from one email to another email using the SMTP protocol, which is handled in a server-based application. The main advantage of the project in this paper is that it provides a safe, reliable, and excellent tool for sharing files in any format. Also, it has infinite scaling capabilities. With a bit of tweak in the code, it can be scaled to handle heavy file loads.

The Cloud-based file sharing approach is proposed to provide the following services for external data confidentiality, secure data sharing within the group, protect data from unauthorized access of officials within the group and provide time and number of file access to users. Whenever information sharing among a bunch arise the file owner sends the user uploads the file on the application and then shares it using the send API. This creates a safe medium of sharing of files and user in control of the data in the whole process of sharing the files.

2.3. PROBLEM STATEMENT DEFINITION

Dealing with the enormous amount of recruiting information on the Internet, a job seeker always spends hours to find useful ones. Many times, people who lack

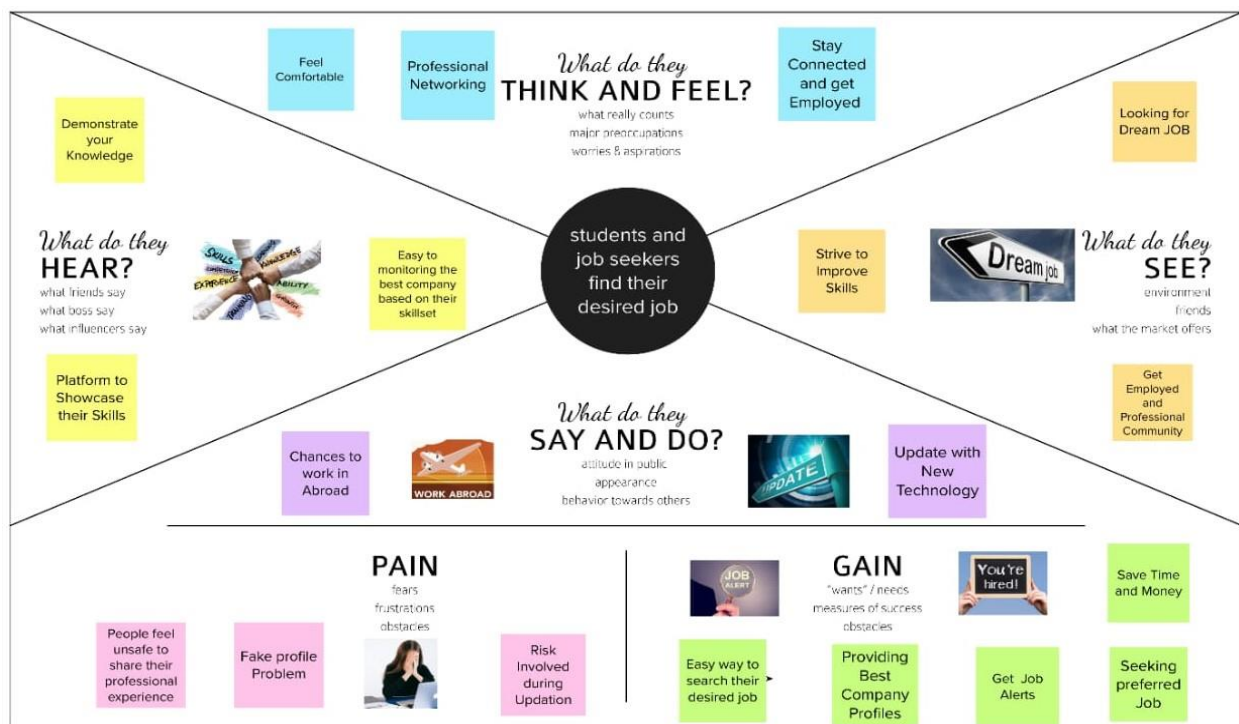
industry knowledge are unclear about what exactly they need to learn in order to get a suitable job for them. We address the problem of recommending suitable jobs to people who are seeking a new job. Job recommender technology aims to help job seekers in finding jobs that match their skills. The Internet caused a substantial impact on the recruitment process through the creation of e-recruiting platforms that become a primary recruitment channel in most companies. While companies established job positions on these portals, job-seeker uses them to publish their profiles. E-recruitment platforms accomplished clear advantages for both recruiters and job-seekers by reducing the recruitment time and advertisement cost. Recommender system technology aims to help users in finding items that match their preferences; it has a successful usage in a wide-range of applications to deal with problems related to information overload efficiently. In order to improve the e-recruiting functionality, many recommender system approaches have been proposed. This paper will analyze e-recruiting process and related issues for building personalized recommender systems of candidates/job matching.

CHAPTER 3

IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to help teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.



Reference: <https://www.mural.co/templates/empathy-map-canvas>

3.2. IDEATION

- E-recruitment platforms decrease the recruitment time and advertisement cost, they suffer from an inappropriateness of traditional information retrieval techniques like the Boolean search methods. Consequently, a vast amount of candidates missed the opportunity of recruiting. The recommender system technology aims to help users

in finding items that match their personnel interests; it has a successful usage in e-commerce applications to deal with problems related to information overload efficiently.

- Job recommendation application with intelligence of chatbot. In this system, we demonstrate a chatbot that uses Artificial Intelligence to produce dynamic responses to online client enquiries. This web-based platform provides a vast intelligent base that can help humans to solve problems. The chatbot recognizes the user's context, which prompts an intended response. Because this is a dynamic response, the user's desired response will be generated. This also uses a machine-learning algorithm to learn the chatbot by experiencing various requests and responses. Chatbots come to use in numerous fields of our daily life. Because AI enhances the human touch in every communication, chatbot are becoming increasingly robust. It triggers accurate responses after understanding a user's query. Its objective is to reduce human dependency in every organization and reduce the need for different systems for different processes.
- Job seekers struggling to get the desired job for skills they have. we are proposing an application which will help the students to give Suggestions on the jobs based the skills. In this application freshers or skilled person can sign up and find the jobs by using either the search option or they can directly interact with the chatbot and get their dream job. In this application freshers or skilled person can sign up and find the jobs by using either the search option or they can directly interact with the chatbot and get their dream job. An alert is sent when there is an opening based on the user skillset. Users will interact with the chatbot and can get the recommendations based on their skills. We can use a job search API to get the current job openings in the market which will fetch the data directly from the webpage.

3.3. PROPOSED SOLUTION

S.NO	PARAMETER	DESCRIPTION
1	Problem Statement (Problem to be solved)	Having lots of skills but wondering which job will best suit you? Don't need to worry! We have come up with a skill recommender solution through which the fresher or the skilled person can log in and find the jobs by using the search option or they can directly interact with the chatbot and get their dream job.
2	Idea / Solution description	To develop an end-to-end web application capable of displaying the current job openings based on the user skillset. The user and their information are stored in the Database. An alert is sent when there is an opening based on the user skillset. Users will interact with the chatbot and can get the recommendations based on their skills. We can use a job search API to get the current job openings in the market which will fetch the data directly from the webpage.
3	Novelty / Uniqueness	A chatbot can easily save time and effort. These chatbot communicate with humans in a very natural form to resolve their queries and to assist them as required.
4	Social Impact / Customer Satisfaction	The user allowed to choose the required job as per his/her skill level. It helps user to make right decision to choose their required field job

5	Business Model (Revenue Model)	We can provide the application in a subscription based. It will help the people to track their expenses and also alerts when you exceed the limit of your budget.
6	Scalability of the Solution	One important application of recommendation system in Job Recruitment; in which candidates are elected by using online job recruitment portal based on their profile and job history and behavior components.

3.4. PROBLEM SOLUTION FIT

Project Title: Skill/Job recommender application

Project Design Phase-I - Solution Fit

Team ID: PNT2022TMD29840

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) Who is your customer? i.e. working parents of 9-5 y.o. kids The main customers for our project are : <ul style="list-style-type: none"> Persons who are seeking employment Persons that recruit job candidates 	6. CUSTOMER CONSTRAINTS What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices. <ul style="list-style-type: none"> Concern about misuse of personal information Worry about unreliable connections Inadequate product knowledge Potential Scam Time consuming 	5. AVAILABLE SOLUTIONS Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital recruiting. <table border="1"> <thead> <tr> <th>Pros</th> <th>Cons</th> </tr> </thead> <tbody> <tr> <td>Promotion of people's skillset</td> <td>Delivering false information</td> </tr> <tr> <td>Marketing of company infrastructure</td> <td>Occurrence of fraudulent activity</td> </tr> <tr> <td>Cultivate commercial relationship</td> <td>Intense competition</td> </tr> </tbody> </table>	Pros	Cons	Promotion of people's skillset	Delivering false information	Marketing of company infrastructure	Occurrence of fraudulent activity	Cultivate commercial relationship	Intense competition	Explore AS, differentiate
	Pros	Cons										
Promotion of people's skillset	Delivering false information											
Marketing of company infrastructure	Occurrence of fraudulent activity											
Cultivate commercial relationship	Intense competition											
2. JOBS-TO-BE-DONE / PROBLEMS Which jobs-to-be-done (or problems) do you address for your customer? There could be more than one; explore different sides. <ul style="list-style-type: none"> Create a platform to facilitate job searching A platform to make it simpler to identify people with the necessary skills Make the job-filtering process simpler Profile with safe personal data 	9. PROBLEM ROOT CAUSE What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations. <ul style="list-style-type: none"> Jobs that are listed on unreliable platforms may be fraudulent Companies fail to disclose their true infrastructure Some job portals want payment in advance of the job starting. Users post false credentials Users pretend to have expertise in a skillset they lack 	7. BEHAVIOUR What does your customer do to address the problem and get the job done? i.e. directly related: find the right online portal; install, evaluate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Groupmate) <ul style="list-style-type: none"> When Users apply for fraudulent jobs, they get unhappy due to wasted time Users were not satisfied when platforms allowed hirers to post jobs that were not real Cheating during online recruitment process When candidates with inadequate qualifications apply for a position, employers become irritated. 										
Focus on J&P, tap into	3. TRIGGERS What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news. <ul style="list-style-type: none"> Employment opportunities Endorsement and connections 	10. YOUR SOLUTION If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. To develop an end-to-end web application which in default have a lot of current job openings through job search API out of which appropriate job will be recommended based on user skill set. At the same time students can develop their skills side by side with various courses and webinars offered by reputed organization. In addition to this a smart chat bot will be available for 24*7 which can help users in finding the right job.	8. CHANNELS OF BEHAVIOUR 8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7 <ul style="list-style-type: none"> Apply for jobs Review job applications Attend initial level assessment 8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development. <ul style="list-style-type: none"> Final level interview Checkout location and infrastructure of company Finalize paperwork 	Focus on J&P, tap into								
Identify strong TR & EM	4. EMOTIONS: BEFORE / AFTER How do customers feel when they face a problem or a job and afterwards? Before : Looking for a dream job After: Feel comfortable they can stay connected and get employed			Explore online & offline CH of BE								

CHAPTER 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT:

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	1) Request username and password from user (along with their personal information you may need) 2) Verify email id and mobile number by confirming via OTP 3) Create a new user store user details in IBM DB2
FR-2	User Login	1) Manage the connection between the user and websites server 2) Verify uses identify identities such as username and password 3) Approve the authentication so the system can move to authorizing the user
FR-3	Get Job Recommendation through search API	We can use your job search API to get the current job opening in the market which will fetch the directly from the web page
FR-4	Job Alerts	Various modules triggers job alert. A notification is sent to the user whenever thereis a job opening based on the user's skillset.
FR-5	ChatBot to solve user query	A chatbot can help answer FAQ's about applying, benefits or next steps in the application process.

4.2 NON-FUNCTIONAL REQUIREMENT:

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	In case of job recommender application, Usability refers to the quality of a user's experience when interacting with the web UI .Usability is about effectiveness, efficiency and the overall satisfaction of the user. Usability describes the level of ease with which a system allows a user to get to that Goal.
NFR-2	Security	Authentication: Authentication is the act of determining the identity of a user. For example, User id and Password, Biometric Identification. Authorization: Authorization is the act of determining the level of access that an authorized user has to behaviour and data (use of firewalls).
NFR-3	Reliability	Application reliability in Job Recommender System is the probability of a piece of software operating without failure while in a specified environment over a set duration of time. In a perfect world, a reliable piece of software is completely defect free, does not create downtime, and performs correctly in every scenario.
NFR-4	Performance	In Job Recommender Application performance indicates how the app is functioning and how responsive the app is to the end-user. There are tools available to measure Application Performance and enable app developers to detect and diagnose complex application performance problems to maintain the expected level of service to end-users.

NFR-5	Availability	High availability systems are important in many industries because they help ensure systems function correctly for a continuous period. Technology and networks occasionally fail, such as when there's a power outage or a server error. In some industries, it's essential that the network remains functional at all times.
NFR-6	Scalability	Databases are usually large and complex to start with. Synchronizing multiple databases in a distributed environment multiplies the challenge. Designing a scalable distributed database requires focus from your development team and is a foundational element for everything else you will do on the path to creating a scalable application.

PROJECT DESIGN

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)		USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application.	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through online job web portal and jobs are recommended to the user skillsets.	I can register & access the dashboard with online web job portal Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail	I can register & access the dashboard	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can receive confirmation email	High	Sprint-1
	Dashboard		As a user, I can register for the application shown in the online job web portal which is suited for my skillsets.		High	
Customer (web user)			As a job seeker, user, freshers or experienced candidates. They want job recommendation email and known the recently updated job information through email or message. So that they were aware about the jobs based on their skillsets.			
Customer Care Executive			As a user, I want to record all the candidate application details based on the skillsets of the candidates like freshers, jobseekers and experienced candidate at the end of the given deadline.			
Administrator			As a admin, I want my requisition automatically populated with current job opportunities.			

5.3 SOLUTION ARCHITECTURE

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions.

- Job seekers struggling to get the desired jobs for the skills they have. They tend to miss out on job openings because there is an ocean of existing systems that list millions of jobs which are generally not relevant at all to the users.

- This system, therefore, approaches the idea from a data point of view, emphasizing more on the quality of the data than the quantity.
- In job recommender application job seekers can showcase their skills through their profiles. The user and their information are stored in the Database. User can find the jobs by using the search option or they can directly interact with the chatbot and get recommendation on Jobs based on the skills they have.
- A notification is send to the user whenever there is a job opening based on the user's skillset.
- With an increasing number of cash-rich, stable, and promising technical companies/startups on the web which are in much demand right now, many candidates want to apply and work for these companies. Job recommendation facilitates that experience, instead of having to scroll through a lot of job openings. We can easily get a job recommendation by using search API or Chatbot.

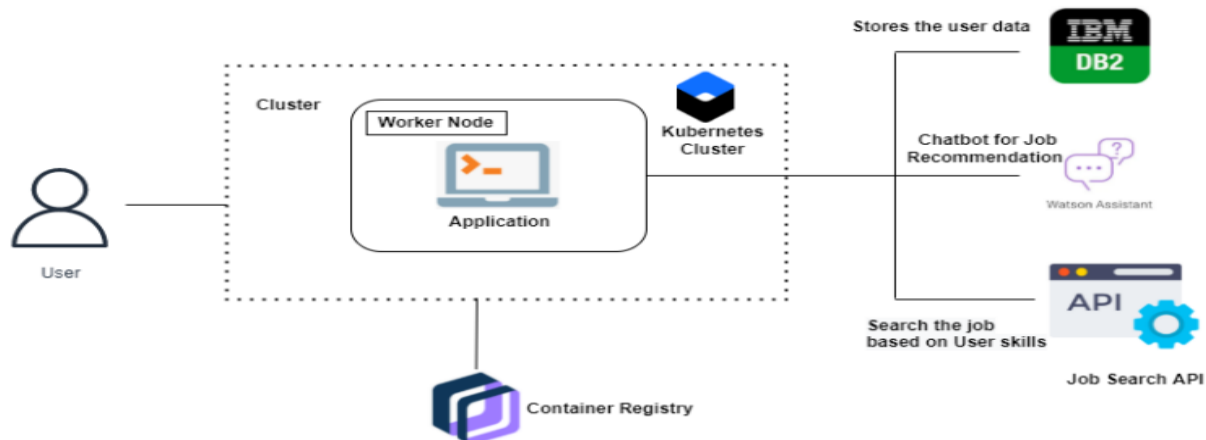


Figure 1: Architecture and data flow of the Skill/Job recommender application

Reference:

https://www.researchgate.net/publication/325697854_Job_Recommendation_based_on_Job_Seeker_Skills_An_Empirical_Study

CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION:

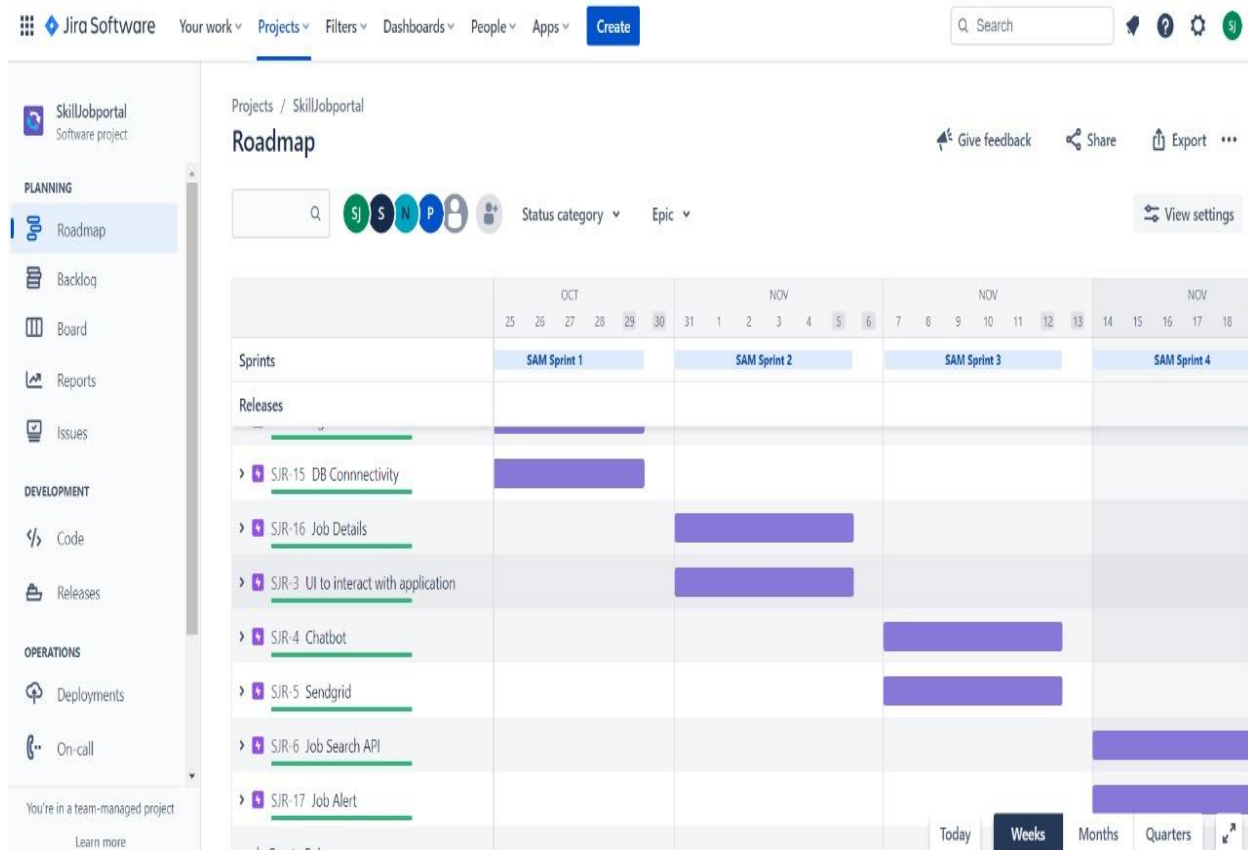
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Sherly J Nandhini K
Sprint-1	Login	USN-2	As a user, I can log into the application by entering email & password	3	Medium	Sivaranjani P
Sprint 1	DB Connectivity	USN-3	As a admin ,I would like to fetch the user details to recommend content to users and improve the user experience.	3	Medium	Sivaranjani P Swetha M
Sprint-2	Job Details	USN-4	As a admin, I must have to fetch current job opening details from the web portal	8	High	Sherly J Swetha M
Sprint 2	UI to interact with application	USN-5	As a user, I can interact with application to know about current job openings in the market	5	High	Nandhini K Swetha M
Sprint-3	Chatbot	USN-6	As a user, I have some queries about the application Chatbot can help to answer FAQ's	8	Medium	Swetha M Nandhini K

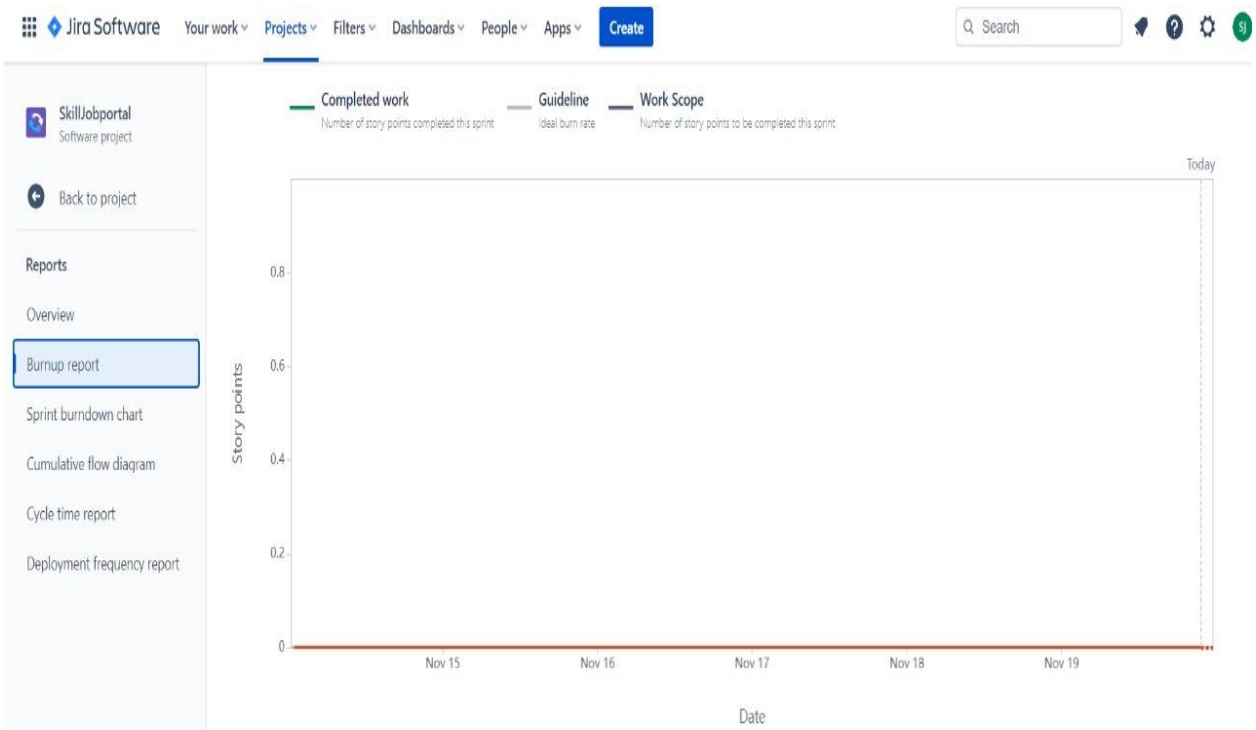
Sprint-3	Sendgrid	USN-7	As a user, I would like to get a notification through email, whenever there is a job opening that matches on the user skill sets	5	Low	Sivaranjani P
Sprint-4	Job Search API	USN-8	As a user,I preferred to choose my dream job so API provides me a desired job to apply and send notifications related to my interests	8	High	Sherly J
Sprint -4	Job Alert	USN-9	Various modules triggers job alert notification is sent to the user whenever there is a job opening based on the users skill set	3	Medium	Sherly J Sivaranjani P

6.2 SPRINT DELIVERY SCHEDULE:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	8	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	13	6 Days	31 Oct 2022	05 Nov 2022		
Sprint-3	13	6 Days	07 Nov 2022	12 Nov 2022		
Sprint-4	11	6 Days	14 Nov 2022	19 Nov 2022		

6.3. REPORTS FROM JIRA

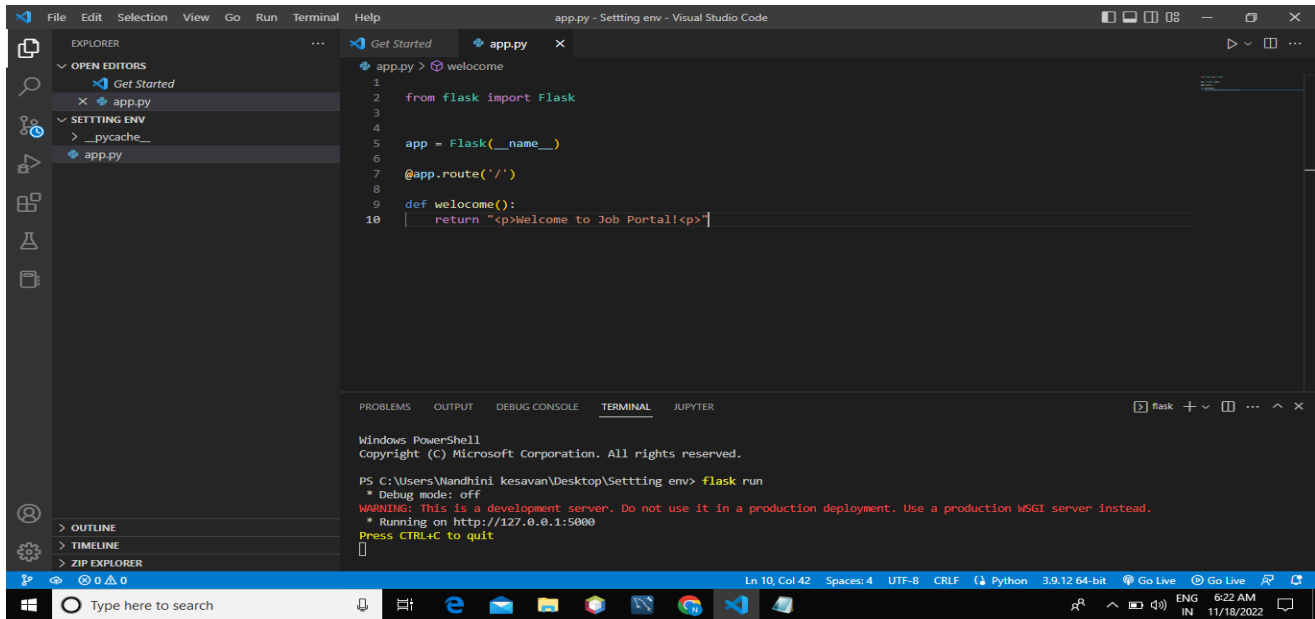




CHAPTER 7

SETTING UP AN ENVIRONMENT

7.1. CREATE FLASK PROJECT



The screenshot shows the Visual Studio Code interface with a Flask project named 'app.py' open. The Explorer pane on the left shows the project structure with 'app.py' selected. The main editor displays the code for 'app.py', which includes a 'welcome' route. The Terminal pane at the bottom shows the command 'flask run' being executed, resulting in a warning about the development server and the application running on http://127.0.0.1:5000.

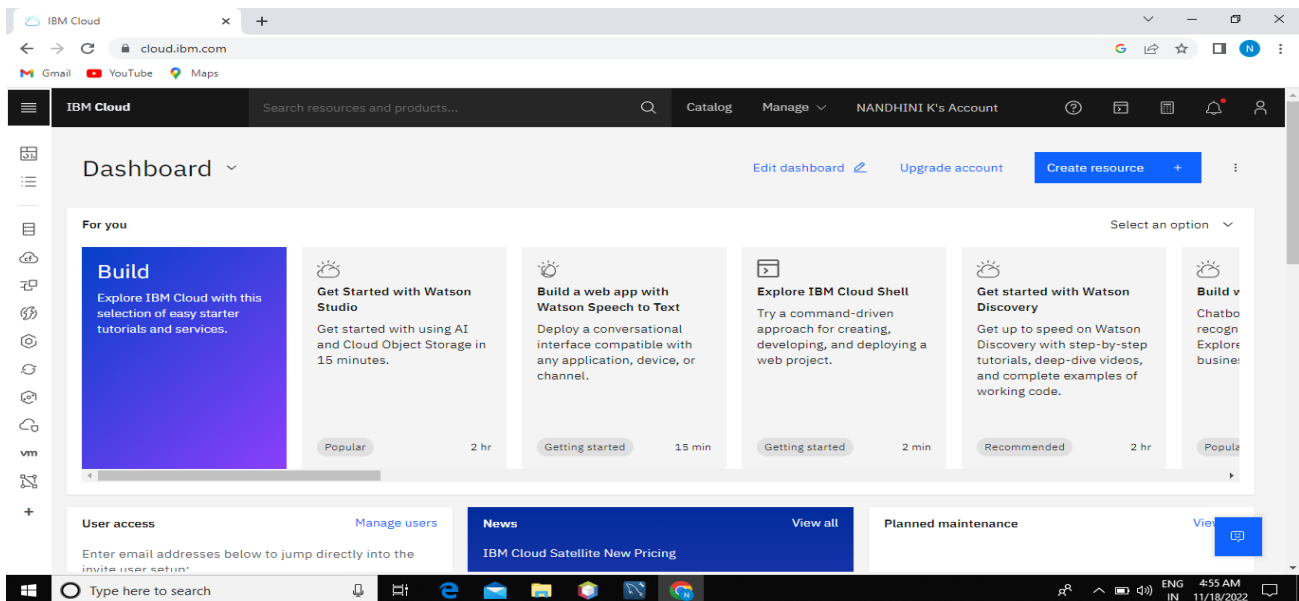
```
1 from flask import Flask
2
3
4 app = Flask(__name__)
5
6 @app.route('/')
7
8 def welcome():
9     return "<p>Welcome to Job Portal!<p>"
10
```

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\Nandhini kesavan\Desktop\Setting env> flask run

* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit

7.2. CREATE IBM CLOUD ACCOUNT



7.3. INSTALL IBM CLOUD CLI

The screenshot shows a Windows desktop environment. In the foreground, a Command Prompt window is open, displaying the following text:

```
Plug-in 'container-registry[cr] 1.0.2' found in repository 'IBM Cloud'
Attempting to download the binary file...
11.90 MiB / 11.90 MiB [=====] 100.00% 34s
12476416 bytes downloaded
Installing binary...
Plug-in 'container-registry 1.0.2' was successfully installed into C:\Users\Nandhini kesavan\bluemix\plugins\container-registry. Use 'ibmcloud plugin show container-registry' to show its details.
C:\Users\Nandhini kesavan\Desktop\SETTING UP APPLICATION ENVIRONMENT>ibmcloud plugin install observe-service
ResilienLooking up 'observe-service' from repository 'IBM Cloud'...
Plug-in 'observe-service 1.0.82' found in repository 'IBM Cloud'
Attempting to download the binary file...
13.38 MiB / 13.38 MiB [=====] 100.00% 26s
14024704 bytes downloaded
Installing binary...
Plug-in 'observe-service 1.0.82' was successfully installed into C:\Users\Nandhini kesavan\bluemix\plugins\observe-service. Use 'ibmcloud plugin show observe-service' to show its details.
C:\Users\Nandhini kesavan\Desktop\SETTING UP APPLICATION ENVIRONMENT>
```

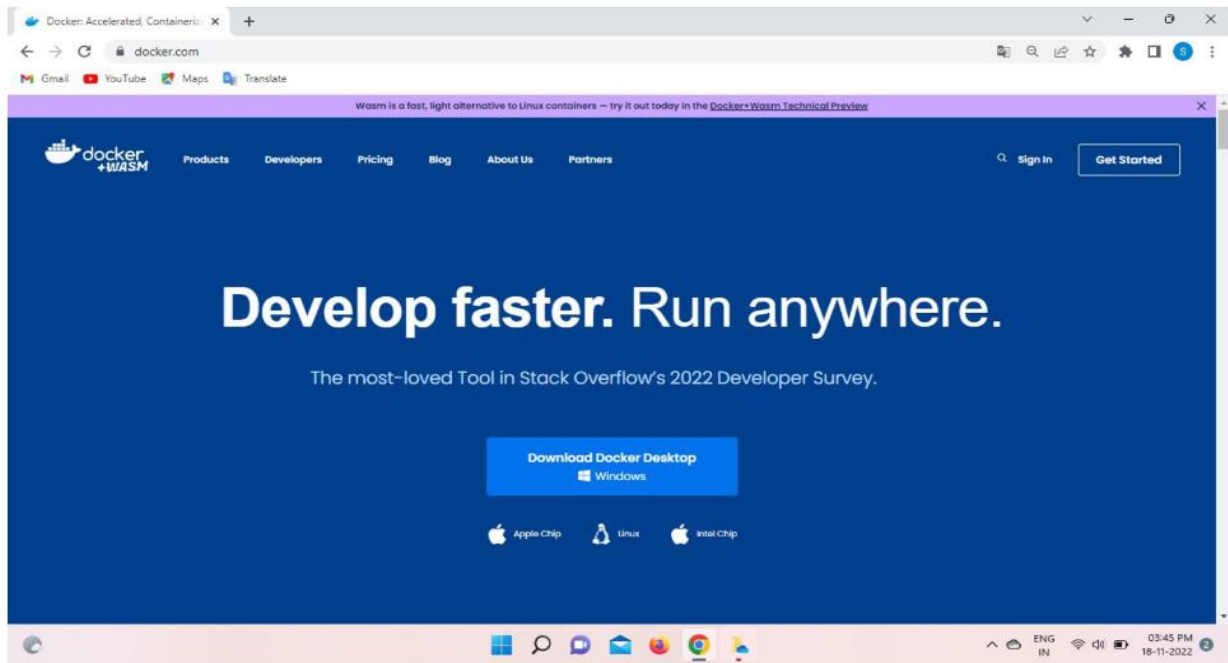
In the background, a web browser window shows the IBM Cloud documentation page for setting up the CLI. The page title is "Setting up the CLI | IBM Cloud". The URL is "cloud.ibm.com/docs/containers?topic=containers-cs_cli_install". The page content includes a sidebar with a "Console" tab and a list of steps: "Installing the IBM Cloud CLI and plug-ins", "Running the CLI in a container on your computer", "Configuring the CLI to run kubectl", "Setting the Kubernetes context for multiple clusters", and "Creating a temporary kubeconfig file".

7.4. CREATE AN ACCOUNT IN SENDGRID

The screenshot shows the SendGrid website. The page title is "SendGrid". The URL is "app.sendgrid.com/guide". The page content includes a sidebar with a "Dashboard" tab and a list of steps: "Welcome, sivaranjani!", "Send your first emails with Twilio SendGrid", "Create a sender identity", and "Send your first email".

The "Create a sender identity" section explains that a sender identity is the "from" email address your recipients will see in their inbox. It provides two options: "Create a Single Sender" and "Authenticate a domain instead". A diagram shows an email being sent from "Your Business" to "jane.doe@your_business.com".

7.5. DOCKER CLI INSTALLATION



CHAPTER-8

CODING & SOLUTIONING

(Explain the features added in the project along with code)

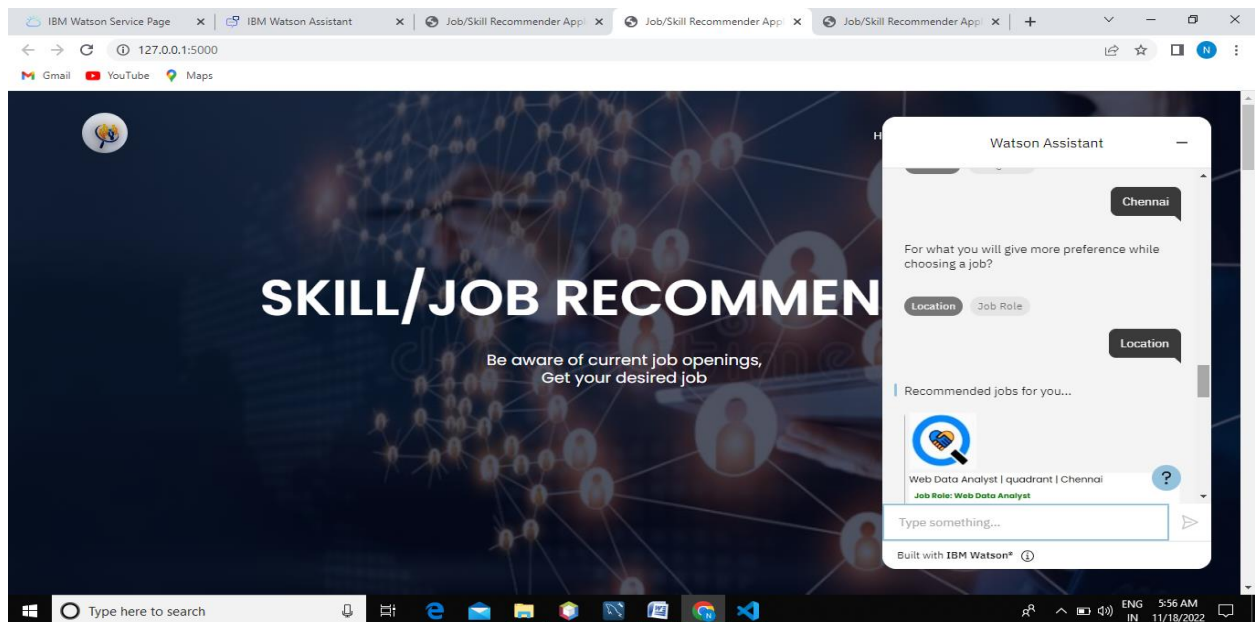
8.1 FEATURE

IBM WATSON ASSISTANT:

IBM Watson assistant uses artificial intelligence that understands customers in context to provide fast, consistent, and accurate answers across any application device or channel.

A job recommender application facilitates the experience, instead of having to scroll through a lot of job openings, We can use either chatbot or search API to know about your desired job.

In Chatbot people only need to answer a few questions and get the perfect recommendation within a minutes, if not seconds.



8.2 DATABASE CONNECTIVITY

```
from turtle import st

from flask import Flask,render_template, request, redirect, url_for, session

import ibm_db

from markupsafe import escape

conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=ea286ace-86c7-4d5b-8580-3fbfa46b1c66.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=31505;SECURITY=SSL;SSLServerCertificate=DigiCertGlobalRootCA.crt;UID=gwf34238;PWD=uZbKqu14IRXMQHRL",",")

app = Flask(__name__)

@app.route("/")

def log():

    return render_template('login.html')

@app.route('/home')

def home():

    return render_template('home.html')

@app.route('/register',methods = ['POST', 'GET'])

def register():

    if request.method == 'POST':

name = request.form['username']

        email = request.form['email']

        password = request.form['password']

        sql = "SELECT * FROM register WHERE email =?"
```

```

stmt = ibm_db.prepare(conn, sql)

    ibm_db.bind_param(stmt,1,email)

    ibm_db.execute(stmt)

account = ibm_db.fetch_assoc(stmt)

    if account:

        return render_template('login.html', msg="You are already signed up, please login using your
correct details")

    else:

insert_sql = "INSERT INTO register VALUES (?,?,?)"

    prep_stmt = ibm_db.prepare(conn, insert_sql)

ibm_db.bind_param(prepare_stmt, 1, name)

    ibm_db.bind_param(prepare_stmt, 2, email)

    ibm_db.bind_param(prepare_stmt, 3, password)

    ibm_db.execute(prepare_stmt)

    return render_template('login.html', msg="Hurry! your details saved successfully...Please
login using your details")

@app.route('/login',methods=['POST'])

def login():

    email = request.form['email']

    password = request.form['password']

    sql = "SELECT * FROM register WHERE email=? AND password=?"

    stmt = ibm_db.prepare(conn, sql)

    ibm_db.bind_param(stmt,1,email)

```

```
    ibm_db.bind_param(stmt,2,password)

    ibm_db.execute(stmt)

account = ibm_db.fetch_assoc(stmt)

    if account:

return render_template('home.html')

    else:

return render_template('login.html', msg="Login unsuccessful. Incorrect username / password
!")
```

CHAPTER 9

TESTING

9.1 TEST CASES

A test case is a set of rules or conditions to check if the system or one of its feature works in accordance to the requirement. It is a document with a set of details which includes, set of test data, expected results, actual results, environment information and soon. I have designed and executed a few test cases to check if the application meets the functional requirements.

Below are the test cases for the Job Search Portal web application.

TEST MODULE	TEST CASE	EXPECTED RESULT	TEST RESULT
ADMIN	Provide valid login credentials	User successfully logged in and directed to the admin dashboard page	PASS
ADMIN	Enters invalid login credentials	Displays Error message	PASS
ADMIN	Upon successful login, click on the 'List of Employers' tab.	Displays the details of list of active employers registered with the application	PASS
EMPLOYER	Provide details for registration	Employer successfully registered with the application	PASS
EMPLOYER	Upon successful login, click on 'Post New Job' tab	Employer posts jobs with the required details	PASS

JOBSEEKER	Provide details for registration	Jobseeker successfully registered with the application	PASS
JOBSEEKER	Enters invalid login credentials	Error message displayed	PASS
JOBSEEKER	Upon successful login, click on 'Search Jobs' tab	Details of the active job postings are displayed.	PASS

9.2. RESULTS

Test Objective: Navigation from splash screen to jobs screen

TEST CONDITION	INPUT SPECIFICATION	OUTPUT SPECIFICATION	PASS/FAIL
The user currently on the splash screen	Users enters credentials and clicks on login button	Direct to jobs screen	PASS

Test Objective: Navigation from jobs screen to job details screen

TEST CONDITION	INPUT SPECIFICATION	OUTPUT SPECIFICATION	PASS/FAIL
The user currently on jobs screen	Users click on the view against a particular job	Direct to job details screen	PASS

CHAPTER 10

ADVANTAGES & DISADVANTAGES

10.1. ADVANTAGES:

➤ **Getting Job Alerts:**

A superior job portal provides standard job alerts whenever there are job openings for you. This way, you won't neglect a chance to be valid for your target job and bound to start your career. Also, you can discover more posts to increase better options.

➤ **Classified:**

Once you register in a job portal, all your achievements, skills, and individual details will be reserved privately. This will be kept secure unless you let them split your details to your future employers. Also, job portals keep your job search narration classified which permits you to do the task surreptitiously.

➤ **More job opportunities:**

Job portals offer a full collection of job choices from top companies. It means you have a superior chance of searching the job you want anywhere and however; you want it.

➤ **Resourceful:**

With these portals, you can be relevant for a job effortlessly. Instead of going to your intention firm, you can submit your resume online. After submitting, you can relax, and wait for your future employers to take action.

10.2. DISADVANTAGES:

➤ **They have no screening.**

Anyone can sign up for a profile and apply for a job on an online job portal - no matter their credentials. With no official screening process in place, the website you're using can allow unlimited unqualified candidates to apply. Reviewing unqualified applications is an even further waste of your time.

➤ **They're ineffective for high-level positions.**

Because they have no screening process and allow companies to post for a wide variety of jobs, online job search websites tend to be better choices for entry-level positions. Your high-level position won't get the attention or the kind of candidates you need

CHAPTER-11

CONCLUSION

We proposed a framework for job recommendation task. This frame work facilitates the understanding of job recommendation process as well as it allows the use of a variety of text processing and recommendation methods according to the preferences of the job recommender system designer. Moreover, we also contribute making publicly available a new dataset containing job seekers profiles and job vacancies. Future directions of our work will focus on performing a more exhaustive evaluation considering a greater amount of methods and data as well as a comprehensive evaluation of the impact of each professional skill of a job seeker on the received job recommendation.

CHAPTER-12

FUTURE SCOPE

- The job boards have to keep up with the shift in consumer base and market demands. There has been a significant change happening in the digital platform in terms of the content the generation consumes and demands due to differences in political, technological, and economic points of view. Therefore, the job boards must focus on offering value propositions that are quite different and relevant as well.
- Recruiters and job seekers are experiencing an entirely automated process of searching and connecting. All job boards should be perfectly indexed, highly responsive, and exhaustive in job descriptions to establish their credibility and reliability. These features can be clubbed with technical upgrades like job tags supported with search engine optimizations and resume-matching criteria that are need of the hour.
- The job boards will be ready to face challenges from social media and professional networking sites. Job boards need to figure out what are the gaps and modify strategies that can make them more popular for job seekers and employers. The future generation relies more on digital networking tools to look for job searches. Easy accessibility to digital tools and techniques can help establish better connections which makes the job portals remain on the competitive edge.

CHAPTER-13

APPENDIX

SOURCE CODE (SAMPLE)

13.1 SOURCE CODE

app.py

```
import email

from pyexpat import model

from tkinter import S

from flask import Flask , render_template , request , redirect , url_for

from flask import Flask, render_template, request, redirect, session

import sqlite3 as sql

app = Flask(__name__)

app.secret_key = 'fasdghdghfg'

@app.route('/')

def home():

    return render_template('home.html')

""" @app.route('/index')

def index():

    return render_template('index.html')"""

@app.route('/index')

def index():
```

```

con = sql.connect("job_database.db")

cur = con.cursor()

cur.execute("select * from jobs")

jobs = cur.fetchall()

return render_template("index.html", jobs = jobs)

@app.route('/login1')

def login1():

    return render_template('login1.html')

@app.route('/signup')

def signup():

    return render_template('signup.html')

""" @app.route('/search1')

def search1():

    return render_template('search1.html')"""

@app.route('/contact')

def contact():

    return render_template('contact.html')

@app.route('/companies')

def companies():

    return render_template('companies.html')

@app.route('/postjob')

def postjob():

```

```

return render_template('postjob.html')

@app.route('/addrec',methods = ['POST', 'GET'])
def addrec():

    if request.method == 'POST':

        try:

            keywords = request.form['keywords']

            jobrole = request.form['jobrole']

            company = request.form['company']

            location = request.form['location']

            experience = request.form['experience']

            ctc = request.form['ctc']

            with sql.connect("job_database.db") as con:

                cur = con.cursor()

                cur.execute("INSERT INTO jobs (keywords,jobrole,company,location,experience,ctc)
VALUES (?, ?, ?, ?, ?, ?)",(keywords,jobrole,company,location,experience,ctc) )

                con.commit()

                msg = "Record successfully added!"

        except:

            con.rollback()

            msg = "error in insert operation"

        finally:

            return render_template("result.html",msg = msg)

            con.close()

```

```

@app.route('/search1')

def search1():

    con = sql.connect("job_database.db")

    con.row_factory = sql.Row

    cur = con.cursor()

    cur.execute("select * from jobs")

    jobs = cur.fetchall()

    return render_template("search1.html", jobs = jobs)

if __name__ == "__main__":

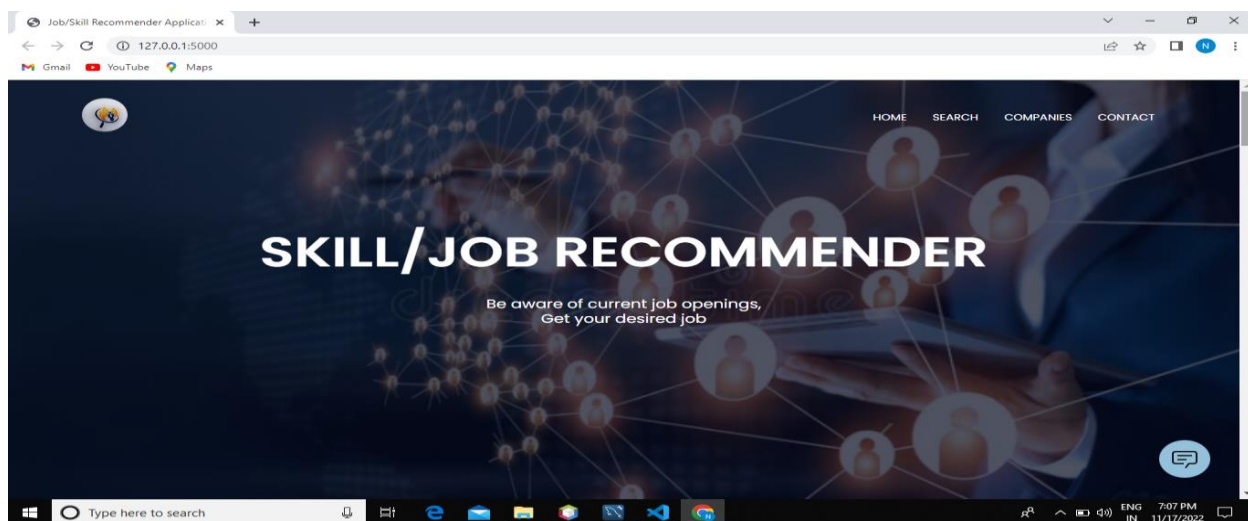
    app.run(debug=True)

```

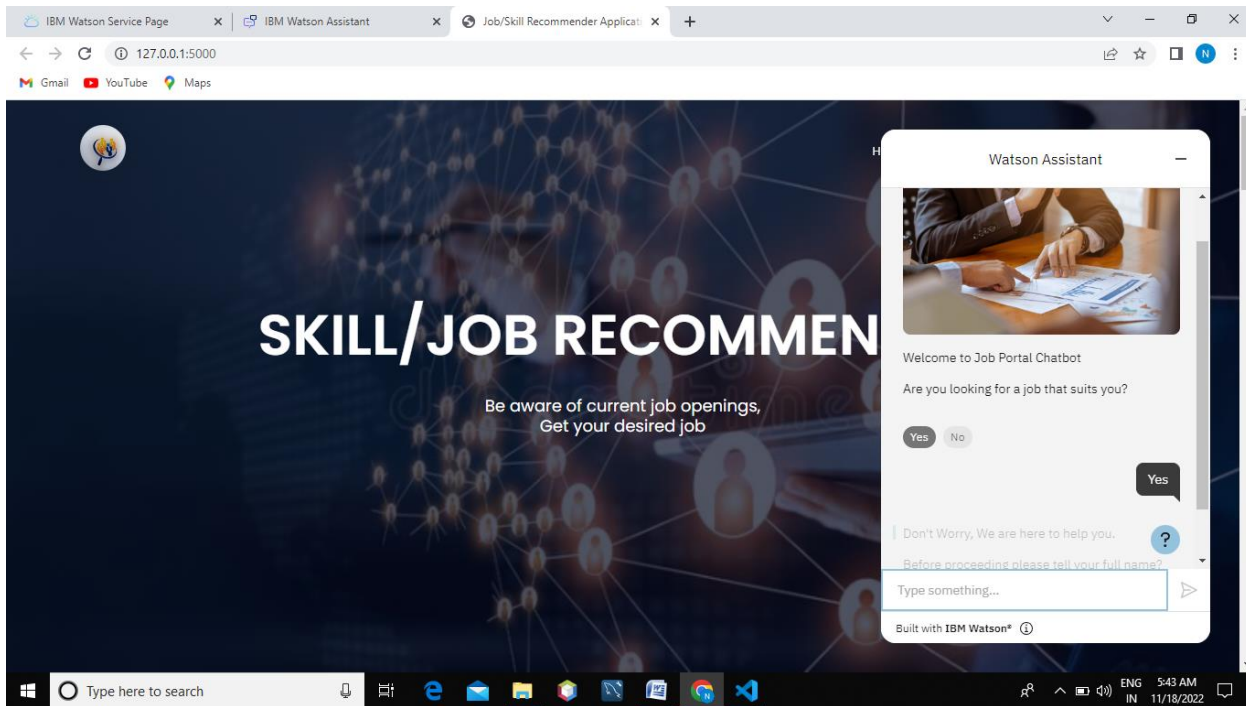
APPENDIX

OUTPUT (SCREENSHOT)

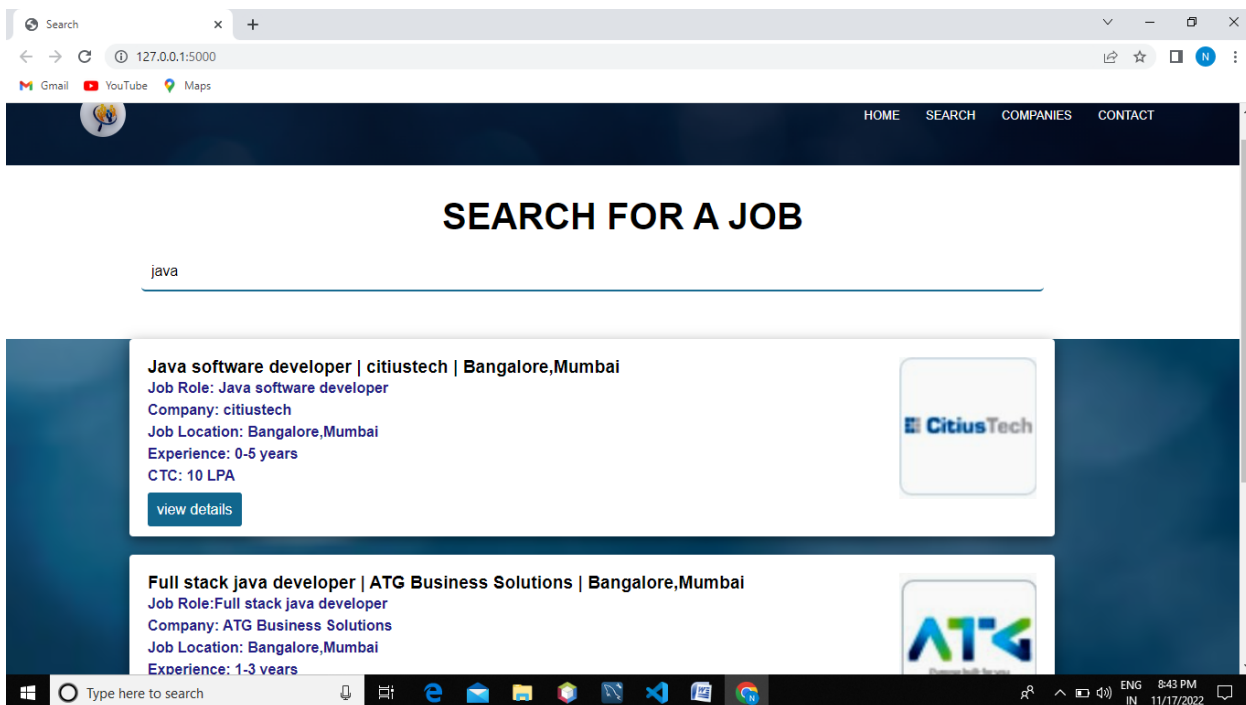
USER INTERFACE:



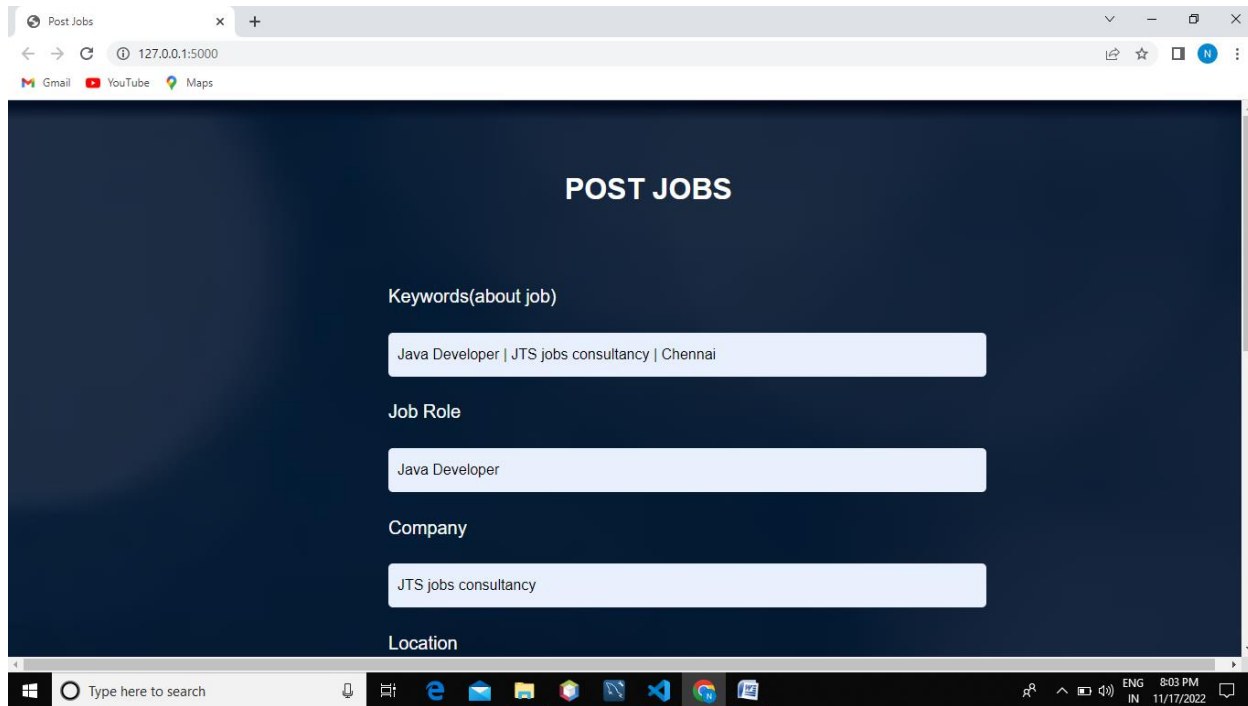
CHATBOT:



SEARCH API:



POST JOBS (AS A RECRUITER):



Post Jobs

127.0.0.1:5000

Gmail YouTube Maps

POST JOBS

Keywords(about job)

Java Developer | JTS jobs consultancy | Chennai

Job Role

Java Developer

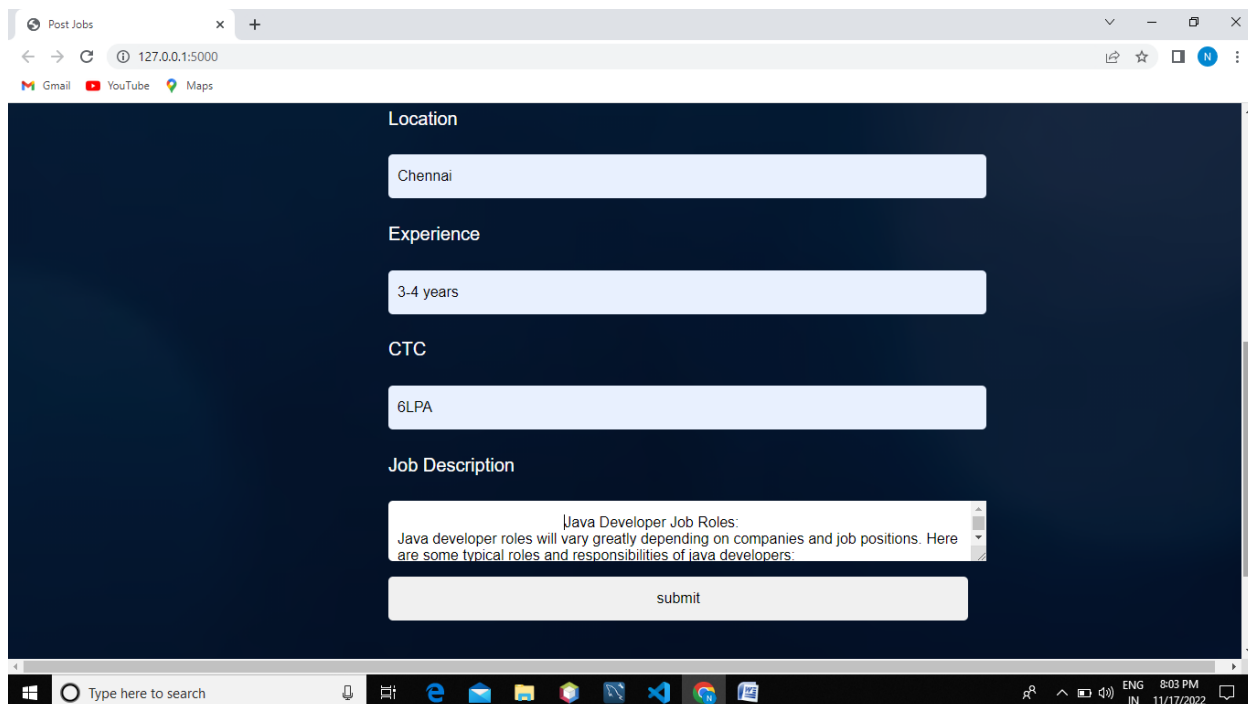
Company

JTS jobs consultancy

Location

Type here to search

ENG 8:03 PM IN 11/17/2022



Post Jobs

127.0.0.1:5000

Gmail YouTube Maps

Location

Chennai

Experience

3-4 years

CTC

6LPA

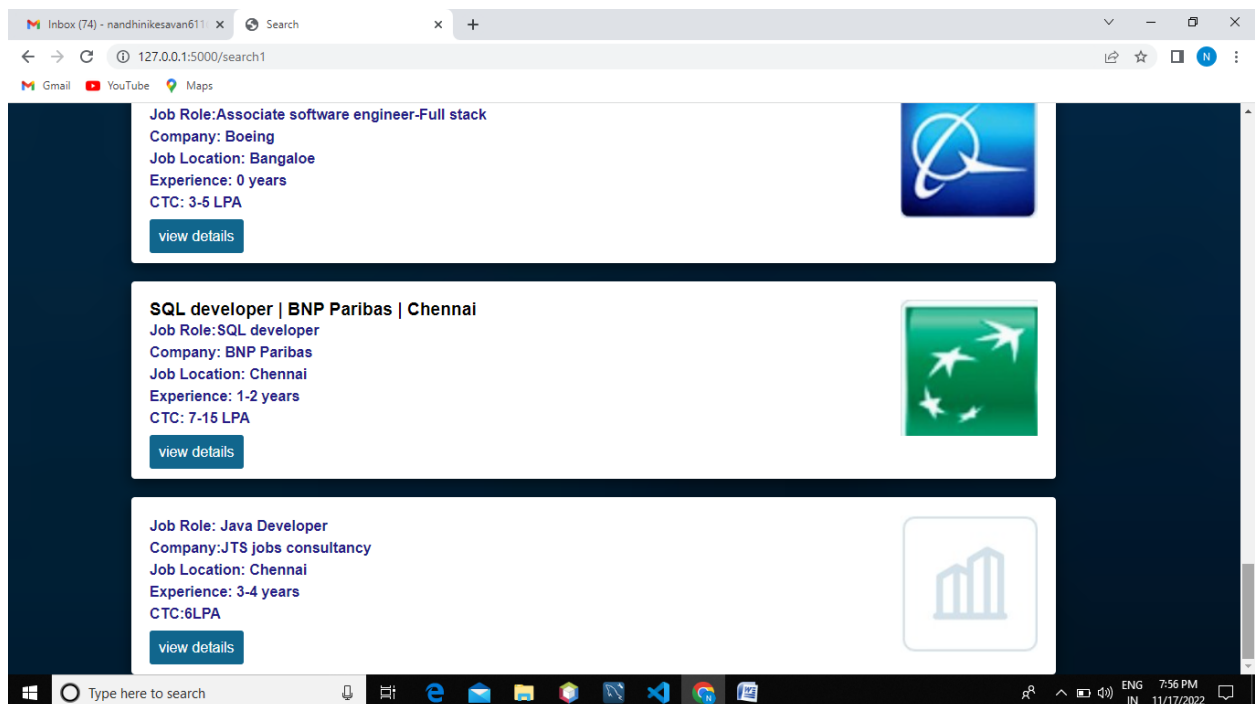
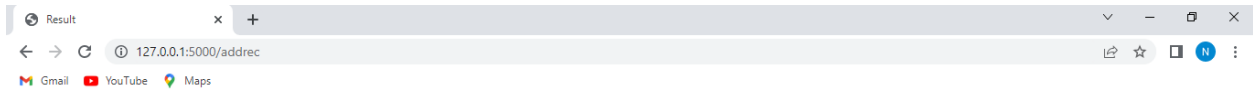
Job Description

Java Developer Job Roles:
Java developer roles will vary greatly depending on companies and job positions. Here are some typical roles and responsibilities of java developers.

submit

Type here to search

ENG 8:03 PM IN 11/17/2022



14. GITHUB LINK:

<https://github.com/IBM-EPBL/IBM-Project-37420-1660308384>

PROJECT DEMO LINK:

<https://drive.google.com/file/d/19yoUPT5UH4RtrwvAnQ--moE5Xo78nGuJ/view>