

SKILL AND JOB RECOMMENDER APPLICATION

A PROJECT REPORT

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BONAFIDE CERTIFICATE

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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 job search API to get the current job openings in the market which will fetch the data directly from the webpage.

The dataset used for this research are sourced from Stack overflow survey data which is modeled as the user data for this research. Another dataset was created by web scrapping the Job board Using R programming language to fulfill the road map of dissertation. The research question proposed by this research is "Can an efficient recommendation system be modeled for the Job seekers which recommend Jobs with the user's skillset and job domain and also addresses the issue of cold start?"

1.2. PURPOSE

In this section, we describe our framework for job recommendation. We narrow down the scope and focus on recommendation of job vacancies for Information Technology (IT) professionals acting in the Brazilian market. The proposed framework, depicted is composed by three stages:

- Data collection,
- Data preparation
- Recommendation.

1.2.1. Data collection

We automatically collected a set of job vacancies/offers from the Brazilian recruitment site called Catho3 and a set of Brazilian professional profiles from the well-known LinkedIn. We make available these datasets in a public repository⁴ with personal data anonymized. It is important to we collected more data from similar sites but, due to the validation issues, we only managed to work with these two sources in our framework. To perform job offers scraping, we created a list of keywords from the IT industry and used them as search terms. For each keyword, we search all the related job offers using Catho's search engine and save the retrieved results in our database; thus, the content's quality is highly related to the quality of the Catho's search engine. Additionally, the scraper is set up to avoid duplicate job offers, thus all the job offers are unique. On the other hand, to perform professional profiles scrapping, we created a list of areas of professional practice from the IT industry and, from that, we search among the professional contacts of first, second and third degree of our research group using LinkedIn's search engine and save the retrieved results in our database; thus, all the professional profiles also are unique. We use text mining approaches to process both profiles and job offers data. Therefore, we selected the work experience, education and competencies/skills from the profiles and, the description and title from the job offers. Finally, we concatenate these fields into a new one and discard the original fields, thus we end up with a document-like representation for each job offer and professional profile.

1.2.2. Data preparation

Although we retrieved data from job search sites using only IT keywords, there were still some job offers that do not correspond to this field, then, the first step in this

phase is filtering out job offers that do not belong to the IT field. To achieve this, we use a dictionary of weighted IT terms to match each job offer in its document-like format. This way, we calculate the weighted sum of the appearances of each word of the job offer in the dictionary and divided it by the appearances of the rest of words in the document (job offer). Finally, we get a score with a value from 0 to 1, where a higher value indicates that the offer contains many relevant words on IT and it is very likely that corresponds to this field. Subsequently, we select only those job offers with a value of this score greater than 0.5. This setback only happens with the job offers since profiles were collected only into a IT professionals network. Once job offers and profiles are filtered, the second step is text preprocessing. In this task, we perform stop words removal, tokenization and lemmatization for the Portuguese language. The third step, feature representation, aims to represent these documents (job offers and profiles) as vector space models. For this purpose, we adopted two approaches: word embedding s and TF-IDF. The latter technique does not require so much effort to be implemented unlike the former. From the variety of word embedding representations we selected Word2Vec, which has different variants. We explore the two model architectures CBOW and Skip-Gram, and also the use of n-grams (big rams and trig-rams) in order to find the variation that best fit our problem. This way, we tested 5 different representations, TF-IDF, Word2Vec using CBOW, Word2Vec using Skip-Gram, Word2Vec using CBOW with n-grams and Word2Vec using Skip-Gram with n-grams. For the Word2vec models, a vector space size of 200 was selected after some initial experimentation. For both word embedding and TF-IDF representation, we only used the corpus composed by the job offers. Although we lose some data, it was necessary since we realized that job seeker profiles added some noise because of the existence of professionals with a very different background and skill set looking for a job on IT, which could foster spurious relations among skills. Finally, we transform both job offers and profiles into these 5 new representations and then proceed to use them in the recommendation phase.

1.2.3. Recommendation

In this last phase, given a certain profile with a proper representation, we select a group of the nearest job offers based on the distance to that profile (job matching). In the case of TF-IDF representation, we use the cosine distance while for word embeddings, we use the relatively new Word Mover's Distance (WMD) [Kus15]. Once retrieved the top "k" job offers for the profile, we sort them in descending order based on the inverse of this distance (ranking).

CHAPTER 2

LITERATURE SURVEY

2.1. EXISTING PROBLEM

2.1.1 Paul Bustions, Jorge Valverde-Rebaza, "Job Recommendation based on Job Seeker Skills: An Empirical Study", march 2018

In the last years, job recommender systems have become popular since they successfully reduce information overload by generating personal-sized job suggestions. Although in the literature exists a variety of techniques and strategies used as part of job recommender systems, most of them fail to recommending job vacancies that fit properly to the job seekers profiles. Thus, the contributions of this work are threefold, we: i) made publicly available a new dataset formed by a set of job seekers profiles and a set of job vacancies collected from different job search engine sites; ii) put forward the proposal of a framework for job recommendation based on professional skills of job seekers; and iii) carried out an evaluation to quantify empirically the recommendation abilities of two state-of-the-art methods, considering different configurations, within the proposed framework. We thus present a general panorama of job recommendation task aiming to facilitate research and real-world application design regarding this important issue.

2.1.2 Corine de Fruit, "Job Recommender Systems: A Review", November 2021

This paper provides a review of the job recommender system (JRS) literature published in the past decade (2011-2021). Compared to previous literature reviews, we put more emphasis on contributions that incorporate the temporal and reciprocal nature of job recommendations. Previous studies on JRS suggest that taking such views into

account in the design of the JRS can lead to improved model performance. Also, it may lead to a more uniform distribution of candidates over a set of similar jobs. We also consider the literature from the perspective of algorithm fairness. Here we find that this is rarely discussed in the literature, and if it is discussed, many authors wrongly assume that removing the discriminatory feature would be sufficient. With respect to the type of models used in JRS, authors frequently label their method as 'hybrid'. Unfortunately, they thereby obscure what these methods entail. Using existing recommender taxonomies, we split this large class of hybrids into subcategories that are easier to analyses. We further find that data availability, and in particular the availability of click data, has a large impact on the choice of method and validation. Last, although the Generalizability of JRS across different datasets is infrequently considered, results suggest that error scores may vary across these datasets.

2.2.REFERENCES

S. NO	PAPER	AUTHOR	YEAR	METHOD AND ALGORITHM	ACCURACY/ PRECISION
1	AI based suitability measurement and prediction between job description and job seeker profiles	Alamel, M.Kumar	2022	The system is developed to measure and predict a suitable candidate from an available candidate resume database. It uses Genetic	95.14%

				<p>algorithm and Artificial Neural Network(ANN).</p> <p>It completely uses AI based Methods</p>	
2	<p>A Recommender System that encodes job offers embedding s on graph databases.</p>	<p>D. Zhang J. Liu</p>	<p>2020</p>	<p>It propose a recommender system that, starting from a set of user's skills, identifies the most suitable jobs as they emerge from a last data set of online job vacancies. It uses a recommender system and recommendation algorithm.</p> <p>It uses word embedding s to extract the pattern and</p>	<p>On the scale of 1 to 5 precision is 3</p>

				DNN(Deep NeuralNetwork)to enhanced person - job fit.	
3	Job recommendati on based on Job profile on based on Job profile Clustering and job Seeker	L.Moussaid, M.Azzouazi	2020	Job offers are collected form job search website then they are prepared to extract meaningful attributes such as job titles and technical skills .A List of top N recommendations to suggested after matching data from job clusters and job seeker behavior . It uses such as profile Clustering,work2vec, k means Clustering	82.88%
4	Job Recommendati on based on Job Seeker	Ricardo Puma, Paul Bustios.	2018	It presents a general panorama of job recommendations	Precision is 0.5 as it matches at least one out of all profiles.

	Skills:An Empirical Study.			tasks aiming to facilitate research and real word applications design regarding the important issue. It used two main methods:Term Frequency - Inverse document frequency and Word2vec.	
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2.3. PROBLEM STATEMENT DEFINITION

In the last years, job recommender systems have become popular since they successfully reduce information overload by generating personalized job suggestions. Although in the literature exists a variety of techniques and strategies used as part of job recommender systems, most of them fail to recommending job vacancies that fit properly to the job seekers profiles. Thus, the contributions of this work are threefold, we: i) made publicly available a new dataset formed by a set of job seekers profiles and a set of job vacancies collected from different job search engine sites; ii) put forward the proposal of a framework for job recommendation based on professional skills of job seekers; and iii) carried out an evaluation to quantify empirically the recommendation abilities of two state-of-the-art methods, considering different configurations, within the proposed framework. We thus present a general panorama of job recommendation task

aiming to facilitate research and real-world application design regarding this important issue.

CHAPTER 3

IDEATION & PROPOSED SOLUTION

3.1. EMPATHY MAP CANVAS

An **empathy map** is a collaborative visualization used to articulate what we know about a particular type of user. It externalizes knowledge about users in order to

- 1) create a shared understanding of user needs,
- 2) Aid in decision making.

Visualizing user attitudes and behaviors in an empathy map helps UX teams align on a deep understanding of end users. The mapping process also reveals any holes in existing user data. As UX professionals, it is our job to advocate on behalf of the user. However, in order to do it, not only must we deeply understand our users, but we must also help our colleagues understand them and prioritize their needs. It widely used throughout agile and design communities, are a powerful, fundamental tool for accomplishing both.



Fig3.1.1 - Empathy map

3.2. IDEATION & BRAINSTORMING

Brainstorming is a group problem-solving method that involves the spontaneous contribution of creative ideas and solutions. This technique requires intensive, freewheeling discussion in which every member of the group is encouraged to think aloud and suggest as many ideas as possible based on their diverse knowledge. Brainstorming combines an informal approach to problem-solving with lateral thinking, which is a method for developing new concepts to solve problems by looking at them in innovative ways. Some of these ideas can be built into original, creative solutions to a problem, while others can generate additional ideas. Some experts believe that brainstorming is better than conventional group interaction, which might be hindered by group think. Group think is a phenomenon that occurs when the team's need for consensus overshadows the judgment of individual group members. Although group brainstorming is frequently better for generating ideas than normal group problem-solving, several studies have shown that individual brainstorming can produce better ideas than group brainstorming. This can occur because group members pay so much attention to others' ideas that they forget or do not create their own ideas. Also, groups do not always adhere to good brainstorming practices. During brainstorming sessions, participants should avoid criticizing or rewarding ideas in order to explore new possibilities and break down incorrect answers. Once the brainstorming session is over, the evaluation session (which includes analysis and discussion of the aired ideas) begins, and solutions can be crafted using conventional means. Common methods of brainstorming include mind mapping, which involves creating a diagram with a goal or key concept in the center with branches showing subtopics and related ideas; writing down the steps needed to get from Point A to Point B; "teleporting" yourself to a different time and place; putting yourself in other people's shoes to imagine how they might solve a problem; and "super storming," or using a hypothetical superpower such as X-ray vision to solve a problem.



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

⌚ 10 minutes to prepare
⌚ 1 hour to collaborate
👤 2-8 people recommended



Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

⌚ 10 minutes

A Team gathering

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B Set the goal

Think about the problem you'll be focusing on solving in the brainstorming session.

C Learn how to use the facilitation tools

Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) →



Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

⌚ 5 minutes

PROBLEM STATEMENT

Devise an end-to-end web application capable of displaying the current job openings based on the user's skills. Users must interact with the chatbot and can get the recommendations based on their skills.



Key rules of brainstorming

To run a smooth and productive session

- Stay in topic. Encourage wild ideas.
- Defer judgment. Listen to others.
- Go for volume. If possible, be visual.

Activ
Go to



Brainstorm

Write down any ideas that come to mind that address your problem statement.

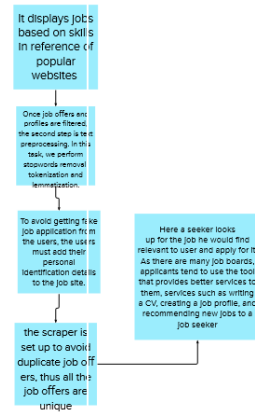
⌚ 10 minutes



Group Ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

⌚ 20 minutes



Activate Windows
Go to Settings to activate Windows.

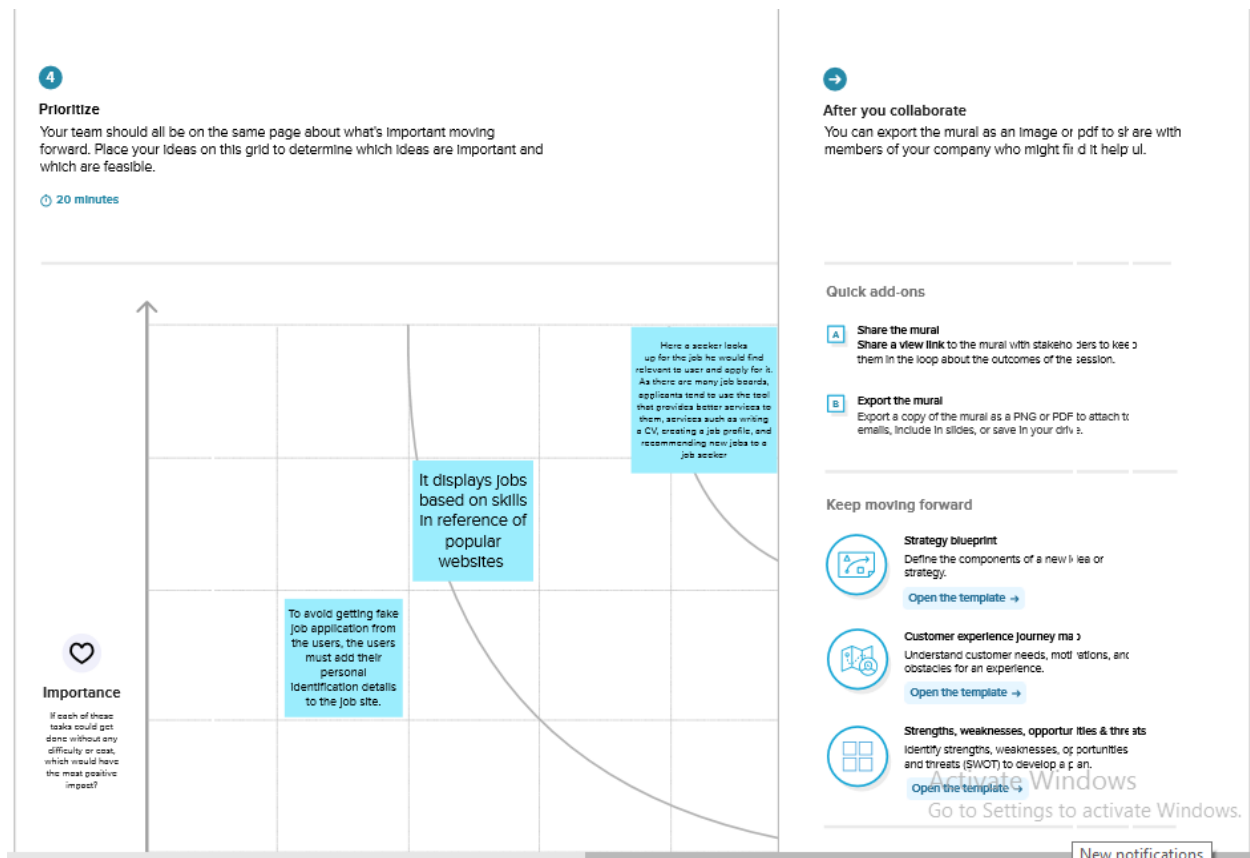


Fig 3.2.1 - Brainstorming

3.3.PROPOSED SOLUTION

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	<p>Devise an end-to-end web application capable of displaying the current job openings based on the user skillset.</p> <p>Users must interact with the chatbot and can get the recommendations based on their skills.</p>

2	Idea / Solution description	<p>where a job seeker applies to a job by creating a profile on a job portal by providing all his/her work preferences. These work preferences of each user can be collected from each user and provide job recommendations based on their preference.</p>
3	Novelty / Uniqueness	<p>Once job offers and profiles are filtered, the second step is text preprocessing. In this task, we perform stop-words removal, tokenization and lemmatization for the Portuguese language. this option helps us to find the specified jobs for us.</p>
4	Social Impact / Customer Satisfaction	<p>The scraper is set up to avoid duplicate job offers, thus all the job offers are unique</p>
5	Business Model (Revenue Model)	<ul style="list-style-type: none"> • Made publicly available a new dataset formed by a set of job seekers profiles and a set of job vacancies collected from different job search engine sites. • This also helps the industries to find out the users as his employers easily.
6	Scalability of the Solution	<p>Here a seeker looks up for the job he would</p>

		find relevant to him and apply for it. As there are many job boards, applicants tend to use the tool that provides better services to them, services such as writing a CV, creating a job profile, and recommending new jobs to a job seeker
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3.4.PROBLEM SOLUTION FIT

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem.

De fin e C S , fit int o C C	1. CUSTOMER SEGMENT(S) The graduates who search for jobs based on their skills	6. CUSTOMER CONSTRAINTS Our customer can use this application in Low cost or free cost, budget friendly and customer can directly interact with companies	5. AVAILABLE SOLUTIONS They can directly interact with companies about their queries	E xp lo re A S , di ff er en
	2. JOBS-TO-BE-DONE / PROBLEMS Analyze the problem of customer through mail and rectify it soon as per their wish	9. PROBLEM ROOT CAUSE Customer have to get job based on their skill because everyone can't get the job based on their skills	7. BEHAVIOUR Customer can easily find the job they want from many companies	

Identify strong TR & EM	3. TRIGGERS TR You can choose to notify your network about job changes, education changes, work anniversaries, and profile video updates. Enabling notifications about your profile changes may generate a post in your network's feed, an in-app notification, or an email notification.	10. YOUR SOLUTION This helps ensure that only trusted employees and partners edit your ad link content and represent your business on skill and job recommend applications.	8.CHANNELS of BEHAVIOUR CH You can specify a location for your job search by entering a location (postal code, city, state, province, or country) in the location field at the top of your screen. By default, your job search results will show results from any time, but you can also choose to display jobs posted within the last 24 hours, the past week, and the past month.
	4. EMOTIONS: BEFORE / AFTER EM <ul style="list-style-type: none"> • Before: Angry customers can be especially challenging. • Indecisive customers can take a long time to make decisions and may ask many questions. • Demanding customers may misunderstand how you are able to help them. • After: Communication skills are needed in virtually any job. Leadership skills are one of the soft skills many employers look for in candidates and can be helpful at all levels of your career. Teamwork skills are an important asset to any employee who is part of an organization or works with others in their daily operations. Interpersonal skills are skills that allow you to interact with and work well with others. 		

Fig3.3 -Problem solution fit

CHAPTER 4

REQUIREMENT ANALYSIS

4.1.FUNCTIONAL REQUIREMENT

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
2	User Confirmation	Confirmation via Email Confirmation via OTP
3	Dashboard	As a user, I can get a acknowledgement about the application process/ status
4		As a user , I can set up and view and update the profile.
5		As a user, I can interact with the chatBot and solve the queries.
6		As a user, can able to see the feeds of the interested companies' activities & enroll the site.

4.2.NON -FUNCTIONAL REQUIREMENTS

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Once job offers and profiles are filtered, the second step is text preprocessing. In this task, we perform stop words removal, tokenization and lemmatization for the Portuguese language. This option helps us to find the specified jobs for us.
NFR-2	Security	where a job seeker applies to a job by creating a profile on a job portal by providing all his/her work preferences. These work preferences of each user can be collected from each user and provide job recommendations based on their preference. This helps us to avoid the fake job recommendations.
NFR-3	Reliability	The scraper is set up to avoid duplicate job offers, thus all the job offers are unique. To making the user reliable.

NFR-4	Performance	Once job offers and profiles are filtered, the second step is text preprocessing. In this task, we perform stop words removal, tokenization and lemmatization for the Portuguese language. this option helps us to find the specified jobs for us
NFR-5	Availability	The user can get the available resources about the job information. Also, getting notified about job availabilities.
NFR-6	Scalability	Here a seeker looks up for the job he would find relevant to him and apply for it. As there are many job boards, applicants tend to use the tool that provides better services to them, services such as writing a CV, creating a job profile, and recommending new jobs to a job seeker

CHAPTER 5

PROJECT DESIGN

5.1.DATA FLOW DIAGRAMS

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

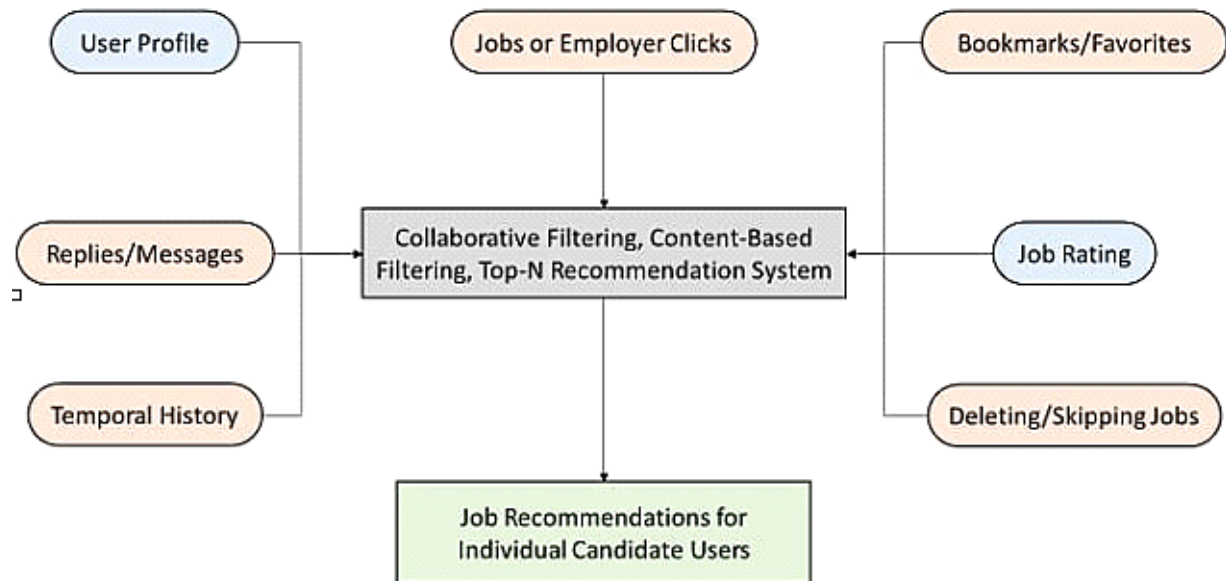


Fig 5.1.1 - data flow diagram

5.2.SOLUTION & TECHNICAL ARCHITECTURE

A **solution architecture (SA)** is an architectural description of a specific solution. SAs combine guidance from different enterprise architecture viewpoints (business, information and technical), as well as from the enterprise solution architecture (ESA).

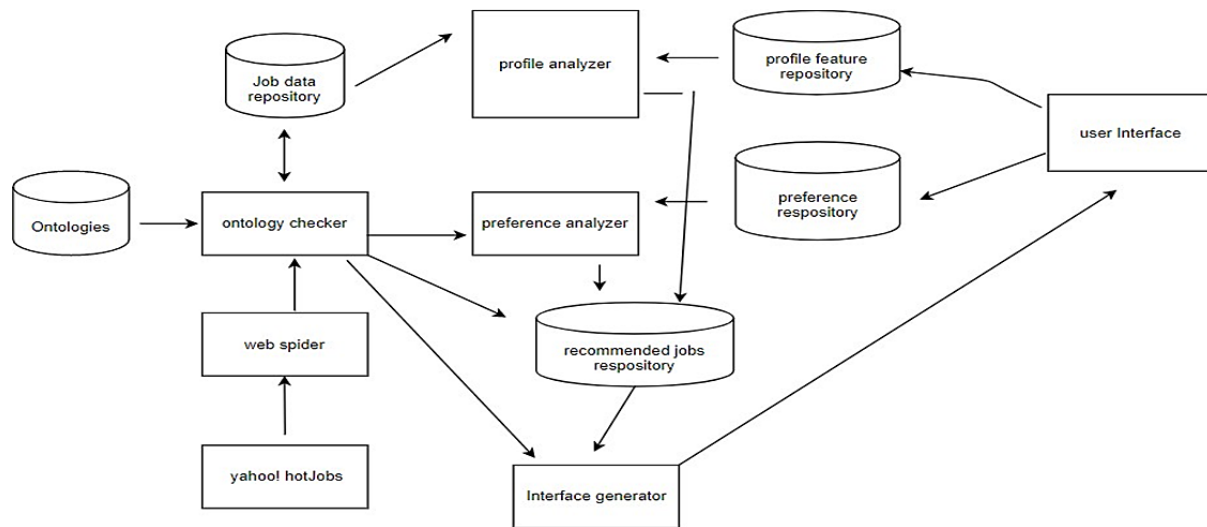


Fig 5.2.1 - Technology architecture

5.3.USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
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Job Seeker	I want to improve my personal skill and technical skill	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 Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the		Medium	Sprint-1

			application through Gmail			
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard	USN-6	As a user, I can get a acknowledgment about the application process/ status		High	Sprint-2
Customer (Web user)	Quality	USN-7	Quality can also depend on the customer preferences.		High	Sprint-1
Customer Care Executive	Excellent interpersonal and written and oral communication	USN-8	Managing a team of representatives offering	Ability to lead a team	High	Sprint-1

ve	skills		customer support			
Admini strator	The goal is to describe inputs,behaviors and outputs	USN-9	As a user , I can setup and view and update the profile	A bachelor's degree in administrati on or a related field.	High	Sprint-2
		USN-10	As a user, I can interact with the chatBot and solve the queries.		High	Sprint-2
		USN-11	As a user, can able to see the feeds of the interested companies' activities & enroll the site		Medium	Sprint-3
		USN-12	As a user, can get a updated notification feature also from the		Medium	Sprint-3

			interested companies			
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CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1.SPRINT PLANNING & ESTIMATION

SPRINT	TOTAL POINTS	DAY-0	DAY-1	DAY-2	DAY-3	DAY-4	DAY-5
Sprint 1	11	11	8.5	5.5	3.5	0	0
Sprint 2	9	9	6.8	4.5	4.5	0	0
Sprint 3	20	20	15	10	10	0	0
Sprint 4	20	20	15	10	5	0	0

6.2.SPRINT DELIVERY SCHEDULE

Product Backlog, Sprint Schedule, and Estimation (4 Marks) Use the below template to create product backlog and sprint schedule

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 and password	2	High	4
Sprint-1		USN-2	As a user, I will receive a confirmation email once I have registered for the application.	1	High	4
Sprint-2		USN-3	As a user, I can register for the application with OTP confirmation.	2	Low	4

Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Medium	4
Sprint-1		USN-5	As a user, I can log into the application by entering email & password	1	High	4
Sprint-2		USN-6	As a user, I can get a acknowledgement about the application process/ status	2	High	4
Sprint-2		USN-7	As a user , I can setup and view and update the profile	2	High	4
Sprint-3		USN-8	As a user, I can interact with the chatBot and solve the queries	2	High	4

Sprint-3		USN-9	As a user, can able to see the feeds of the interested companies' activities & enroll the site	1	Medium	4
Sprint-4		USN-10	As a user, can get a updated notification feature	2	Medium	4

6.3.REPORTS FROM JIRA

SPRINT-1

The screenshot displays the Jira Software interface for a project named 'Skill and Job Recommender Application'. The main view is 'SJRA Sprint 1', which is currently in the 'PLANNING' phase. The board is a Kanban board with four columns: 'TO DO', 'IN PROGRESS', 'IN REVIEW', and 'DONE 4 ISSUES'. The 'DONE 4 ISSUES' column contains two completed issues. The first issue is 'As a user, I can register for application by entering my and password' with a status of 'REGISTRATION' and a key of 'SJRA-1'. The second issue is 'As a user, I will receive confirmation email once I registered for the applicati' with a status of 'REGISTRATION'. The interface includes a sidebar with navigation options like 'Roadmap', 'Backlog', and 'Board'. A top navigation bar shows 'Jira Software' and various filters. A bottom banner promotes a free trial of the Standard plan.

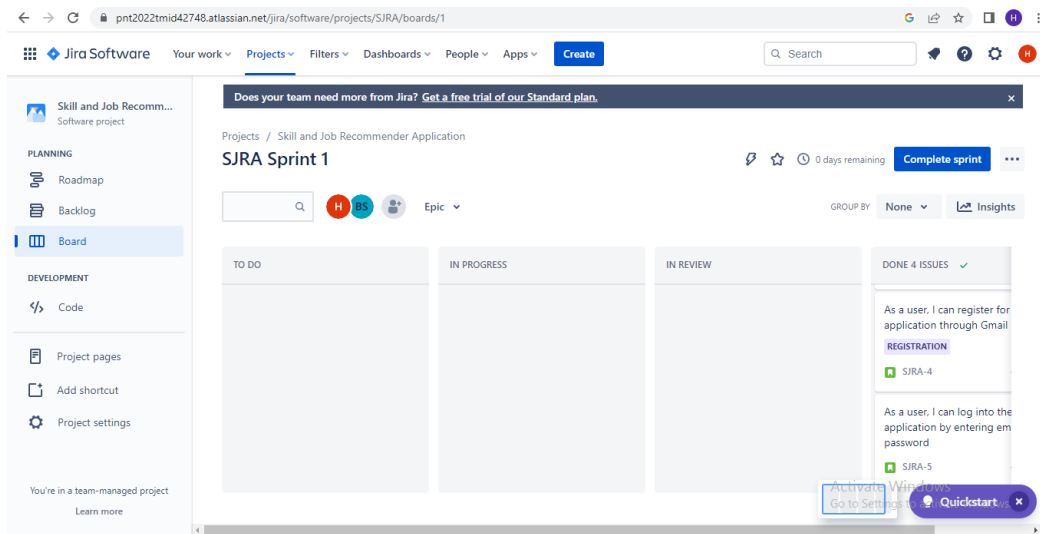


fig 6.3.1 - report for sprint 1

SPRINT-2

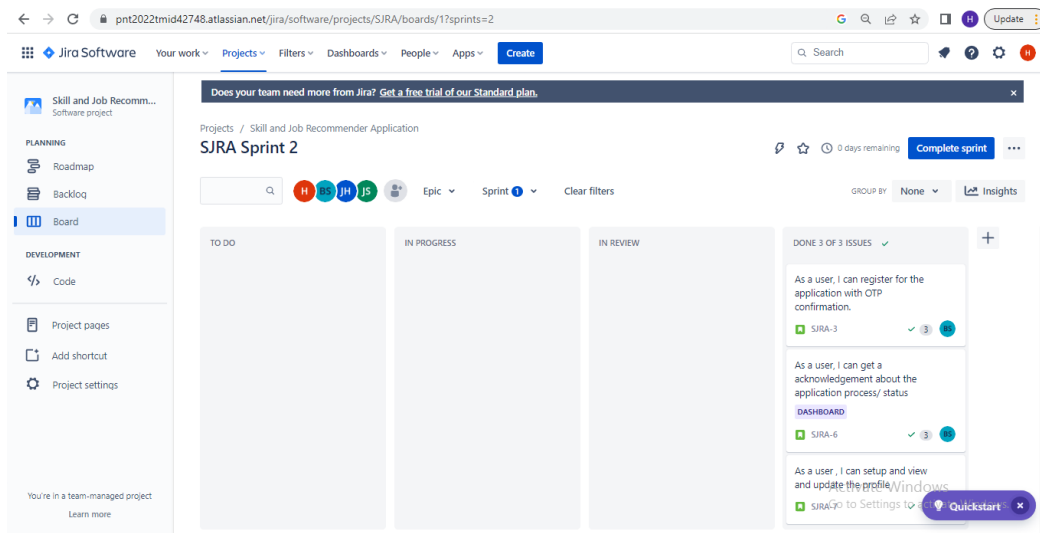


fig 6.3.2 - report for sprint 2

SPRINT-3

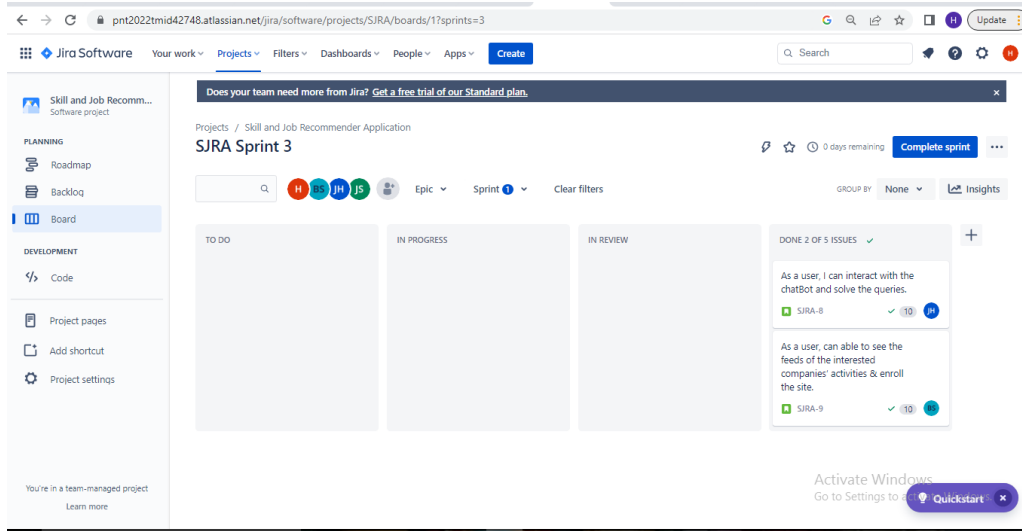


fig 6.3.3 - report for sprint 3

SPRINT-4

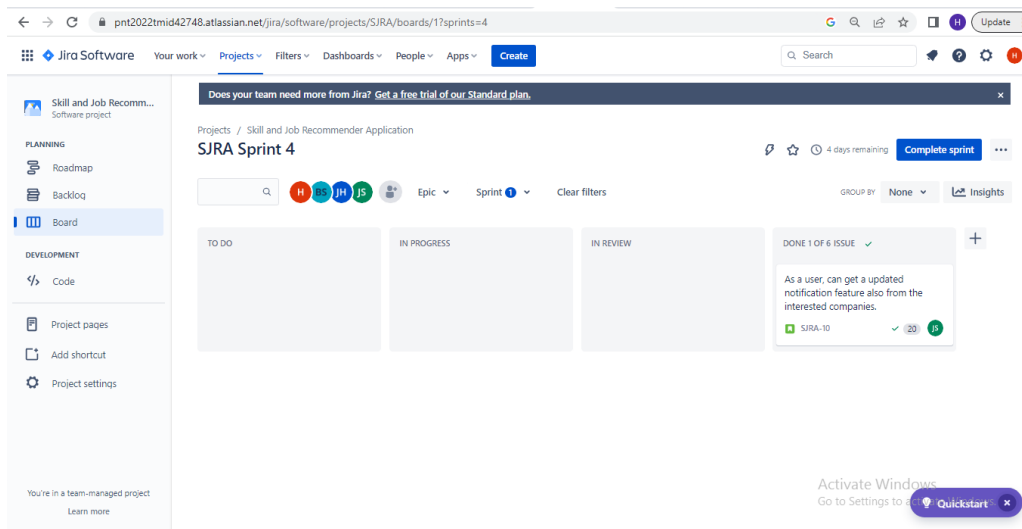


fig 6.3.4 - report for sprint 4

CHAPTER 7

CODING & SOLUTIONING

7.1.FEATURE 1

As a user, I can interact with the chatBot and solve the queries.

code for chatbot:

```
<!DOCTYPE html>
<html>
<body>
<style>
button {
  background-color: dodger blue;
}
p {
  text-align: center;
}
</style>
<p><button onclick="myFunction()">Click here to wake me up</button></p>
<p id="demo"></p>
<script>
function myFunction() {
  var text;
  var ms = prompt("Ask me anything.");
  switch(ms) {
    case "hello":
      text = "Hi, What do you want to ask me?";
      break;
    case "how are you":
```

```
    text = "I am fine. Hope you are fine too.";
    break;
case "hi":
    text = "Yes. What do you want to ask?";
    break;
case "hey":
    text = "Yes. What do you want to ask?";
    break;
case "yes":
    text = "Okay. So what do you want to ask?";
    break;
case "search":
    text = '<form action="https://www.google.com/search" target="_blank"><input
name="q" size="50" placeholder="type your search term and click enter"></form>';
    break;
case "functions":
    text = "I can help you to find answers to your questions, I can give the weather report
, I can show you the current time";
    break;
case "weather":
    text = '<a href="https://www.accuweather.com/en/us/google/94043/weather-
forecast/74907_poi" target="_blank">Weather report</a>';
    break;
case "time":
    text = new Date().toLocaleTimeString();
    break;
default:
    text = "I didn't understand that";
}
```

```

    document.getElementById("demo").innerHTML = text;
}
</script><hr>
<p>TYPE hello, how are you, hi, hey, yes, search, functions, weather, time etc.</p>
</body>
</html>

```

7.2.FEATURE 2

As a user I get notifications about my profile and application updates

code for updated notification:

```

<!DOCTYPE html>
<A html>
<head>
  <meta charset="utf-8">
  <meta http-equiv="x-up-compatible" content="ie=edge">
  <title>PROFILE UPDATED </title>
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <style type="text/css">
    @media screen {
      @font-face {
        font-family: 'Source Sans Pro';
        font-style: normal;
        font-weight: 400;
        src: local('Source Sans Pro Regular'), local('SourceSansPro-Regular'),
        url(https://fonts.gstatic.com/s/sourcesanspro/v10/ODell1aHBYDBqgeIAH2zlBM0YzuT
        7Md
        Oe03otPbuUS0.woff) format('woff');
      }
    }
  </style>

```



```

@font-face {
  font-family: 'Source Sans Pro';
  font-style: normal;
  font-weight: 700;
  src: local('Source Sans Pro Bold'), local('SourceSansPro-Bold'),
    url(https://fonts.gstatic.com/s/sourcesanspro/v10/toadOcfmlt9b38dHJxOBGFk
    Qc6VGVFSmCnC_l7QZG60.woff) format('woff' } }

body,
table,
t,
a {
  -ms-text-size-adjust: 100%; /* 1 */
  -webkit-text-size-adjust: 100%; /* 2 */ }

table,
t {
  m so-table-rs pace: 0pt;
  m so-table-ls pace: 0pt; }

image {
  -ms-interpolation-mode: bi-cubic;}

a[x-apple-data-detectors] {
  font-family: inherit !important;
  font-size: inherit !important;
  font-weight: inherit !important;
  line-height: inherit !important;
  color: inherit !important;
  text-decoration: none !important; }

div[style*="margin: 16px 0;"] {
  margin: 0 !important;
}

```

```

body {
    width: 100% !important;
    height: 100% !important;
    padding: 0 !important;
    margin: 0 !important; }
table {
    border-collapse: collapse !important; }
a {
    color: #1a82e2; }
image {
    height: auto;
    line-height: 100%;
    text-decoration: none;
    border: 0;
    outline: none;
}
</style>
</head>
<body style="background-color: #e9ecef;">
    <!-- start pre header -->
    <div class="preheader" style="display: none; max-width: 0; max-height: 0;
    overflow: hidden; font-size: 1px; line-height: 1px; color: #fff; opacity: 0;">
        A pre header is the short summary text that follows the subject line when an
        email is viewed in the inbox.
    </div>
    <table border="0" cellpadding="0" cellspacing="0" width="100%">
        <tr>
            <t align="center" bgcolor="#e9ecef">
                <!--[if (gte ms o 9)|(IE)]>

```

```

<table align="center" border="0" cellpadding="0" cellspacing="0" width="600">
<tr>
<t align="center" valign="top" width="600">
  <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width:
600px;"> <tr>
    <td align="center" valign="top" style="padding: 36px 24px;">
      <a href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login form.html"
target="_blank" style="display:
      inline-block;">
        </a></td></tr></table>
    </td></tr></table></td></tr><tr>
<td align="center" bgcolor="#e9ecef">
  <!--[if (gte mso 9)](IE)>
  <table align="center" border="0" cellpadding="0" cellspacing="0" width="600">
  <tr>
  <td align="center" valign="top" width="600">
  <![endif]-->
  <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width:
600px;">
  <tr>
    <td align="left" bgcolor="#ffffff" style="padding: 36px 24px 0; font-family:
    'Source Sans Pro', Helvetian, Arial, sans-serif; border-top: 3px solid #
    d4d9df;">
      <h1 style="margin: 0; font-size: 32px; font-weight: 700; letter-spacing:
      -1px; line-height: 48px;">PROFILE UPDATED</h1>
    </td></tr></table></td>
  </tr></table></td></tr><tr>

```

```

<td align="center" bgcolor="#e9ecef">
  <!--[if (gte mso 9)|(IE)]>
    <table align="center" border="0" cellpadding="0" cellspacing="0" width="600">
      <tr>
        <td align="center" valign="top" width="600">
          <![endif]-->
          <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width:
            600px;">
            <tr><td align="left" bgcolor="#ffffff" style="padding: 24px; font-family
              : 'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 16px;
              line-height: 24px;">
              <p style="margin: 0;">Dear user,<br>
                your profile has been successfully updated...</p>
            </td>
          </tr>
          <tr> <td align="left" bgcolor="#ffffff" style="padding: 24px; font-family:
            'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 16px; line-height:
            24px; border-bottom: 3px solid #98f6f6">
              <p style="margin: 0;">Contact us,<br> abcde@gmail.com</p></td></tr>
        </table></td></tr></table></td></tr> <tr>
          <td align="center" bgcolor="#e9ecef" style="padding: 24px;">
            <table align="center" border="0" cellpadding="0" cellspacing="0" width="600">
              <tr>
                <td align="center" valign="top" width="600">
                  <![endif]-->
                  <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width:
                    600px;">
                    <!-- start permission -->
                    <tr>

```

```

<td align="center" bgcolor="#e9ecef" style="padding: 12px 24px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 14px; line-height:
20px; color: #666;">
<p style="margin: 0;">You received this email because we received a request
for [type_of_action] for your account. If you didn't request
[type_of_action] To know more details about the process click below..</p>
</td>
</tr>
<!-- end permission -->
<!-- start unsubscribe -->
<tr>
<td align="center" bgcolor="#e9ecef" style="padding: 12px 24px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 14px; line-height:
20px; color: #666;">
<p style="margin: 0;">To stop receiving these emails, you can <a
href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login form.html"
target="_blank">unsubscribe</a> at any
time.</p>
<p style="margin: 0;">click 1234 S. Broadway St. City, State 12345</p>
</td></tr></table></td></tr> </table></td> </tr></table> <!-- end body -->
</body>
</html>

```

7.3.DATABASE SCHEMA

DB2 database connection code for IBM:

```

import ibm_db
try:
    ibm_db.connect("DATABASE=bludb;HOSTNAME=19af6446-6171-4641-8aba-

```

```
9dcff8e1b6ff.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud;PORT=30699;PROTO  
COL=TCPIP;SECURITY=SSL;SSLServerCertificate=DigiCertGlobalRootCA.crt;UID=pnz28  
873;PWD=iiT6l0gqv6bkxufJ;","")  
    print("connected to db");  
except:  
    print("Not connected");
```

CHAPTER 8

TESTING

8.1.TEST CASES

	A	B	C	D	E	F	G	H	I	J	K
1	TESTCASE ID	FEATURE TYPE	COMPONENT	TEST SCENARIO	PRE-REQUISITE	STEPS TO EXECUTE	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	STATUS	COMMENTS
2	Welcomepage	Functional	Registerpage	Verify user is able to see the Login/Register to access their account		1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Register popup displayed or not	C:\Users\Brindha\Documents\IBM assignments\final codes\welcome_page.html	Login/Register popup should display	Working as expected	Pass	step by step approach we get pass
3	Registerpage	Functional	Home Page	Verify user to register to create account		1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Register popup a.username text box b.email textbox c.password textbox d.Reenter password textbox e.mobilino textbox	C:\Users\Brindha\Documents\IBM assignments\final codes\registration_page.html	Application should show below UI elements: a.username text box b.email text box d.Password text box e.Reenterpassword textbox e.Register button with green color	Working as expected	Pass	step by step approach we get pass
4	LoginPage	Functional	Home page	Verify user is able to log into application with Valid credentials		1.Enter URL(C:\Users\Brindha\Documents\IBM assignments\final codes\welcome page.html) and click go 2.Click on login dropdown button 3.Enter Valid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: guest@gmail.com password: guest123	login to homepage	Working as expected	pass	

	A	B	C	D	E	F	G	H	I	J	K
1	TESTCASE ID	FEATURE TYPE	COMPONENT	TEST SCENARIO	PRE-REQUISITE	STEPS TO EXECUTE	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	STATUS	COMMENTS
5	LoginPage	Functional	Login page	Verify user is able to log into application with Invalid credentials		1.Enter URL(C:\Users\Brindha\Documents\IBM assignments\final codes\welcome page.html) and click go 2.Click on Mylogin dropdown button 3.Enter Invalid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: guest@gmail.com password: guest123	Application should show 'Incorrect email or password' validation message.	working as expected	pass	
6	Homepage	Functional	Home Page	Verify user is able to see their accounts and feeds		1.Enter URL(file:///C:/Users/Brindha/Documents/IBM%20assignments/final%20codes/home_page.html) and click go 2.Click on Home user can see their feeds of interested accounts	Username: guest@gmail.com password: guest123	visible of Home button and feeds	Working as expected	pass	

8.2.USER ACCEPTANCE TESTING

UAT Execution & Report Submission

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [Skill and Job Recommender Application] project at the time of the release to User Acceptance Testing (UAT).

2.Defect Analysis

This report shows the number of resolver closed bugs at each severity level, and how they were resolved

Resolution	Severity1	Severity2	Severity3	Severity4	Subtotal
By Design	10	6	2	5	23
Duplicate	1	0	2	0	3
External	2	4	0	2	8
Fixed	11	4	5	20	40
Not Reproduced	0	1	1	0	2
Skipped	0	1	1	2	4
Won'tFix	0	4	3	3	10
Totals	24	20	17	34	90

3.TestCaseAnalysis

This report shows the number of test cases that have passed, failed and untested

Section	TotalCases	Not Tested	Fail	Pass
PrintEngine	7	0	0	7
ClientApplication	51	0	0	51
Security	2	0	0	2
OutsourceShipping	3	0	0	3
ExceptionReporting	7	0	0	7
FinalReportOutput	6	0	0	6
VersionControl	2	0	0	2

CHAPTER 9

RESULTS

9.1.PERFORMANCE METCS

E- RECRUITMENTS:

About understanding recruitment being used through the internet and understanding it from a job seekers perspective. Research states that technological development has covered almost every domain of a company and the way its operation and recruitment process of organization is no exception to the same. Human resources management is an important activity followed by the job and of which the recruitment segment focuses on hiring the right person for the right job. Implementation of the internet as a source for ideal candidate search has been coined a name called E recruitment. E recruitment has helped various organizations to take candidate search at macro level, but the major challenge is to what extent job seekers prefer job portals as an ideal source for seeking jobs. Online recruitment process has proved to be advantageous for the organization in terms of saving time and cost and also helping the company by providing an extensive horizon for search of candidates. Study's major objective was to understand how E recruitment hiring procedure can be made attractive for job seekers, in what avenues it can help the organization to cut down on operations cost in recruitment and what can be the significance of E recruitment as a platform for recruitment in near future. Based on the outcome of the study, the author states that respondents agree E recruitment to be an ideal platform for seeking job, as more and updated information about various job openings is available in online job portals, it also helps in saving time as well as cost compared to other sources of searching jobs. Overall, the author states that job seekers find E recruitment to be a better platform for job search compared to traditional methods of online recruitment.

CHAPTER 10

ADVANTAGES & DISADVANTAGES

ADVANTAGES :

- It's Cost-Effective

When you post a job ad on Facebook, you can pay for as much or as little exposure as you want and target it to an accurate audience. Indeed, if you manage your campaign effectively, you can save plenty of precious cash while attracting applicants who are the perfect fit for your vacancy.

- It's Immediate

Most job posts – and replies – appear in real-time. This can help you either increase your efforts to attract more candidates, a different set of candidates (early- instead of mid-career professionals, for example) or even stop candidates from applying if you've already found the right person for the job.

- You Can Reach a Bigger Audience

The internet is a global phenomenon, with more and more users gaining access every day, while in most developed countries, internet usage is extremely high. Therefore, you are gaining exposure to a huge potential pool of applicants. If you are looking for younger recruits in particular, then e-recruitment is probably the single most effective and efficient strategy possible; in the US, for instance, 98% of the 18–29 age group are active internet users.

- It's Easy

Almost anyone can post a job advertisement online because most

established job boards make the process clear, easy to understand and user-friendly. Conversely, the process is very simple for the applicant, too, making it quick and painless for interested parties to apply on the spot instead of mailing CVs and written applications through the post.

- You Can Make Your Job Ad More Dynamic

Posting a job online or via social media platforms gives you a chance to be more creative with your ad; for instance, you could create and attach a short video showing off the benefits of working for your company. Indeed, your use of technology can say a lot about your company culture, helping to attract specific types of candidates in the process. Businesses that use technology in such a way prove that they aren't afraid to innovate and that they are open to new and interesting ways of doing things.

- It's Flexible

The internet gives you plenty of flexibility with regards to controlling your posts and the applications you receive. If you post in a newspaper and want to amend the job advert, though, you would likely need to pay for an entirely new ad. With online posts, most platforms will allow you to edit, update or remove your job post whenever you wish.

- It's accessible

No matter where you are in the world – if you have an internet-enabled device and connection, you can perform all those management tasks described above. You can modify your job posting, see how many replies you have and even communicate with candidates directly.

- It expedites the hiring process

All of these advantages directly lead to the biggest one of all: a shortened hiring process. You can shortlist (or even directly contact) the best applicants as their applications come in, with the availability of integrated ATS software even doing most of the sifting work for you.

- It allows confidentiality

Some employers prefer to keep their names or companies private. This is especially true when a job role or organization is too sensitive or controversial to be advertised online. With online recruitment, employers can conceal the name of their firms or even search and contact candidates directly without the need of posting a job advertisement.

DISADVANTAGES:

For all its perks, there are downsides to online recruitment that you should also think about. Consider some of the following.

- Costs can spiral

Depending on the online platform you use, you may have to pay a subscription fee or other costs to post your vacancy. Some sites might require a membership fee or charge for extra services like application tracking or analytics to manage your advert. Also, if you are not getting the kind of response you're looking for, the costs of leaving the ad to run longer can accumulate.

- It can be difficult to measure their effectiveness

Not all online recruitment services offer an in-depth analysis of your posting; therefore, it can be hard to figure out what is and isn't working and how

to optimism your ad. Of course, this is a common problem in offline recruitment, too, but it's worth remembering that just because you've posted an ad online doesn't mean that you will always have access to reams of metrics and supporting data.

- It's informal

For some roles, companies perceive that online job postings – particularly on social media – can give off the wrong image of their company. This is particularly true for executive-level roles, particularly at firms (or in industries) that have a strong corporate or professional culture. It's not uncommon, for instance, for high-caliber firms to advertise C-level roles in reputable print publications such as The Economist or the Financial Times.

- It attracts bad candidates

As previously mentioned, it's very easy for people to apply for jobs online; this can potentially be a negative point as well, though. Posting a position online usually results in hundreds of applicants, many of whom will not be suitable for or serious about the role, thus diluting the quality of your talent pool.

- There's a lot of competition

The main downside to following trends is that everybody else is doing the same thing. As a result, your post can quickly become buried under a mountain of other job offers, forcing you to either pay more for extra exposure or risk not being seen. When it comes to social media, you're also at the mercy of Facebook or Twitter's algorithms, meaning that who you target is essentially in the hands of somebody else.

- It could lead to lost labor hours

If you are receiving large volumes of applications that need to be pruned, there are technical issues with the platform you are working with, or the job ad itself constantly needs to be changed, then the process can start to become difficult to manage. This either detracts you from other aspects of your job or requires somebody else to supervise the process closely.

- It attracts fraudulent applicants

Some applications might be fake to get information about the company or hiring officer (a common espionage tactic). Simultaneously, spammers might use the information posted online to promote a service or product to your company. If you give away too many details in your ad, malicious hackers can even use the information to potentially gain access to your company's IT systems.

- It can affect communication

Communicating with prospective employees through a screen can lead to misconstrued messages or wrong assumptions. However, talking to someone face-to-face can clarify what a person is like (at least by first impressions) while also maintaining clear communication with one another.

- It can lead to technical issues

Whether you're chatting to candidates via Skype chat or Zoom video calls, it can leave room for possible technical faults. It can be quite embarrassing for a recruiter to be suddenly switched out of a conversation or call due to an electrical outage, while having an unstable internet connection can be awkward. If your company hasn't got a stable internet connection or a good grip on technology, it can be detrimental to your company's reputed professionalism.

- You may miss out on great employees

Online recruitment can sometimes fail to attract good employees if your company's online persona isn't up to scratch. Candidates usually rush to the organisation's website or social media to get a sense of its reputation, mission, and overall culture. If they see that yours aren't impressive enough, they may turn down the job proposal or just ignore your advertisement altogether.

CHAPTER 11

CONCLUSION

Therefore, We conclude that job recommendation system with analysis of job description to recommend a job based on user's skills and preferences presents itself as worthy Recess model in recommending open position to the job seekers when looking for a new positions. Thus, among the different threshold and filtering techniques, we chose to model the recommender system using content-based filtering which is achieving F1-score of 66% with the threshold of 0.3 with average coverage of 53%.

CHAPTER 12

FUTURE SCOPE

Based on the current study, the recommendation system works on the content-based filtering using word embedding of word2vec and similarity measure of cosine similarity. As the corpus provides general information about the word and similar words around it, It is possible to create a better recommendation by creating a corpus related to the IT skills, terminology, Job domain and jargon of the industry. By using such corpus specific to the hiring domain, the recommendation could be better when analyzing implicit text data in the job description. It can be categorized in a better way. As this Recsys is currently working on data that has no interaction, a study needs to be conducted on the data that has previous interaction in the hiring domain. This would allow us to dynamically keep recommending new jobs based on user's change in preferences. There is a recommender system in the hiring domain from LinkedIn but not in the perspective of a job seeker but from the perspective of a recruiter. Similarly, we could conduct a study based on LinkedIn data to recommend jobs using content-based filtering. As conditions change from domain to domain, it is not a good idea to recommend a job because a user liked it; instead, the recommendation has to be considered, if the profile of a user matches the requirement. So, conducting more study based on content-based filtering ensemble with other filtering technique in hiring domain in the perspective of a job seeker can be considered as a part of future work. The job boards have been performing, evolving, and expanding their base gradually since its beginning in the 90s. In the presence of many challenges and competitions in the digital platform, the job boards should establish their importance and relevance by utilizing their expertise and technical support. Here are some points that guide how to deal with the challenges and improve the profitability of job boards in future scenarios.

- Be prepared with investments - Investing in job portal development with

convenient features that fulfil market demands and adapt to the changing requirements of customers. There should be serious efforts and inclination to build up and nurture the venture without taking it as an add-on to other business propositions. The objective is to contribute financial, technical, and intellectual support to the expansion and diversification of job boards to make them one of the most sought-after platforms for recruiters and job-seekers

- Targeting the super niche - The popularity of LinkedIn and Google for jobs has proved that there is a future for job boards if effectively managed to provide solutions. It would be better to focus on a few or inter-connected industry sectors rather than offering a diverse range of jobs across different industries. The structure of job boards should feature a better choice of jobs for specific sectors and tailor-made content for the users to attract the super-niche
- Maintain the price at the right level - Right pricing strategies for online recruitment advertising are essential to get an effective response. If a focused and specialist professional service is provided which is a viable alternative to other options, a premium pricing can be justified. This is a more profitable option than having numerous types of jobs posted for a measure price without any specialist focus or relevant content provided in support.

CHAPTER 13

APPENDIX

13.1 SOURCE CODE

WELCOME PAGE:

```
<!DOCTYPE html>
<html>
<head>
<style>
    h2{text-align: center;}

    i mg {
        float: left;
    }
</style>
</head>
<body>

<h2>WELCOME </h2>
</body>
<body>
<p style="font-size:30px;text-align: center; font-family:Franklin Gothic"> Job And Skill
Recommender.</p>
<div class="conatiner">
    <div class="col">
```

```

<div class="col-sm-6">

</div></div></div>
<div class="col-sm-6">
<p>Welcome to job search portal find your dream jobs hereTo continue Browsing
register , If already have an account Login to our site.</p><br><br>
<button type="button" name="button" value="sig in" style="background-color: light-blue;
padding: 10px 10px;"><a href="registration_page.html"
target="_blank">Register</a></button>
<button type="button" name="button" value="sig in" style="background-color: light-blue;
padding: 10px 10px;"><a href="Login page.html" target="blank">Login </a></button>
</body>
</html>

```

REEGISTRATION PAGE:

```

<!DOCTYPE html>
<html>
<head>
<title>job and skill recommender.com</title>
<meta name="viewport" content="width=device-width, initial-scale=1">
<body>
<style>
h1{text-align: center;}
h2{text-align: center;}

```

```
<h1>Welcome to job search</h1>
<h2>find your Dream jobs here...<h2>
</style>
</body>
<style>
body {
  font-family: Arial, Helvetian, sans-serif;
  background-color: light blue;
}

* {
  box-sizing: border-box;
}

input[type=text], input[type=password] {
  width: 100%;
  padding: 15px;
  margin: 5px 0 22px 0;
  display: inline-block;
  border: none;
  background: #f1f1f1;
}

input[type=text]:focus, input[type=password]:focus {
  background-color: #ddd;
  outline: none;
}
```

```
/* Overwrite default styles of hr */
```

```
hr {  
    border: 1px solid #f1f1f1;  
    margin-bottom: 25px;  
}
```

```
/* Set a style for the submit button */
```

```
.registerbtn {  
    background-color: #04AA6D;  
    color: white;  
    padding: 16px 20px;  
    margin: 8px 0;  
    border: none;  
    cursor: pointer;  
    width: 100%;  
    opacity: 0.9;  
}
```

```
.registerbtn:hover {  
    opacity: 1;  
}
```

```
/* Add a blue text color to links */
```

```
a {  
    color: dodger-blue;  
}
```

```
/* Set a grey background color and center the text of the "sign in" section */
```

```
.signin {
    background-color: #f1f1f1;
    text-align: center;
}
</style>
</head>
<body>

<form action="/action_page.php">
    <div class="container">
        <h1>JOB AND SKILL RECOMMENDER</h1>
        <h2>welcome to job search platform</h2>

        <p>find your dream jobs here... to continue with your job search register here....</p>
        <hr>

        <label for="User name"><b>User name</b></label>
        <input type="text" placeholder="Enter User name" name="User name" id="User"
required>

        <label for="email"><b>Email</b></label>
        <input type="text" placeholder="Enter Email" name="email" id="email" required>

        <label for="psw"><b>Password</b></label>
        <input type="password" placeholder="Enter Password" name="psw" id="psw"
required>

        <label for="psw-repeat"><b>Repeat Password</b></label>
```

```
<input type="password" placeholder="Repeat Password" name="psw-repeat" id="psw-repeat" required>
```

```
<label for="Mobile"><b>Mobile No</b></label>
```

```
<input type="text" placeholder=" Mobile No" name="Mobile" id="Mobile No" required>
```

```
<hr>
```

```
<p>By creating an account you agree to our <a href="#">Terms & Privacy</a>.</p>
```

```
<button type="button" name="button" value="sig in" style="background-color: light-blue; padding: 15px"><a href="home_page.html" target="_blank">Register</a></button>
```

```
</div>
```

```
<div class="container signing">
```

```
<p>Already have an account? <a href="Login page.html" target="blank">Sign in</a>.</p>
```

```
</div>
```

```
</form>
```

```
</body>
```

```
</html>
```

LOGIN PAGE:

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```



```

<style>
    h2{text-align: center;}

image {
    float: left;
}
</style>
</head>
<body>
<h2>WELCOME </h2>
</body>
<body>
<p style="font-size:30px;text-align: center; font-family:Franklin Gothic"> Job And Skill
Recommender.</p>
<div class="conatiner">
    <div class="col">
        <div class="col-sm-6">
<image
src="https://images.businessnewsdaily.com/app/uploads/2022/04/04081920/155423
9632.jpeg" alt="job Recommender" style="width:500px;height:400px;margin-
right:50px;font-family:Franklin Gothic">
</div></div></div>
<div class="col-sm-6">
    <p>Welcome to job search portal find your dream jobs hereTo continue Browsing
register , If already have an account Login to our site.</p><br><br>
<body>
    <center> <h1> Login to Continue </h1> </center>
    <form>
        <div class="container">

```

```
<label>Username : </label>
<input type="text" placeholder="Enter Username" name="username" required>
<label>Password : </label>
<input type="password" placeholder="Enter Password" name="password"
required>
<button type="submit"><a href="home_page.html"target =
"blank">Login</a></button>
</div>
</form>
</body>
</body>
</html>
```

EMAIL VERIFICATION:

```
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8"><meta http-equiv="x-ua-compatible" content="ie=edge">
<title>Email Confirmation</title>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style type="text/css">
@media screen {
@font-face {
font-family: 'Source Sans Pro';
font-style: normal;
font-weight: 400;
src: local('Source Sans Pro Regular'), local('SourceSansPro-Regular'),
```

```
url(https://fonts.gstatic.com/s/sourcesanspro/v10/ODell1aHBYDBqgelAH2zlBM0YzuT
7MdOe03otPbuUS0.woff) format('woff');}
@font-face {
  font-family: 'Source Sans Pro';
  font-style: normal;
  font-weight: 700;
  src: local('Source Sans Pro Bold'), local('SourceSansPro-Bold'),
  url(https://fonts.gstatic.com/s/sourcesanspro/v10/toadOcfmlt9b38dHJxOBGFk
Qc6VGVFSmCnC_l7QZG60.woff) format('woff');}}
body,table,td,a { -ms-text-size-adjust: 100%;-webkit-text-size-adjust: 100%;}table,td {
  mso-table-rs pace: 0pt;
  mso-table-ls pace: 0pt;}
image {-ms-interpolation-mode: bi cubic;}
a[x-apple-data-detectors] {
  font-family: inherit !important;
  font-size: inherit !important;
  font-weight: inherit !important;
  line-height: inherit !important;
  color: inherit !important;
  text-decoration: none !important;}
div[style*="margin: 16px 0;"] {
  margin: 0 !important;}
body {
  width: 100% !important;
  height: 100% !important;
  padding: 0 !important;
  margin: 0 !important;}
table {border-collapse: collapse !important; } a {color: #1a82e2;}
image {height: auto;line-height: 100%;text-decoration: none; border: 0;outline:
```

none;}</style>

</head><body style="background-color: #e9ecef;">

<div class="preheader" style="display: none; max-width: 0; max-height: 0; overflow: hidden; font-size: 1px; line-height: 1px; color: #fff; opacity: 0;">

A header is the short summary text that follows the subject line when an email is viewed in the inbox.</div>

<table border="0" cellpadding="0" cellspacing="0" width="100%"><tr><td align="center" bgcolor="#e9ecef">

<table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width: 600px;"><tr>

<td align="center" valign="top" style="padding: 36px 24px;">

 </td></tr></table></td></tr>

<td align="center" bgcolor="#e9ecef">

<table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width: 600px;"><tr><td align="left" bgcolor="#ffffff" style="padding: 36px 24px 0; font-family:

'Source Sans Pro', Helvetian, Arial, sans-serif; border-top: 3px solid #d4d4df;">

<h1 style="margin: 0; font-size: 32px; font-weight: 700; letter-spacing:

-1px; line-height: 48px;">Confirm Your Email Address</h1></td> </tr></table>

</td></tr><tr>

<td align="center" bgcolor="#e9ecef">

<table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width: 600px;"><tr>

<td align="left" bgcolor="#ffffff" style="padding: 24px; font-family

```

: 'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 16px;
line-height: 24px;">
    <p style="margin: 0;">Your Application Has Been Submitted Successfully
    <a href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login
form.html">click</a>, To know more about your
    application status.</p></td></tr><tr><td align="left" bgcolor="#ffffff">
<table border="0" cellpadding="0" cellspacing="0" width="100%"><tr>
<td align="center" bgcolor="#ffffff" style="padding: 12px;">
<table border="0" cellpadding="0" cellspacing="0"><tr>
<td align="center" bgcolor="#1a82e2" style="border-radius: 6px;">
<a href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login form.html"
target="_blank"
style="display: inline-block; padding: 16px 36px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size:
16px; color: #030303; text-decoration: none; border-radius:
6px;">APPLICATION STATUS</a></td></tr></table></td></tr></table></td></tr><tr>
<td align="left" bgcolor="#ffffff" style="padding: 24px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 16px;
line-height: 24px;">
    <p style="margin: 0;">If That Doesn't Work, Visit out Official page:</p>
    <p style="margin: 0;"><a href="C:\Users\Brindha\Documents\IBM
assignments\JIRA\login form.html" target="_blank">
C:\Users\Brindha\Documents\IBM assignments\JIRA\login
form.html</a></p></td></tr><tr>
<td align="left" bgcolor="#ffffff" style="padding: 24px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 16px; line-height:
24px; border-bottom: 3px solid #98f6f6">
    <p style="margin: 0;">Team,<br> Job Ski I
Recommender</p></td></tr></table></td></tr><tr>

```

```

<td align="center" bgcolor="#e9ecef" style="padding: 24px;">
  <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-
width:600px;">
<tr><td align="center" bgcolor="#e9ecef" style="padding: 12px 24px; font-family:
  'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 14px; line-height:
  20px; color: #666;">
    <p style="margin: 0;">You received this email because we received a request
    for [type_of_action] for your account. If you didn't request
    [type_of_action] To know more details about the process click below..</p></td> </tr>
<tr><td align="center" bgcolor="#e9ecef" style="padding: 12px 24px; font-family:
  'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 14px; line-height:20px; color:
  #666;">
    <p style="margin: 0;">To stop receiving these emails, you can <a
    href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login form.html"
    target="_blank">unsubscribe</a> at any time.</p>
    <p style="margin: 0;">click 1234 S. Broadway St. City, State 12345</p>
  </td></tr></table></td></tr></table>
</body>
</html>

```

HOME PAGE:

```

<!DOCTYPE html>
<html lang="en">
<head>
<title>job and skill recommender.com</title>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<style>
* {

```

```
    box-sizing: border-box;}

body {
    font-family: Arial, Helvetica, sans-serif;
    margin: 0;}

/* Header/logo Title */
.header {
    padding: 100px;
    text-align: center;
    background: lightblue;
    color: white;
    background-image:url('https://cdn.pixabay.com/photo/2017/07/22/16/33/keyboard-2529270__340.jpg');
    background-size: 80% 80%;}
</body>

/* Increase the font size of the heading */
.header h1 {
    font-size: 40px;}

.navbar {
    overflow: hidden;
    background-color: #333;
    position: sticky;
    position: -webkit-sticky;
    top: 0;}

.navbar a {
    float: left;
    display: block;
    color: white;
    text-align: center;
```

```
padding: 3px 20px;
text-decoration: none;}
.navbar a.right {
  float: right;}
.navbar a:hover {
  background-color: #ddd;
  color: black;
}.navbar a.active {
  background-color: #666;
  color: white;}
.row {
  display: -ms-flex-box; /* IE10 */
  display: flex;
  -ms-flex-wrap: wrap; /* IE10 */
  flex-wrap: wrap;}
.side {
  -ms-flex: 30%; /* IE10 */
  flex: 30%;
  background-color: #f1f1f1;
  padding: 20px;}
.main {
  -ms-flex: 70%; /* IE10 */
  flex: 70%;
  background-color: white;
  padding: 20px;
}
.fakeimg {
  background-color: #aaa;
  width: 100%;
  padding: 20px;}
```



```
.footer {  
  padding: 20px;  
  text-align: center;  
  background: #ddd;}
```

```
@media screen and (max-width: 700px) {  
  .row {  
    flex-direction: column;  
  }  
}
```

```
@media screen and (max-width: 400px) {  
  .navbar a {  
    float: none;  
    width: 100%;  
  }  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div class="header">
```

```
  <h1> JOB AND SKILL RECOMMENDATION </h1>
```

```
  <h2> </h2>
```

```
  <h3> </h3>
```

```
  <p>welcome<b> to job search </b>portal </p>
```

```
</div>
```

```
<div class="navbar">
```

```
  <a href="#" class="active">Home</a>
```

```
  <a href="#">photos</a>
```

```
  <a href="#">video</a>
```

```

<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/font-awesome.min.css">
<form class="example" action="action_page.php">
  <input type="text" placeholder="start your job search" name="search">
  <button type="submit"><i class="fa fa-search"></i></button>
</form>
<button><a href="#" class="right"></a><a href="OTP verification.html" target="blank">
verify your email</a></button>
</div>
<div class="row">
  <div class="side">
    <h2>About Us.....</h2>
    <h5>what we provide:</h5>
    <div class="fakeimg" style="height:210px;">we are offering a top companies to
startup assured job opportunities feel secure to apply in our portal start browsing with
us... Here we are providing a certified companies with perfect features with detailed
observations of the job position.Also preventing from the scam user. </div>
    <h3><b> your profile </b></h3>
    <p> update your profile here to explore more opportunities with us.....</p>
    <div class="fakeimg" style="height:50px;">Upload your Resume</div><br>
    <div class="fakeimg" style="height:50px;">Add your Education institute</div><br>
    <div class="fakeimg" style="height:50px;">Add your earned certificates</div>
  </div>
  <div class="main">
    <h2>YOUR FEEDS </h2>
    <h5>Feeds from your favorite companies.. follow more companies to get more feeds
and status about the companies</h5>
    <div class="fakeimg" image src="https://images.businessnewsdaily.com" alt="job
Recommender" style="width:500px;height:400px;margin-right:40px;font-family:Franklin

```

Gothic"> <image src="https://www.tcs.com/content/dam/tcs/images/csr/news/tcs-building.jpg" alt="there is a mountain" width="700" height="375"></div>

<p>From TCS....</p>

<p> Internship for freshers.. we are now hiring in business voice process for juniors get Exp: 1-2 years of experience salary in a best industry.</p>

<be>

<h2>FROM AMAZON</h2>

<h5>Amazon is looking for a quality check engineers and software tester's</h5>

<div class="fakeimg" image src="https://images.businessnewsdaily.com" alt="job Recommender" style="width:500px;height:400px;font-family:Franklin Gothic"> <image src="https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcQwAqbxjsYC5rMUy_np3S9wMUn8Onve6x2F8Q&usqp=CAU" width="700" height="375"></div>

<p>This is a vacancy season... </p>

<p> we are hiring software tester's and analysis in python C programming stream. eligibility criteria:freshers can apply, batch:2023 </p>

</div>

</div>

<div class="footer">

<h2>Discover more.. get job opportunities more..</h2>

</div>

</body>

</html>

OTP CONFIRMATION FOR EMAIL:

<!DOCTYPE html>

<html>

<head>

```
<meta charset="utf-8">
<meta http-equiv="x-ua-compatible" content="ie=edge">
<title>Email Confirmation</title>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style type="text/css">
@media screen {
  @font-face {
    font-family: 'Source Sans Pro';
    font-style: normal;
    font-weight: 400;
    src: local('Source Sans Pro Regular'), local('SourceSansPro-Regular'),
```

```
url(https://fonts.gstatic.com/s/sourcesanspro/v10/ODell1aHBYDBqgelAH2zlBM0YzuT
7MdOe03otPbuUS0.woff) format('woff');
```

```
}
```

```
@font-face {
  font-family: 'Source Sans Pro';
  font-style: normal;
  font-weight: 700;
  src: local('Source Sans Pro Bold'), local('SourceSansPro-Bold'),
```

```
url(https://fonts.gstatic.com/s/sourcesanspro/v10/toadOcfmlt9b38dHJxOBGFkQc6VG
VFSmCnC_l7QZG60.woff) format('woff'); } }
```

```
body,table,td,a {
  -ms-text-size-adjust: 100%; /* 1 */
  -webkit-text-size-adjust: 100%; /* 2 */
table,
td {
  mso-table-rs pace: 0pt;
```

```
mso-table-ls space: 0pt;}
image {
  -ms-interpolation-mode: bi-cubic;}
a[x-apple-data-detectors] {
  font-family: inherit !important;
  font-size: inherit !important;
  font-weight: inherit !important;
  line-height: inherit !important;
  color: inherit !important;
  text-decoration: none !important;}
div[style*="margin: 16px 0;"] {
  margin: 0 !important;}
body {
  width: 100% !important;
  height: 100% !important;
  padding: 0 !important;
  margin: 0 !important;}

table {
  border-collapse: collapse !important;}
a {
  color: #1a82e2;}
image {
  height: auto;
  line-height: 100%;
  text-decoration: none;
  border: 0;
  outline: none;}
</style>
```

```

</head>
<body style="background-color: #e9ecef;">
  <div class="preheader" style="display: none; max-width: 0; max-height: 0;
  overflow: hidden; font-size: 1px; line-height: 1px; color: #fff; opacity: 0;">
    A pre header is the short summary text that follows the subject line when an
    email is viewed in the inbox.
  </div><table border="0" cellpadding="0" cellspacing="0" width="100%">
    <tr><td align="center" bgcolor="#e9ecef">
      <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width:
      600px;">
    <tr><td align="center" valign="top" style="padding: 36px 24px;">
      <a href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login form.html"
      target="_blank" style="display:
      inline-block;">
        
      </a></td></tr></table>
    </td></tr><tr><td align="center" bgcolor="#e9ecef">
      <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width:
      600px;">
        <tr><td align="left" bgcolor="#ffffff" style="padding: 36px 24px 0; font-family:
        'Source Sans Pro', Helvetian, Arial, sans-serif; border-top: 3px solid #
        d4d4df;">
          <h1 style="margin: 0; font-size: 32px; font-weight: 700; letter-spacing:
          -1px; line-height: 48px;">Confirm Your Email Address</h1></td></tr></table>
        </td></tr><tr><td align="center" bgcolor="#e9ecef">
          <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width:
          600px;">

```

```

<tr><td align="left" bgcolor="#ffffff" style="padding: 24px; font-family
: 'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 16px;
line-height: 24px;">
    <p style="margin: 0;">your OTP confirmation code for registration
    <a href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login
form.html">click</a>,
    To verify with OTP continue losing in.</p>
</td></tr><tr><td align="left" bgcolor="#ffffff"><table border="0" cellpadding="0"
cellspacing="0" width="100%">
    <tr><td align="center" bgcolor="#ffffff" style="padding: 12px;">
    <table border="0" cellpadding="0" cellspacing="0"><tr>
    <td align="center" bgcolor="#1a82e2" style="border-radius: 6px;">
    <a href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login
form.html"
    target="_blank" style="display: inline-block; padding: 16px 36px; font-
family:
        'Source Sans Pro', Helvetian, Arial, sans-serif; font-size:
        16px; color: #030303; text-decoration: none; border-radius:
        6px;">784251</a>
</td></tr></table></td></tr></table>
    </td></tr> <tr>
    <td align="left" bgcolor="#ffffff" style="padding: 24px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 16px;
line-height: 24px;">
    <p style="margin: 0;">If That Doesn't Work, Visit out Official page:</p>
    <p style="margin: 0;"><a href="C:\Users\Brindha\Documents\IBM
assignments\JIRA\login form.html" target="_blank">
    C:\Users\Brindha\Documents\IBM assignments\JIRA\login
form.html</a></p>

```

```

</td></tr><tr>
<td align="left" bgcolor="#ffffff" style="padding: 24px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 16px; line-height:
24px; border-bottom: 3px solid #98f6f6">
  <p style="margin: 0;">Team,<br> Job Skill Recommender</p></td></tr>
</table></td></tr>
<tr><td align="center" bgcolor="#e9ecef" style="padding: 24px;">
  <table border="0" cellpadding="0" cellspacing="0" width="100%" style="max-width:
  600px;">
<tr><td align="center" bgcolor="#e9ecef" style="padding: 12px 24px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 14px; line-height:
20px; color: #666;">
  <p style="margin: 0;">You received this email because we received a request
  for [type_of_action] for your account. If you didn't request
  [type_of_action] To know more details about the process click
  below.</p></td>
</tr> <tr>
  <td align="center" bgcolor="#e9ecef" style="padding: 12px 24px; font-family:
'Source Sans Pro', Helvetian, Arial, sans-serif; font-size: 14px; line-height:
20px; color: #666;">
  <p style="margin: 0;">To stop receiving these emails, you can <a
  href="C:\Users\Brindha\Documents\IBM assignments\JIRA\login form.html"
  target="_blank">unsubscribe</a> at any
  time.</p>
  <p style="margin: 0;">click 1234 S. Broadway St. City, State 12345</p></td></tr>
</table></td><tr></table></body></html>

```

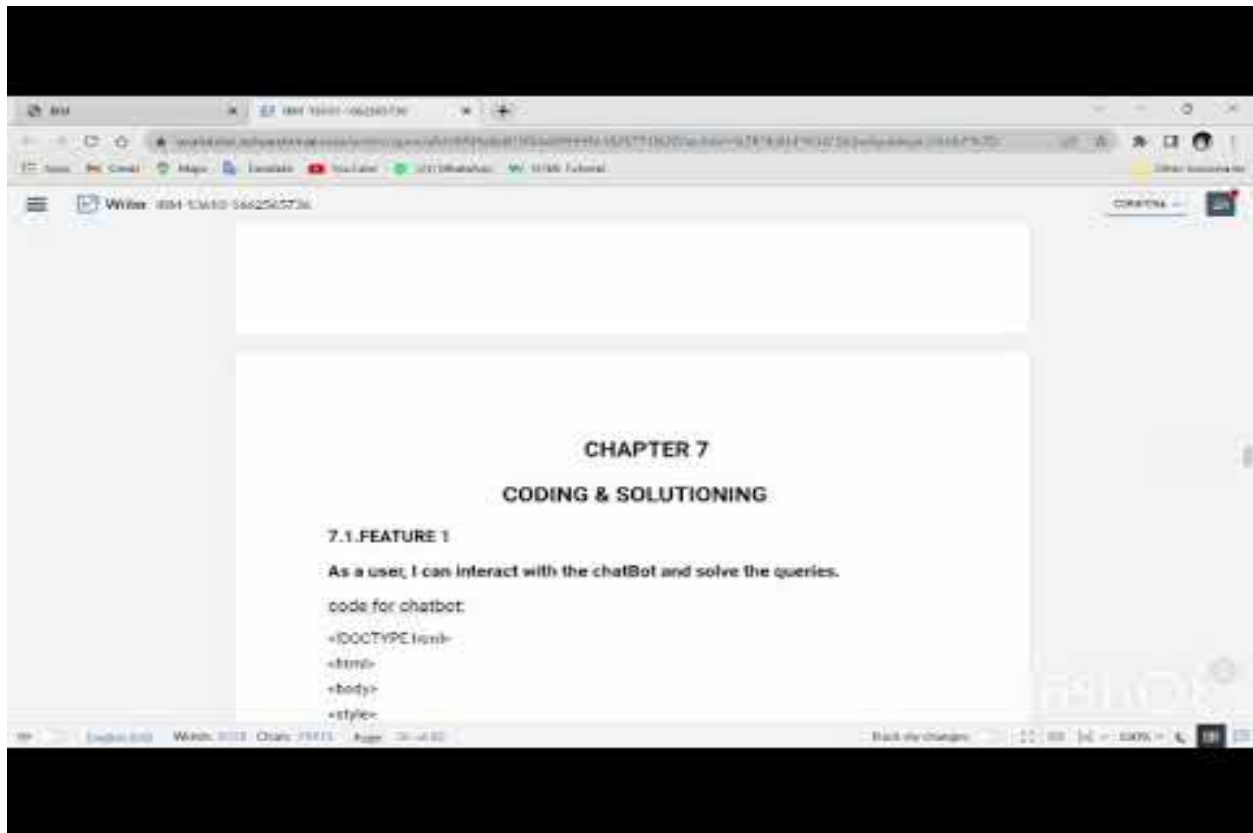

13.2 GITHUB & PROJECT DEMO LINK

Github assignments & codes link:

<https://github.com/IBM-EPBL/IBM-Project-13610-1659523582>

Demo link:

Youtube link:



Drive link:

https://drive.google.com/file/d/1Xw-pvDL7Y-cpWqOXo7Ysazmc9V_98oii/view?usp=drivesdk