TEAM ID :PNT2022TMID46377

IBM-44252-1662637055

SKILL AND JOB RECOMMENDER

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FACULTY MENTOR : M.KAVITHA

TEAM DETAILS:

Team ID : PNT2022TMID46377

College Name : A.V.C. COLLEGE OF ENGINEERING

Department : COMPUTER SCIENCE & ENGINEERING

TEAM MEMBERS:

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TEAM ID :PNT2022TMID46377

TABLE CONTENTS

ABSTRACT

One domain where such recommender systems can play a significant role to help college graduates to fulfill their dreams by recommending a job based on their skill set. Currently, there are plenty of websites that provide heaps of information regarding employment opportunities, but this task is extremely tedious for students as they need to go through large amounts of information to find the ideal job. And many students are not aware of which job is suitable for them. Nowadays, the IT fields are in a boom. Many engineering students are learning some technical skills by doing some courses but they don't know which skill is for which job. Simultaneously, existing job recommendation systems only take into consideration the domain in which the user is interested while ignoring their profile and skillset, which can help recommendobs that are tailor-made for the user. This paper examines the user's resume then compares the knowledge of degree, soft skills, hard skills, and the projects he has done and then only the system recommends the jobs for that user. The system not only recommends the jobs but also shows the score of his/her resume for the respective job. Then, the system also recommends skills to improve the scores of theirMachine learning is a subfield of data science that concentrates on designing algorithms that canfrom and make predictions on the data. Presently recommendation frameworks are utilized to take care of the issue of the overwhelming amount of information in every domain and enable the clients to concentrate on information that is significant to their area of interest. One domain where such recommender systems can play a significant role to help college graduates to fulfill their dreams by recommending a job based on their skill set. Currently, there are plenty of websites that provide heaps of information regarding employment opportunities, but this task is extremely tedious for students as they need to go through large amounts of information to find the ideal job. And many students are not aware of which job is suitable for them. Nowadays, the IT fields are in a boom. Many engineering students are learning some technical skills by doing some courses but they don't know which skill is for which job. Simultaneously, existing job recommendation systems only take into consideration the domain in which the user is interested while ignoring their profile and skillset, which can help recommend jobs that are tailor-made for the user. This paper examines the user's resume then compares the knowledge of degree, soft skills, hard skills, and the projects he has done and then only the system recommends the jobs for that user. The system not only recommends the jobs but also shows the score of his/her resume for the respective job. Then, the system also recommends skills to improve the scores of theirMachine learning is a sub-field of data science that concentrates on designing algorithms that can learn from and make predictions on the data. Presently recommendation frameworks are utilized to take care of the issue of the overwhelming amount of information in every domain and enable the clients to concentrate on information that is significant .

CHAPTER-01

1.INTRODUCTION

INTRODUCTION TO PROJECT*:*

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 login and find the jobs by using 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 skillset of the users.The users and their information are stored in the Database.An alert is sent when there is an opening based on the user skillset.User will interact with the chatbot and can get the recommendations based on his skills.We can use job search API to get the current job openings in the market which will fetch the data directly from the webpage.

1.1 PROJECT OVERVIEW

To find suitable jobs and their scores, this application receives the resume and has a dataset for a job with their description. It will pre-process the resume and job description with the stop words and porter’s steamer. Then it reduces into a meaningfulbag of words. Now the application uses a of-id f reflectorized to convert a raw text into a matrix which makes it easy while compare. The main step is comparing the two bag words. For that, it uses the Cosine Similarity function, which is an angle dependentcalculation. By using cosine, it has a list of jobs in descending order with respect toscores.

The system will move on to the next progress which is finding the skills to be improved by the candidates. The system will take the resume and the skills dataset then compares both and display the skills which are all not in the resume. The major contribution of this work is as follows: The large MNC businesses use the mechanism currently in place for employment recommendations. The method is employed by businesses, not by regular people. If not, they will charge a small subscription fee to check the user's career options. The system functions for the

average guy from city to village to modify this predicament. Because the students would look for employment based on their own skills, this approach will reduce unemployment. This company will also grow more quickly, which will result in more job openings.

1.1 PURPOSE OF THE PROJECT:

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.

CHAPTER-02

2.LITERATURE SURVEY

LITERATURE SURVEY 1:

NAME OF THE PAPER : Job Recommendation based on Job Seeker Skills. NAME OF THE **AUTHOR :**Jorge Valverde-Rebaza ,Ricardo Puma ,Paul Bustios,Nathalia C. Silva. JOURNAL **PUBLISHED :** First Workshop on Narrative Extraction From Text co-located with 40th European Conference on Information Retrieval.

PUBLISHED MONTH : March

PUBLISHED YEAR: 2018

OBJECTIVE OF THE PROJECT:

➢ In this ,when a candidate submits his/ her profile at a job seeker engine. ➢ Their job recommendations are mostly suggested taking their academic qualification and work experience into considerations.

LITERATURE SURVEY 2:

NAME OF THE PAPER : A survey of job recommender systems.

NAME OF THE AUTHOR : Shaha Alotaibi.

JOURNAL PUBLISHED : International Journal of Physical Sciences

PUBLISHED MONTH : July

PUBLISHED YEAR: 2012

OBJECTIVE OF THE PROJECT:

➢ 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.

➢ This article will present a survey of e-recruiting process and existing recommendation approaches for building personalized recommender systems for candidates/job.

LITERATURE SURVEY 3:

NAME OF THE PAPER : A Research of Job Recommendation System Based on Collaborative Filtering.

NAME OF THE AUTHOR : Cheng Yang, Yingya Zhang, Zhixiang Niu.

JOURNAL PUBLISHED : 2014 Seventh International Symposium on Computation Intelligence and Design.

PUBLISHED MONTH : December PUBLISHED YEAR 2014

TEAM ID :PNT2022TMID46377

AUTHOR	PAPER TITLE	YEAR	JOURNAL	CRITICS
Ravita Mishra , Sheetal Rathi	Enhanced(DSSM) Technique for job recommendation	2021	King Saud University	The runtime of the system and the run time of moderate as compare to others with contextual feature
Sven Laumer, Fabian Gubler, Christian Maier and Tim Weitzel	Job Seekers' Acceptance of Job Recommender Systems: Results of an Empirical Study	2018	Hawaii International Conference on System Sciences	• The importance of trust has been highlighted future research studies can focus on the antecedents of trust • Users require lower level of trust
Shaha T. Al-Otaibi and Mourad Ykhlef	A survey of job recommender systems	2012	International Journal of the Physical Sciences	• Binary representation only. • Less attributes used. • No perfect measures
Shivraj Hulbatte1, Amit Wabale, Suraj Patil& Nikhilkumar Sathe	Enhanced Job Recommendation System	2018	ISSN(International Standard Serial Number)	• Key words search method. • One way recommendation.
Cornee de Ruijt and Sandjai Bhulai	Job Recommender Systems: A Review	2021	Vrije Universiteit Amsterdam	• To limit the scope of this literature review • Currently classified as MM-SE, are quite similar to cascade hybrids

TEAM ID :PNT2022TMID46377

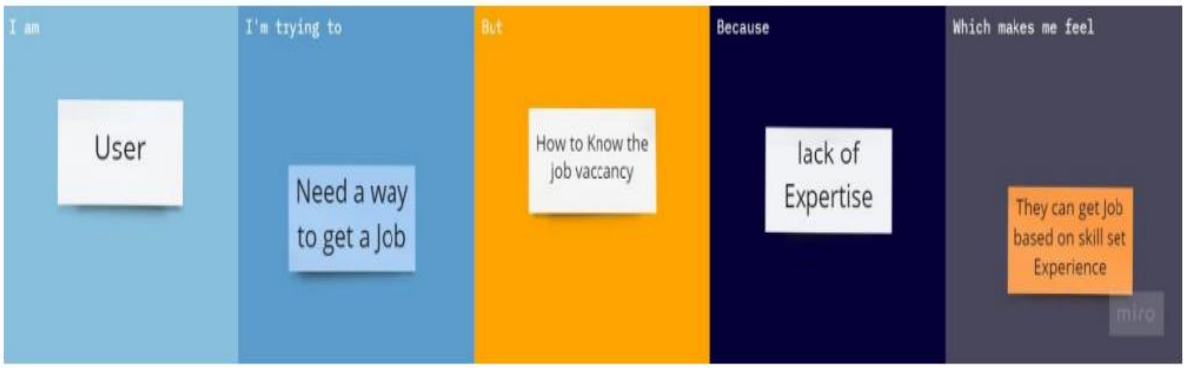
2.1 EXISTING SYSTEM:

In the last years, job recommender systems have become popular since they successfully reduce information overload by generating personal-ized 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.

TEAM ID :PNT2022TMID46377

2.2 PROBLEM STATEMENT DEFINITION:

The problem statement aims at connecting the employer and job seekers where employers are the resource of the resources and the job seeker can find and apply for their targeted job. It allows registered users to be able to search for jobs and filter the results based on required skills, salary, experience level, etc.,



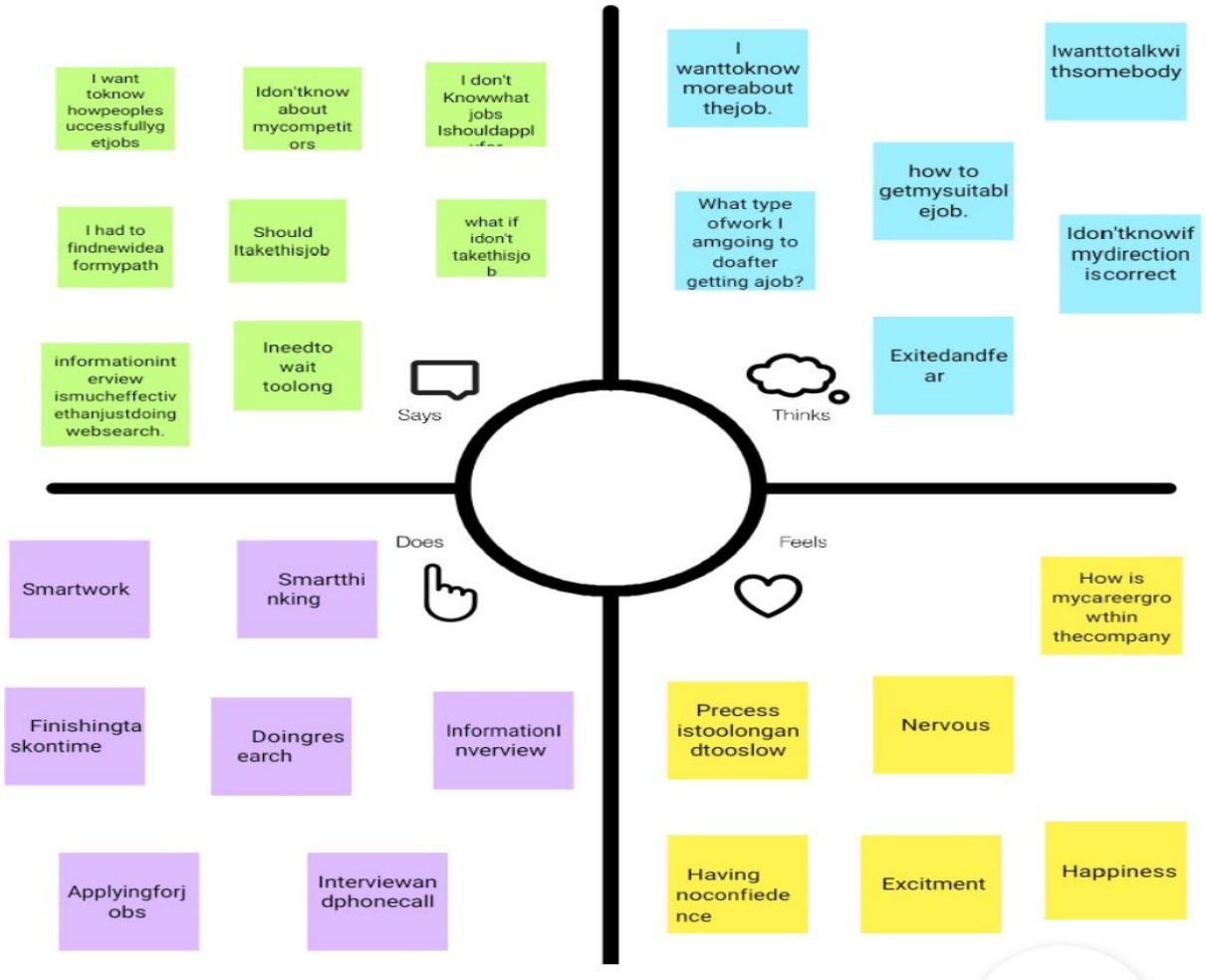
PROBLEM STATEMENT(PS)	*I am (Customer)*	*I'm trying to*	*But*	*Because*	*Which makes me feel*
PS-1	User	Need a way to get a job	How to know the job vacancy	Lack of Expertise	They can get job based on Skill set Experience

CHAPTER-03

3.IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas:

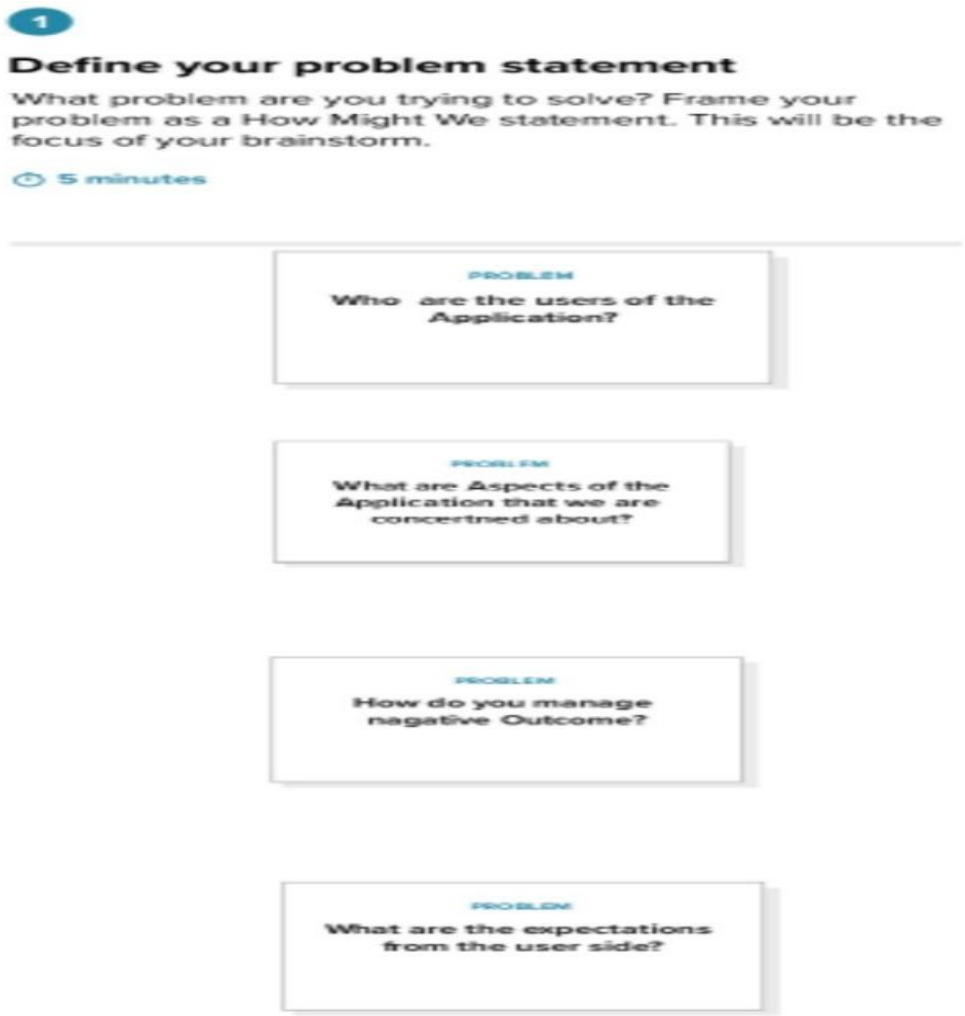
An empathy map is a simple, easy-to-digest visual that captures knowledgeabout auser's behaviours and attitudes. It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise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



3.2 Ideation and Brainstorming:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads problematising. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions. 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.

Step-1: Team Gathering, Collaboration and Select the ProblemStatement:



TEAM ID :PNT2022TMID46377

Step-2: Brainstorm, Idea Listing and Grouping:

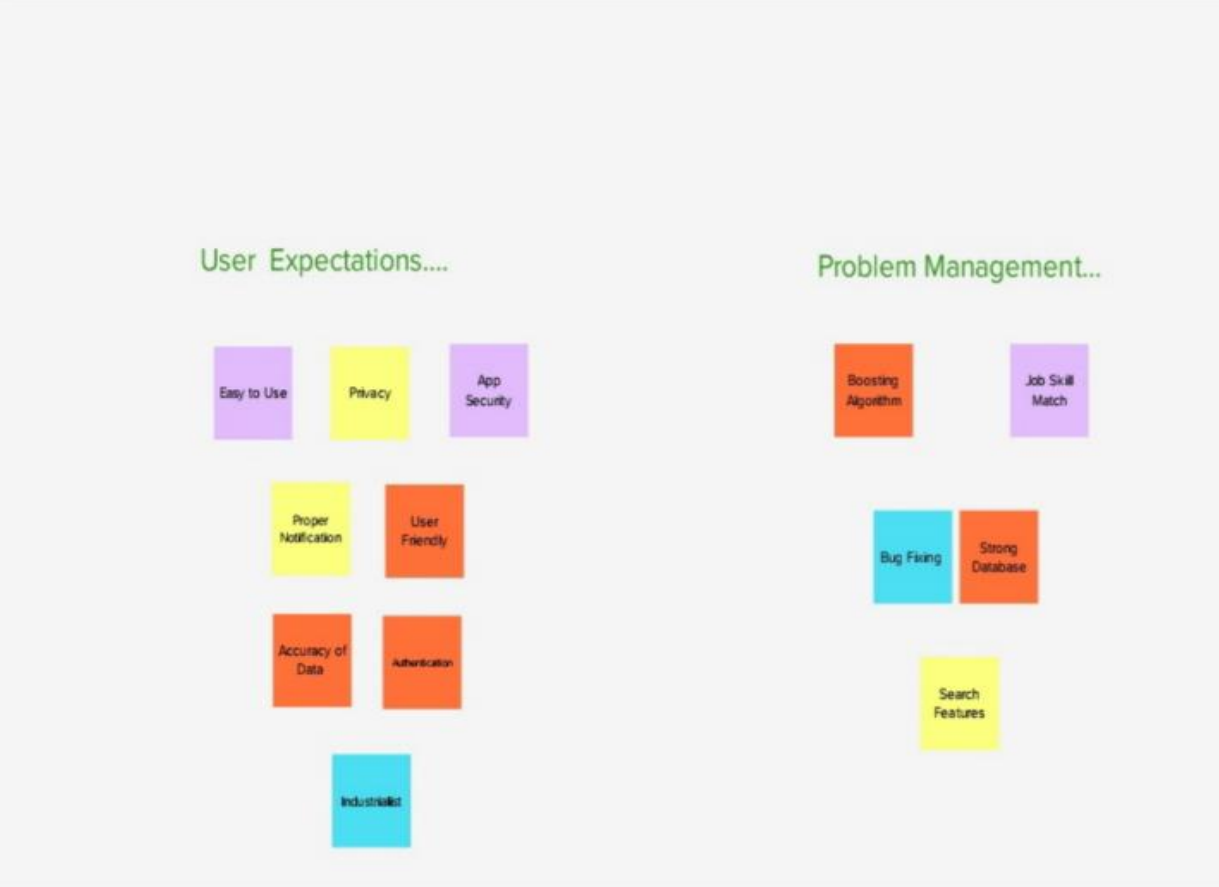
TEAM ID :PNT2022TMID46377

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes



TEAM ID :PNT2022TMID46377

Step-3: Idea Prioritization:

TEAM ID :PNT2022TMID46377

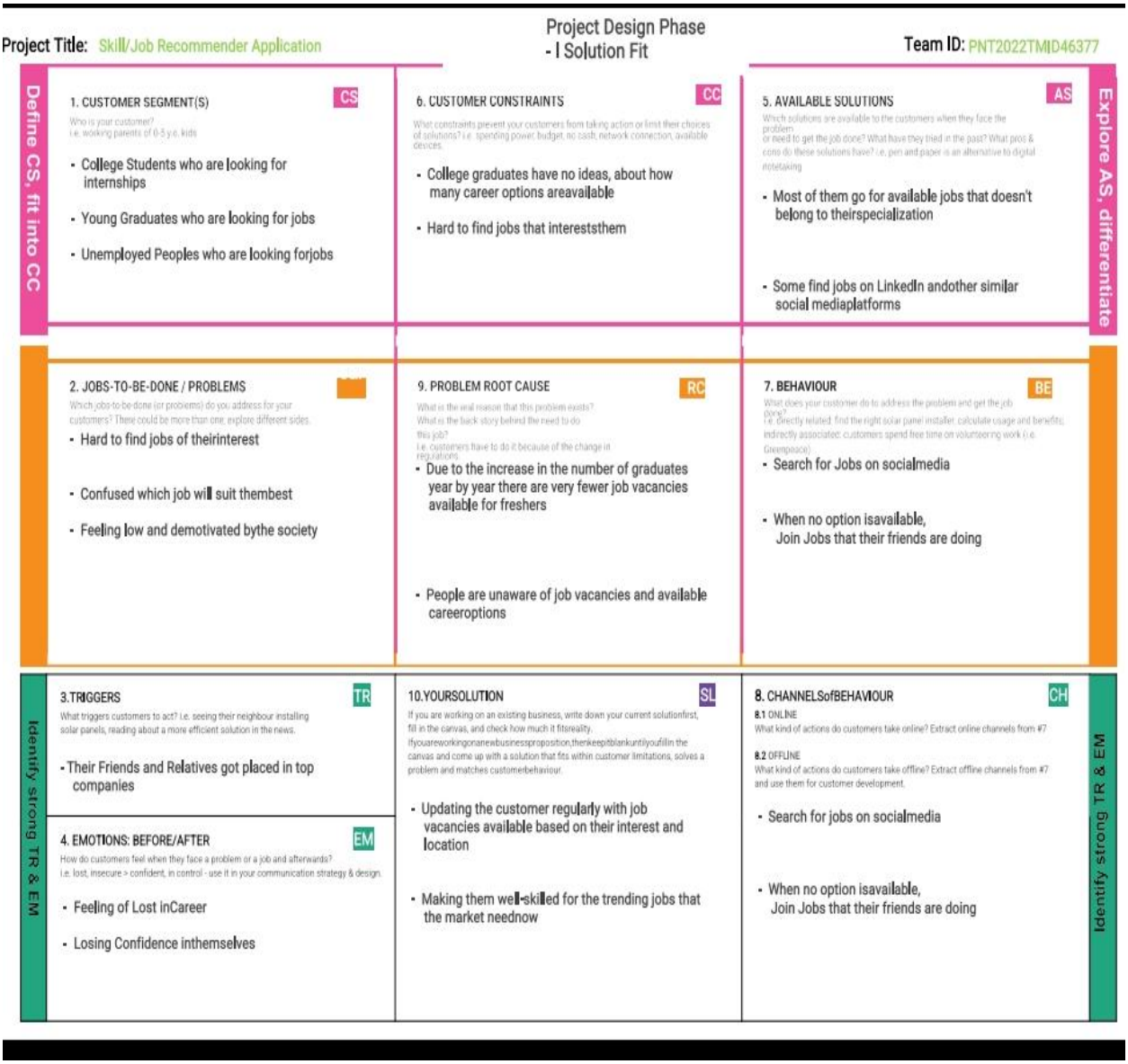
3.3 PROPOSED SOLUTION

SI.NO	*Parameter*	*Description*
01.	Problem Statement(Problem to be solved)	Premium policy is an issue to the users.Look for field based jobs as searching for fields as a whole is time-consuming.Estimating salaries based on technical skills.
02.	Idea/Solution Description	Free access to every users. Filtering job by it's Categories. Salary calculator for the estimation of the pay.
03.	Novelty / Uniqueness	Refinement of the job Fields. Earnings estimator based on knowledge of users.
04.	Social Impact/Customer Satisfaction	Open doors for every users as there is free access.
05.	Business Model(Revenue Model)	Advertising about the Platform. Regularly updating the new technologies and job offers.
06.	Scalability of the Solution	Scalable at Professional Training and Coaching. Scalability in finding more parent-friendly environment. Creating a positive culture is the main cause in maximizing the productivity.

TEAM ID :PNT2022TMID46377

3.4 PROBLEM SOLUTION FIT:

Problem-solution fit is a term used to describe the point validating that the base problem resulting in a business idea really exists and the proposed solution actually solves that problem. Validate that the problem exists: When you validate your problem hypothesis using real-world data and feedback.



CHAPTER-04

04.REQUIREMENT ANALYSIS

4.1 Functional Requirements:

Following are the functional requirements of the proposed solution.

FR.NO	*Functional Requirement (Epic)*	*Sub Requirement (Story / Sub-Task)*
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Login	Login through Form Login through Gmail Login through LinkedIN
FR-4	User Profile	Upgradation of the user profile through the Login credentials
FR-5	User Search	Exploration of Jobs that users search for using the filters
FR-6	User Acceptance	Confirmation of the job

4.2 Non-functional Requirements:

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

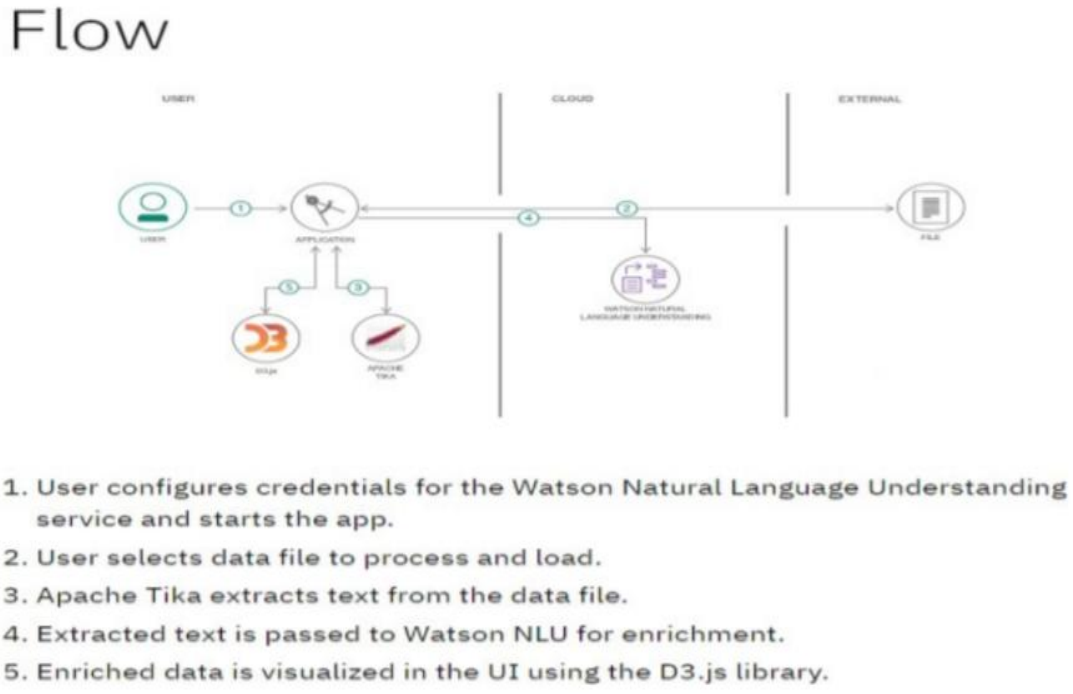
FR NO.	*Non-Functional Requirement*	*Description*
NFR-1	Usability	This application can be used by the job seekers to login and search for the jobs.
NFR-2	Security	This application is secure with the personalised Login credentials.
NFR-3	Reliability	This application is trustworthy which provides good job offers and suggestions of skill set with real time notifications.
NFR-4	Performance	The performance of the application is quicker responses to search of job seeker.
NFR-5	Availability	This application provides job offers and skillset with user’s preference.
NFR-6	Scalability	The response time of the application is quite faster with user choice.

CHAPTER-05

05.PROJECT DESIGN

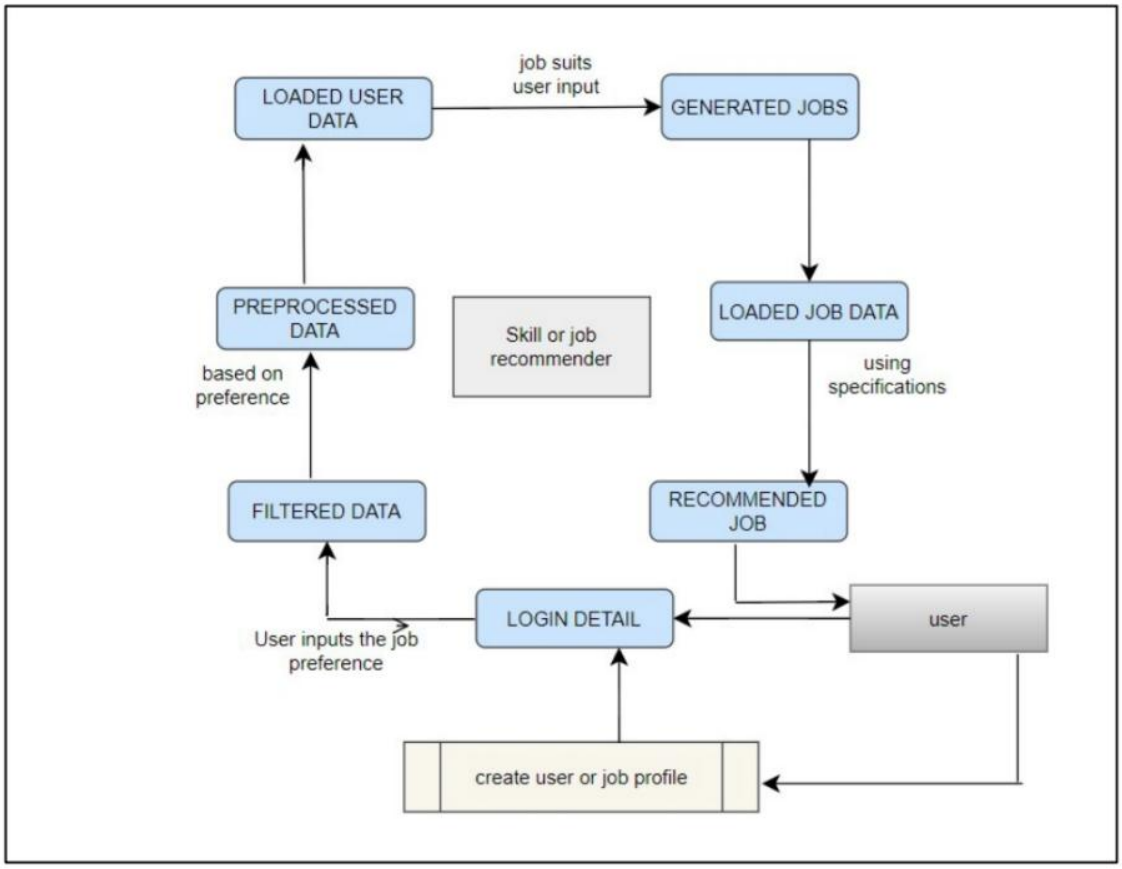
5.1 Data Flow Diagrams:

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.



A data flow diagram is graphical tool used to describe and analyse movement of data through a system. These are the central tool and the basis from which the other components are developed. The transformation of data from input to output, through processed, may be described logically and independently of physical components associated with the system. These are known as the logical data flow diagrams. The physical data flow diagrams show the actual implements and movement of data between people, departments, and workstations. A full description of a system consists of Figure 5.1.1 Data Flow Diagram 20 a set of data flow diagrams. Using two familiar notations Your don, Gane and Sarson notation develops the data flow diagrams. Each component in a DFD is labelled with a descriptive name. Process is further identified with a number that will be used for identification purpose. The development of DFD'S is done in several levels. Each process in lower-level diagrams can be broken

down into a more detailed DFD in the next level. The lop-level diagram is often called context diagram. It consists of a single process bit, which plays vital role in studying the current system. The process in the context level diagram is exploded into other process at the first level DFD. The idea behind the explosion of a process into more process is that understanding at one level of detail is exploded into greater detail at the next level. This is done until further explosion is necessary, and an adequate amount of detail is described for analyst to understand the process. Larry Constantine first developed the DFD as a way of expressing system requirements in a graphical from, this lead to the modular design. A DFD is also known as a “bubble Chart” has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design. So, it is the starting point of the design to the lowest level of detail. A DFD consists of a series of bubbles joined by data flows in the system.



5.2 Solution Architecture:

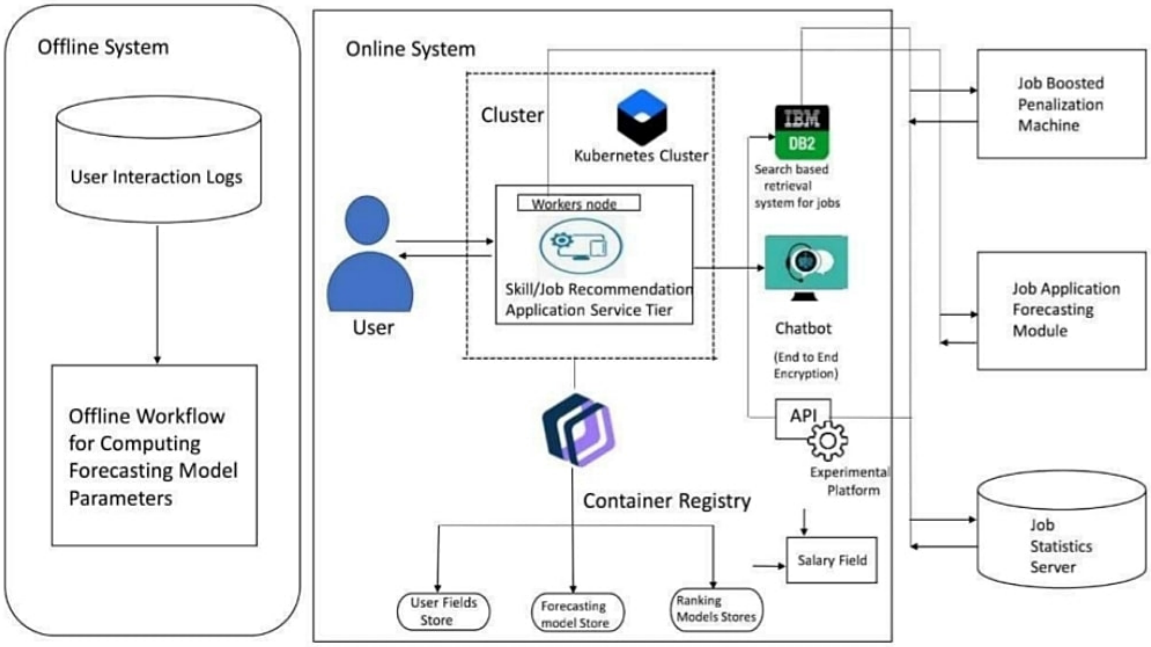
Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

• Find the best tech solution to solve existing business problems.
• Describe the structure, characteristics, behaviour, and other aspects of the software to project stakeholders.
• Define features, development phases, and solution requirements.
• Provide specifications according to which the solution is defined, managed, and delivered.

SOLUTION ARCHITECTURE DIAGARAM

TEAM ID :PNT2022TMID46377

5.3 Technical Architecture:



SI.NO	COMPONENT	DESCRIPTION	TECHNOLOGY
01.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc	HTML, CSS, JavaScript / Angular Js / React Js etc
02.	Developing Interface	Developing application for the task	Java / Python
03.	Voice Assistance	Voice commands instead of typing	IBM Watson STT service
04.	Chatbot Assistance	Conversational Interface	IBM Watson Assistant
05.	Database	Data Type, Configurations etc	MySQL, NoSQL, etc
06.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloud ant etc
07.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local File system
08.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc

09.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration	Local, Cloud Foundry, Rubbernecks, etc.

5.4 User Stories:

A user story is an informal, general explanation of a software feature written from the perspective of the end user or customer. The purpose of a user story is to articulate how a piece of work will deliver a particular value back to the customer.

CHAPTER-06

06.PROJECT PLANNING AND SCHEDULING

'Project Planning and Scheduling', though separate, are two sides of the same coin in project management. Fundamentally, 'Project planning' is all about choosing and designing effective policies and methodologies to attain project objectives. While 'Project scheduling' is a procedure of assigning tasks to get them completed by allocating appropriate resources within an estimated budget and time-frame. The basis of project planning is the entire project. Unlikely, project scheduling focuses only on the project-related tasks, the project start/end dates and project dependencies. Thus, a 'project plan' is a comprehensive document that contains the project aims, scope, costing, risks, and schedule. And a project schedule includes the estimated dates and sequential project tasks to be executed.

PROJECT PLANNING:

The project planning phase refers to:

- Developing a project to make it ready for investment
- Developing a project to make it ready for investment

6.1 SPRINT PLANNING AND ESTIMATION

What is sprint planning?

- Sprint planning is an event in scrum that kicks off the sprint
- The purpose of sprint planning is to define what can be delivered in the sprint and how that work will be achieved.
- Sprint planning is done in collaboration with the whole scrum team. In scrum, the sprint is a set period of time where all the work is done.
- However, before you can leap into action you have to set up the sprint. You need to decide on how long the time box is going to be, the sprint goal, and where you're going to start.
- The sprint planning session kicks off the sprint by setting the agenda and focus. If done correctly, it also creates an environment where the team is motivated, challenged, and can be successful.
- Bad sprint plans can derail the team by setting unrealistic expectations.

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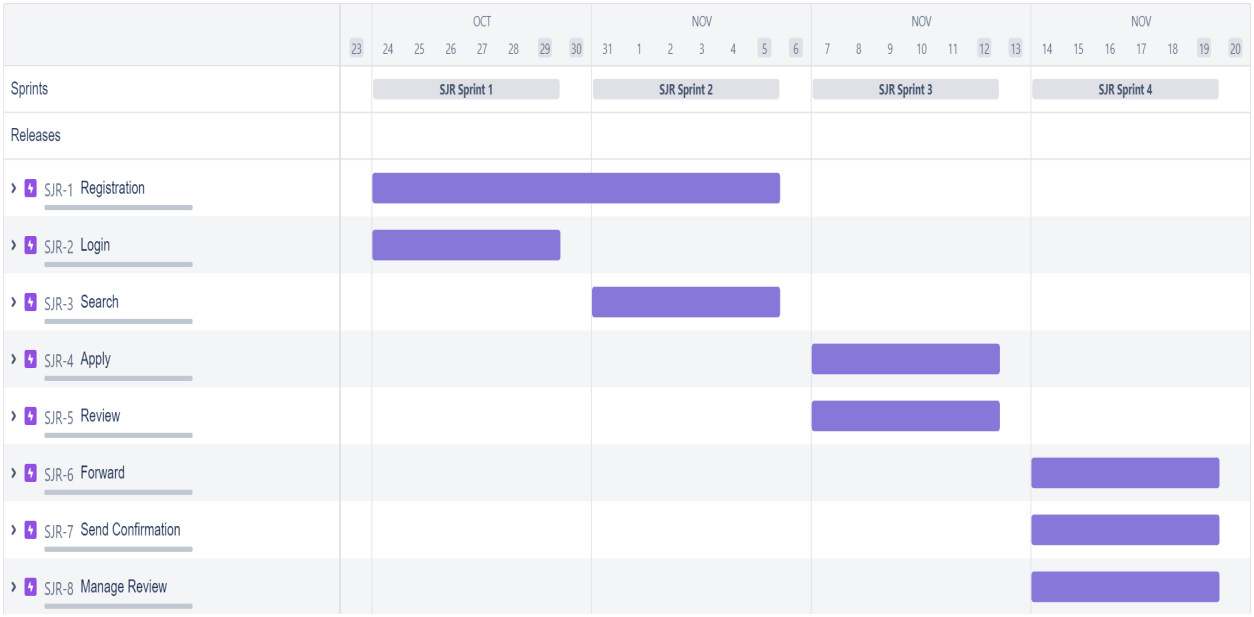
TEAM ID :PNT2022TMID46377

6.2 SPRINT DELIVERY SHEDULE

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	20	6 Days	24 Oct 2022	29 Oct 2022	20	29Oct2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

6.3 REPORTS FROM JIRA



TEAM ID :PNT2022TMID46377

COMPONENTS AND TECHONOLOGY STACK:

S. No	Component	Description	Technology
1 .	User Interface	How user interacts with application e. g. Web UI, Mobile App, Chatbot etc	HTML, CSS, Java Script / Angular Js / React Js etc
2 .	Developing Interface	Developing application for the task	Java / Python
3 .	Voice Assistance	Voice commands instead of typing	IBM Watson STT service
4 .	Chatbot Assistance	Conversational Interface	IBM Watson Assistant
5 .	Database	Data Type, Configurations etc	My SQL, No SQL, etc
6 .	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc
7 .	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local File system

CHAPTER-07

7.CODING & SOLUTIONING

7.1. FEATURE-1(SPRINT-1)

- REGISTER.HTML
- SIGNUP.HTML

REGISTER.HTML:

```
<html >

        <head>
          <title>Registration page</title>
          <link rel="stylesheet" href="{{url_for('static', filename='css/styles.css')}}">
        </head>
        <body>
          <header>
            <nav>
              <div class="logo">
                <p>SJR.COM</p>
              </div>
              <ul>
                <li><a href="{{url_for('home')}}">Back to page</a></li>
              </ul>
            </nav>
        </header>


          <div class="container">
          <form action="/register" method="POST">
```

```
            <h2 style="text-align: center;">Registration</h2>
            <label class="form_label"for="email"><b>Email ID</b></label><br><br>
            <input class="form_input"type="email" name="email"/><br><br>
            <label class="form_label"for="user"><b>Username</b></label><br><br>
            <input class="form_input"type="text" name= "username" /><br><br>
            <label class="form_label"for="psw"><b>Password</b></label><br><br>
            <input class="form_input"type="password" name="password"/><br><br>
            <label class="form_label"for="pho"><b> Enter Phone
number:</b></label><br><br>
            <input class="form_input"type="text" name="phonenumber"/><br><br>
            <!-- <input type="submit" class="submitbtn"value="submit" />
            <p>Already have a account <a href="{{url_for('signup')}}">Sign in</a></p> -->
            </br></br></br>
           <center> {% if error %}
        <p><strong style="color:red">Error</strong>: {{error}}</p>
    {% end if %}
    {% with messages = get_flashed_messages() %}
        {% if messages %}
            {% for message in messages %}
                <p style="color:green">{{ message }}</p>
            {% end for %}
        {% end if %}
     {% end with %} </center>
     <div style="text-align: center;"><a>
            <input type="submit" class="submitbtn"value="submit" />
            <p>Already have a account <a href="{{url_for('signup')}}">Sign in</a></p>
            </div>
        </form>
        </div>
    </body>

<html>
```

TEAM ID :PNT2022TMID46377

SIGNUP.HTML:

```
<html>
        <head>
          <title>Login page</title>
          <link rel="stylesheet" href="{{url_for('static', filename='css/styles.css')}}">
        </head>
        <body>
          <nav>
            <div class="logo">
              <p>SJR.COM</p>
            </div>
            <ul>
              <li><a href="{{url_for('home')}}">Back to page</a></li>
            </ul>
          </nav>


          <div class="container"> <br /><br />
          <form action="/signup" method="POST">
           <h1 style="text-align: center;">Login</h1> <br /><br />
            <label class="form_label"for="email"><b>Email</b></label><br><br>
            <input class="form_input"type="text" name= "email" /><br><br>
            <label class="form_label"for="psw"><b>Password</b></label><br><br>
            <input class="form_input"type="password" name="password"/>
            </br></br></br>
            <center><input type="submit" class="submitbtn"value="submit">
              <ul>

                <p>Don't have a account <a href="{{url_for('register')}}">Create new account</a></p>
              </ul>
            </center>
          </form>
```

```
        </div>

    </body>
</html>
```

7.2.FEATURE-2(SPRINT-2)

*APPLY JOB.HTML
*SERVER.PY

APPLY JOB.HTML:

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link rel="stylesheet" href="{{url_for('static', filename='css/testing.css')}}">
</head>
<body>
<nav>
<div class="logo">
<p>SJR.COM</p>
</div>
<ul>
<li><a href="/skill">SKILL</a></li>
<li><a href="{{url_for('home')}}">LOG OUT</a></li>
</ul>
</nav>
<section id="jobs">
<img style="position:absolute;top: 250px;"src="{{url_for('static',filename='php.jpg')}}"
alt=""width="250" height="250">
<img style="position:absolute;top: 600px;"src="{{url_for('static',filename='python.png')}}"
alt=""width="430" height="250">
<img style="position:absolute;top: 250px;left:
540px;"src="{{url_for('static',filename='software.jpg')}}" alt=""width="250" height="250">
<img style="position:absolute;top: 600px;left:
540px;"src="{{url_for('static',filename='java.jpg')}}" alt=""width="250" height="250">
```

```
<img style="position:absolute;top: 250px;left:
1050px;"src="{{url_for('static',filename='web.jpg')}}" alt=""width="250" height="250">
<img style="position:absolute;top: 600px;left:
1050px;"src="{{url_for('static',filename='sql.jpg')}}" alt=""width="250" height="250">
<h2 style="position:absolute;top: 500px;left:80px"><a
href="https://in.indeed.com/PHP-Developer-jobs?vjk=10cca9575b193c7d">APPLY</a></h2>
<h2 style="position:absolute;top: 500px;left:650px"><a
href="https://in.indeed.com/Software-Developerjobs?vjk=b7da08f07cac87d5">APPLY</a></h2>
<h2 style="position:absolute;top: 500px;left:1150px"><a href="https://in.indeed.com/WebDeveloper-
jobs?vjk=b81e49165da51eeb">APPLY</a></h2>
<h2 style="position:absolute;top: 850px;left:1150px"><a href="https://in.indeed.com/SQLDeveloper-
jobs?vjk=ac86b15908022123">APPLY</a></h2>
<h2 style="position:absolute;top: 850px;left:650px"><a href="https://in.indeed.com/JavaDeveloper-
jobs?vjk=da306a665e00eb30">APPLY</a></h2>
<h2 style="position:absolute;top: 850px;left:80px"><a href="https://in.indeed.com/PythonDeveloper-
jobs?vjk=fa7b9bd250044569">APPLY</a></h2>
</section>
</body>
</html>
```

SERVER.py

```
from flask import Flask, render_template,request,redirect,url_for,session,flash
import ibm_db
import os
from send grid import SendGridAPIClient
from sendgrid.helpers.mail import Mail
import requests
app = Flask(__name__)
app.secret_key='a'
try:
  conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=824dfd4d-99de-440d-9991-
629c01b3832d.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=30119;SECU
RITY=SSL;SSLServerCertificate=DigiCertGlobalRootCA.crt;UID=kcf08623;PWD=8himlHE
H6rDcSV2i",",")
except:
   print("Unable to connect: ",ibm_db.conn_error())
@app.route('/')
def home():
```

```
  return render_template('home.html')
@app.route("/register",methods=['GET','POST'])
def register():
    error = None
    if request.method=='POST':
            username=request.form['username']
            email=request.form['email']
            phone number=request.form['phonenumber']
            password=request.form['password']
            sql="SELECT * FROM user WHERE phonenumber=?"
            prep_stmt=ibm_db.prepare(conn,sql)
            ibm_db.bind_param(prep_stmt,1,phonenumber)
            ibm_db.execute(prep_stmt)

            account=ibm_db.fetch_assoc(prep_stmt)
            print(account)

SENDGRID_API_KEY='SG.syXUVAihRRuGI0DvhxY6Tw.eKTfa3dnL0yimAvWO9gYgoCoVw
K3-lN9TAGPi1UT0BM'
#
SG.29Td0tbNSkyliF9SSPnQNA.4DBECk8ka8RmmYRE5OIsRKGOR2QI2raRG3CLmdsVB
Vc
           message = Mail(
               from_email='skilljob007@gmail.com',
               to_emails=email,
               subject='Hello there! Welcome to Skill And Job Recommender',
               html_content='<strong>SJR warmly welcomes YOU!!!,Thanks for taking the time
to apply for our position.we appreciate your interest in SJR.COM</strong</strong>')
           try:
              sg =
SendGridAPIClient('SG.eablvkxWThCaGaY5zvBe6g._MsF4iOdsOaR0CBOmHK_TapO0o8
SQpnXRGNBjiCCs60')
              response = sg.send(message)
              print(response.status_code)
              print(response.body)
              print(response.headers)
           except Exception as e:
             print(str(e))
           if account:
```

```
            error="Account already exists! Log in to continue !"
        else:
            insert_sql="INSERT INTO user values(?,?,?,?)"
            prep_stmt=ibm_db.prepare(conn,insert_sql)
            ibm_db.bind_param(prep_stmt,1,email)
            ibm_db.bind_param(prep_stmt,2,username)
            ibm_db.bind_param(prep_stmt,3,phonenumber)
            ibm_db.bind_param(prep_stmt,4,password)

            ibm_db.execute(prep_stmt)
            flash(" Registration successful. Log in to continue !")
    else:
        pass
    return render_template('register.html',error=error)
@app.route('/signup',methods=['GET','POST'])
def signup():
    error = None
    if request.method=='POST':
        username=request.form['email']
        password=request.form['password']
        sql="SELECT * FROM user WHERE username=? AND password=?"
        stmt=ibm_db.prepare(conn,sql)
        ibm_db.bind_param(stmt,1,username)
        ibm_db.bind_param(stmt,2,password)
        ibm_db.execute(stmt)
        account=ibm_db.fetch_assoc(stmt)
        print(account)
        if account:
            session['Loggedin']=True
            session['id']=account['EMAIL']
            session["email"]=account["EMAIL"]
            flash("Logged in successfully!")
            return render_template('applyjob.html')
        else:
            error="Incorrect username / password"
            return render_template('signup.html',error=error)
    return render_template('signup.html',error=error)
@app.route('/applyjob')
def apply job():
    return render_template('applyjob.html')
@app.route('/skill')
```

```
def skill():
  return render_template('skill.html')

@app.route('/aboutus')
def aboutus():
  return render_template('aboutus.html')
if __name__=='__main__':
   app.run(host='0.0.0.0',port=5000,debug=True)
```

CHAPTER-08

8.TESTING

8.1 TESTCases

A test case is a series of operations carried out on a system to see if it complies with software requirements and operates properly. A test case's objective is to ascertain whether various system features operate as anticipated and to check that the system complies with all applicable standards,recommendations, and user requirements. The act of creating a test case can also aid in identifying flaws or mistakes in the system.

WHY TESTCASE SO IMPORTANT

Writing test cases is a significant task and is regarded as one of the most crucial components of the software testing. The testing team, the development team, and management all use it. We can use a testcase as a starting point document if an application doesn't have any documentation.

In other words, test cases make clear what must be done to test a system. It provides us with the actions we take in a system, the values we provide as input data, and the anticipated outcomes when we run a certain test case.

- Test cases give a precise picture of the expectations that must be met.
- Test cases demonstrate how you addressed and tested each requirement for the product.
- Test cases assist new team members in quickly becoming engaged in the project, learning about your product and test management processes, and running prepared test cases when necessary.
- A solid foundation for developing automated scripts and adding automated testing to the QA process is detailed manual test cases.

TEAM ID :PNT2022TMID46377

TestcaseID	**FeatureType**	**Component**	**TestScenario**
LoginPage_TC_O O1	Functional	HomePage	Verifyuser is able to see theLogin/Signup popup when userclickedonMy account button
LoginPage_TC_O O2	UI	HomePage	Verify the UI elements inLogin/Signup pop up
LoginPage_TC_O O3	Functional	Home page	Verify user is able to log intoapplicationwithV credential als
LoginPage_TC_O O4	Functiona	Loginpage	Verify user is able to log intoapplicationwithI nValidcredenti also
LoginPage_TC_O O5	Functional	Loginpage	Verify user is able to log intoapplicationwithI nValidcredenti also

TEAM ID :PNT2022TMID46377

SI.no	Steps To Execute	TestData
1	1.Enter URL and click go. 2.Click on My Account dropdown button. 3.Verify login/Singup popup displayed or not.	index.html
2	1.Enter URL and click go. 2.Click on My Account dropdown button. 3.Verify login/Singup popup with below UI elements: a.email text box b.password text box c.Login button d.New customer? Create account link.Last password? Recovery	index.html
3	1.Enter URL(index.html) and click go. 2.Click on My Account dropdown button. 3.Enter Valid username/email in Email textbox. 4.Entervalidpasswordinpas sword textbox. 5.Click on login button.	Username:pasupathy password:21082001
4	1.Enter URL(index.html) and click go. 2.Click on My Account dropdown button. 3.Enter InValid username/email in Email text box. 4.Enter valid password in password textbox. 5..Click on login button.	Username:pasupathy password:21082001
5	1.Enter URL(index.html) and click go. 2.Click on My Account dropdown button. 3.Enter Valid username/email in Email textbox. 4.Enter valid	Username:pasupathy password:21082001

	password in as word textbox. 5..Click on log in button.	
6	1.Enter URL(index.html) and click go. 2.Click on My Account dropdown button. 3.Enter Valid username/email in Email textbox. 4.Enter valid password in password textbox. 5..Click on login button.	Username:pasupathy password:21082001

ExpectedResult	**ActualResult**	**Status**
Login/Signup popup should display	Working as expected	pass
Application should show below UI elements: a.email text box b.password text box c.Login button with orange colourd.New customer? Create account link. Last password	Working as expected	pass
User should navigate to user account homepage	Working as expected	pass
Application should show 'Incorrect email or password ' validation on message.	Working as expected	pass
Application should show 'Incorrect email or password ' validation message.	Working as expected	pass
Application should show 'Incorrectemail or password ' validation message	Working as expected	pass

8.2.USER ACCEPTANCE TESTING:

Purpose of Document:

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

Defect Analysis:

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

Resolution	Severity1	Severity2	Severity3	Severity4	Subtotal
Subtotal	10	4	2	3	20
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	20	37
Not Repduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	5	2	1	8
Totals	27	14	13	26	77

Test Case Analysis:

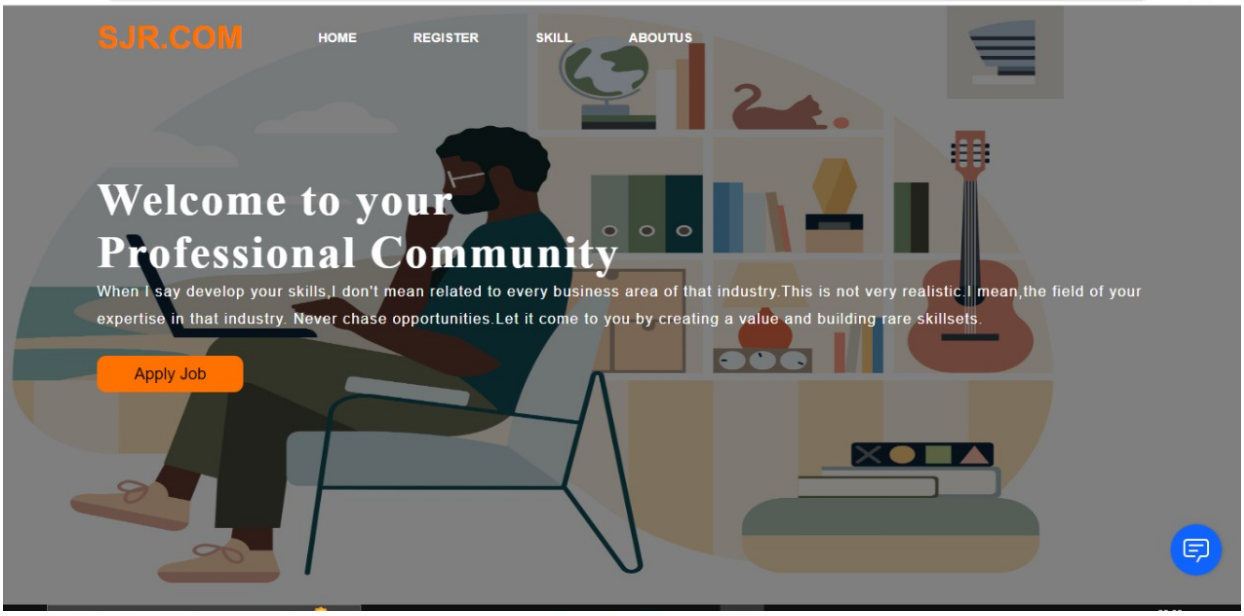
This report shows the number of test cases that have passed,failed,and untested

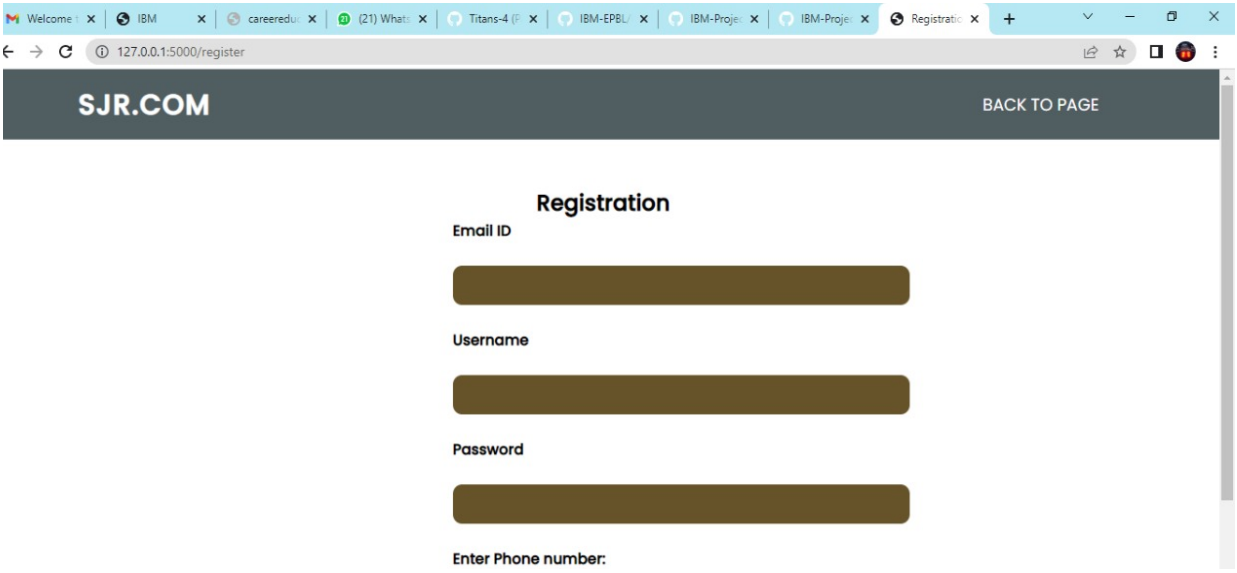
Resolution	Total Cases	Not Tesed	Fail	Pass
Print Enne	7	0	0	7
Client A plication	51	0	0	51
Security	2	0	0	2
Out source Shipping	3	0	0	30
Exception Reporting	9	0	0	9
Final Report Output	4	0	0	4
Version Control	2	0	0	2

CHAPTER-09

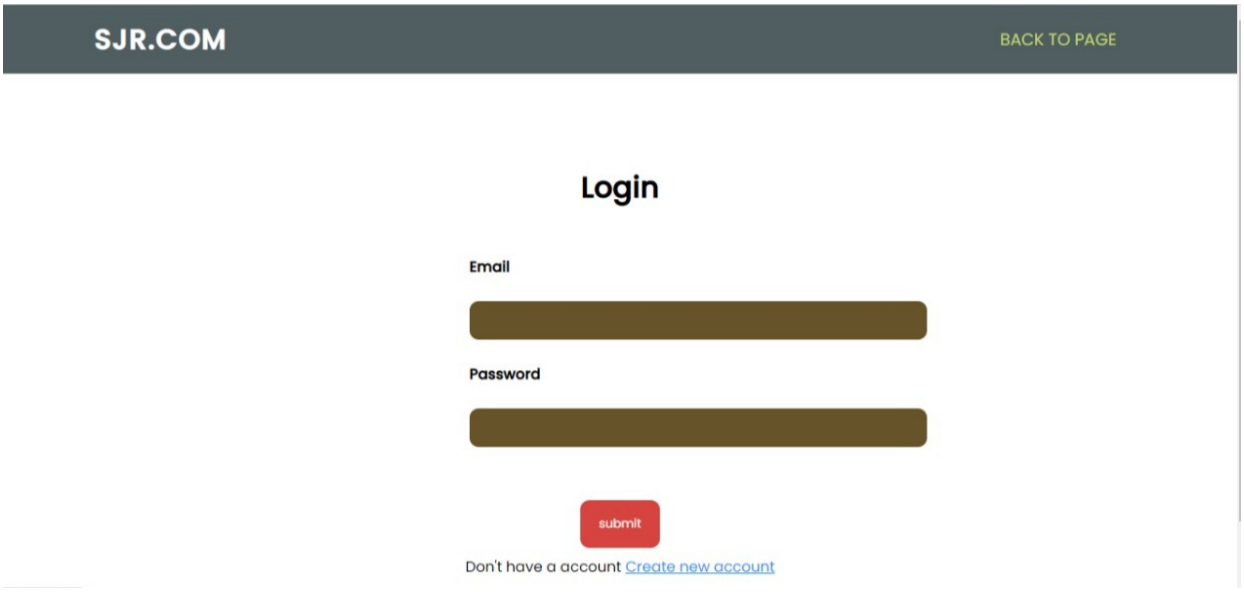
09.RESULTS

9.1 PERFOMANCE METRICS:





TEAM ID :PNT2022TMID46377



CHAPTER-10

10.ADVANTAGES & DISADVANTAGES:

ADVANTAGES:

- Bidirectional recommendation.Relational aspects are included.
- Adaptive system.
- Use many attributes.
- Use ontology to categorize jobs and as a knowledge base to define features.

DISADVANTAGES:

- Less attributes used.
- No perfect measures.
- Knowledge acquisition and knowledge engineering problems.

CHAPTER-11

11.CONCLUSION:

Job Recommendation System has a major role to play among recommending systems. With the presence of new algorithms and techniques, the system needs to evolve along with it. The main objective of this project is to recommend a suitable job for the candidates. This project has two pre-processing methods, one text mining method and one similarity function. The pre-processing methods are stop words and porter stemmer.

The text mining method is tf-idf. The similarity function is a cosine similarity function. Pre-processing methods are used with resumes and with jobs description, to make the system more efficient by avoiding some garbage words. Tf-idif is used in processed resumes and processed jobs descriptions to convert it from text to matrix to compare. Cosine Similarity will measure the similarity between the resume and each job description.Finally, it will display the scores for the jobs in a sorted way. There is also a pie chart which is used to visualize the percentage of the scores which is got by the candidate for the jobs.

CHAPTER-12

12.FUTURE SCOPE:

The objective of Skill and Job recommender systems is to **provide recommendations based on recorded information on the users' preferences**. These systems use information filtering techniques to process information and provide the user with potentially more relevant items.The tremendous growth of both information and usage has led to a so-called information overload problem in which users are finding it increasingly difficult to locate the right Information at the right time Thus huge amount of information and easy access to it make recommender systems unavoidable. We use recommender system every day without realizing it and without knowing what exactly happens. Recommender systems have changed the way people find products, information, and even other people. They study patterns of behaviour to know what someone will prefer from among a collection of things he/she has never experienced. Benefits of recommender systems to the businesses using them include: The ability to offer unique personalized service for the customer, increase trust and customer loyalty, Increase sales, click-through rates, conversions, etc., Opportunities for promotion, persuasion and Obtain more knowledge about customers. Recommender systems are software tools and techniques providing suggestions for items to be of use to a user. Job recommender systems are desired to attain a high level of accuracy while making the predictions which are relevant to the customer, as it becomes a very tedious task to explore thousands of jobs, posted

CHAPTER-13

13.REFERENCES:

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CHAPTER-14
14.APPENDIX:

14.1. SOURCE CODE: **LINK:** https://github.com/Titans-4

14.2:GITHUB & PROJECT LINK:

GITHUB ID: IBM-EPBL/IBM-Project-44252-1660723478