

Project Report

Team ID	PNT2022TMID48457
Project Name	Skill / Job Recommender Application

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 a fresher or a skilled person can login and find jobs by using the search option or they can directly interact with the chatbot and get their dream job.

1.2 Purpose:

To develop an end to end web application capable of displaying the current job openings based on the skillset of the users. The user's credentials and their information are stored in the Database. Whenever there is an job opening based on the user's skillset, it is recommended to the user. The user will interact with the chatbot and can get recommendations based on their skills. Users can use the job search API of the web application to get the current job openings in the market which will fetch the data directly from the webpage.

2. LITERATURE SURVEY:

2.1 Existing problem:

The problem statement aims at connecting the employer and job seekers where employers are the source 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.

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

2.2 References:

PAPER 1:

TITLE: Skill / Job Recommender Application

AUTHOR NAME: Juhi Dhameliya, Nikita Desai

PUBLICATION YEAR: 2019

DESCRIPTION:

The recent recommender systems have achieved success in e-commerce applications. In order to improve the functionality of e-recruitment process, many recommendation systems approaches have been proposed. In this paper, we present a survey of existing recommendation approaches that have been used for building the personalized recommendation systems for job seekers as well as recruiters. Also we have identified the challenges in building a job recruitment system as compared to recommendation systems in other domain.

PAPER 2:

TITLE: Job Recommendation through Progression of Job Selection.

AUTHOR NAME: Amber Nigam, Aakash Roy, Hartaran Singh, Harsimran Waila

PUBLICATION YEAR: 2019

DESCRIPTION:

The task of job recommendation has been invariably solved using either a filter-based technique or through recommender systems where categorical features associated with jobs and candidates are used to generate recommendations. Through this paper, we are introducing a novel machine learning model which uses the candidates' job preference over time to incorporate the dynamics associated with highly volatile job market. In addition to that, our approach comprises several other smaller recommendations that contribute to problems of a) generating serendipitous recommendations b) solving the cold-start problem for new jobs and new candidates. We have used skills as embedded features to derive latent competencies from them, thereby expanding the skills of jobs and candidate to achieve more coverage in the skill domain.

Our model has been developed and deployed in a real-world job recommender system and the best performance of the click-through rate metric has been achieved through a blend of machine learning and non-machine learning recommendations.

PAPER 3:

TITLE: User interaction analysis to recommend suitable jobs in career-oriented social networking sites.

AUTHOR NAME: Shibbir Ahmed, Mahamudul Hasanand, Md. Nazmul Hoq, Muhammad Abdullah Adnan.

PUBLICATION YEAR: 2016

DESCRIPTION:

Career-oriented social networking sites are very much useful for job seekers to find a suitable job and useful for recruiters as well to find the right candidate for a job. Job recommendation system helps job seekers to find appropriate jobs matching with their profile. So, it can be considered as recruiters approaching a suitable candidate whenever they have an appropriate job for them. In this paper, we present a research technique of developing a job recommendation system for the online job hunting websites to predict suitable job postings that are likely to be relevant to the user i.e., the job postings with which the users can possibly interact. Relevant jobs are those job postings on which a user may click, bookmark or reply to the recruiter. Here, we have considered all possible factors related to users as well as job items available in a publicly available partial big data set of a widely used international job hunting website. We have split the interaction data into training and test data for the purpose of evaluating our proposed system.

PAPER 4:

TITLE: Convolutional Neural Network Based Career Recommender System for Engineering Students

AUTHOR NAME: Takreem Saeed, Muhammad Sufian, Mubashir Ali, Attique Ur Rehman

PUBLICATION YEAR: 2021

DESCRIPTION:

In recent years, Recommender systems are utilized in a variety of areas. One reason behind why we want a recommender system in current society is that an individual has many alternatives to use because of the pervasiveness of the Internet. A recommender system seeks to estimate and predict user content preference. Old recommender systems used State-of-the-art recommender algorithms like content based filtering to predict ratings. Career Recommender system provides Engineering candidates the best possible available jobs relevant to their skills, qualification, etc. Four to six major engineering disciplines are covered in this recommender system. The proposed approach is tested using a career recommendation dataset which is collected from many students of different disciplines of various universities. Career recommendation takes care of the users and saves their cost and time spending on traditional job searching methods.

2.3 Problem Statement Definition:

The problem statement aims at connecting the employer and job seekers where employers are the source 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.

Who can use this app?	Job Seekers
Why it is important to use?	Time Efficient and Reliable Source.
What are the benefits?	People can register as job seekers, build their profiles, and look for jobs matching their skill sets and they can apply directly to posted jobs.

How is it better than the other app?	Accessible by everyone and it is accurate than the other apps.
When to use?	Seeking for Job Opportunities

3.IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

Ideation Phase Empathize & Discover

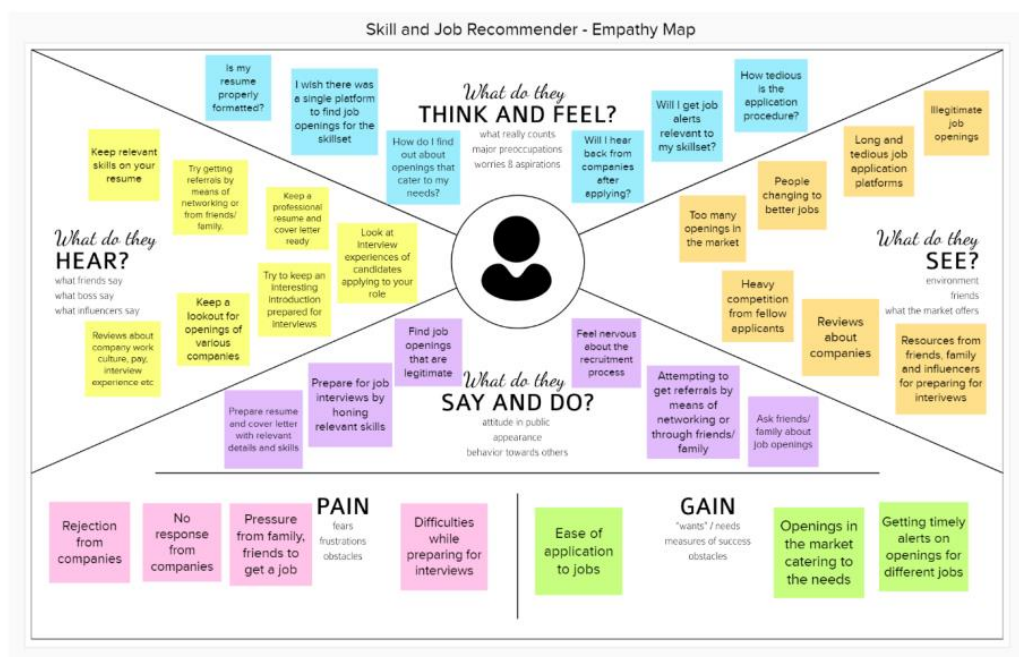
Date	19 September 2022
Team ID	PNT2022TMID48457
Project Name	Skill and Job Recommender Application
Maximum Marks	4 Marks

Empathy Map Canvas:

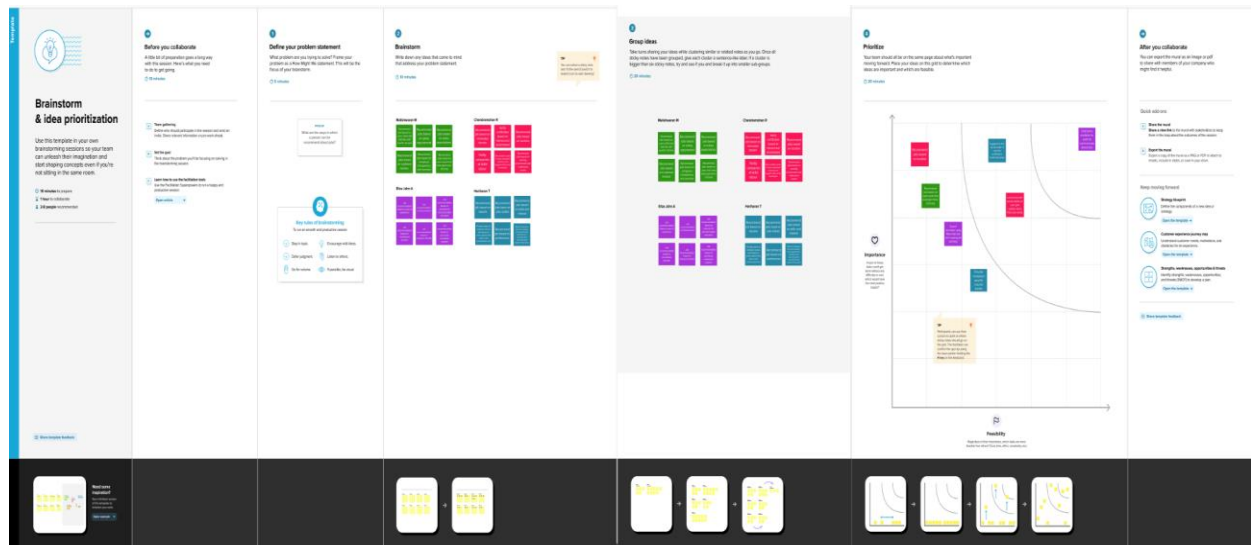
An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes.

It is a useful tool to help teams better understand their users.

Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.



3.2 Ideation & Brainstorming



3.3 Proposed Solution

S. No	Parameter	Description
1.	Problem Statement (Problem to be solved)	<ul style="list-style-type: none"> ✓ Job seekers have to check each every Recruiters website in order to search for any job vacancies. ✓ For job seekers it is an time consuming process to search for which job suits based on their skill set. ✓ Recruiters facing difficulties in advertising their job vacancies. ✓ Recruiters also finding it difficult to verify that the person with right skill set have applied for the job. ✓ Hence there is a need of “ Skill / Job Recommender Application ”.

2.	Idea / Solution description	<ul style="list-style-type: none"> ✓ By using this web application job seeker directly choose your job related to your skills without need help from someone. ✓ You can search a job based on your skills . ✓ You can chat with chatbot for get recommendation of list of jobs related to specified skillsets. ✓ Recruiters can post for job opening in our application. ✓ Use a job search API to get the current job openings in the market which will fetch the data directly from the webpage. ✓ User can interact with chatbot via entering skills to the bot, it suggest some job based on entered skills.
3.	Novelty / Uniqueness	<ul style="list-style-type: none"> ✓ Chatbot-based interaction, built using IBM Watson assistant. ✓ Send notifications to users regarding job- based courses to enhance their skills. ✓ Customize the recommendation based on the experience, location and salary expectations of the users.
4.	Social Impact / Customer Satisfaction	<ul style="list-style-type: none"> ✓ The main aim of the project is to build an application that recommend jobs for job seekers. ✓ The user can search using a chatbot and the chatbot recommends the job. ✓ Even the application can send notifications based on matching job or upcoming jobs through e-mail.
5.	Business Model (Revenue Model)	<ul style="list-style-type: none"> ✓ we can generate revenue by offering subscription-based applications to job seekers. ✓ Users who have bought the subscription can get job alerts prior to others.

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. It helps entrepreneurs, marketers and corporate innovators identify behavioural patterns and recognize what would work and why

Purpose:

- Solve complex problems in a way that fits the state of your customers.
- Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behaviour.
- Sharpen your communication and marketing strategy with the right triggers and messaging.
- Increase touch-points with your company by finding the right problem-behaviour fit and building trust by solving frequent annoyances, or urgent or costly problems.

Template:

Define CS, fit into CC focus on J&P, tab into BE Identify strong TR&EM	1.CUSTOMER SEGMENTS 1) Jobless people 2) New college grads	6.CUSTOMER CONSTRAINTS For the website to operate as intended, basic needs such an internet connection and laptop are required.	5.AVAILABLE SOLUTIONS Earlier, job seekers used TV adverts and paper columns, as a result of the expanding digital world, the use of suggestion websites.	Explore AS, differentiate focus on J&P, tap into BE Identify strong TR&EM
	2.JOBS-TO-BE-DONE/PROBLEM Make some work recommender site with an inbuilt chatbot help	9.PROBLEM ROOT CAUSE The vast majority don't know about their positions accessible in the market/sites	7.BEHAVIOURS The users attempt to first analyse job searches on websites, papers, and adverts depending on their requirements.	
	3.TRIGGERS Seeing other find a new line of work 4.EMOTIONS:BEFORE/AFTER User will be satisfied with the services and higher possibility of job offer	10.YOUR SOLUTION To build a platform that helps freshers and under graduates to get a job	8.CHANNELS OF BEHAVIOUR ONLINE : Ready to explore a suitable job based on their skill sets and necessities OFFLINE : Attend interviews on-site and try and get a job	

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)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP.
FR-3	Chat Bot	A Chat Bot will be there in website to solve user queries and problems related to applying a job, search for a job and much more.
FR-4	User Login	Login through Form Login through Gmail
FR-5	User Search	Exploration of Jobs based on job filters and skill recommendations.
FR-6	User Profile	Updation of the user profile through the login credentials
FR-7	User Acceptance	Confirmation of the Job.

4.2 Non-Functional requirements

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

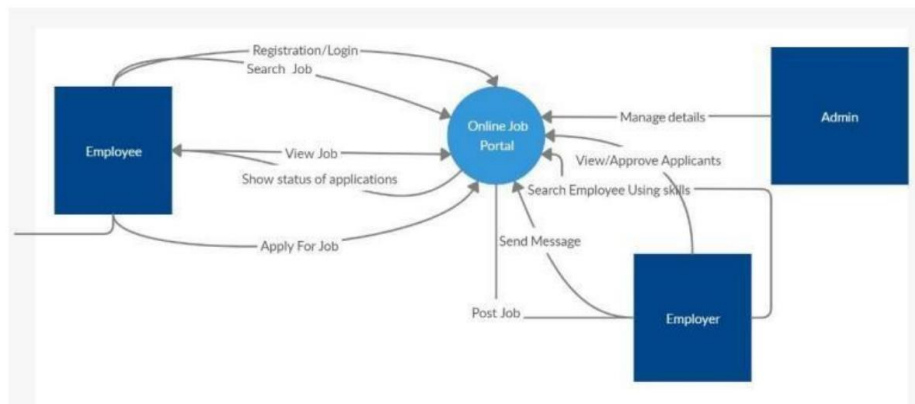
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	This application can be used by the job seekers to login and search for the job based on her Skills set.
NFR-2	Security	This application is secure with separate login for Job Seekers as well as Job Recruiters.
NFR-3	Reliability	This application is open-source and feel free to use, without need to pay anything. The enormous job openings will be provided to all the job seekers without any limitation.
NFR-4	Performance	The performance of this application is quicker response and takes lesser time to do any process.
NFR-5	Availability	This application provides job offers and recommends Skills for a Particular Job openings.
NFR-6	Scalability	The Response time of the application is quite faster compared to any other application.

5.PROJECT DESIGN

5.1Data 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.

Data flow diagram:



5.2 Solution & Technical Architecture:

Job Seeker



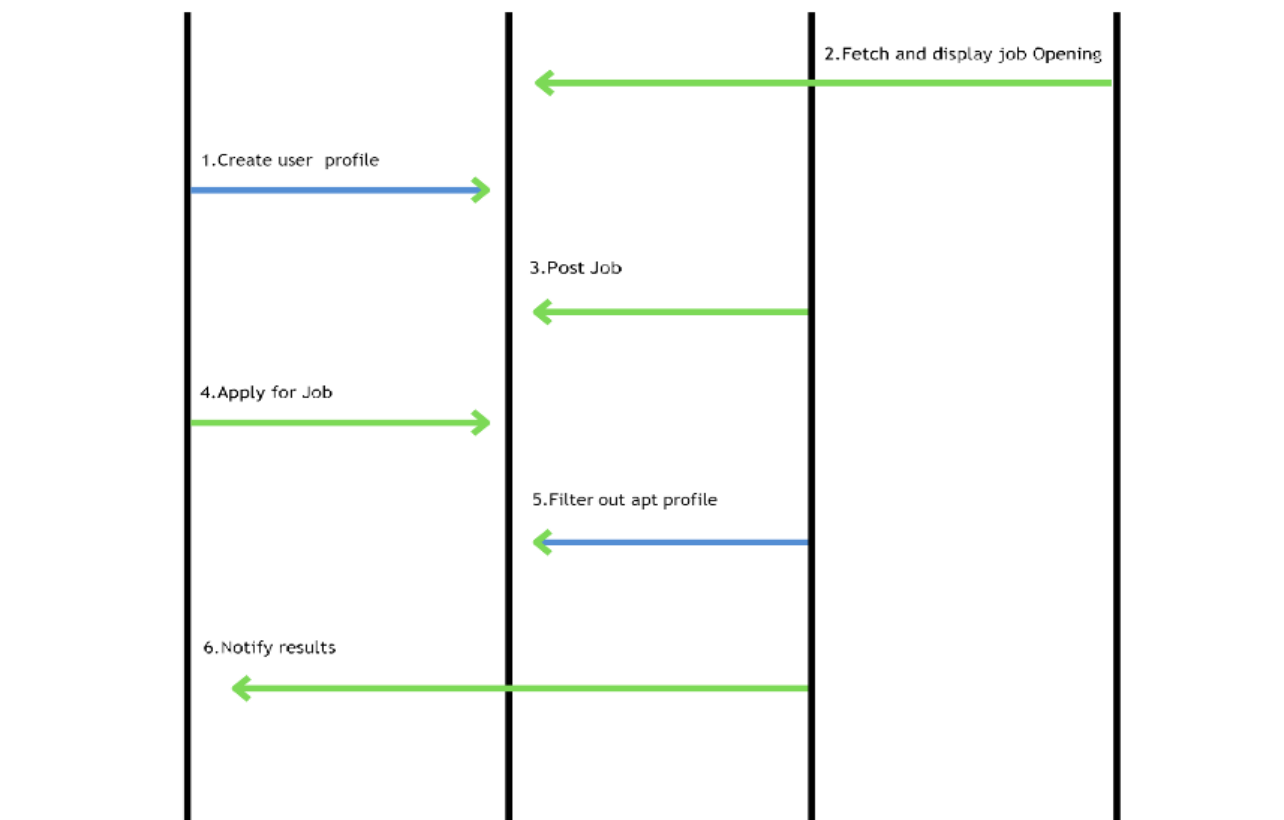
Application

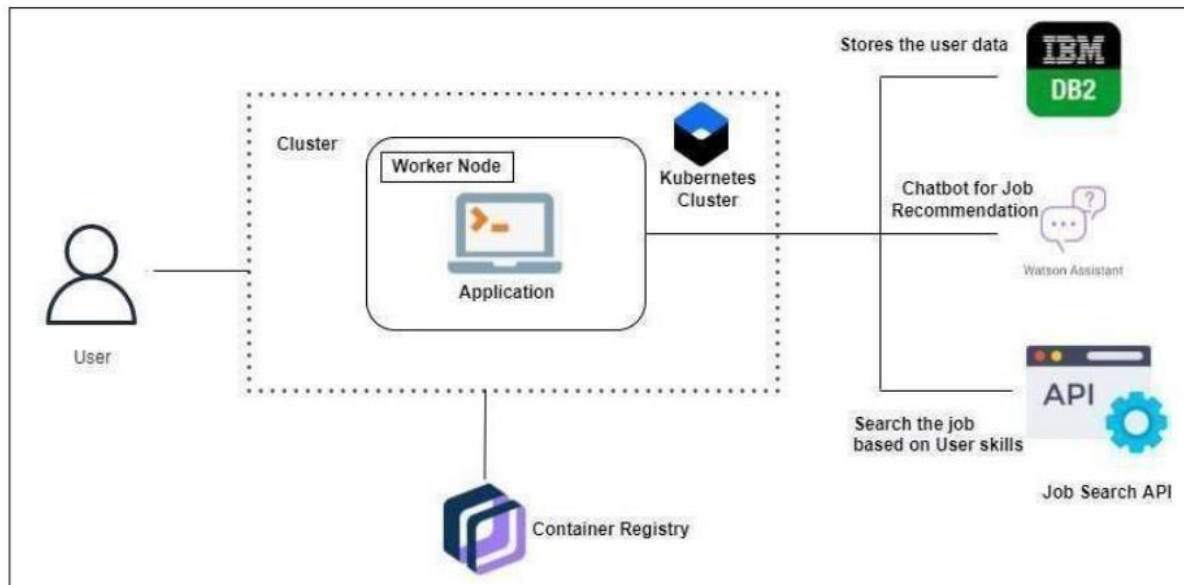


Recruiter



Cloud Data





S.No.	Parameter	Description
1.	Is the System Robust?	Yes, it is partially buildable platform as the budget required will be more as cloud is a pay per use model and time taken will be quite.
2.	Is it highly modifiable?	Indeed, the framework is modifiable and it can own up to the progressions by recognizing blunders that requirements to be fixed and new functionalities. It is exceptionally receptive to the progressions.
3.	Is it Scalable?	Indeed, the framework proposed is exceptionally versatile as it can deal with the developing responsibility where great execution is likewise expected to effectively work. Organization of the stage has been finished utilizing different OS virtualization stage it will deal with the responsibility genuinely.

Table-1: Components & Technologies:

S.no	Component	Description	Technology
1.	User Interface	Mobile Application	HTML, CSS, JavaScript.
2.	Application Logic	Logic for a process in the web application	Javascript
3.	Database	Data Type, Configurations etc.	IBM cloud DB2
4.	Cloud Database	Database Service on Cloud	IBM Cloud DB2
5.	File Storage	File storage requirements	Local Filesystem and IBM cloud
6.	Infrastructure (Server / Cloud)	Web Application Deployment on cloud local server configurations	Local and Cloud Foundry

5.3 User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the job 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 job application through Gmail	I can receive confirmation Email and apply for the job	Medium	Sprint-2
		USN-4	As a user, I can register for the job application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can apply for a job	High	Sprint-1
	Dashboard	USN-6	As a user, I can Search & Apply jobs posted by top companies & consultants as per your skills,	Update your resume for latest jobs	High	Sprint-1
Customer (Web user)		USN-7	As a user, I can limit who can see her resume	I can receive a information from company can post new job openings	High	Sprint-1
Customer Care Executive		USN-8	As a user, I want to select a desired jobs	I can select a job based on my skills	Medium	Sprint-2

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
		USN-9	As a user, I can Update my resume for latest jobs	I can receive confirmation form job portal	High	Sprint-1
		USN-10	As a use, I want to read a privacy and rules	I can access and see the privacy statement and read it in the job portal	High	Sprint-2
		USN-11	As a user, I want to quickly and easily apply for a job	I can start searching in the job portable so Its quickly as possible	Medium	Sprint-1

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

TITLE	DESCRIPTION	DATE
Literature Survey & Information Gathering	Literature survey on the selected project & gathering information by referring the, technical papers, research publications etc.	25 September 2022
Prepare Empathy Map	Prepare Empathy Map Canvas to capture the user Pains & Gains, Prepare list of problem statements	25 September 2022
Ideation	List the by organizing the brainstorming session and prioritize the top 3 ideas based on the feasibility & importance.	25 September 2022
Problem Solution Fit	Prepare problem solution fit document	28 September 2022

Solution Architecture	Prepare solution architecture document.	29 September 2022
Customer Journey	Prepare the customer journey maps to understand the user interactions & experiences with the application (entry to exit).	29 September 2022
Solution Requirement	Prepare the functional requirement document.	15 October 2022
Data Flow Diagrams	Draw the data flow diagrams and submit for review.	17 October 2022
Technology Architecture	Prepare the technology architecture diagram.	18 October 2022
Prepare Milestone & Activity List	Prepare the milestones & activity list of the project.	22 October 2022
Project Development - Delivery of Spíint-1, 2, 3 & 4	Develop & submit the developed code by testing it.	IN PROGRES...

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	USER: I can register for the application by entering my email, password, and confirming my password.	20	High	Malishwaran Chandramohan Eliza John Hariharan
Sprint-1	Verification	USN-2	USER: I will receive confirmation email for verification	20	High	Malishwaran Chandramohan Eliza John Hariharan
Sprint-2	Login	USN-3	USER: I can log into the application by entering email & password	20	Low	Malishwaran Chandramohan Eliza John Hariharan
Sprint-2	Verification	USN-4	USER: After click login button, It verify the login credentials whether entered details are correct or not.	20	Medium	Malishwaran Chandramohan Eliza John Hariharan
Sprint-3	Dashboard	USN-5	USER: I can access my dashboard after signing in.	20	High	Malishwaran Chandramohan Eliza John Hariharan

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-3	Profile	USN-6	USER: I can set up a profile, and basic details.	20	High	Malishwaran Chandramohan Eliza John Hariharan
Sprint-4	Chatbot	USN-7	USER: I can access the chatbot for job recommendation	20	High	Malishwaran Chandramohan Eliza John Hariharan
Sprint-4	Salary	USN-8	USER: I will be able to know the salary for my job.	20	High	Malishwaran Chandramohan Eliza John Hariharan

6.2. Sprint Delivery Schedule

Project Tracker, Velocity & Burndown Chart: (4 Marks)

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	29 Oct 2022
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

Velocity:

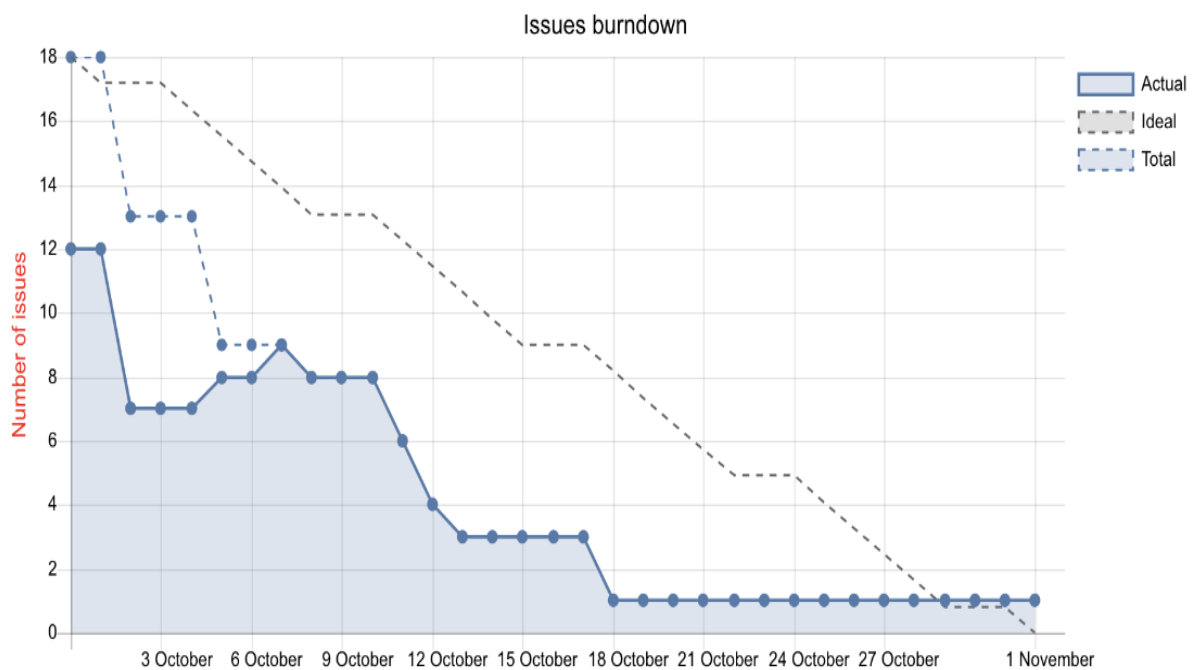
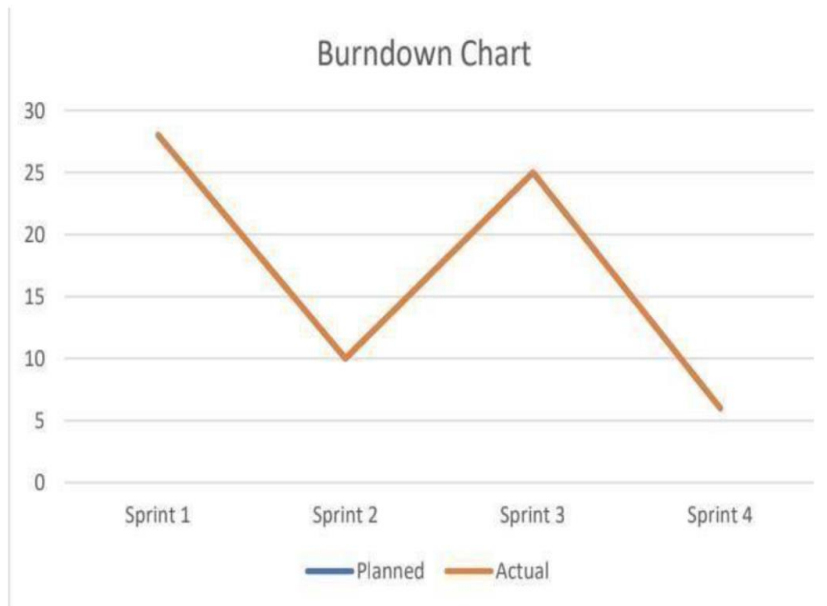
Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

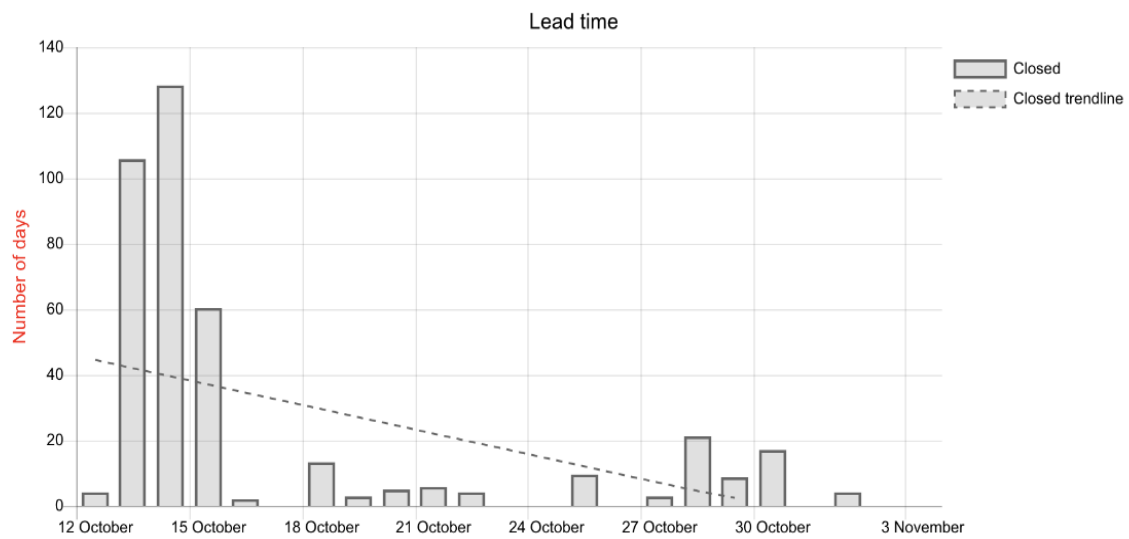
$$AV = \frac{\text{sprint duration}}{\text{velocity}} = \frac{20}{10} = 2$$

6.3 Reports from JIRA

Burndown Chart:

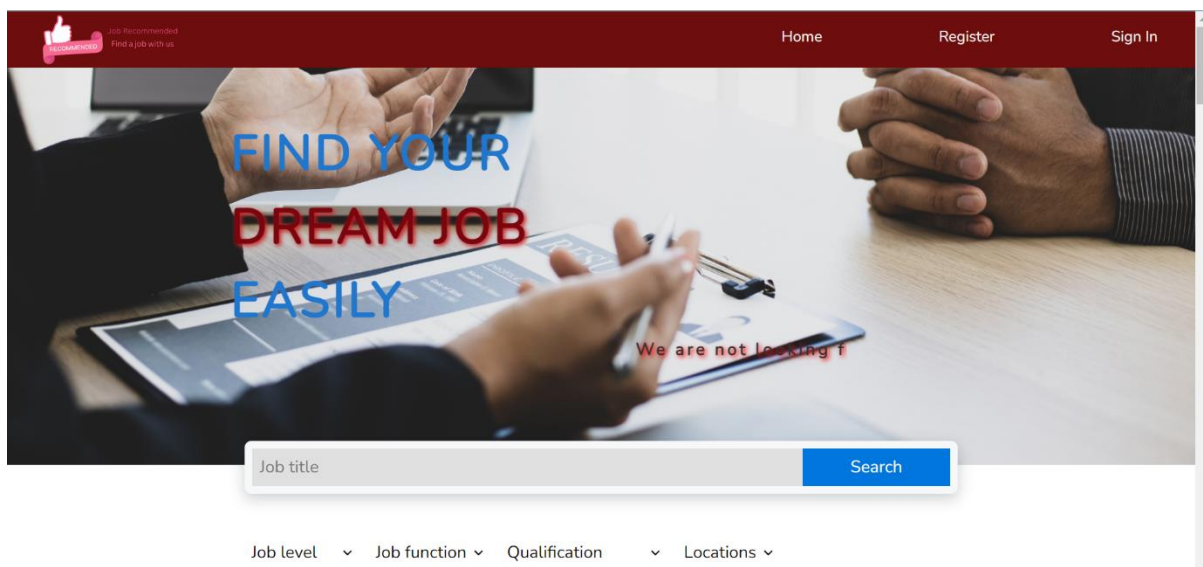
A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.





7. CODING & SOLUTIONING (Explain the features added in the project along with code)

7.1 Feature 1- JOB RECOMMENDER APPLICATION



7.2 Feature 2- AVAILABLE JOBS

WELCOME TO DASHBOARD [LOGOUT](#) [Apply Job](#) [Details](#)

The Available Jobs are Listed below

Available Jobs

See what are the available jobs

Business Development Manager
Salary: 4 to 7 Lpa
Job Type: Full time/Regular/
Strong negotiation skills with a proven ability to seek. Comfortable working hands on in a fast paced start up environment.

[Apply Now](#)

Web Designer
Worked With Designer and Developer Location: Chennai Experience: 0-1 year
They skills are Content Management Systems (CMS), Responsive design and User Experience.

[Apply Now](#)

MEAN Stack Developer
Salary: 4 to 6 Lpa
Experience creating front end application-Building interactive consumer data from multiple systems and RESTfully abstract to the UI through a Node.js backend

[Apply Now](#)

Graphic Designer
Full time
The skills are Have to design Social Media Posts for LinkedIn, Facebook, Instagram, Youtube, and Twitter with the following criteria.

[Apply Now](#)

ES Developer
Full time
Salary: 3 to 4 Lpa
Account Must have experience in Objective-C and with experience 1-3 year

[Apply Now](#)

Assistant Manager
Full time
We are looking for multiple positions in F&A and F&A, candidate should have 3-5 years of experience in the related field.

[Apply Now](#)

Intern
Internship
Virtual internship for 2 months in collaboration with Top MNC COMPANIES WITH INDUSTRIAL EXPERIENCE.

[Apply Now](#)

Senior PHP Developer
Expertise in PHP, JavaScript, HTML5, CSS, MySQL, NoSQL
Strong knowledge in Y3 Framework, MVC, JQuery and experience with development.

[Apply Now](#)

Technical Recruiter
2+ years of recruiting experience for US clients.Outstanding communication skills.Exceptional analytical skills.Demonstrated history of success.

[Apply Now](#)

Team Details
Team ID: PNT2022TMID48457
Skillhub Recommender Application
[f](#) [in](#) [in](#)

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Chandrasekhar R
Harikaran T
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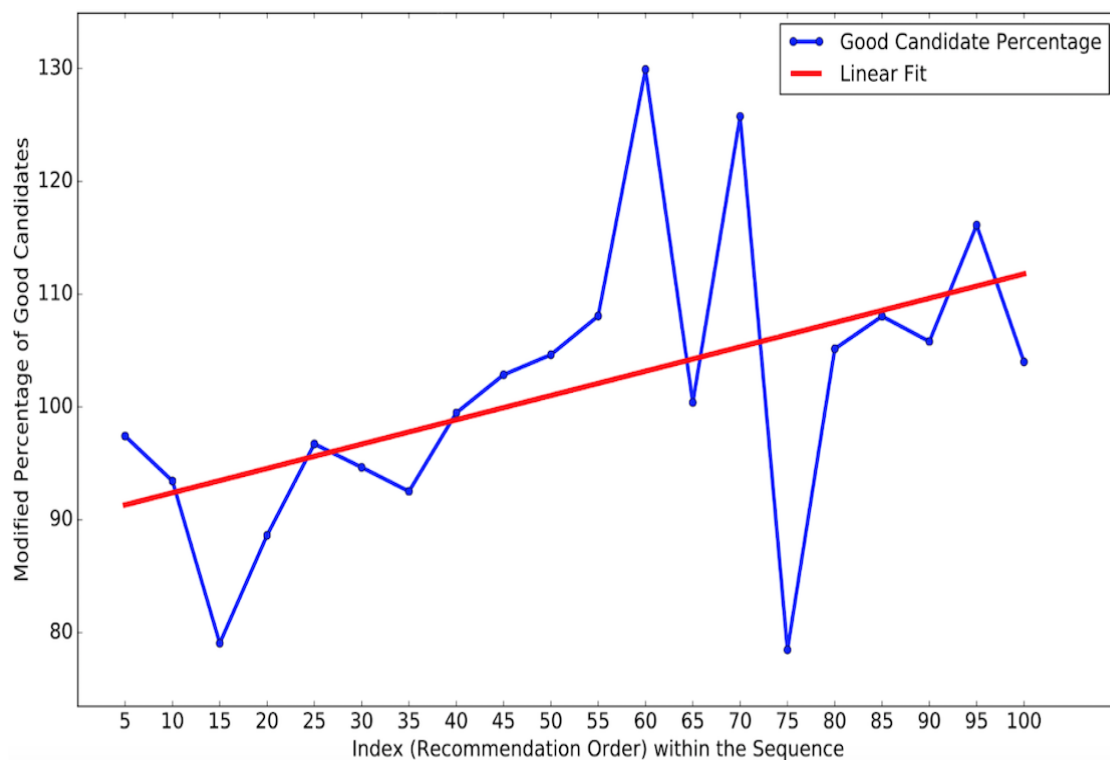
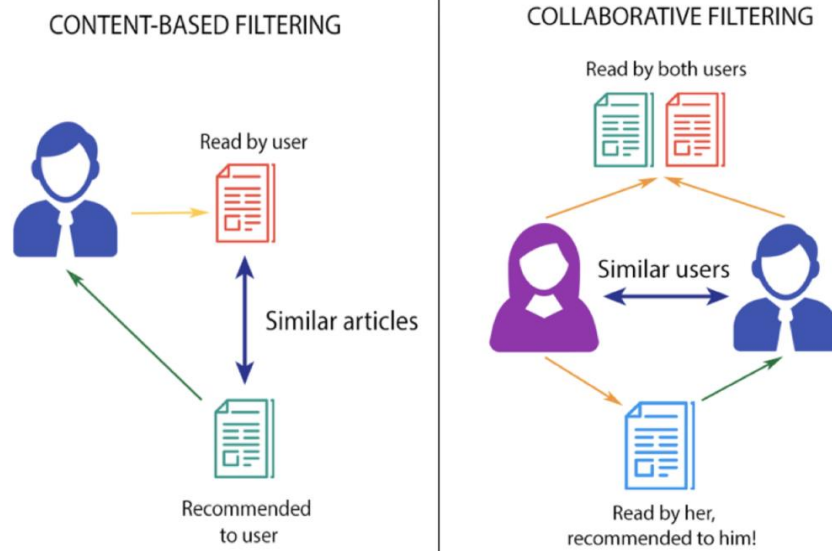
Contacts
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chandrasekhar43942@gmail.com
harikarantamiluban00@gmail.com
priyapriy@gmail.com

Account
[Signup/Register](#)
[Signup/Login](#)

Community
[Community](#)
[Invite a friend](#)

8.RESULTS

8.1 Performance Metrics



9. ADVANTAGES & DISADVANTAGES

ADVANTAGES:

- Ease of use
- Flexibility
- Correctness
- Responsive design
- Accessibility

DISADVANTAGES:

- Can be costly and time consuming.
- Knowledge discovery required.
- One way recommendation.
- Single method of calculating similarity.

10.CONCLUSION

In this paper, we proposed a framework for job recommendation task. This framework facilitates the understanding of job recommendation process as well as it allows the use of a recommendation methods according to the preferences of the job recommender system designer. Moreover, we also contribute making publicly available a new dataset containing job seekers profiles and job vacancies.

11.FUTURE SCOPE

This web application has a lot of scope to be improved.

1. The API interface can be enriched with parameters to perform multi parameter search and display more personalized information of the user.
2. The chatbot can have more intents and dialogues and can be made more human like.

3. The graphical interface can have more learning resources, notifications within the webapp, chat features, and even a feed post feature where job seekers can socialize.
4. The employer interface can be improvised with features such as ranking the applicants, graphical job posting, Customised dashboards with stats, direct communication with the user.

12) APPENDIX

Source Code

```
# Project: Skill / Job Recommender Application
# Team ID: PNT2022TMID48457
```

app.py

```
from flask import Flask, render_template, request, redirect, url_for, session
import ibm_db
import re
app = Flask(__name__)
app.secret_key = 'a'

conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=fbd88901-ebdb-4a4f-
a32e-
9822b9fb237b.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud;PORT=32731;
SECURITY=SSL;SSLServerCertificate=DigiCertGlobalRootCA.crt;UID=xdq89269;
PWD=N0esOeUeeVvgCvyX","")

@app.route('/')
def homer():
    return render_template('index.html')

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



```
global userid
msg = "
if request.method == 'POST' :
    username = request.form['username']
    password = request.form['password']
    sql = "SELECT * FROM users 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['USERNAME']
        userid= account['USERNAME']
        session['username'] = account['USERNAME']
        msg = 'Logged in successfully !'

        msg = 'Logged in successfully !'
        return render_template('dashboard.html', msg = msg)
    else:
        msg = 'Incorrect username / password !'
    return render_template('login.html', msg = msg)

@app.route('/register', methods =['GET', 'POST'])
def register():
    msg = "
    if request.method == 'POST' :
```

```
username = request.form['username']
password = request.form['password']
email = request.form['email']
sql = "SELECT * FROM users WHERE username =?"
stmt = ibm_db.prepare(conn, sql)
ibm_db.bind_param(stmt,1,username)
ibm_db.execute(stmt)
account = ibm_db.fetch_assoc(stmt)
print(account)
if account:
    msg = 'Account already exists !'
elif not re.match(r'^[@]+\.[^@]+\.[^@]+', email):
    msg = 'Invalid email address !'
elif not re.match(r'[A-Za-z0-9]+', username):
    msg = 'name must contain only characters and numbers !'
else:
    insert_sql = "INSERT INTO users VALUES (?, ?, ?)"
    prep_stmt = ibm_db.prepare(conn, insert_sql)
    ibm_db.bind_param(prepare_stmt, 1, username)
    ibm_db.bind_param(prepare_stmt, 2, password)
    ibm_db.bind_param(prepare_stmt, 3, email)
    ibm_db.execute(prepare_stmt)
    msg = 'You have successfully registered !'
elif request.method == 'POST':
    msg = 'Please fill out the form !'
return render_template('register.html', msg = msg)
@app.route('/dashboard')
def dash():
    return render_template('dashboard.html')
```

```
@app.route('/display')
def display()
    arr = []
    sql = "SELECT * FROM job"
    stmt = ibm_db.exec_immediate(conn,sql)
    dictionary = ibm_db.fetch_assoc(stmt)
    while dictionary != False:
        inst={}
        inst['USERNAME']=dictionary['USERNAME']
        inst['EMAIL']=dictionary['EMAIL']
        inst['QUALIFICATION']=dictionary['QUALIFICATION']
        inst['SKILLS']=dictionary['SKILLS']
        inst['S']=dictionary['JOB']
        inst['C']=dictionary['COMPANY']
        arr.append(inst)
        dictionary = ibm_db.fetch_assoc(stmt)
    print(arr)
    return render_template('display.html',arr=arr)
```

```
@app.route('/logout')
def logout():
    session.pop('loggedin', None)
    session.pop('username', None)
    return render_template('index.html')
if __name__ == '__main__':
    app.run(host="0.0.0.0",port=8080)
```

Dockerfile

```
FROM python
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
RUN python3 -m pip install ibm_db
EXPOSE 8080
CMD ["python","app.py"]
```

Sendgrid.py

```
import os
from sendgrid import SendGridAPIClient
from sendgrid.helpers.mail import Mail

message = Mail(
    from_email='mmalishwaran2002@gmail.com',
    to_emails='hariharantamilselvan009@gmail.com',
    subject='Sending with Twilio SendGrid is Fun',
    html_content='<strong>Tell your skill and Get a job</strong>')

try:
    sg = SendGridAPIClient(os.environ.get('API key'))
    response = sg.send(message)
    print(response.status_code)
    print(response.body)
    print(response.headers)
except Exception as e:
    print(e.message)
```

Chatbot.html:

```
<script>
  window.watsonAssistantChatOptions = {
    integrationID: "8cda28c4-8fde-4a41-9ead-a0cf00cc3d00", // The ID of this
integration.
    region: "us-south", // The region your integration is hosted in.
    serviceInstanceID: "7dafeec5-d5f3-478c-98d0-daea8ffbd1f3", // The ID of your
service instance.
    onLoad: function(instance) { instance.render(); }
  };
  setTimeout(function(){
    const t=document.createElement('script');
    t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" +
(window.watsonAssistantChatOptions.clientVersion || 'latest') +
"/WatsonAssistantChatEntry.js";
    document.head.appendChild(t);
  });
</script>
```

GitHub Link:

<https://github.com/IBM-EPBL/IBM-Project-16735-1659621288>

Video Demo Link:

