IBM – NALAIYA THIRAN PROJECT

SKILL JOB RECOMMENDER APPLICATION

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ABSTRACT

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 stateoftheart 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.

There has been a sudden boom in the technical industry and an increase in the number of good startups. Keeping track of various appropriate job openings in top industry names has become increasingly troublesome. This leads to deadlines and hence important opportunities being missed. Through this research paper, the aim is to automate this process to eliminate this problem. To achieve this, IBM cloud services like db2, Watson assistant , cluster, kubernetes have been used. A hybrid system of Content-Based Filtering and Collaborative Filtering is implemented to recommend these jobs. The intention is to aggregate and recommend appropriate jobs to job seekers, especially in the engineering domain. The entire process of accessing numerous company websites hoping to find a relevant job opening listed on their career portals is simplified. The proposed recommendation system is tested on an array of test cases with a fully functioning user interface in the form of a web application. It has shown satisfactory results, outperforming the existing systems. It thus testifies to the agenda of quality over quantity

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1. **INTRODUCTION**

1. **PROJECT OVERVIEW**

There has been a sudden boom in the technical industry and an increase in the number of good startups. Keeping track of various appropriate job openings in top industry names has become increasingly troublesome. This leads to deadlines and hence important opportunities being missed. Through this research paper, the aim is to automate this process to eliminate this problem. To achieve this, IBM cloud services like db2, Watson assistant , cluster, kubernetes have been used. A hybrid system of Content-Based
Filtering and Collaborative Filtering is implemented to recommend these jobs. The intention is to aggregate and recommend appropriate jobs to job seekers, especially in the engineering domain. The entire process of accessing numerous company websites hoping to find a relevant job opening listed on their career portals is simplified. The proposed recommendation system is tested on an array of test cases with a fully functioning user interface in the form of a web application. It has shown satisfactory results, outperforming the existing systems. It thus testifies to the agenda of quality over quantity

2. **PURPOSE**

With an increasing number of cash-rich, stable, and promising technical companies/startups on the web which are in much demand right now, many candidates want to apply and work for these companies. They tend to miss out on these postings because there is an ocean of existing systems that list millions of jobs which are generally not relevant at all to the users. There is an abundance of choices and not much streamlining. On the basis of the actual skills or interests of an individual, job seekers often find themselves unable to find the appropriate employment for themselves. This system, therefore, approaches the idea from a data point of view, emphasizing more on the quality of the data than the quantity.

2. **LITERATURE SURVEY**

1. **EXISTING PROBLEM:**

Existing system is not very efficient, it does not benefit the user in maximum way, so the proposed system uses IBM cloud services like db2, Watson virtual assistant , cluster , Kubernetes and docker for containerization of the application.

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2.2 REFERENCES:

1. [1] Wen O Chen, pan Zhou , Shaokang Dong , shimin Gong, menglan Hu, Kehao Wang, And Wu, Tree-Based Contextual Learning for Online Job or Candidate Recommendation With Big Data Support in Professional Social Networks, IEEE/Trans. Data Mining., Nov 2018, vol. 6,no. 2, pp77725-77739.
2. [2] A. Calvo-Armengol. Job contact networks. Journal of Economic Theory, 115, 2004.
3. [3] [Shaha T Al-Otaibi and Mourad Ykhlef . 2012. A survey of job recommender systems. International Journal of Physical Sciences , Vol. 7, 29 (2012), 5127--5142.
4. [4] Deepani B. Guruge, Rajan Kadel, and Sharly J. Halder: The State of the Art in Methodologie of Course Recommender Systems—A Review of Recent Research. Data 6, no. 2: 18. (2021) 17.
5. [5] Slamet, C., Andrian, R., Maylawati , D.S., Dharmalaksana, W., Ramdhani, M. et al. (2018) Web scraping and naïve bayes classification for job search engine in: IOP Conference Series: Materials Science and Engineering vol. 288 p. 012038 IOP Publishing.
6. [6] Anna Giabelli, Lorenzo Malandri,Fabio Mercorio, Mario Mezzanzanica, and Andrea Seveso. Skills to Job: A recommender system that encodes job offer embeddings on graph databases. Applied Soft Computing, 101:107049, 2021.
7. [7] N Deniz, A Noyan, and O G Ertosun. “Linking Person-job Fit to Job Stress: The Mediating Effect of Perceived Person-organization Fit”. In: Procedia - Social and Behavioral Sciences 2017 (2015), pp. 369–376.
8. [8] Guo, Xingsheng, Jerbi, Houssem, O' Mahony, Michael P. : An Analysis Framework for Content-based Job Recommendation. 22nd International Conference on Case-Based Reasoning

2. **PROBLEM STATEMENT DEFINITION**

Finding a job based only on one's skill set has become extremely difficult due to the labour market's tremendous growth. Additionally, one of the major issues with online labour markets is the "cold start" problem because there are less signals about a worker's abilities and less understanding of what those signals represent. Job recommender systems have replaced the primitive techniques of searching in newspapers, company websites, and job adverts, saving time and resources for both job seekers and recruiters. We will work on creation of a Job based recommendation system for job providers and job seekers using the candidate's skill set and recruiter's requirements while working to solve the problem of cold start as well. This application will be deployed on IBM cloud platform.

Who can use this application?	Job Seekers.
When to use?	While seeking job opportunities.
What is the issue?	Job seekers can't find jobs relevant to their skill sets.
Why is it important that we fix this issue?	In order to find the right people for the job at the right time.
What are the benefits?	The entire job search process will take less time and use fewer resources

3. IDEATION & PROPOSED SOLUTION

In this project you will be working on two modules :

1. Admin and
2. User

ADMIN:

The role of the admin is to check out the database about the stock and have a track of all the things that the users are purchasing.

USER :

The user will login into the website and go through the products available on the website. Instead of navigating to several screens the user can directly talk to Chatbot. Get the recommendations based on information provided by the user.

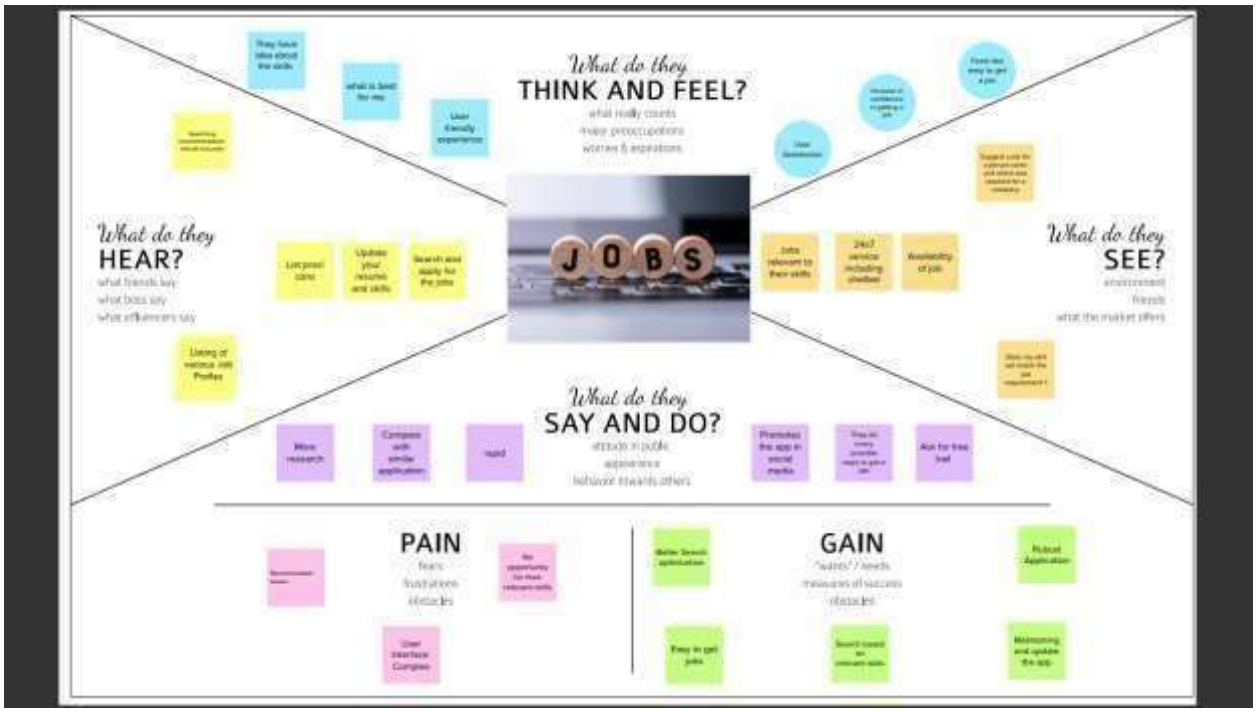
FEATURES OF CHATBOT :

- Using chatbot we can manage user's choices and orders.
- The chatbot can give recommendations to the users based on their interests.
- It can promote the best deals and offers on that day.
- It will store the customer's details and orders in the database.
- The chatbot will send a notification to customers if the order is confirmed.
- Chatbots can also help in collecting customer feedback.

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, and
2. aid in decision making

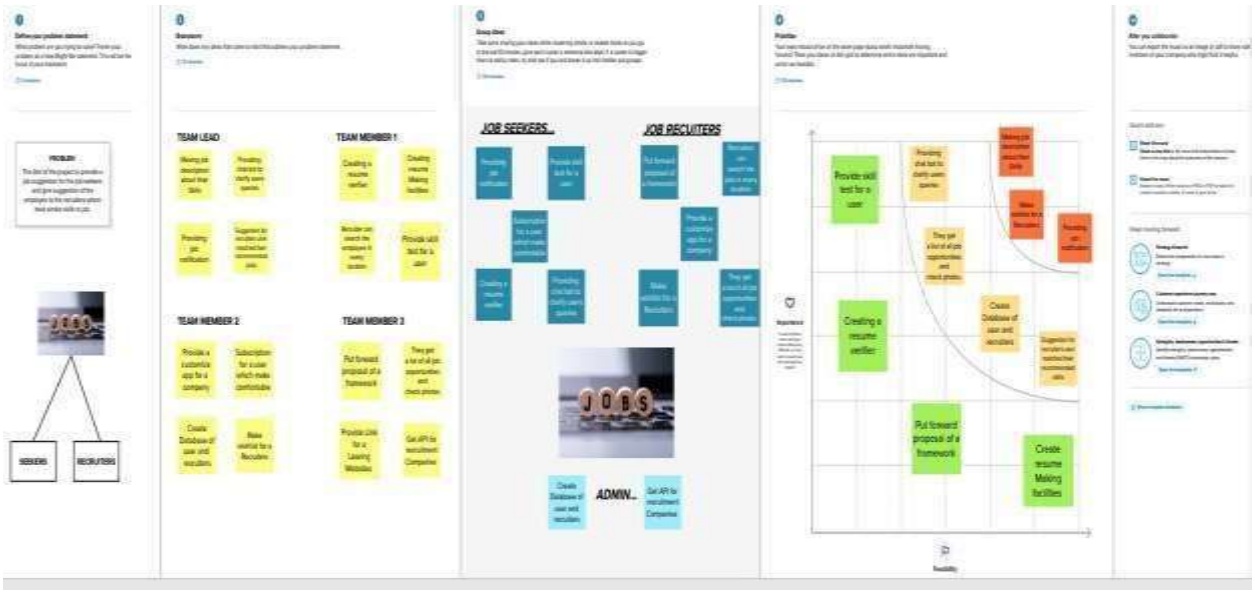


2. **IDEATION & BRAINSTROMING:**

Brainstorm & Idea Prioritization Template:
Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. 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

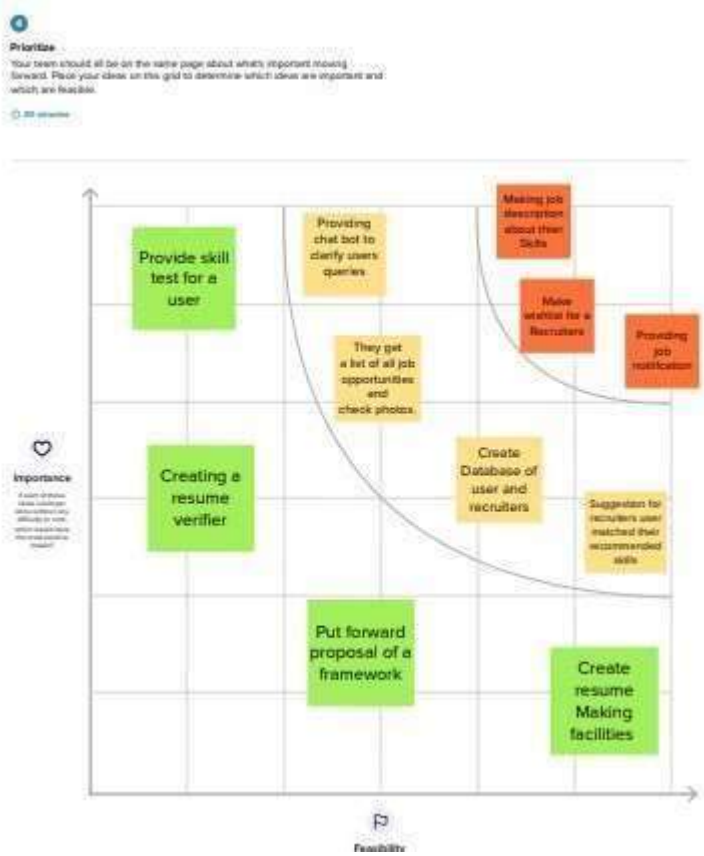
sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room. STEP 1:

Brainstorm, Idea Listing and Grouping



STEP 2:

Idea Prioritization



3. **PROPOSED SOLUTION:**

S.NO	Parameter	Description
●	Problem Statement (Problem to be solved)	1.Devise an end-to-end web application capable of displaying the current job openings based on the user skillset. Users must interact with the chatbot and can get the recommendations based on their skills. 2.Recruiters also get the recommendations about the seekers based on the skills requirements

●	Idea / Solution description	1.Recruiters can post for the job openings in our application. 2.Built a chatbot using IBM watson assistant which is help to get the recommendation of the job 3.Create Database for the jobs and notification to the users. 4.provide job description to the Job Seekers. 5.Get API from the company for the job roles. 6.Seekers may track the appilication
●	Novelty / Uniqueness	1.By uploading the user info in the portal of the application the user can get the required job recommendations as prioritized way. 2.Job seekers will be able to communicate through chatbot and our application is user friendly and the structure is simple

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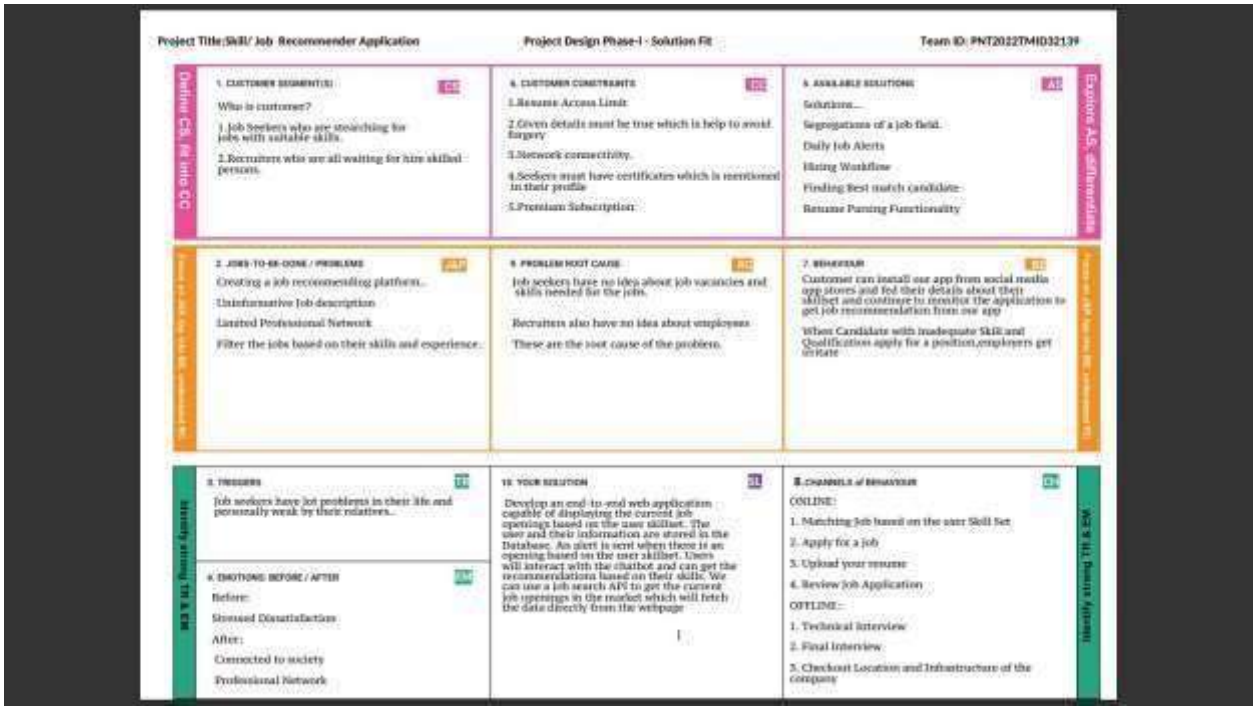
3.4 **PROBLEM SOLUTION FIT**



4.REQUIREMENT ANALYSIS

Following are the func onal requirements of the proposed solu on.

FR No.	Func onal Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registra on	Registra on through Form Registra on through Gmail Registra on through LinkedIN
FR-2	User Confirma on	Confirma on via Email Confirma on via OTP
FR-3	User login	User can login with their creden als

FR-4	User Search	User can search (or) explore the jobs based on their Skills
FR-5	User Profile	update the profile using the login creden als and fill the personel details
FR-6	User Applica on	User can apply jobs based on their skills

Non-func onal Requirements:

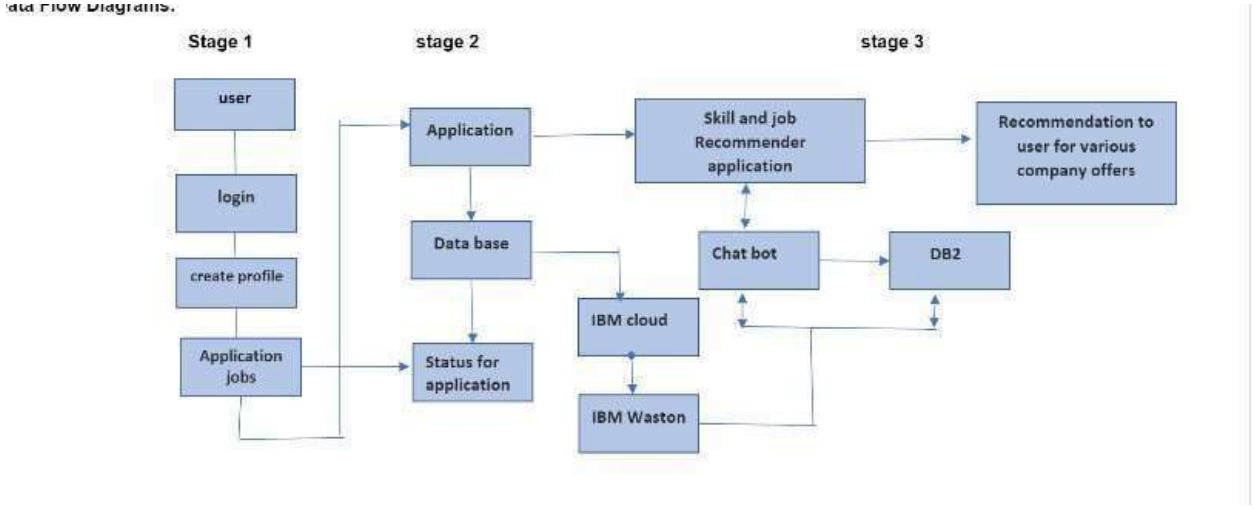
Following are the non-func onal requirements of the proposed solu on

FR No.	**Non-Func onal Requirement**	**Descrip on**
NFR-1	**Usability**	This applica on can be used by the job seekers tologin and search for the job based on her Skills set.
NFR-2	**Security**	The security provided by the two step verifica on while login
NFR-3	**Reliability**	This applica on is open-source and feel free to use, without need to pay anything. The enormous job openings will be provided to all the job seekerswithout any limita on
NFR-4	**Performance**	The performance of the app quite flexible for seekers and recruiters
NFR-5	**Availability**	This applica on provides job offers and recommends Skills for a Par cular Job openings.

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 entersand leaves the system, what changes the information, and where data is stored.



5.2 SOLUTION & TECHNICALARCHITECTURE:

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

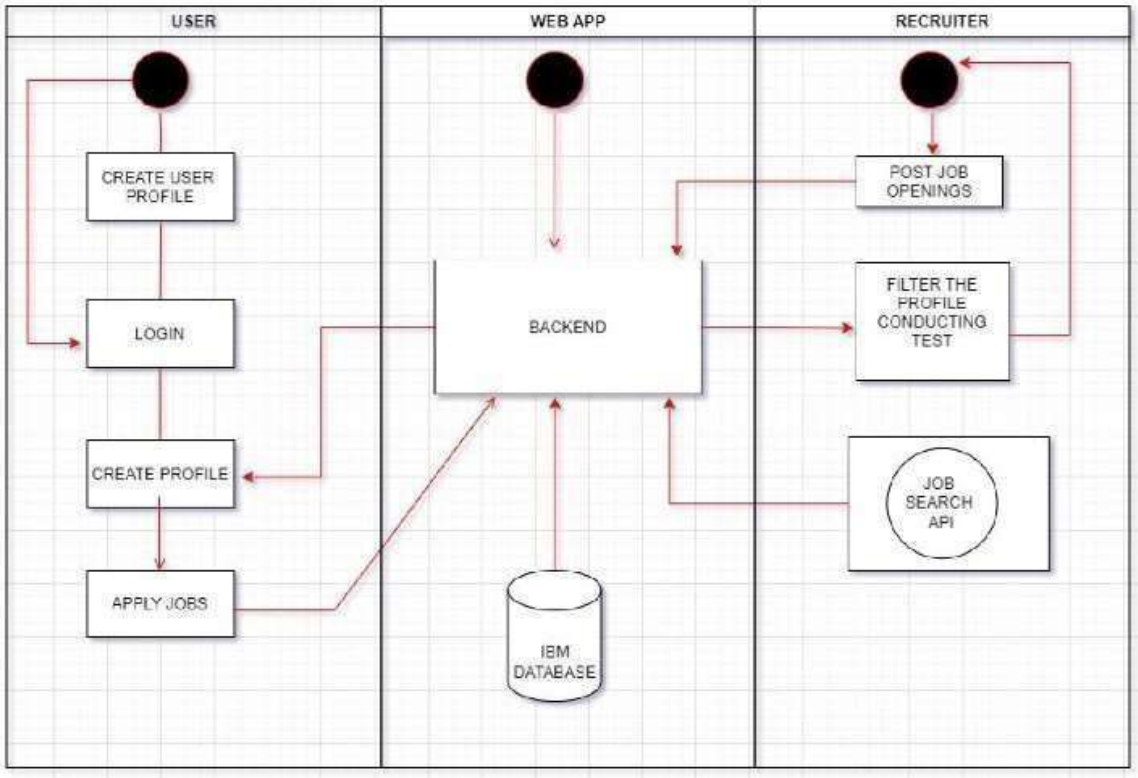
i. Findthe best tech solution to solve existing business problems. ii. Describe the structure, characteristics, behaviour, and other aspects of the softwareto project stakeholders.

iii. Define features, development phases,and solution requirements.

iv. Provide specifications according to which the solutionis defined, managedand delivered.

v. Provide the best businessrequire recommend by using the optimised and efficient algorithm

vi. Differentiate the fake job recommend by fake sites and be aware from the Scammers



5.3 USER STORIES

User Stories

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 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 application through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
Customer (Web user)	Login	USN-6	As a user, I can log into application by entering my email, password.	I can access my account / dashboard	High	Sprint-1
Customer Care Executive	Chat box	USN-7	It can be used by easily access and responsible and queries can apply	I can access by easily Through application	High	Sprint -1
Administrator	Application	USN -8	As a Administrator I can Update the application	I can fix the bug which Arises for the customers and users of the application	Low	Sprint-1

6.PROJECT PLANNING &SCHEDULE

6.1 SPRINT PLANNING & ESTIMATION

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		29 OCT2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022		05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022		12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022		19 NOV 2022

6.2 SPRINT DELIVERY SCHEDULE

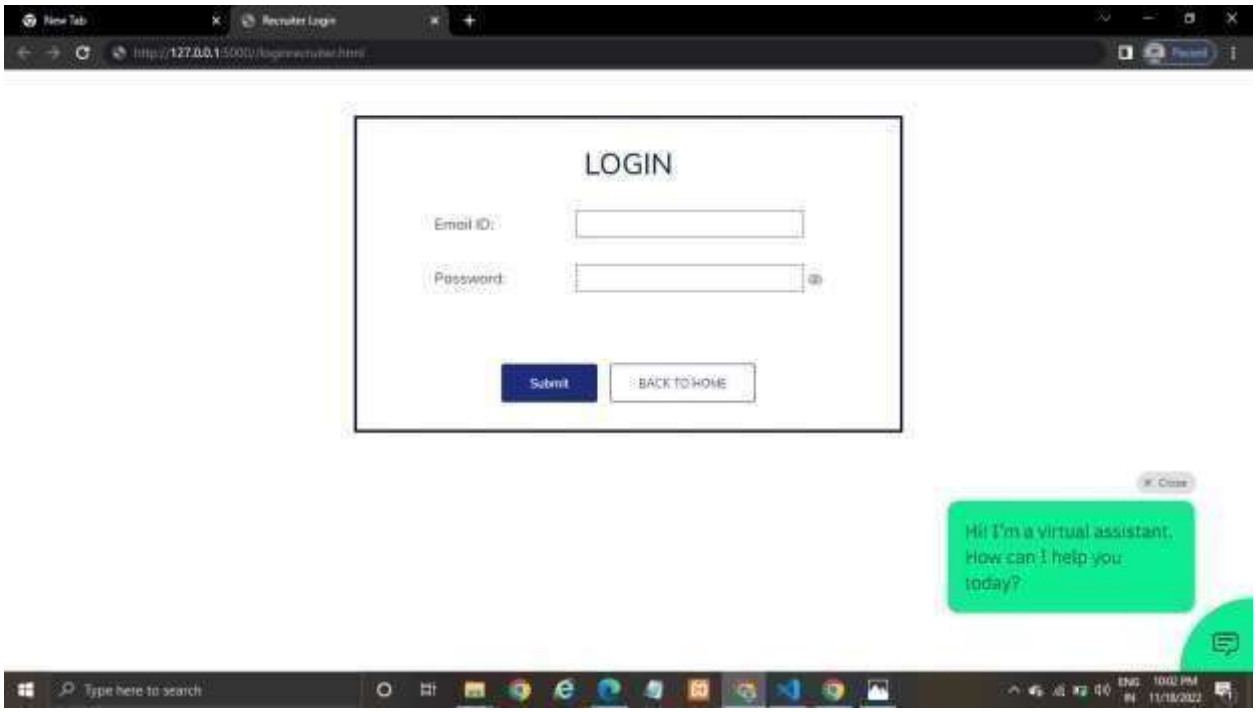
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Panel	USN-1	As a User, I can be able to login to my account and access my dashboard. I should be able to raise a ticket regarding my queries to get them solved.	2	High	Gaythri V, Deepanchakkaravarthi S, Gayathri B, Rajesh Shanmugam S
Sprint-2	Admin Panel	USN-2	As an Admin, I can be able to keep track of the raised queries and the customers relation with the application. I should be also able to solve the queries	2	High	Gaythri V, Deepanchakkaravarthi S, Gayathri B, Rajesh Shanmugam S
Sprint-3	Chat Bot	USN-3	Chatbot implementation with the web application using IBM Watson assistant	2	High	Gaythri V, Deepanchakkaravarthi S, Gayathri B, Rajesh Shanmugam S

6.3 REPORTS FROM JIRA:

Spritt-4	Final Deliverables	USN-4	Final Deliverables are the extras that we wish to deliver to the user for better experience.	2	High	Gayathri V, Gayathri B, Deepanchakkar avrthi S, Rajesh Shanmugam S

7.CODING & SOLUTION

7.1 Feature:



7.2 DATABASE SCHEMA:

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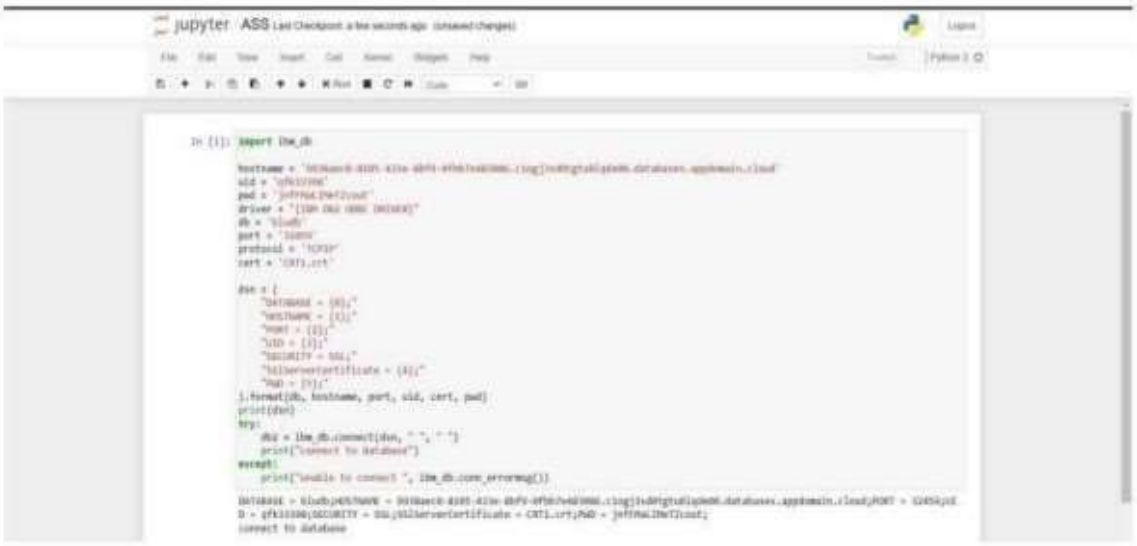

8.TESTING

8.1 TestCase

				Maximum Marks:	4 marks							
Test case ID	Feature Type	Compo nent	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Sta tus	Comments	TC for Automation(Y/N	BU G ID	Executed By
SJR_TC_010	Functional	USER PAGE	Verify user can login into job recruiter with valid credentials		1.Enter URL(logiorecruiter.html) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Click on login button	logiorecruiter.html	Application should show 'correct email or password' validation message.	Working as expected	Pass	Successfull	Y	No	S.Deepan chakkaravarthi
SJR_TC_014	Functional	USER PAGE	Verify user can find jobs with valid credentials		1.Enter URL(jobapplication.html)and click go 2.Open personal details to find jobs 3.Enter the valid details into the application form 4.Submit the details	jobapplication.html	Application should show 'saved details' with validation message.	Working as expected	Pass	Successfull	Y	No	V.Gayathri B.Gayathri
SJR_TC_015	Functional	USER PAGE	verify job seeker can able to post the jobs		1.Enter URL(recruitermenu.html)and click go 2.Enter the job details into recruiter menu 3.Post the jobs and view applicants 4.Jobs offered based on resume given by job seekers	recruitermenu.html	Application should show 'suitable jobs with ' validation message.	Working as expected	Pass	Successfull	Y	No	S.Deepan chakkaravarthi S.Rajesh Shanmugam

8.2 User Acceptance System:

2. Defect Analysis

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

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	5	2	3	19
Duplicate	1	1	2	0	4
External	1	3	0	0	6
Fixed	11	3	5	20	37
Not Reproduced	0	0	2	0	1
Skipped	0	0	1	2	2
Won't Fix	0	4	2	1	8
Totals	23	16	14	26	77

3. Test Case Analysis

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

Section	Total Cases	Not Tested	Fail	Pass
Login	5	0	0	5
Register	7	0	0	7
Homepage	2	0	0	2
Job finding page	3	0	0	3
Find jobs	7	0	0	7
Final Report Output	4	0	0	4
Version Control	2	0	0	2

8.3 Performance Testing

9. RESULTS

9.1 PERFORMANCE METRICS:

The performance of a recommendation algorithm is evaluated by using some specific metrics that indicate the accuracy of the system. The type of metric used depends on the type of filtering technique. Root Mean Square Error (RMSE), Receiver Operating Characteristics (ROC), Area Under Cover (AUC), Precision, Recall and F1 score is generally used to evaluate the performance or accuracy of the recommendation algorithms. Root-mean square error (RMSE). RMSE is widely used in evaluating and comparing the performance of a recommendation system model compared to other models. A lower RMSE value indicates higher performance by the recommendation model. RMSE, as mentioned by [61] , can be as represented as follows:

$$RMSE = \sqrt{\frac{1}{N_p} \sum_{u,i} (p_{ui} - r_{ui})^2}$$

where, Np is the total number of predictions, pui is the predicted rating that a user u will select an item i and rui is the real rating. Precision. Precision can be defined as the fraction of correct recommendations or predictions (known as True Positive) to the total number of recommendations provided, which can be as represented as follows:

$$Precision = \frac{True\ Positive\ (TP)}{True\ Positive\ (TP) + False\ Positive\ (FP)}$$

It is also defined as the ratio of the number of relevant recommended items to the number of recommended items expressed as percentages. Recall. Recall can be defined as the fraction of correct recommendations or predictions (known as True Positive) to the total number of correct relevant recommendations provided, which can be as represented as follows:

$$Recall = \frac{True\ Positive\ (TP)}{True\ Positive\ (TP) + False\ Negative\ (FN)}$$

It is also defined as the ratio of the number of relevant recommended items to the total number of relevant items expressed as percentages. F1 Score. F1 score is an indicator of the accuracy of the model and ranges from 0 to 1, where a value close to 1 represents higher recommendation or prediction accuracy. It represents precision and recall as a single metric and can be as represented as follows:

$$F1\ score = 2 \times \frac{Precision * Recall}{Precision + Recall}$$

Coverage. Coverage is used to measure the percentage of items which are recommended by the algorithm among all of the items.

Accuracy. Accuracy can be defined as the ratio of the number of total correct recommendations to the total recommendations provided, which can be as represented as follows:

$$Accuracy = \frac{TP + FN}{TP + FN + TN + FP}$$

Intersection over union (IoU). It represents the accuracy of an object detector used on a specific dataset [62] .

$$IoU = \frac{TP}{TP + FN + FP}$$

ROC. ROC curve is used to conduct a comprehensive assessment of the algorithm's performance [57] .

AUC. AUC measures the performance of recommendation and its baselines as well as the quality of the ranking based on pairwise comparisons [5] . Rank aware top-N metrics. The rank aware top-N recommendation metric finds some of the interesting and unknown items that are presumed to be most attractive to a user [63] . Mean reciprocal rank (MRR), mean average precision (MAP) and normalized discounted cumulative gain (NDCG) are three most popular rank aware metrics. MRR. MRR is calculated as a mean of the reciprocal of the position or rank of first relevant recommendation [64][65] . MRR as mentioned by [64][65] can be expressed as follows:

$$MRR = \frac{1}{N_u} \sum_{u \in N_u} \frac{1}{L_u^n [k] \in R_u}$$

where u, Nu and Ru indicate specific user, total number of users and the set of items rated by the user, respectively. L indicates list of ranking length (n) for user (u) and k represents the position of the item found in the he lists L.

MAP: MAP is calculated by determining the mean of average precision at the points where relevant products or items are found. MAP as mentioned by [65] can be expressed asfollows:

$$MAP = \frac{1}{N_u |R_u|} \sum_{k=1}^{n} \mathbb{1}(L_u^n[k] \in R_u) P_u@k$$

where Pu represents precision in selecting relevant item for the user.

NDCG: NDCG is calculated by determining the graded relevance and positional information of the recommended items, which can be expressed as follows

$$NDCG_u = \frac{\sum_{k=1}^{n} G(u,n,k) D(k)}{\sum_{k=1}^{n} G^*(u,n,k) D(k)}$$

where D (k) is a discounting function, G (u, n, k) is the gain obtained recommending an item found at kth position from the list L and G* (u, n, k) is the gain related to k-th item in the ideal ranking of n size for u user.

10.ADVANTAGES & DISADVANTAGES

ADVANTAGES:

- It helps candidates to search the job which perfectly suites them and make them aware of all the job openings.
- It help recruiters of the company to choose the right candidates for their organisations with appropriate skills.
- Since it is cloud application , it does require any installation of softwares and is portable.

DISADVANTAGES:

- Privacy concerns.
- Too many choices.
- Cold-start problem.
- It is costly.
- Uninterrupted internet connection is required for smooth functioning of application.

11. CONCLUSION

we have used ibm cloud services like db2, cloud registry , kubernetes , Watson assistant to create this application , which will be very usefull for candidates who are searching for job and as well as for the company to select the right candidate for their organization

12. FUTURE SCOPE

Future directions of our work will focus on performing a more exhaustive evaluation considering a greater amount of methods and data as well as a comprehensive evaluation of the impact of each professional skill of a job seeker on the received job recommendation. We can use machine learning technicques to recommend data in a efficient way

13. APPENDIX

```
import ibm_db  from flask import Flask, url_for, render_template, request, session, redirect,
flash, send_file  from authlib.integrations.flask_client import OAuth import traceback from
datetime import date   from io import BytesIO

app = Flask(__name__) oauth
= OAuth(app)  arr2=[]

def connection():     try:
      #jesima db2 credential
      conn=ibm_db.connect("DATABASE=bludb;HOSTNAME=b70af05b-76e4-4bca-
a1f523dbb4c6a74e.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud;\

PORT=32716;PROTOCOL=TCPIP;UID=rmy92863;PWD=DDoUqjA0drfzoKCm;SECURITY=SS
L;SSLServiceCertificate=DigiCertGlobalRootCA.crt", "", "")
print("CONNECTED TO DATABASE")        return conn
except:
      print(ibm_db.conn_errormsg())        print("CONNECTION
FAILED")   @app.route('/google')  def google():
   GOOGLE_CLIENT_ID = '367786402665skc738qj1tacaf0kkrkcgolap5775qia.apps.googleusercontent.com'
```

```
  GOOGLE_CLIENT_SECRET = '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'
  CONF_URL = 'https://accounts.google.com/.well-known/openid-configuration'
oauth.register(        name='google',        client_id=GOOGLE_CLIENT_ID,
client_secret=GOOGLE_CLIENT_SECRET,        server_metadata_url=CONF_URL,
client_kwargs={
        'scope': 'openid email profile'
    }
  )
  # Redirect to google_auth function     redirect_uri = url_for('google_auth',
_external=True)     return oauth.google.authorize_redirect(redirect_uri)

@app.route('/google/auth') def google_auth():
  token = oauth.google.authorize_access_token()
user = oauth.google.parse_id_token(token,None)
print(" Google User ", user)     try:
conn=connection()        sql="INSERT INTO USERS
VALUES(?,?)"        stmt = ibm_db.prepare(conn,sql)
ibm_db.bind_param(stmt, 1, user['name'])
ibm_db.bind_param(stmt, 2,user['email'])
out=ibm_db.execute(stmt)     except
Exception as e:        print(e)
  return render_template('index.html')

#Home Page
@app.route("/") def home():
return render_template('in dex.html')

#Logout
@app.route('/logout') def logout():
session.pop('loggedin', None)     session.pop('username',
None)     return render_template("index.html")

#Filter Jobs
@app.route('/FilteredJobs',methods=['POST','GET']) def FilteredJobs():
```

```
  #arr=[]     if request.method ==
"POST":
        data = {}               data['role'] =
request.json['role']            data['loc'] =
request.json['loc']           data['type'] =
request.json['type']
          try:
           conn=connection()
           sql ="SELECT * FROM JOBS WHERE (LOCATION = ? AND JOBTYPE = ?) AND
ROLE   =   ?   "                                    stmt   =   ibm_db.prepare(conn,sql)
ibm_db.bind_param(stmt,                              1,                              data['loc'])
ibm_db.bind_param(stmt,2,data['type'])
ibm_db.bind_param(stmt,3,data['role'])                    out=ibm_db.execute(stmt)
while  ibm_db.fetch_row(stmt)  !=  False:                                          inst={}
inst['COMPANY']=ibm_db.result(stmt,1)
inst['ROLE']=ibm_db.result(stmt,3)
inst['SALARY']=ibm_db.result(stmt,11)
inst['LOCATION']=ibm_db.result(stmt,10)
inst['JOBTYPE']=ibm_db.result(stmt,5)
inst['POSTEDDATE']=ibm_db.result(stmt,16)                    arr2.append(inst)
print(arr2)                 except Exception as e:                  print(e)        return
render_template('job_listing.html',arr=arr2)


@app.route('/filter')  def filter():
  return render_template('job_listing.html',arr=arr2)

#Job Listing - Seeker Home Page @app.route('/job_listing')
def job_listing():     try:         conn=connection()
     arr=[]
     sql="SELECT * FROM JOBS"        stmt =
ibm_db.exec_immediate(conn, sql)
dictionary = ibm_db.fetch_both(stmt)        while
dictionary != False:
         inst={}            inst['JOBID']=dictionary['JOBID']
inst['COMPANY']=dictionary['COMPANY']
```

```
inst['ROLE']=dictionary['ROLE']
inst['SALARY']=dictionary['SALARY']
inst['LOCATION']=dictionary['LOCATION']
inst['JOBTYPE']=dictionary['JOBTYPE']
inst['POSTEDDATE']=dictionary['POSTEDDATE']
inst['LOGO']=BytesIO(dictionary['LOGO'])
arr.append(inst)                    dictionary =
ibm_db.fetch_both(stmt)          except Exception as
e:                          print(e)                return
render_template('job_listing.html',arr=arr)

#Register
@app.route("/register",methods=["GET","POST"]) def registerPage():
if request.method=="POST":
    conn=connection()       try:
      role=request.form["urole"]          if
role=="seeker":
        sql="INSERT INTO SEEKER
VALUES('{}','{}','{}','{}','{}','{}')".format(request.form["uemail"],request.form["upass"],request.fo
rm["uname"],request.form["umobileno"],request.form["uworkstatus"],request.form["uorganisati on"])
else:
        sql="INSERT INTO RECRUITER
VALUES('{}','{}','{}','{}','{}')".format(request.form["uemail"],request.form["upass"],request.form
["uname"],request.form["umobileno"],request.form["uorganisation"])          ibm_db.exec_immediate(conn,sql)
return render_template('index.html')       except Exception as error:          print(error)          return
render_template('register.html')    else:
    return render_template('register.html')

#Seeker Login
@app.route("/login_seeker",methods=["GET","POST"]) def loginPageSeeker():
if request.method=="POST":
    conn=connection()       useremail=request.form["lemail"]
password=request.form["lpass"]       sql="SELECT COUNT(*) FROM SEEKER
WHERE EMAIL=? AND PASSWORD=?"       stmt=ibm_db.prepare(conn,sql)
ibm_db.bind_param(stmt,1,useremail)
```

```
ibm_db.bind_param(stmt,2,password)        ibm_db.execute(stmt)
res=ibm_db.fetch_assoc(stmt)        if res['1']==1:
        session['loggedin']= True            session['user']
= useremail            return
redirect(url_for('job_listing'))       else:
        print("Wrong Username or Password")
return render_template('loginseeker.html')     else:
     return render_template('loginseeker.html')

#Recruiter Login
@app.route("/login_recruiter",methods=["GET","POST"]) def loginPageRecruiter():
if request.method=="POST":
     conn=connection()        useremail=request.form["lemail"]
password=request.form["lpass"]        sql="SELECT COUNT(*) FROM RECRUITER
WHERE EMAIL=? AND PASSWORD=?"        stmt=ibm_db.prepare(conn,sql)
ibm_db.bind_param(stmt,1,useremail)        ibm_db.bind_param(stmt,2,password)
ibm_db.execute(stmt)        res=ibm_db.fetch_assoc(stmt)        if res['1']==1:
session['loggedin']= True            session['user']
=   useremail                                    return
render_template("recruitermenu.html")          else:
print("Wrong Username or Password")          return
render_template('loginrecruiter.html')          else:
return render_template('loginrecruiter.html')

#Display Job Description
@app.route("/JobDescription",methods=["GET","POST"]) def JobDescPage():
if request.method=="POST":
     conn=connection()        try:
        sql="SELECT * FROM JOBS WHERE JOBID={}".format(request.form['jobidname'])          #sql="SELECT * FROM
JOBS WHERE JOBID=101" #should be replaced with the jobid variable          stmt =
ibm_db.exec_immediate(conn,sql)          dictionary = ibm_db.fetch_both(stmt)          if dictionary != False:
          print ("COMPANY: ",  dictionary["COMPANY"])              print ("ROLE: ",
dictionary["ROLE"])          print ("SALARY: ",  dictionary["SALARY"])          print
("LOCATION: ",  dictionary["LOCATION"])              print ("JOBDESCRIPTION:
```

```
",  dictionary["JOBDESCRIPTION"])                    print ("POSTEDDATE: ",
dictionary["POSTEDDATE"])                  print ("APPLICATIONDEADLINE: ",
dictionary["APPLICATIONDEADLINE"])                    print ("JOBID: ",
dictionary["JOBID"])              print ("JOBTYPE: ",  dictionary["JOBTYPE"])
print ("EXPERIENCE: ", dictionary["EXPERIENCE"])          print ("KEYSKILLS: ",
dictionary["KEYSKILLS"])                  print ("BENEFITSANDPERKS: ",
dictionary["BENEFITSANDPERKS"])                    print ("EDUCATION: ",
dictionary["EDUCATION"])                  print ("NOOFVACANCIES: ",
dictionary["NUMBEROFVACANCIES"])                    print ("DOMAIN: ",
dictionary["DOMAIN"])                   print ("RECRUITERMAIL: ",
dictionary["RECRUITERMAIL"])
        fields=['JOBID','COMPANY','RECRUITER MAIL','ROLE','DOMAIN','JOB
TYPE','JOB DESCRIPTION','EDUCATION','KEY
SKILLS','EXPERIENCE','LOCATION','SALARY','BENEFITS AND PERKS','APPLICATION
DEADLINE','LOGO','NUMBER OF VACANCIES','POSTED DATE']          today = date.today()
if today > dictionary['APPLICATIONDEADLINE'] or  dictionary["NUMBEROFVACANCIES"]<=0:
disable=True          else:
            disable=False          return
render_template('JobDescription.html',data=dictionary,fields=fields,disable=disable
)       else:
        print("INVALID JOB ID")
return render_template('sample.html')      except:
      print("SQL QUERY NOT EXECUTED")
return render_template('sample.html')   else:
return render_template('sample.html')

#Apply Jobs
@app.route("/JobApplicationForm",methods=["GET","POST"]) def loadApplForm():
if request.method=="POST":
    jobid=request.form["Applbutton"]      print(jobid)
return render_template('JobApplication.html',jobid=jobid)   else:
    return render_template("sample.html")

#Apply Job Status Page
@app.route("/JobApplicationSubmit",methods=["GET","POST"]) def jobApplSubmit():
if request.method=="POST":      try:
```

```
        uploaded_file = request.files['uresume']
if uploaded_file.filename != '':
contents=uploaded_file.read()              print(contents)
try:
            conn=connection()                sql="INSERT
INTO APPLICATIONS
(JOBID,FIRSTNAME,LASTNAME,EMAILID,PH
ONENO,DOB,GENDER,PLACEOFBIRTH,CI
TIZENSHIP,PALINE1,PALINE2,PAZIPCODE,PACITY,PASTATE,PACOUNTRY,CURLINE1,CU
RLINE2,CURZIPCODE,CURCITY,CURSTATE,CURCOUNTRY,XBOARD,XPERCENT,XYOP,
XIIBOARD,XIIPERCENT,XIIYOP,GRADPERCENT,GRADYOP,MASTERSPERCENT,MASTE
RSYOP,WORKEXPERIENCE,RESUME)
VALUES(?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?,?)"                stmt =
ibm_db.prepare(conn, sql)                ibm_db.bind_param(stmt, 1,
request.form["jobidname"])               ibm_db.bind_param(stmt, 2,
request.form["ufname"])                ibm_db.bind_param(stmt, 3,
request.form["ulname"])
ibm_db.bind_param(stmt, 4, request.form["uemail"])
            ibm_db.bind_param(stmt, 5, request.form["uphone"])
ibm_db.bind_param(stmt, 6, request.form["udob"])
ibm_db.bind_param(stmt, 7, request.form["ugender"])
ibm_db.bind_param(stmt, 8, request.form["upob"])
ibm_db.bind_param(stmt, 9, request.form["uciti"])              ibm_db.bind_param(stmt,
10, request.form["pAL1"])              ibm_db.bind_param(stmt, 11,
request.form["pAL2"])              ibm_db.bind_param(stmt, 12,
request.form["pzip"])              ibm_db.bind_param(stmt, 13,
request.form["pcity"])              ibm_db.bind_param(stmt, 14,
request.form["pstate"])              ibm_db.bind_param(stmt, 15,
request.form["pcntry"])              ibm_db.bind_param(stmt, 16,
request.form["curAL1"])              ibm_db.bind_param(stmt, 17,
request.form["curAL2"])              ibm_db.bind_param(stmt, 18,
request.form["curzip"])              ibm_db.bind_param(stmt, 19,
request.form["curcity"])              ibm_db.bind_param(stmt, 20,
request.form["curstate"])              ibm_db.bind_param(stmt, 21,
request.form["curcntry"])              ibm_db.bind_param(stmt, 22,
request.form["Xboard"])              ibm_db.bind_param(stmt, 23,
```

```
request.form["XPercent"])                ibm_db.bind_param(stmt, 24,
request.form["XYOP"])                ibm_db.bind_param(stmt, 25,
request.form["XIIboard"])                ibm_db.bind_param(stmt, 26,
request.form["XIIPercent"])                ibm_db.bind_param(stmt, 27,
request.form["XIIYOP"])                ibm_db.bind_param(stmt, 28,
request.form["GradPercent"])                ibm_db.bind_param(stmt, 29,
request.form["GradYOP"])                ibm_db.bind_param(stmt, 30,
request.form["MastersPercent"])                ibm_db.bind_param(stmt, 31,
request.form["MastersYOP"])                ibm_db.bind_param(stmt, 32,
request.form["work"])                ibm_db.bind_param(stmt, 33, contents)
ibm_db.execute(stmt)                uemail=request.form["uemail"]
            #REDUCE THE NO OF VACANCIES BY 1
            sql2="UPDATE JOBS SET NUMBEROFVACANCIES = NUMBEROFVACANCIES-1
WHERE JOBID='{}'".format(request.form["jobidname"])                stmt =
ibm_db.exec_immediate(conn,sql2)                return
render_template("JobApplicationSuccess.html",uemail=uemail)                except:
print("SQL QUERY FAILED")                traceback.print_exc()                return
render_template('sample.html')        except:            print("FILE UPLOAD FAILED")
return render_template("sample.html")    else:
    return render_template("sample.html")

#Download Resume
@app.route("/ResumeDownload",methods=["GET","POST"]) def downloadResume():
if request.method=="POST":        try:
        conn=connection()
        sql="SELECT * FROM APPLICATIONS WHERE
EMAILID='{}'".format(request.form["uemail"])
stmt = ibm_db.exec_immediate(conn,sql)
dictionary = ibm_db.fetch_both(stmt)
        return send_file(BytesIO(dictionary["RESUME"]),download_name="resume.pdf",
as_attachment=True)        except:
        print("SELECT QUERY FAILED")
traceback.print_exc()            return
render_template('sample.html')    else:
    return render_template("sample.html")
```

```
#Recruiter Menu
@app.route('/recruitermenu', methods =["GET","POST"]) def recruitermenu():
   return render_template('recruitermenu.html')

#Post Job
@app.route('/postjob', methods =["GET","POST"]) def postjob():
try:        if request.method=="POST":
         conn=connection()            sql1="SELECT ORGANISATION FROM
RECRUITER WHERE EMAIL=?"            stmt = ibm_db.prepare(conn, sql1)
ibm_db.bind_param(stmt, 1, session['user'])            ibm_db.execute(stmt)
company = ibm_db.fetch_assoc(stmt)            sql = "INSERT INTO
JOBS(COMPANY, RECRUITERMAIL, ROLE, DOMAIN,
JOBTYPE, JOBDESCRIPTION, EDUCATION, KEYSKILLS, \
            EXPERIENCE, LOCATION, SALARY, BENEFITSANDPERKS,
APPLICATIONDEADLINE, LOGO, NUMBEROFVACANCIES, POSTEDDATE) \
               values(?,?,?,?,?,?,?,?,?,?,?,?,?,?,?)"               stmt = ibm_db.prepare(conn,
sql)                                    ibm_db.bind_param(stmt,    1,    list(company)[0])
ibm_db.bind_param(stmt,  2,  session['user'])                  ibm_db.bind_param(stmt,  3,
request.form["role"])              ibm_db.bind_param(stmt, 4, request.form["domain"])
ibm_db.bind_param(stmt,                        5,                        request.form["jobtype"])
ibm_db.bind_param(stmt, 6, request.form["jobdes"])         ibm_db.bind_param(stmt,
7,   request.form["education"])                                    ibm_db.bind_param(stmt,   8,
request.form["skills"])           ibm_db.bind_param(stmt,
9, request.form["experience"])            ibm_db.bind_param(stmt, 10,
request.form["location"])           ibm_db.bind_param(stmt, 11,
request.form["salary"])           ibm_db.bind_param(stmt, 12,
request.form["benefits"])           ibm_db.bind_param(stmt, 13,
request.form["deadline"])            ibm_db.bind_param(stmt, 14, request.files["logo"])
ibm_db.bind_param(stmt, 15, (int)(request.form["vacancies"]))
ibm_db.bind_param(stmt, 16, date.today())            ibm_db.execute(stmt)

         flash("Job Successfully Posted!")
return render_template('recruitermenu.html')

else:
         return render_template('postjob.html')     except(Exception):
```

```
    return "Exception occured"

if __name__=='__main__':
   app.config['SECRET_KEY']='super secret key'
app.config['SESSION_TYPE']='filesystem'      app.run(debug=True)
```

HOME PAGE:

```
    <!doctype html>
<html class="no-js" lang="zxx">
   <head>
      <meta charset="utf-8">
      <meta http-equiv="x-ua-compatible" content="ie=edge">
       <title>HOME</title>
      <meta name="description" content="">
      <meta name="viewport" content="width=device-width, initial-scale=1">         <link
rel="manifest" href="site.webmanifest">
                    <link rel="shortcut icon" type="image/x-icon" href="../static/assets/img/favicon.ico">

                     <!-- CSS here -->
         <link rel="stylesheet" href="../static/assets/css/bootstrap.min.css">
         <link rel="stylesheet" href="../static/assets/css/owl.carousel.min.css">
         <link rel="stylesheet" href="../static/assets/css/flaticon.css">
         <link rel="stylesheet" href="../static/assets/css/price_rangs.css">
         <link rel="stylesheet" href="../static/assets/css/slicknav.css">
         <link rel="stylesheet" href="../static/assets/css/animate.min.css">
         <link rel="stylesheet" href="../static/assets/css/magnific-popup.css">
         <link rel="stylesheet" href="../static/assets/css/fontawesome-all.min.css">
         <link rel="stylesheet" href="../static/assets/css/themify-icons.css">
         <link rel="stylesheet" href="../static/assets/css/slick.css">
         <link rel="stylesheet" href="../static/assets/css/nice-select.css">
         <link rel="stylesheet" href="../static/assets/css/style.css">
         <link rel="stylesheet" href="../static/styles.css">
   </head>
```

```
<body>
 <!-- Preloader Start -->
 <div id="preloader-active">
    <div class="preloader d-flex align-items-center justify-content-center">
       <div class="preloader-inner position-relative">
          <div class="preloader-circle"></div>
          <div class="preloader-img pere-text">
             <img src="assets/img/logo/logo.png" alt="">
          </div>
       </div>
    </div>
 </div>
 <!-- Preloader Start -->
 <header>
    <!-- Header Start -->
   <div class="header-area header-transparrent">
      <div class="headder-top header-sticky">
         <div class="container">
            <div class="row align-items-center">
               <div class="col-lg-3 col-md-2">
                  <!-- Logo -->
                  <div class="logo">
                     <a href="index.html"><img src="assets/img/logo/logo.png" alt=""></a>
                  </div>
               </div>
               <div class="col-lg-9 col-md-9">
                  <div class="menu-wrapper">
                     <!-- Main-menu -->
                     <div class="main-menu">
                        <nav class="d-none d-lg-block">
                           <ul id="navigation">
                              <li><a href="index.html">Profile</a></li>
<li><a href="#">Find a Jobs </a></li>
                              <li><a href="about.html">About</a></li>
                              </li>
```

```
                        <li><a href="contact.html">Contact</a></li>
                      </ul>
                    </nav>
                  </div>
                  <!-- Header-btn -->
                  <div class="header-btn d-none f-right d-lg-block">
                    <a href="/register.html" class="btn head-btn1">Register</a>
                    <div class="dropdown">
                      <button class="genric-btn success-border" id="dropbtn">Login</button>
                      <div class="dropdown-content">
                        <a href="/login_seeker.html">As Seeker</a>
                        <a href="/login_recruiter.html">As Recruiter</a>
                      </div>
                    </div>
                  </div>
                </div>
              </div>
              <!-- Mobile Menu -->
              <div class="col-12">
                <div class="mobile_menu d-block d-lg-none"></div>
              </div>
            </div>
          </div>
        </div>
      </div>
      <!-- Header End -->
    </header>
    <main>

      <!-- slider Area Start-->
      <div class="slider-area ">
        <!-- Mobile Menu -->
        <div class="slider-active">
          <div class="single-slider slider-height d-flex align-items-center"
databackground="assets/img/hero/h1_hero.jpg">
```

```
            <div class="container">
               <div class="row">
                  <div class="col-xl-6 col-lg-9 col-md-10">
                     <div class="hero__caption">
                        <h1><centre>WELCOME TO DREAM JOB WORLD</centre></h1>
                     </div>
                  </div>
               </div>
               <!-- Search Box -->
               <div class="row">
                  <div class="col-xl-8">
                     <!-- form -->
                     <form action="#" class="search-box">
                        <div class="input-form">
                           <input type="text" placeholder="Job Tittle or keyword">
                        </div>
                        <div class="select-form">
                           <div class="select-itms">
                              <select name="select" id="select1">
                                 <option value="">INDIA</option>
                                 <option value="">USA</option>
                                 <option value="">UK</option>
                                 <option value="">PARIS</option>
                                 <option value="">CHINA</option>
                                 <option value="">EUROPE</option>
                                 <option value="">KOREA</option>
                                 <option value="">MALESIYA</option>
                              </select>
                           </div>
                        </div>
                        <div class="search-form">
                           <a href="https://nightlight.s3.jp-tok.cloud-object-
storage.appdomain.cloud/gayu.html">Find job</a>
                        </div>
</form>
```

```
                    </div>
                  </div>
                </div>
              </div>
            </div>
        </div>
        <!-- slider Area End-->
        <!-- Our Services Start -->
        <div class="our-services section-pad-t30">
          <div class="container">
<!-- Section Tittle -->
            <div class="row">
              <div class="col-lg-12">
                <div class="section-tittle text-center">
                  <span>FEATURED TOURS Packages</span>
                  <h2>Browse Top Categories </h2>
                </div>
              </div>
            </div>
            <div class="row d-flex justify-contnet-center">
              <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
<div class="single-services text-center mb-30">
                  <div class="services-ion">
                    <span class="flaticon-tour"></span>
                  </div>
                  <div class="services-cap">
                    <h5><a href="job_listing.html">Design & Creative</a></h5>
                     <span>(653)</span>
                  </div>
                </div>
              </div>
              <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
<div class="single-services text-center mb-30">
                  <div class="services-ion">
                    <span class="flaticon-cms"></span>
```

```
                    </div>
                    <div class="services-cap">
                      <h5><a href="job_listing.html">WEB DESIGNER</a></h5>                    </div>
                  </div>
                </div>
                <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
<div class="single-services text-center mb-30">
                    <div class="services-ion">
                      <span class="flaticon-report"></span>
                    </div>
                    <div class="services-cap">
                      <h5><a href="job_listing.html">Sales & Marketing</a></h5>
                       <span>(658)</span>
                    </div>
                  </div>
                </div>
                <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
<div class="single-services text-center mb-30">
                    <div class="services-ion">
                      <span class="flaticon-app"></span>
                    </div>
                    <div class="services-cap">
                      <h5><a href="job_listing.html">Mobile Application</a></h5>
<span>(658)</span>
                    </div>
                  </div>
                </div>
                <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
<div class="single-services text-center mb-30">
                    <div class="services-ion">
                      <span class="flaticon-helmet"></span>
                    </div>
                    <div class="services-cap">
                      <h5><a href="job_listing.html">Construction</a></h5>
                       <span>(658)</span>
```

```
                    </div>
                  </div>
                </div>
                <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
<div class="single-services text-center mb-30">
                    <div class="services-ion">
                      <span class="flaticon-high-tech"></span>
                    </div>
                    <div class="services-cap">
                      <h5><a href="job_listing.html">Information Technology</a></h5>
                       <span>(658)</span>
                    </div>
                  </div>
                </div>
                <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
<div class="single-services text-center mb-30">
                    <div class="services-ion">
                      <span class="flaticon-real-estate"></span>
                    </div>
                    <div class="services-cap">
                      <h5><a href="job_listing.html">Real Estate</a></h5>
                       <span>(658)</span>
                    </div>
                  </div>
                </div>
                <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
<div class="single-services text-center mb-30">
                    <div class="services-ion">
                      <span class="flaticon-content"></span>
                    </div>
                    <div class="services-cap">
                      <h5><a href="job_listing.html">Content Writer</a></h5>
                       <span>(658)</span>
                    </div>
                  </div>
```

```
            </div>
          </div>
          <!-- More Btn -->
          <!-- Section Button -->
          <div class="row">
            <div class="col-lg-12">
              <div class="browse-btn2 text-center mt-50">
                <a href="job_listing.html" class="border-btn2">Browse All Sectors</a>
              </div>
            </div>
          </div>
        </div>
      </div>
      <!-- Our Services End -->
      <!-- Online CV Area Start -->
       <div class="online-cv cv-bg section-overly pt-90 pb-120"
databackground="assets/img/gallery/cv_bg.jpg">
        <div class="container">
          <div class="row justify-content-center">
            <div class="col-xl-10">
              <div class="cv-caption text-center">
                <p class="pera1">FEATURED TOURS Packages</p>
                <p class="pera2"> Make a Difference with Your Online Resume!</p>
                <a href="#" class="border-btn2 border-btn4">Upload your cv</a>
              </div>
            </div>
          </div>
        </div>
      </div>
      <!-- Online CV Area End-->
      <!-- Featured_job_start -->
      <section class="featured-job-area feature-padding">
        <div class="container">
          <!-- Section Tittle -->
          <div class="row">
```

```
                <div class="col-lg-12">
                    <div class="section-tittle text-center">
                        <span>Recent Job</span>
                        <h2>Featured Jobs</h2>
                    </div>
                </div>
            </div>
            <div class="row justify-content-center">
                <div class="col-xl-10">
                    <!-- single-job-content -->
                    <div class="single-job-items mb-30">
                        <div class="job-items">
                            <div class="company-img">
                                <a href="job_details.html"><img src="assets/img/icon/job-list1.png" alt=""></a>
                            </div>
                            <div class="job-tittle">
                                <a href="job_details.html"><h4>Digital Marketer</h4></a>
                                <ul>
                                    <li>Creative Agency</li>
                                    <li><i class="fas fa-map-marker-alt"></i>Athens, Greece</li>
<li>$3500 - $4000</li>
                                </ul>
                            </div>
                        </div>
                        <div class="items-link f-right">
                            <a href="#">Full Time</a>
                            <span>7 hours ago</span>
                        </div>
                    </div>
                    <!-- single-job-content -->
                    <div class="single-job-items mb-30">
                        <div class="job-items">
                            <div class="company-img">
                                <a href="#"><img src="assets/img/icon/job-list2.png" alt=""></a>
                            </div>
```

```
                        <div class="job-tittle">
                            <a href="job_details.html"><h4>Digital Marketer</h4></a>
                            <ul>
                                <li>Creative Agency</li>
                                <li><i class="fas fa-map-marker-alt"></i>Athens, Greece</li>
<li>$3500 - $4000</li>
                            </ul>
                        </div>
                    </div>
                    <div class="items-link f-right">
                        <a href="job_details.html">Full Time</a>
                        <span>7 hours ago</span>
                    </div>
                </div>
                <!-- single-job-content -->
                <div class="single-job-items mb-30">
                    <div class="job-items">
                        <div class="company-img">
                            <a href="job_details.html"><img src="assets/img/icon/job-list3.png" alt=""></a>
                        </div>
                        <div class="job-tittle">
                            <a href="job_details.html"><h4>Digital Marketer</h4></a>
                            <ul>
                                <li>Creative Agency</li>
                                <li><i class="fas fa-map-marker-alt"></i>Athens, Greece</li>
<li>$3500 - $4000</li>
                            </ul>
                        </div>
                    </div>
                    <div class="items-link f-right">
                        <a href="job_details.html">Full Time</a>
                        <span>7 hours ago</span>
                    </div>
                </div>
                <!-- single-job-content -->
```

```
                <div class="single-job-items mb-30">
                  <div class="job-items">
                    <div class="company-img">
                      <a href="job_details.html"><img src="assets/img/icon/job-list4.png" alt=""></a>
</div>
                    <div class="job-tittle">
                      <a href="job_details.html"><h4>Digital Marketer</h4></a>
                      <ul>
                        <li>Creative Agency</li>
                        <li><i class="fas fa-map-marker-alt"></i>Athens, Greece</li>
<li>$3500 - $4000</li>
                      </ul>
                    </div>
                  </div>
                  <div class="items-link f-right">
                    <a href="job_details.html">Full Time</a>
                    <span>7 hours ago</span>
                  </div>
                </div>
              </div>
            </div>
          </div>
      </section>
      <!-- Featured_job_end -->
      <!-- How  Apply Process Start-->
      <div class="apply-process-area apply-bg pt-150 pb-150"
databackground="assets/img/gallery/howapplybg.png">
          <div class="container">
            <!-- Section Tittle -->
            <div class="row">
              <div class="col-lg-12">
                <div class="section-tittle white-text text-center">
                  <span>Apply process</span>
                  <h2> How it works</h2>
                </div>
```

```
            </div>
          </div>
          <!-- Apply Process Caption -->
          <div class="row">
            <div class="col-lg-4 col-md-6">
              <div class="single-process text-center mb-30">
                <div class="process-ion">
                  <span class="flaticon-search"></span>
                </div>
                <div class="process-cap">
                  <h5>1. Search a job</h5>
                  <p>Sorem spsum dolor sit amsectetur adipisclit, seddo eiusmod tempor incididunt ut
laborea.</p>
                </div>
              </div>
            </div>
            <div class="col-lg-4 col-md-6">
              <div class="single-process text-center mb-30">
                <div class="process-ion">
                  <span class="flaticon-curriculum-vitae"></span>
                </div>
                <div class="process-cap">
                  <h5>2. Apply for job</h5>
                  <p>Sorem spsum dolor sit amsectetur adipisclit, seddo eiusmod tempor incididunt ut
laborea.</p>
                </div>
              </div>
            </div>
            <div class="col-lg-4 col-md-6">
              <div class="single-process text-center mb-30">
                <div class="process-ion">
                  <span class="flaticon-tour"></span>
                </div>
                <div class="process-cap">
                  <h5>3. Get your job</h5>
```

```
                    <p>Sorem spsum dolor sit amsectetur adipisclit, seddo eiusmod tempor incididunt ut laborea.</p>
                  </div>
                </div>
              </div>
            </div>
          </div>
      </div>
      <!-- How  Apply Process End-->
      <!-- Testimonial Start -->
      <div class="testimonial-area testimonial-padding">
        <div class="container">
          <!-- Testimonial contents -->
          <div class="row d-flex justify-content-center">
            <div class="col-xl-8 col-lg-8 col-md-10">
              <div class="h1-testimonial-active dot-style">
                <!-- Single Testimonial -->
                <div class="single-testimonial text-center">
                  <!-- Testimonial Content -->
                  <div class="testimonial-caption ">
                    <!-- founder -->
                    <div class="testimonial-founder  ">
                      <div class="founder-img mb-30">
                        <img src="assets/img/testmonial/testimonial-founder.png" alt="">
                        <span>Margaret Lawson</span>
                        <p>Creative Director</p>
                      </div>
                    </div>
                    <div class="testimonial-top-cap">
                      <p>“I am at an age where I just want to be fit and healthy our bodies are our responsibility! So start caring for your body and it will care for you. Eat clean it will care for you and workout hard.”</p>
                    </div>
                  </div>
                </div>
```

```
<!-- Single Testimonial -->
<div class="single-testimonial text-center">
  <!-- Testimonial Content -->
  <div class="testimonial-caption ">
    <!-- founder -->
    <div class="testimonial-founder  ">
      <div class="founder-img mb-30">
        <img src="assets/img/testmonial/testimonial-founder.png" alt="">
        <span>Margaret Lawson</span>
        <p>Creative Director</p>
      </div>
    </div>
    <div class="testimonial-top-cap">
      <p>“I am at an age where I just want to be fit and healthy our bodies are our responsibility! So start caring for your body and it will care for you. Eat clean it will care for you and workout hard.”</p>
    </div>
  </div>
</div>
<!-- Single Testimonial -->
<div class="single-testimonial text-center">
  <!-- Testimonial Content -->
  <div class="testimonial-caption ">
    <!-- founder -->
    <div class="testimonial-founder  ">
      <div class="founder-img mb-30">
        <img src="assets/img/testmonial/testimonial-founder.png" alt="">
        <span>Margaret Lawson</span>
        <p>Creative Director</p>
      </div>
    </div>
    <div class="testimonial-top-cap">
      <p>“I am at an age where I just want to be fit and healthy our bodies are our responsibility! So start caring for your body and it will care for you. Eat clean it will care for you and workout hard.”</p>
    </div>
```

```
                    </div>
                  </div>
                </div>
              </div>
            </div>
          </div>
        <!-- Testimonial End -->
        <!-- Support Company Start-->
        <div class="support-company-area support-padding fix">
          <div class="container">
            <div class="row align-items-center">
              <div class="col-xl-6 col-lg-6">
<div class="right-caption">
                  <!-- Section Tittle -->
                  <div class="section-tittle section-tittle2">
                    <span>What we are doing</span>
                    <h2>24k Talented people are getting Jobs</h2>
                  </div>
                  <div class="support-caption">
                    <p class="pera-top">Mollit anim laborum duis au dolor in voluptate velit ess cillum dolore eu lore dsu quality mollit anim laborumuis au dolor in voluptate velit cillum.</p>
                    <p>Mollit anim laborum.Duis aute irufg dhjkolohr in re voluptate velit esscillumlore eu quife nrulla parihatur. Excghcepteur signjnt occa cupidatat non inulpadeserunt mollit aboru. temnthp incididbnt ut labore mollit anim laborum suis aute.</p>
                    <a href="about.html" class="btn post-btn">Post a job</a>
                  </div>
                </div>
              </div>
              <div class="col-xl-6 col-lg-6">
                <div class="support-location-img">
                  <img src="assets/img/service/support-img.jpg" alt="">
                  <div class="support-img-cap text-center">
                    <p>Since</p>
                    <span>1994</span>
                  </div>
```

```
                </div>
              </div>
            </div>
          </div>
        </div>
        <!-- Support Company End-->
        <!-- Blog Area Start -->
        <div class="home-blog-area blog-h-padding">
          <div class="container">
            <!-- Section Tittle -->
            <div class="row">
              <div class="col-lg-12">
                <div class="section-tittle text-center">
                  <span>Our latest blog</span>
                  <h2>Our recent news</h2>
                </div>
              </div>
            </div>
            <div class="row">
              <div class="col-xl-6 col-lg-6 col-md-6">
                <div class="home-blog-single mb-30">
                  <div class="blog-img-cap">
                    <div class="blog-img">
                      <img src="assets/img/blog/home-blog1.jpg" alt="">
                      <!-- Blog date -->
                      <div class="blog-date text-center">
                        <span>24</span>
                        <p>Now</p>
                      </div>
                    </div>
                    <div class="blog-cap">
                      <p>|   Properties</p>
                      <h3><a href="single-blog.html">Footprints in Time is perfect House in
Kurashiki</a></h3>
                      <a href="#" class="more-btn">Read more »</a>
```

```
                    </div>
                  </div>
                </div>
              </div>
              <div class="col-xl-6 col-lg-6 col-md-6">
                <div class="home-blog-single mb-30">
                  <div class="blog-img-cap">
                    <div class="blog-img">
                      <img src="assets/img/blog/home-blog2.jpg" alt="">
                      <!-- Blog date -->
                      <div class="blog-date text-center">
                        <span>24</span>
                        <p>Now</p>
                      </div>
                    </div>
                    <div class="blog-cap">
                      <p>|   Properties</p>
                      <h3><a href="single-blog.html">Footprints in Time is perfect House in
Kurashiki</a></h3>
                      <a href="#" class="more-btn">Read more »</a>
                    </div>
                  </div>
                </div>
              </div>
            </div>
          </div>
        </div>
        <!-- Blog Area End -->

    </main>
    <footer>
      <!-- Footer Start-->
      <div class="footer-area footer-bg footer-padding">
        <div class="container">
          <div class="row d-flex justify-content-between">
```

```
            <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
              <div class="single-footer-caption mb-50">
               <div class="single-footer-caption mb-30">
                  <div class="footer-tittle">
                     <h4>About Us</h4>
                     <div class="footer-pera">
                        <p>Heaven frucvitful doesn't cover lesser dvsays appear creeping seasons so
behold.</p>
                     </div>
                  </div>
               </div>
              </div>
            </div>
            <div class="col-xl-3 col-lg-3 col-md-4 col-sm-5">
               <div class="single-footer-caption mb-50">
                  <div class="footer-tittle">
                     <h4>Contact Info</h4>
                     <ul>
                        <li>
                        <p>Address :Your address goes                    here,
your demo address.</p>
                        </li>
                        <li><a href="#">Phone : +8880 44338899</a></li>
                        <li><a href="#">Email : info@colorlib.com</a></li>
                     </ul>
                  </div>
               </div>
            </div>
            <div class="col-xl-3 col-lg-3 col-md-4 col-sm-5">
               <div class="single-footer-caption mb-50">
                  <div class="footer-tittle">
                     <h4>Important Link</h4>
                     <ul>
                        <li><a href="#"> View Project</a></li>
                        <li><a href="#">Contact Us</a></li>
                        <li><a href="#">Testimonial</a></li>
```

```
                        <li><a href="#">Proparties</a></li>
                        <li><a href="#">Support</a></li>
                      </ul>
                    </div>
                  </div>
                </div>
                <div class="col-xl-3 col-lg-3 col-md-4 col-sm-5">
                  <div class="single-footer-caption mb-50">
                    <div class="footer-tittle">
                      <h4>Newsletter</h4>
                      <div class="footer-pera footer-pera2">
                       <p>Heaven fruitful doesn't over lesser in days. Appear creeping.</p>
                      </div>
                      <!-- Form -->
                      <div class="footer-form" >
                        <div id="mc_embed_signup">
                          <form target="_blank" action="https://spondonit.us12.list-
manage.com/subscribe/post?u=1462626880ade1ac87bd9c93a&amp;id=92a4423d01"
                          method="get" class="subscribe_form relative mail_part">
<input type="email" name="email" id="newsletter-form-email" placeholder="Email Address"
                            class="placeholder hide-on-focus" onfocus="this.placeholder = ''"
onblur="this.placeholder = ' Email Address '">
                            <div class="form-icon">
                              <button type="submit" name="submit" id="newsletter-submit"
class="email_icon newsletter-submit button-contactForm"><img
src="assets/img/icon/form.png" alt=""></button>
                            </div>
                            <div class="mt-10 info"></div>
                          </form>
                        </div>
                      </div>
                    </div>
                  </div>
                </div>
              </div>
              <!--  -->
```

```
      <div class="row footer-wejed justify-content-between">
         <div class="col-xl-3 col-lg-3 col-md-4 col-sm-6">
            <!-- logo -->
            <div class="footer-logo mb-20">
            <a href="index.html"><img src="assets/img/logo/logo2_footer.png" alt=""></a>
            </div>
         </div>
         <div class="col-xl-3 col-lg-3 col-md-4 col-sm-5">
         <div class="footer-tittle-bottom">
            <span>5000+</span>
            <p>Talented Hunter</p>
         </div>
         </div>
         <div class="col-xl-3 col-lg-3 col-md-4 col-sm-5">
            <div class="footer-tittle-bottom">
               <span>451</span>
               <p>Talented Hunter</p>
            </div>
         </div>
         <div class="col-xl-3 col-lg-3 col-md-4 col-sm-5">
            <!-- Footer Bottom Tittle -->
            <div class="footer-tittle-bottom">
               <span>568</span>
               <p>Talented Hunter</p>
            </div>
         </div>
      </div>
   </div>
</div>
<!-- footer-bottom area -->
<div class="footer-bottom-area footer-bg">
   <div class="container">
      <div class="footer-border">
         <div class="row d-flex justify-content-between align-items-center">
            <div class="col-xl-10 col-lg-10 ">
```

```
                    <div class="footer-copy-right">
                      <p><!-- Link back to Colorlib can't be removed. Template is licensed under CC BY 3.0. >
 Copyright &copy;<script>document.write(new Date().getFullYear());</script> All rights reserved | This
template is made with <i class="fa fa-heart" aria-hidden="true"></i> by <a href="https://colorlib.com"
target="_blank">Colorlib</a>
 <!-- Link back to Colorlib can't be removed. Template is licensed under CC BY 3.0. --></p>
                    </div>
                  </div>
                  <div class="col-xl-2 col-lg-2">
                    <div class="footer-social f-right">
                      <a href="#"><i class="fab fa-facebook-f"></i></a>
                      <a href="#"><i class="fab fa-twitter"></i></a>
                      <a href="#"><i class="fas fa-globe"></i></a>
                      <a href="#"><i class="fab fa-behance"></i></a>
                    </div>
                  </div>
                </div>
              </div>
            </div>
          </div>
        </div>
        <!-- Footer End-->
      </footer>

    <!-- JS here -->
            <script>
              window.watsonAssistantChatOptions = { integrationID: "b64ab5fc-4aca-47a6-b0ba-
186bd9a84aac", // The ID of this integration. region: "us-south", // The region your integration is hosted
in. serviceInstanceID: "9a7ab6c7-d948-4148-9e7e-fdc9c0f6d870", // 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>

                <!-- All JS Custom Plugins Link Here here -->
    <script src="../static/assets/js/vendor/modernizr-3.5.0.min.js"></script>
                <!-- Jquery, Popper, Bootstrap -->
                <script src="../static/assets/js/vendor/jquery-1.12.4.min.js"></script>
    <script src="../static/assets/js/popper.min.js"></script>
    <script src="../static/assets/js/bootstrap.min.js"></script>
            <!-- Jquery Mobile Menu -->
    <script src="../static/assets/js/jquery.slicknav.min.js"></script>

                <!-- Jquery Slick , Owl-Carousel Plugins -->
    <script src="../static/assets/js/owl.carousel.min.js"></script>
    <script src="../static/assets/js/slick.min.js"></script>
    <script src="../static/assets/js/price_rangs.js"></script>
                <!-- One Page, Animated-HeadLin -->
    <script src="../static/assets/js/wow.min.js"></script>
                <script src="../static/assets/js/animated.headline.js"></script>
    <script src="../static/assets/js/jquery.magnific-popup.js"></script>

                <!-- Scrollup, nice-select, sticky -->
    <script src="../static/assets/js/jquery.scrollUp.min.js"></script>
    <script src="../static/assets/js/jquery.nice-select.min.js"></script>
                <script src="../static/assets/js/jquery.sticky.js"></script>
    <!-- contact js -->
    <script src="../static/assets/js/contact.js"></script>
    <script src="../static/assets/js/jquery.form.js"></script>
    <script src="../static/assets/js/jquery.validate.min.js"></script>
    <script src="../static/assets/js/mail-script.js"></script>
    <script src="../static/assets/js/jquery.ajaxchimp.min.js"></script>
                <!-- Jquery Plugins, main Jquery -->
    <script src="../static/assets/js/plugins.js"></script>
    <script src="../static/assets/js/main.js"></script>
  </body>
</html>
```

13.2 LINK

GITHUB LINK: https://github.com/IBM-EPBL/IBM-Project-52169-1660990164
YOUTUBE LINK : https://youtu.be/Oo0X1onuQdQ