ANNAI TERESA
COLLEGE OF ENGINEERING

SKILL / JOB RECOMMENDER APPLICATION

SUBMITTED BY

PNT2022TMID38709

TEAM MEMBERS:

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PROJECT REPORT

1. INTRODUCTION

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.

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

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

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.LlTERATURE SURVEY

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.

REFERENCES

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PROBLEM STATEMENT DEFINITION

"Can an efficient recommender system be modeled for the Job seekers which recommend Jobs with the user's skill set and job domain and also addresses the issue of cold start?"

In current situation recruitment s done manually for lakhs of students in which many talented students may lose their opportunities due to different reasons since it is done manually, and company also need the highly talented people from the mass group for their growth. So we have build a cloud application to do this process in a efficient manner.

3. IDEATION AND PROPOSED SOLUTION

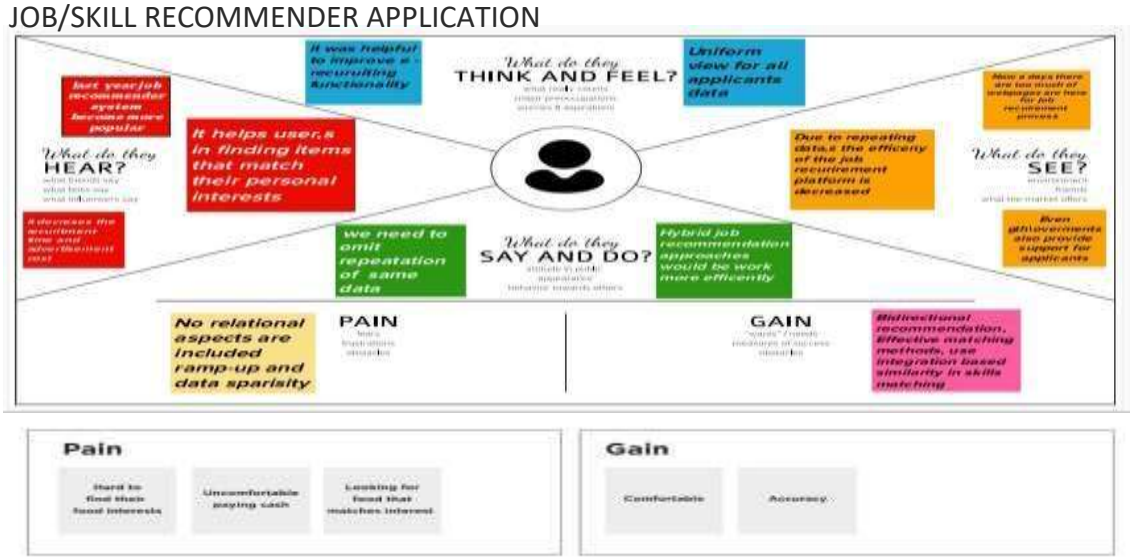
EMPATHY MAP

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 Decision Making

IDEATION AND BRAINSTROMING

JOB/SKILL RECOMMENDER APPLICATION



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-thebox ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions. Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

STEP 1:

Team Gathering, Collaboration and Select the Problem Statement

Step-2: Brainstorm, Idea Listing and Grouping

Step-3: Idea Prioritization

STEP2: 2:

PROPOSED SOLUTION

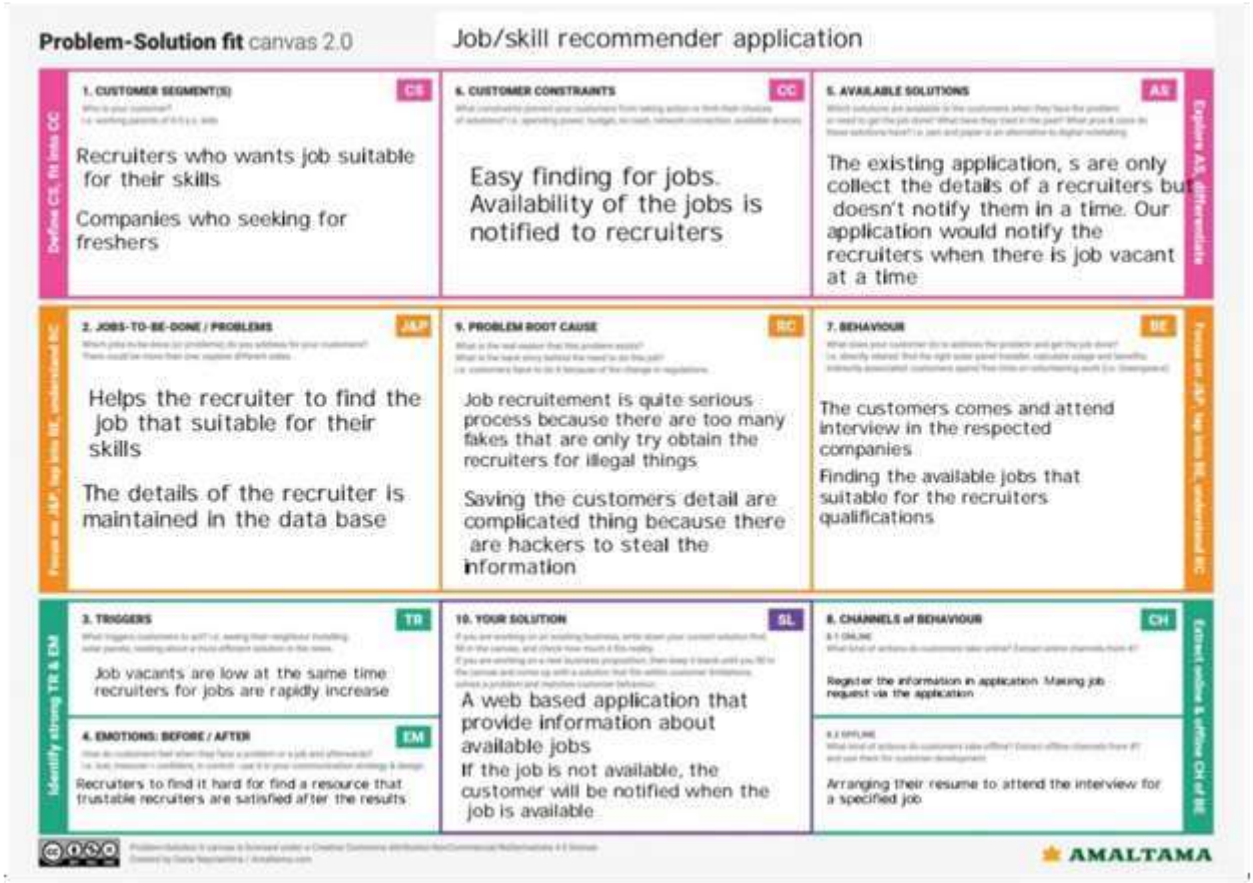
Having lots of skills but wondering which job will best suit you? Don't need to worry! We have come up with a skill recommender solution through which the fresher or the skilled person can log in and find the jobs by using the search option or they can directly interact with the chatbot and get their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

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

4. REQUIREMENT ANALYSIS

Problem solution Fit:

Template:



	Functional Requirement (Epic)	Sub Requirement (Story I Sub-Task)
	User Registration	Registration through Form Registration through Gmail
	User Confirmation	Confirmation via Email Confirmation via OTP
	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.
	User Login	Login through Form Login through Gmail
	IJser Search	Exploration of Jobs based on job fitters and skill recommendations.
	User Profile	Updation of the user profile through the login credentials
	User Acceptance	Confirmation of the Job.

NON FUNCTIONAL REQUIREMENTS

Non functional Requirements are :

1. Usability
2. Security
3. Reliability
4. Performance
5. Availability
6. Scalability

5 PROJECT DESIGN

DATAFLOW DIAGRAM

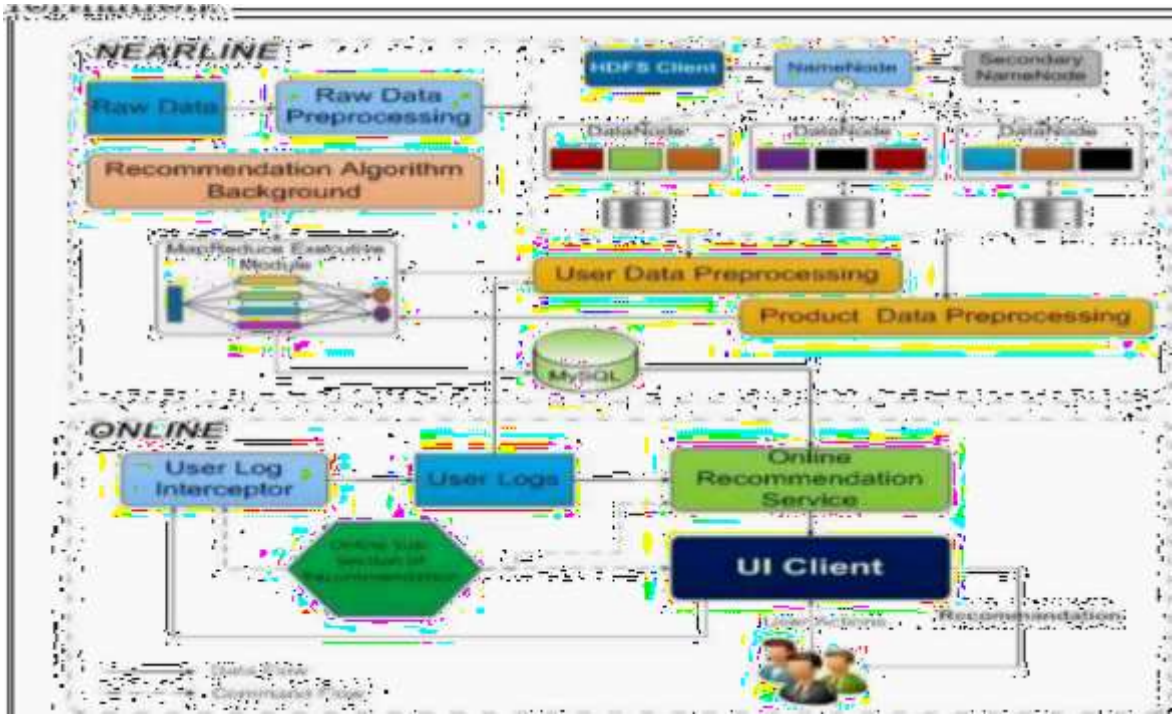
TECHNICAL ARCHITECTURE

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

goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behaviour, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed and delivered.
- Provide the best business require recommend by using the optimised and efficient algorithm
- Differentiate the fake job recommend by fake sites and be aware from the

  Scammers



SPRINT	TASK	MEMBERS
SPRINT 1	Create Registration page , login page , Job search portal , job apply portal in flask	Ravi ganesh.B, Parthiban.M,Dinesh Kumar.K, Vishwa.A,Srikanth.P
SPRINT 2	Connect application to ibm db2	Ravi ganesh.B, Parthiban.M,Dinesh Kumar.K, Vishwa.A,Srikanth.P
SPRINT 3	Integrate ibm Watson assisstant	Ravi ganesh.B, Parthiban.M,Dinesh Kumar.K, Vishwa.A,Srikanth.P
SPRINT 4	Containerize the app and Deploy the application in ibm cloud	Ravi ganesh.B, Parthiban.M,Dinesh Kumar.K, Vishwa.A,Srikanth.P

REPORTS FROM JIRA:

Average Age Report.
Created vs Resolved Issues Report.
Pie Chart Report.
Recently Created Issues Report.
Resolution Time Report.
Single Level Group By Report.
Time Since Issues Report.
Time Tracking Report.

7 .CODING & SOLUTIONING

Feature 1:

App Market

This is one of the feature of our application Skill Pal which provides companies job details for end users

```
@app.route('/jobmarket')
```

```
  jobids  =  1] jobnames  =
  [l jobimages  =  [l
  jobdescription =[]
  sql = "SELECT * FROM JOBMARKET" stmt =
  ibm_db.prepare(conn, sql) username = session[l
  username'] print(username)
  #ibm_db.bind_param(stmt,l,username )
          ibm_db.execute(stmt)  joblist  =
  ibm_db.fetch_tuple(stmt) print(joblist)
  while              joblist  !=          False:
  jobids.append(joblist[0])
  jobnames.append(joblist[l])
  jobimages.append(joblist[2])
  jobdescription.append(joblist[3]) joblist =
  ibm_db.fetch_tuple(stmt) jobinformation =
  []

  cols = 4 size = len(jobnames) for
  i in range(size): col =
  col.append(jobids[i])
  col.append(jobnames[i])
  col.append(jobimages[i])
  col.append(jobdescription[i])
  jobinformation.append(col) print(jobinformation)

  return render_template('jobmarket.html l, jobinformation = jobinformation)

@app.route('/filterjobs')
def filterjobs(): skilll = ski112 = ... ski113 = ... user =
  session['username l] sql = "SELECT * FROM ACCOUNTSKILL
  WHERE USERNAME = s?"nt = ibm_db.prepare(conn, sql) ibm
  db.bind_param(stmt,l,user) ibm_db.execute(stmt) skillres =
  ibm db.fetch_assoc(stmt) if skillres: skilll = skillres['SKlLLI l]
  ski112          = skillres['SKlLL2 1] ski113          = skillres['SKlLL3
  1] print(skillres) jobids = [] jobnames = [l jobimages = [l
    jobdescription =[]

    sql  =  "SELECT  *  FROM JOBMARKET"  stmt  =
    ibm_db.prepare(conn,        sql) username = session[
    l username l] print(username)
    #ibm_db.bind_param( stmt,l,username
    )  ibm_db.execute(stmt)  joblist  =
    ibm_db.fetch_tuple(stmt) print(joblist)
    while         joblist  !=          False:
    jobids.append(joblist[O])
    jobnames.append(joblist[l])
    jobimages.append(joblist[2])
    jobdescription.append(joblist[3]) joblist
    = ibm_db.fetch_tuple(stmt)
```

```
len(jobnames)

print("$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$",skill1,skill2,skill3)

for i in range(size): col =
  []
print("@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@",jobdescription[i])
    if jobdescription[i].lower() == skill1.lower() or jobdescription[i].lower() == skill2.lower() or
                        skilll.lower()or jobdescription[i].lower()== ski112.lower() or
                  if jobdescription[i].lower() jobdescription[i].lower() == ski113.lower() :
     col.append(jobids[i])
     col.append(jobnames[i]) col.append(jobimages[i])
     col.append(jobdescription[i]) jobinformation.append(col)
print("@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@",jobinformation)

return render_templateCjobmarket.html', jobinformation = jobinformation)
```

Feature 2:

ChatBot (using IBM Watson)

This chat bot feature provides help tooltip for end users if any help needed for users

```
<script>   window.watsonAssistantChatOptions   =   {   integrationID:   "9be41b76-06bO-
   426f8469962f2963cdb6", // The ID of this integration. region: "au-syd", // The region your
   integration is hosted in.  serviceInstanceID: "76838ca2-a227-4f56-b180-94f01901cdbf", // The ID of
   your service instance. onLoad: function(instance) { instance.render(); }

   setTimeout(function(){    const t=document.createElement(ˈscriptˈ);
    t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" +
(window.watsonAssistantChatOptions.clientVersion I I 'latest') + "/WatsonAssistantChatEntry.js";
  document.head.appendChild(t);  </script>
```

Database Schema:

We user IBM DB2 for our database, below are the tables we used with the parameters given.

STUDENTS

Approximate 3 rows (32.0 KS)

NameSchema Properties2022-10-26

Name	Data type	Nullable	Length	Scale
ACCOUNT	JDD83131			
NAME	VARCHAR		255	
ACCOUNTSKILL	JDD83131			
ADDRES S	VARCHAR		255	
APPLIEDJOBS	JDD83131			
CITY	VARCHAR		255	
CUSTOMER	JDD83131			
PIN	VARCHAR		255	
JOBMARKET	JDD83131			
STUDENTS	JDD83131			

JOBMARKET JDD83131

STUDENTS JDD83131

Total: 6, selected: o

Donate | The Eclipse Foundation IBM-Project-24324-1659941545/base Service Details - IBM Cloud

IBM Db2 on X

IBM Db2 on Cloud

Q Find schemas or

tables Refresh

SQLTable definition

ACCOUNT JDD83131

C] CUSTOMER JDD83131

JOBMARKET Approximate 6 rows (32.0 KB)

Data type Nullable

JOBID INTEGER

ACCOUNTSKILL JDD83131

JOBCOMPANY VARCHAR 255

APPLIEDJOBS JDD83131

JOBIMAGE VARCHAR 500

COMPANY_EMA

IL

VARCHAR 255

Length Scale

Q Find schemas or tables Refresh

SQL Tables

Table definition

CUSTOMER Approximate O rows (O RE) Name* Schema Properties

Data type Nullable Length Scale

ACCOUNT JDD83131

CUSTOMERID INTEGER

ACCOUNTSKILL JDD83131

LASTNAME VARCHAR 255

APPLIEDJOBS JDD83131

FIRSTNAME VARCHAR 255

CUSTOMER JDD83131

ADDRESS VARCHAR 255

JOBMARKET JDD83131

CITY VARCHAR 255

JOBMARKET JDD83131

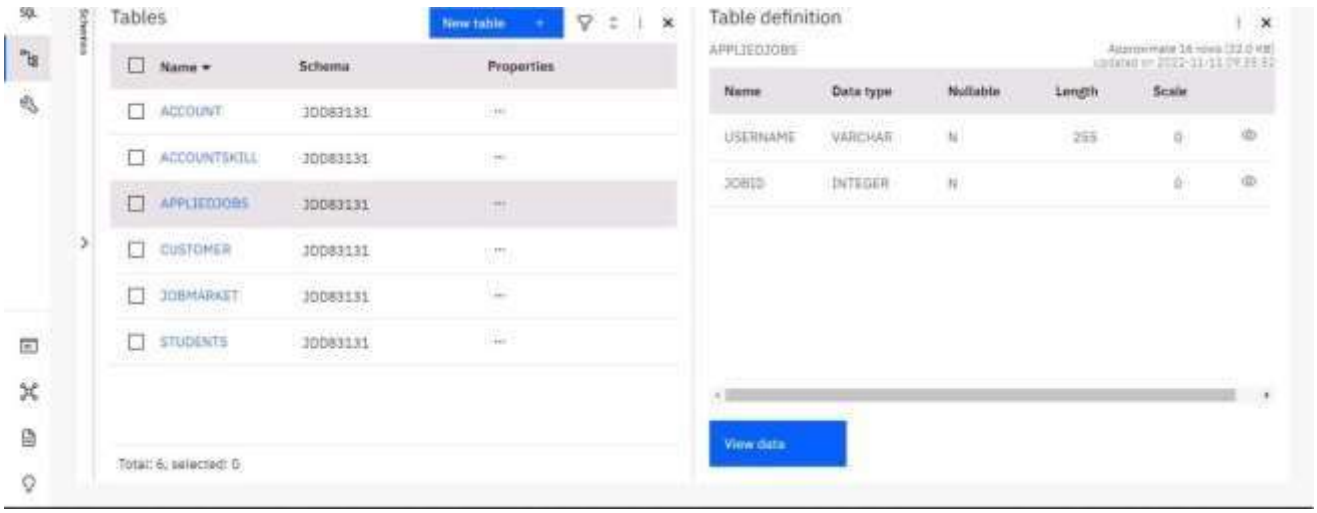
STUDENTS

JDD83131

Total: 6, selected:
O

Donate | The Eclipse Foundation IBM-Project-24324-1659941545/base Service Details - IBM Cloud IBM Db2 on X

STUDENTS JDD83131



APPLIEDJOBS Approximate 16 rows (32.0 KB)

Q Find schemas or tables Refresh

IBM Db2 on Cloud

Name... Schema Properties 2022-11-21

Name Data type Nullable Length Scale

ACCOUNT JDD83131

USERNAME VARCHAR 255

ACCOUNTSKILL JDD83131

JOBMARKET JDD83131

STUDENTS JDD83131

Total: 6, selected: 0

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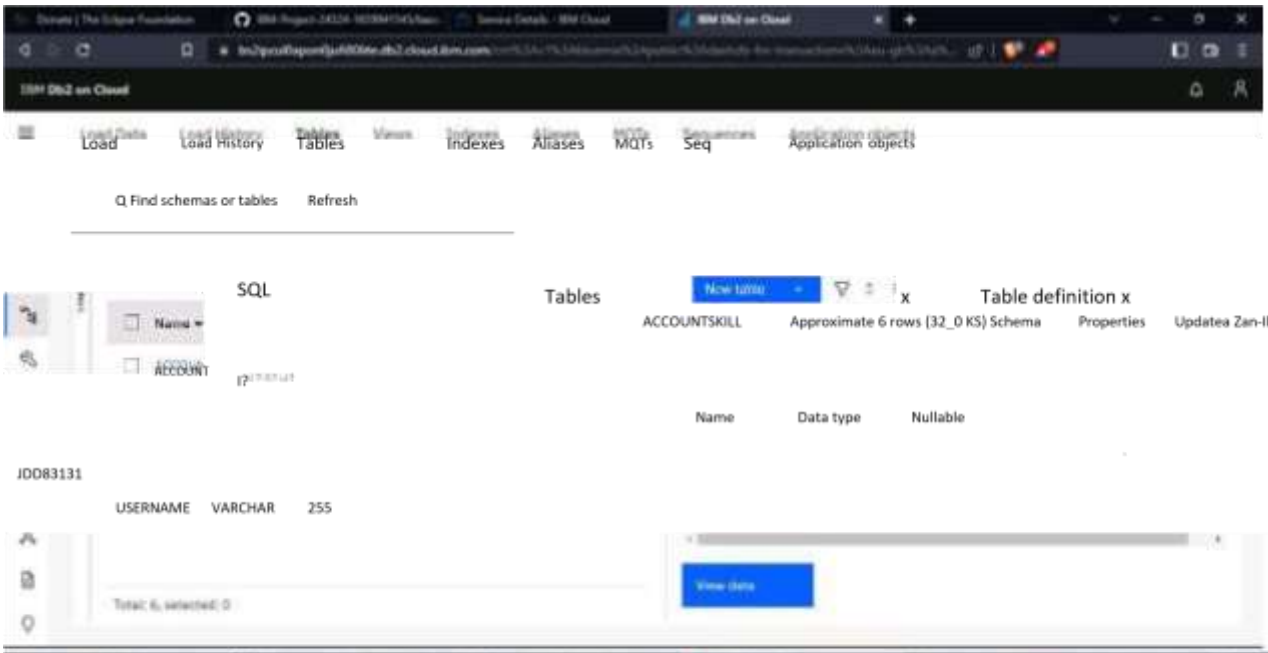

ACCOUNTSKILL JDD83131

SKILLI VARCHAR 255
JOBID INTEGER

APPLIEDJOBS JDD83131

[3 CUSTOMER JDD83131

IBM Db2 on Cloud

APPLIEDJOBS JDD83131

JOBMARKET JDD83131

STUDENTS JDD83131

Total: 6, selected: o

Donate | The Eclipse Foundation IBM-Project-24324-1659941545/base Service Details - IBM Cloud IBM Db2 on X

SKILL2 VARCHAR 255

Q Find schemas or tables Refresh G

SQL Tables New table Table definition

ACCOUNT Approximate 16 rows (32.0 KB)

Name Schema Properties 2112321

Updated on 2022-11-01

Name	Data type	Nullable	Length	Scale
CUSTOMER JDD83131				
SKILLS	VARCHAR	255		
JOBMARKET JDD83131				
STUDENTS JDD83131				

IBM

Db2 on Cloud

ACCOUNT	JDD83131	
USERNAME	VARCHAR	255
C] ACCOUNTSKILL	JDD83131	
UPASSWORD	VARCHAR	255
APPLIEDJOBS	JDD83131	
EMAILID	VARCHAR	255
CUSTOMER	JDD83131	
LASTNAME	VARCHAR	255
FIRSTNAME	VARCHAR	255
JOBMARKET	JDD83131	
STUDENTS	JDD83131	

Total: 6, selected: o

o

JOBMARKET JDD83131

STUDENTS JDD83131

Total: 6, selected: o

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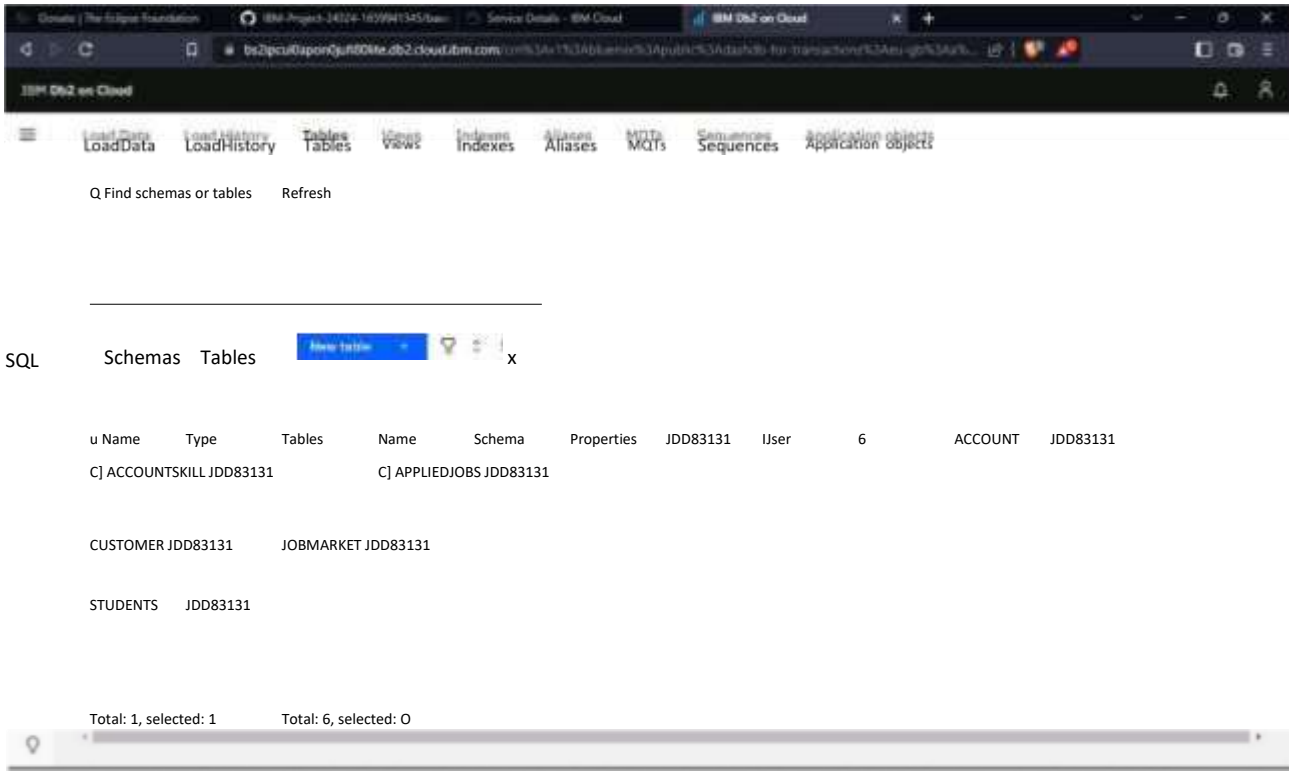
Db2 on Cloud



8.TESTING

Test Cases:

We tested for various validations. Tested all the features with using all the functionalities. Tested the data base storage and retrieval feature too.

Testing was done in phase 1 and phase 2, where issues found in phasel were fixed and then tested again in phase2.

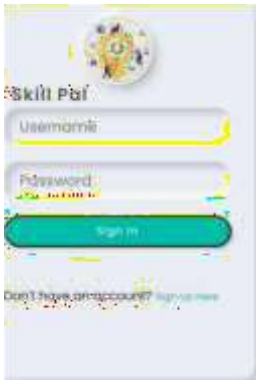
User Acceptance Testing:

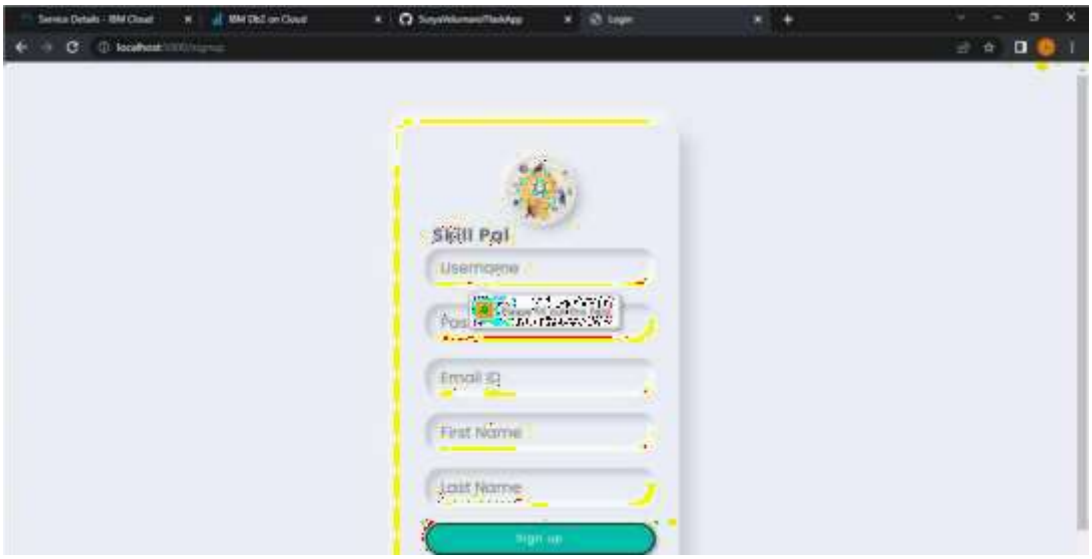
Service Details - IBM on Cloud X

Real world testing was also done, by giving to remote users and asking them to use the application. Their difficulties were fixed and tested again until all the issues were fixed.

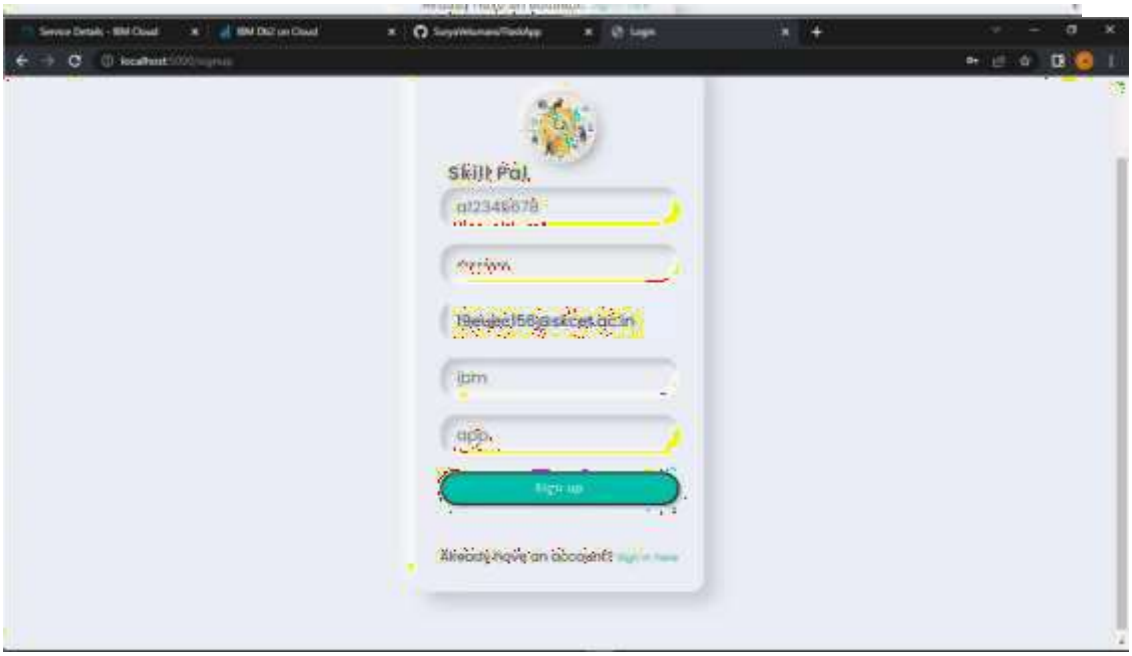
9.RESULTS

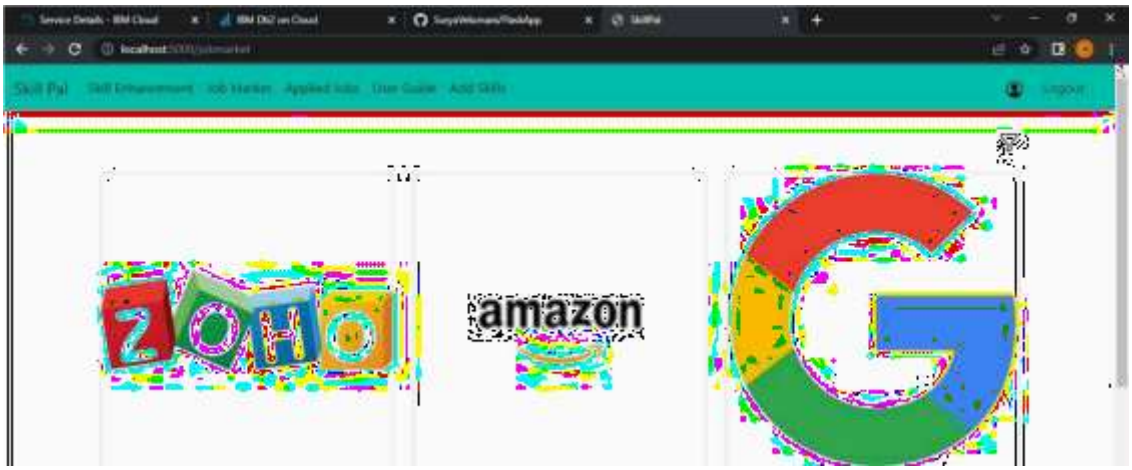
Perfomance Metrics:





Already have an account? Sign In here





Zoho Amazon Google

java cloud Go lang

9

Service Details – IBM IBM on Cloud X

Skill Pal Skill Jobs

Please tell about yourself, and why you need this job :

Hi, I am interested in applying for your company. 6

Company :

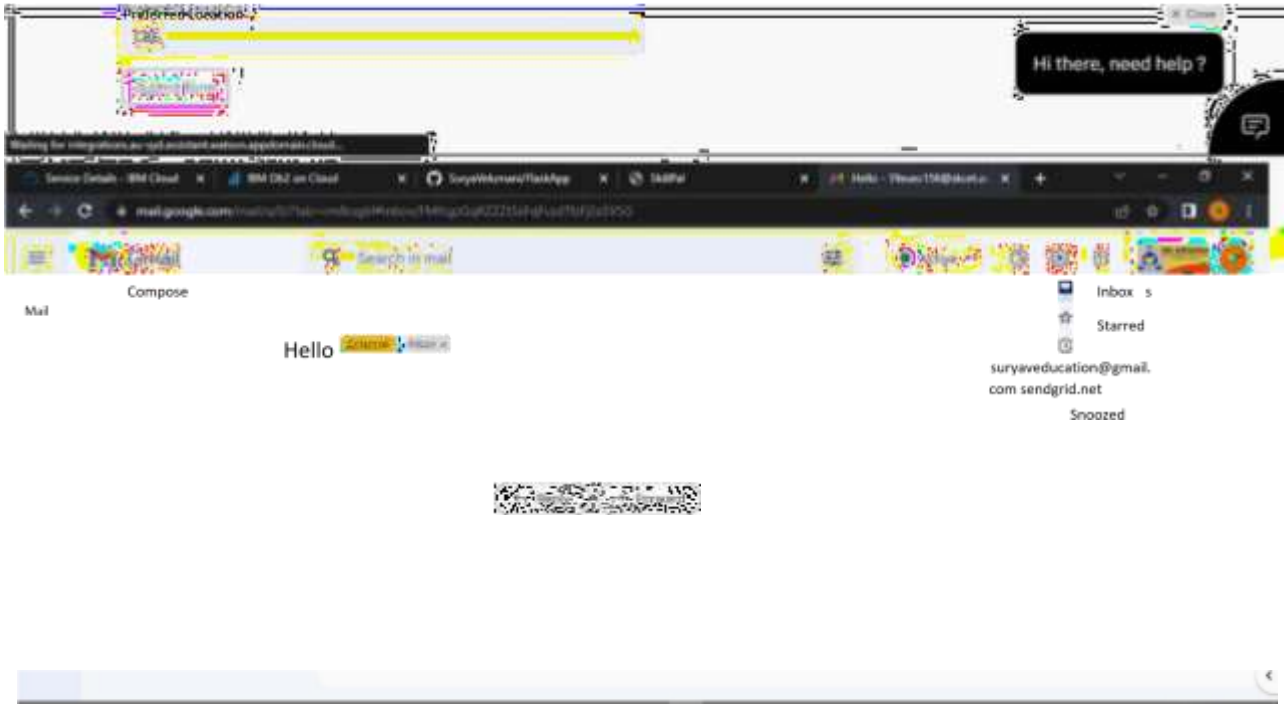
Amazon

Company Email :

suryaveducation@gmail.com

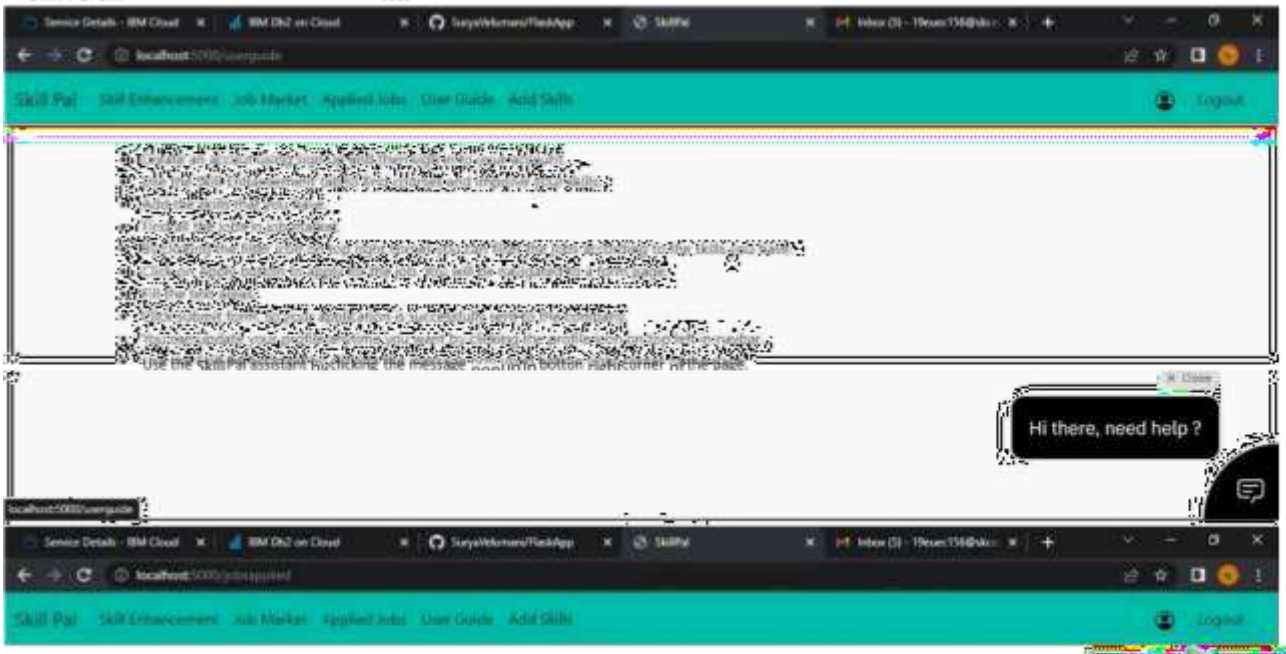
Portfolio Link :

www.demoPortfolio.com



Service Details - IBM IBM

Skill Pal Skill Jobs



Applicant Email : suryaeducatign@gmail.com BR

Sent

Drafts About Me

More

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Portfolio Link

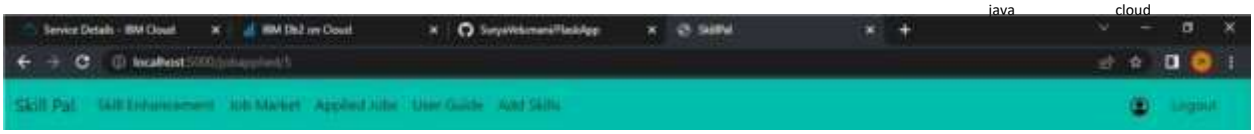
Labels Prefered City 1 of 7,902 n

3:00 PM (O minutes ago)

Zoho Amazon

5 6

java cloud



Service Details - IBM on Cloud X

Skill Pal Skill Jobs

Please tell about yourself, and why you need this job :

Hi, I am highly skilled in java, so I am interested in applying for this job.

5

Company :

Zoho

Company Email :

19euec156@skcet.ac.in

Portfolio Link :

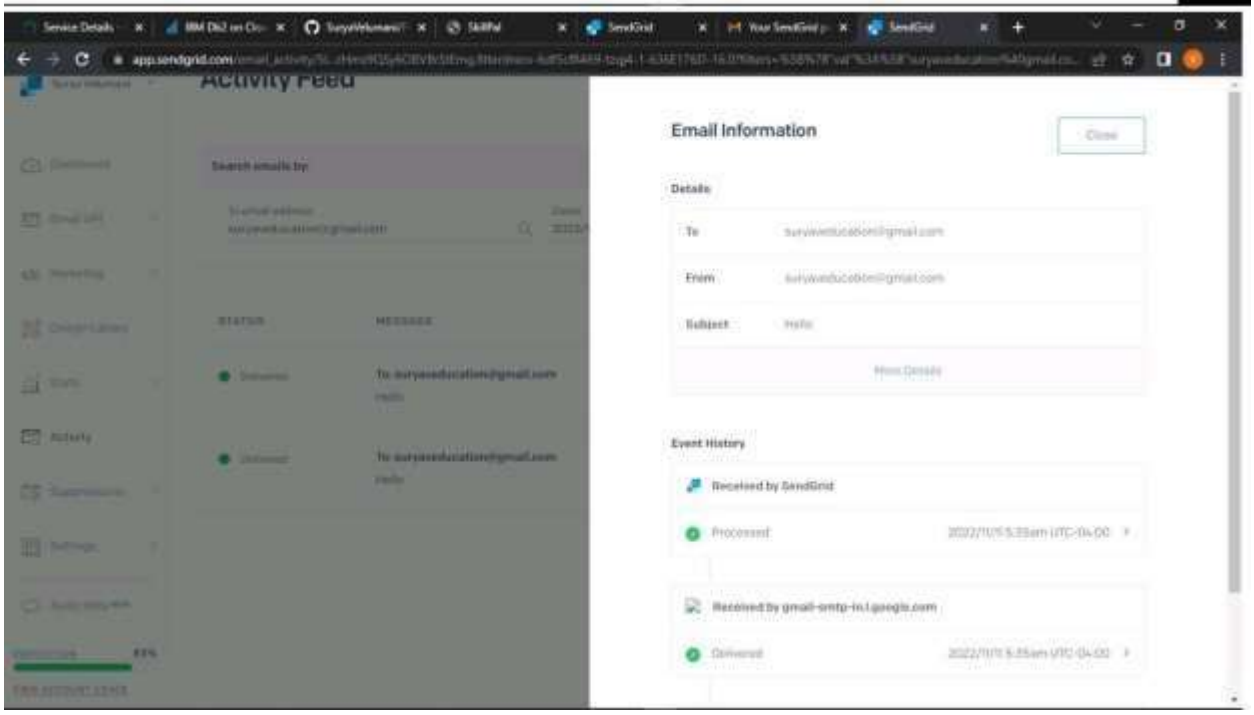
www.ram.com

Preferred Location :

CBE

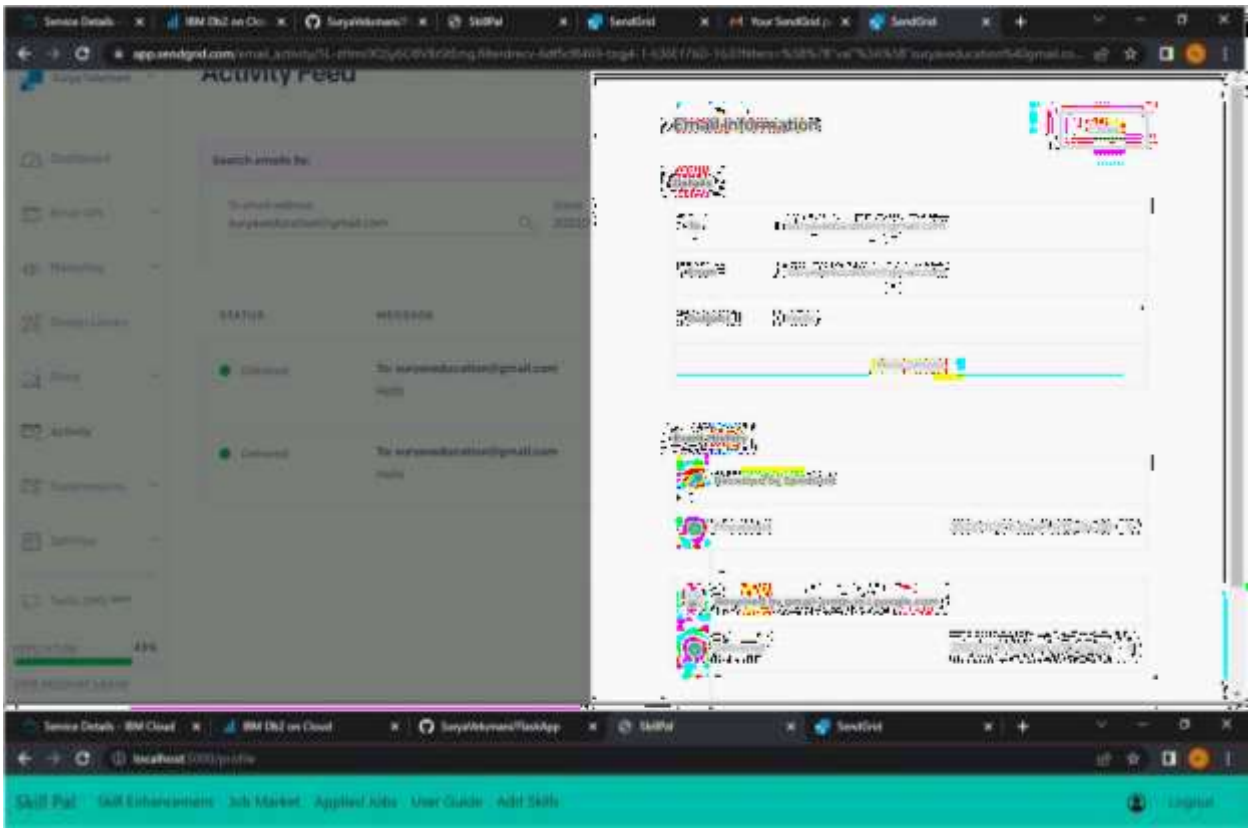
Submit form

Hi there, need help ?



Zoho

Service Details IBM



User Name :
c12345678

Password :

Email Id :

suryaveducation@gmail.com

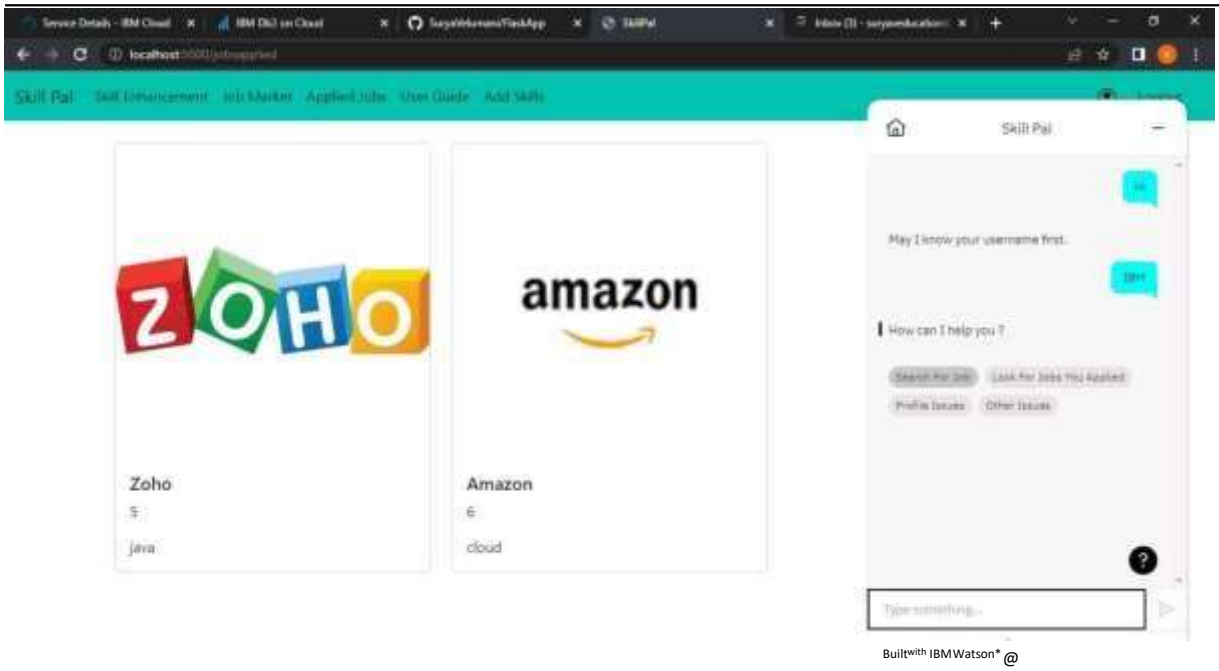
First Name :

Surya

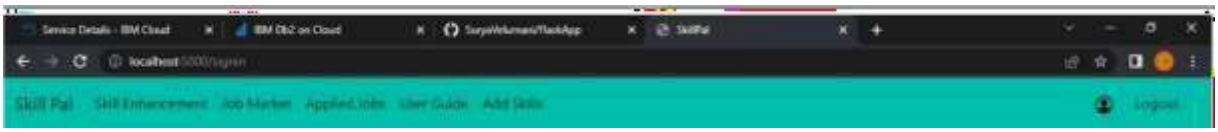
Last Name :

Save

Service Details



Built[with] IBM Watson* @



Please go through the courses below to enhance your skills

Java Courses

Click

Python Courses

Click

C++ Courses

Click

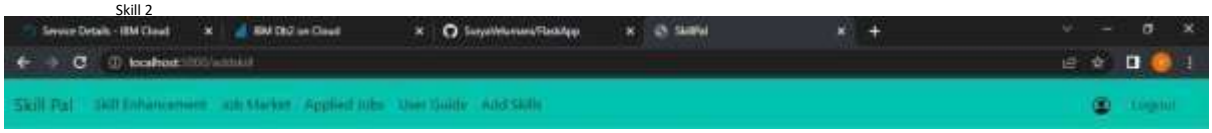
Javascript Courses

Click

Skill 1

Java

Skill 2



Skill 3

Save

10. ADVANTAGE AND DISADVANTAGE

ADVANTAGE :

- 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.

DISADVANTAGE:

-
- 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

Source Code:

```
from turtle import st from flask import Flask, render_template, request,  redirect,
url_for, session
import          ibm_db          conn    =
        from flask_mail import Mail, Message


import          ibm_bot03       from
        ibm_botocore.client import Config, ClientError

COS ENDPOINT= COS
API KEY ID:
COS INSTANCE CRN=


#       Create  resource        https://s3.ap.cloud-object- storage.appdomain.cloud
        cos     =       ibm_bot03.resource("s3", ibm_api_key_id=COS_APl KEY ID,
ibm service instance id=COS INSTANCE CRN,



                        config=Config(signature_version="oauth"),
                        endpoint_url=COS_ENDPOINT


app = Flask(_name_)

def multi_part_upload(bucket_name, item_name, file_path): try:
 print("Starting file transfer for {0} to bucket:  .format(item_name, bucket_name))
    #  set       5       MB
       chunks part_size = 1024
    * 1024 * 5

    # set threadhold to 15 MB file threshold =
    1024 * 1024 * 15

    #  set      the      transfer threshold      and      chunk  size
    transfer_config    =  ibm_bot03.s3.transfer.TransferConfig(
    multipart_thresholdfile_threshold,
    multipart_chunksize=part_size


    # the upload_fileobj method will automatically execute a multi-part upload
    # in 5 MB chunks for all files over 15 MB with open(file_path, "rb") as
    file_data:
       cos.Object(bucket_name, item_name).upload_fileobj( Fileobj=file_data,
          Config-transfer_config
```

```
      print("Transfer for {O} Complete!\n".format(item_name))
   except ClientError as be: print("CLIENT
      ERROR:   .format(be))
   except Exception as e: print("Unable to complete multi-part upload:
      {O}".format(e))

@app.routeC/uploadResume', methods = ['GET', 'POST']) def upload():

  if request.method - 'POST':
     bucket='svdemoibmll name_file = session['
     username']          name_file        +=
        '.png' filenameis = request.files['file '] filepath
     = request.form['filepath '] f =
     filepath f = f+filenameis.filename print("-    -
     ll,f)              ----------
     multi_part_upload(bucket_name, file, f)
  return          if request.method == 'GET':
  return render_template('upload.html')


mail = Mail(app) # instantiate the mail class app.config[IMAlL

app.config[IMAlL_       PORT']  =        465 app.config[IMAlL_
USERNAME'] = 'apikey'
app.config[IMAlL_       USE_TLS']        =        False app.config[IMAlL_USE_SSL'
] = True mail = Mail(app)

@app.route('/')

def         home():            return

@app.route(l/dashboardl) def dashboard(): return
render_template('dashboard.html')

def userguide(): return render_template('userguide.html
   ')

def addskill():
   skilll = skki112 = ski113 = user = session['username '] sql
   = "SELECT * FROM ACCOUNTSKILL WHERE USERNAME = ?"
   stmt          =          ibm_db.prepare(conn,  sql)
   ibm_db.bind_param(stmt,l,user)       ibm_db.execute(stmt) skillres =
   ibm_db.fetch_assoc(stmt) if skillres: skilll = skillres['SKlLL1'] ski112 =
   skillres['SKlLL2 1'] ski113 = skillres['SKlLL3 1
```

] print(skillres) return render_template(' addSkill.html ' , ski111=ski111,ski112=ski112,ski113=ski113) else :

return render_templateCaddSkill.html ', ski111=ski111,ski112=ski112,ski113=ski113)

@app.route('/addSkill', methods 'POST'])

stmt ibm_db.prepare(conn, sql)

def editskill():

usernameskill = session[' username'] sql = "SELECT * FROM

ACCOUNTSKILL WHERE USERNAME = ?" stmt = ibm_db.prepare(conn, sql)

ibm_db.bind_param(stmt,l,usernameskill) ibm_db.execute(stmt)

skillres = ibm_db.fetch_assoc(stmt) if skillres: msg =

ski1121 = request.form[' ski112 1] ski1131 = request.form['ski113 1]

print(skill11,"---",skill21,"--",skill31)

sq - "UPDATE ACCOUNTSKILL SET SKILLI - -?,SKILL2 = SKILL3 = ? WHERE USERNAME = ?:"stmt = ibm_db.prepare(conn, sql)

ibm_db.bind_param(stmt,2,ski1121)

ibm_db.bind_param(stmt,3,ski1131)

ibm_db.bind_param(stmt,4,usernameskill)

ibm_db.execute(stmt) msg = "Saved Successfully!"

else :

msg =

ski1122 = request.form['ski112 1] ski1132 = request.form['ski113 1] print("----------

,",usernameskill) sq = "INSERT INTO ACCOUNTSKILL VALUES (?,?,?,?stmt = ibm_db.prepare(conn, sql)

ibm_db.bind_param(stmt,l,usernameskill) ibm_db.bind_param(stmt,2,ski1112)

ibm_db.bind_param(stmt,3,ski1122)

ibm_db.bind_param(stmt,4,ski1132)

ibm_db.execute(stmt) msg = "Saved Successfully !" return render_

@app.route('/jobmarket') = msg,

def jobmarket():

ski111=ski1112,ski112=ski1122,ski113=ski1132)

jobids = l] jobnames =

[l jobimages = []

jobdescription =[]

=

```
                        JOBMARKET"
      = username = session[' username'] print(username)
  #ibm_db.bind_param(stmt,l,username )
       ibm_db.execute(stmt)  joblist  =
  ibm_db.fetch_tuple(stmt) print(joblist)
  while          joblist  !=        False:
  jobids.append(joblist[0])
  jobnames.append(joblist[l])
  jobimages.append(joblist[2])
  jobdescription.append(joblist[3]) joblist
  = ibm_db.fetch_tuple(stmt)
  jobinformation =[]


  cols = 4 size = len(jobnames) for i in range(size): col = [] col.append(jobids[i])
  col.append(jobnames[i])       col.append(jobimages[i]) col.append(jobdescription[i])
       jobinformation.append(col) print(jobinformation)          return
       render_template('jobmarket.html          '          , jobinformation = jobinformation)

@app.route('/filterjobs')
def filterjobs():
  skilll = ski112 = ski113 = user = session['username '] sql
  = "SELECT * FROM ACCOUNTSKILL WHERE USERNAME = ?" stmt
  =      ibm_db.prepare(conn,  sql)
  ibm_db.bind_param(stmt,l,user)       ibm_db.execute(stmt)
  skillres = ibm db.fetch_assoc(stmt) if skillres: skilll = skillres['SKlLL1
  1
    ]    ski112  = skillres['SKlLL2']
    ski113       = skillres['SKlLL3
         1          ] print(skillres)
    jobids = [] jobnames          =
         [l jobimages      [l
    jobdescription =[]



  sql = "SELECT * FROM
    sql  =  "SELECT  *  FROM JOBMARKET"  stmt  =
    ibm_db.prepare(conn,       sql) username = session[
    'username '] print(username)
    #ibm_db.bind_param(stmt,l,username )
         ibm_db.execute(stmt)  joblist  =
    ibm_db.fetch_tuple(stmt) print(joblist)
    while         joblist  !=        False:
```

```
stmt ibm_db.prepare(conn, sql)

jobids.append(joblist[0])
jobnames.append(joblist[l])
jobimages.append(joblist[2])
jobdescription.append(joblist[3]) joblist
= ibm_db.fetch_tuple(stmt) jobinformation
= [l

cols = 4 size = len(jobnames)
[illegible]

for i in range(size): col =
[]
print("@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@",jobdescription[i])
if jobdescription[i].lower() == skilll.lower() or jobdescription[i].lower() ==
ski112.lower() or jobdescription[i].lower() == ski113.lower() : col.append(jobids[i])
col.append(jobnames[i]) col.append(jobimages[i]) col.append(jobdescription[i])
jobinformation.append(col)
[illegible]

return render_template( 'jobmarket.html', jobinformation = jobinformation)

@app.routeC/signin', methods =['GET','POST])
def signin(): msg = '' if request.method
'POST':
username = request.form['username '] password
= request.form[ 'password ']
ACCOUNT WHERE username=?"

=
=
ibm_db.bind_param(stmt,l,username )
ibm_db.execute(stmt) account = ibm_db.fetch_assoc(stmt)

if account:
passCheck = "SELECT UPASSWORD FROM ACCOUNT WHERE username z
?" stmt = ibm_db.prepare(conn, passCheck)
ibm_db.bind_param(stmt,l,username) ibm_db.execute(stmt) result =
ibm_db.fetch_assoc(stmt) passWordInDb = [illegible] if
```

```
        passWordInDb == password: session['loggedin '] = True
                  on['id']= account[ 'UID '] session['username '] =
        account['USERNAME'] msg = 'Logged in successfully !'
        return render_template( 'dashboard.html', msg = msg)
        else: msg = 'Incorrect username / password !'

      else:
        msg = 'Incorrect username / password !'
      ' " if account:
        session['loggedin '] = True session['id '] = account[
        'id '] session['username '] = account[ 'username']
        msg = 'Logged in
        successfully !return
        render_template( 'index.html ', msg = msg) ' ' return render_template('signin.html

  ', msg = msg)



def applyJob(): print("- ----------Function
  Called")


@app.route('/profile',methods =['GET','POST]) def
profile():
  user = session['username '] sql = "SELECT * FROM ACCOUNT
  WHERE USERNAME = ?"stmt = ibm_db.prepare(conn, sql)
  ibm_db.bind_param(stmt,l,user) ibm_db.execute(stmt) account
  =
  ibm_db.fetch_assoc(stmt) usernamelnUser = account[ '
  USERNAME'] userPassword = account[ 'UPASSWORD'] userEmail = account[ 'EMAILID '] firstName

= account[ 'FIRSTNAME '] lastName = account[ ' LASTNAME '] print(account) return

render_template('profile.html', sql "SELECT * FROM

usernamelnUser=usernamelnUser,userPassword=userPassword,userEmail=userEmail,firstName =firs

tNa me, lastName=lastName)
```

```
stmt ibm_db.prepare(conn, sql)



@app.route('/editProfile',methods =['GET','POST']) def
editProfile():  if
request.method
        'POST:
    msg = username = request.form['usernamelnUser'] password = request.form[ 'userPassword']
    email = request.form[ 'userEmail'] fname = request.form['firstName '] lname =
    request.form['lastName '] sq - "UPDATE ACCOUNT SET UPASSWORD = EMAILID = FIRSTNAME =
    LASTNAME = ? WHERE
USERNAME    = ?: stmt    =    ibm_db.prepare(conn,   sql)
        ibm_db.bind_param(stmt,l,password) ibm_db.bind_param(stmt,2,email)
        ibm_db.bind_param(stmt,3,fname) ibm_db.bind_param(stmt,4,lname)
ibm_db.bind_param(stmt,5,username) print(" • •: ••• •: [redacted]sql)
ibm_db.execute(stmt) msg = "Saved Successfully !"return render_template( '
profile.html '  ,  msg  =  msg
usernamelnUser=username,userPassword=password,userEmail=email,firstName=fname,lastName
=lna me)

@app.route('/logout')
def logout():
  session.pop( 'loggedin ', None) session.pop( '
  username', None)
  return[redacted]

@app.route('/signup',                                    methods 'POST])    def
signup():
  msg = '' if request.method
        'POST:
    username = request.form['username '] password
    = request.form[ '
    password '] email = request.form[ 'email']
        fname  = request.form['fname']
        lname  = request.form['lname']
        =       ACCOUNT WHERE username =?"
          =
    ibm_db.bind_param(stmt,l,username )
    ibm_db.execute(stmt) account = ibm_db.fetch_assoc(stmt)

    if account:  msg = 'Account already
      exists !'else:
```

```
    insert_sql ¯ - "INSERT INTO ACCOUNT VALUES ? ,?)" prep_stmt
      =        ibm_db.prepare(conn,  insert_sql)
  ibm_db.bind_param(prep_stmt,      1,      username)
  ibm_db.bind_param(prep_stmt,      2,      password)
  ibm_db.bind_param(prep_stmt,  3,  email)
  ibm_db.bind_param(prep_stmt,  4,  Iname)
  ibm_db.bind_param(prep_stmt,  5,  fname)
  ibm_db.execute(prep_stmt)  msg      =        'Data    inserted
  successfully' return render_template('signup.html ', msg = msg)
```

@app.route(l/jobapplied/<int:jobid>l) def jobappliedFunction(jobid): jobid = jobid sql = "SELECT JOBCOMPANY FROM JOBMARKET WHERE JOBID =?" stmt = ibm_db.prepare(conn, sql) ibm db.bind_param(stmt,l,jobid) ibm_db.execute(stmt) result = ibm_db.fetch_assoc(stmt) jobname = result['JOBCOMPANY'] sql = "SELECT COMPANY EMAIL FROM JOBMARKET WHERE JOBID =?"stmt = ibm_db.prepare(conn, sql) ibm_db.bind_param(stmt,l,jobid) ibm_db.execute(stmt) result = ibm_db.fetch_assoc(stmt) jobemall print('l-— ,jobid) return render_template('fillapplication.html ' ,jobid = jobid, jobname = jobname, jobemail = jobemail)

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

appliedjob():

```
  username = session[ username'] passCheck = "SELECT EMAILID  FROM
  ACCOUNT WHERE username ? ?" stmt =
```

```
  ibm_db.prepare(conn, passCheck) ibm_db.bind_param(stmt,l,username)
  ibm_db.execute(stmt) result = ibm_db.fetch_assoc(stmt) fromEmail = result["EMAlLlD"]
```

```
stmt ibm_db.prepare(conn, sql)



    sql "SELECT * FROM
```

```
    msgcontent = request.form['reasoncontent'] emailJob
    = request.form['jobEmailForm'] portfolioLink =
    request.form['portfolio'] city = request.form['
    citypreffered'] appliedJobId = request.form['
    appliedJobId'] print("-
    ----------",appliedJobId) insert_sql =
    "INSERT INTO APPLIEDJOBS VALUES (?,?)"prep_stmt
    = ibm_db.prepare(conn, insert_sql) ibm
    db.bind_param(prep_stmt, 1, username)
    ibm_db.bind_param(prep_stmt, 2, int(appliedJobId))
    ibm_db.execute(prep_stmt)

    msg = [redacted] = fromEmail,recipients = [emailJob]) msg.body = "Applicant
    Email : " + fromEmail + "\n" + "\nAbout Me :  + msgcontent + 'I \n" +
"\nPortfolio Link : " + portfolioLink + "\n" + "\nPreffered City : " + city mail.send(msg)
    return redirect(url_for('jobsapplied'))


@app.route('/jobsapplied')
def      jobsapplied():
    jobidsl          =          [I
    jobinformation =
    [I

    sql = "SELECT * FROM APPLIEDJOBS WHERE USERNAME = ?"stmt
    = ibm_db.prepare(conn, sql) username = session['username']
    print(username)
    ibm_db.bind_param(stmt,I,username)
    ibm_db.execute(stmt)  joblist  =  ibm_db.fetch_tuple(stmt)
    print(joblist) while joblist != False:
      pri [redacted] ,jobl i st)
          jobidsl.append(joblist[I])          joblist  = ibm_db.fetch_tuple(stmt)

    print(jobidsl) for x in range(len(jobidsl)):
    jobids
    =  I]  jobnames  =  []jobimages  =  [I
    jobdescription =[]

      print("nnnnnnnnnnnnnnnnnnnnnnnnnnn",len(jobidsl)) sql = "SELECT
      * FROM JOBMARKET WHERE JOBID = ?"
      stmt = ibm_db.prepare(conn, sql) ibm_db.bind_param(stmt,I,jobidsl[x])
      print("xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx:          ",jobidsl          [x])
```

```
    ibm_db.execute(stmt)        joblist   =          ibm_db.fetch_tuple(stmt)
    print(">>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>",jobl ist) while joblist != False:
    jobids.append(joblist[0])
    jobnames.append(joblist[l]) jobimages.append(joblist[2])
    jobdescription.append(joblist[3]) joblist =
    ibm_db.fetch_tuple(stmt) cols = 4 size = len(jobnames) for
    i in range(size): col = col.append(jobids[i])
    col.append(jobnames[i]) col.append(jobimages[i])
    col.append(jobdescription[i])
    print("CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
  CCCCCCCCCCCCCCCCcc",col)  jobinformation.append(col)  print(jobinformation)
  print("////////////////////////////////////////////////",jobinformation)        return
  render_template('appliedjobs.html', jobinformation = jobinformation)
```

#OOCIAB

GitHub & Project Demo Link:

https://github.com/lBM-EPBL/lBM-Project-24324-1659941545