1. INTRODUCTION

1.1 Project overview

This Project view provides an overview of the skill and job recommended for individuals interested in a career in any fields. It discusses the important role that any field plays in businesses and the various skills that are necessary for success in this field. It also outlines the different job opportunities available in any field and the different types of companies that employ any field professionals.

1.2 Purpose

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

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

2. LITERATURE SURVEY

LITRATURE SURVEY 1:

NAME OF THE PAPER   : Job Recommendation based on Job Seeker Skills.

NAME OF THE AUTHOR   :Jorge Valverde-Rebaza ,Ricardo Puma ,Paul Bustios,Nathalia C.Silva.

JOURNAL PUBLISHED   : First Workshop on Narrative Extraction From Text co-located with40th European Conference on Information Retrieval.

PUBLISHED MONTH   : March

PUBLISHED YEAR   :2018

OBJECTIVE OF THE PROJECT:

- In this ,when a candidate submits his/ her profile at a job seeker engine.

- Their job recommendations are mostly suggested taking their academic qualificationand work experience into   considerations.

LITRATURE SURVEY 2:

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

NAME OF THE AUTHOR   : Shaha Alotaibi.

JOURNAL PUBLISHED   **:** International Journal of Physical Sciences

PUBLISHED MONTH   : July

PUBLISHED YEAR   **:** 2012
OBJECTIVE OF THE PROJECT:

- The recommender system technology aims to help users in finding items that match their personnel interests, it has a successful usage in e-commerce applications to dealwith problems related to information overload efficiently.
- This article will present a survey of e-recruiting process and existing recommendationapproaches for building personalized recommender systems for candidate.

TECHNOLOGY USED : Boolean search methods

LITRATURE SURVEY 3:

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

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

JOURNAL PUBLISHED   **:**   2014   Seventh   International   Symposium   on ComputationalIntelligence and Design.

PUBLISHED MONTH   **:** December

PUBLISHED YEAR   2014
OBJECTIVE OF THE PROJECT :

- It analyze the candidate's resume and the companies' recruitment guidelines.
- To compare and come to a better conclusion upon finding the best suited candidatesfor the job.

TECHNOLOGY USED : Collaborative filtering algorithm.

LITRATURE SURVEY 4:

NAME OF THE PAPER   : Job Recommendation through Progression of Job Selection.

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

JOURNAL PUBLISHED   : 2019 IEEE 6th International Conference on Cloud Computing andIntelligence Systems(CCIS).

PUBLISHED MONTH   : April

PUBLISHED YEAR   2020

OBJECTIVE OF THE PROJECT :

- It uses the candidates' job preference over time to incorporate the dynamics associatedwith highly volatile job market.
- The best results have been achieved through Bidirectional Long Short Term Memory Networks (Bi-LSTM) with Attention for recommending jobs through machine learning.

TECHNOLOGY USED :Filter-based technique.

LITARTURE SURVEY 5:

NAME OF THE PAPER : Job Recommender Systems.
NAME OF THE AUTHOR : Juhi Dhameliya, Nikita Desai.

JOURNAL PUBLISHED : 2019 Innovations in Power and Advanced Computing Technologies(i-PACT).

PUBLISHED MONTH : March

PUBLISHED YEAR 2019
OBJECTIVE OF THE PROJECT :

- It is used for building the personalized recommendation systems for job seekers as wellas recruiters.
- The main issue of these portals is their inability to understand the complexity ofmatching between candidates' desires and organizations' requirements.

TECHNOLOGY USED : Boolean search methods - Word matching algorithms.

2.1 Problem Statement Definition
Job skills recommended application

Problem Statement:

Goal:

A job search has to be very intuitive for the students so that they can findjob suiting their skills, position, industry, role and location by company name.

- The job Skills recommended application is an example of a search where documents are bulky because of the content in candidate resumes.
- The search provide over the candidate database is required to have huge set of fields to search.
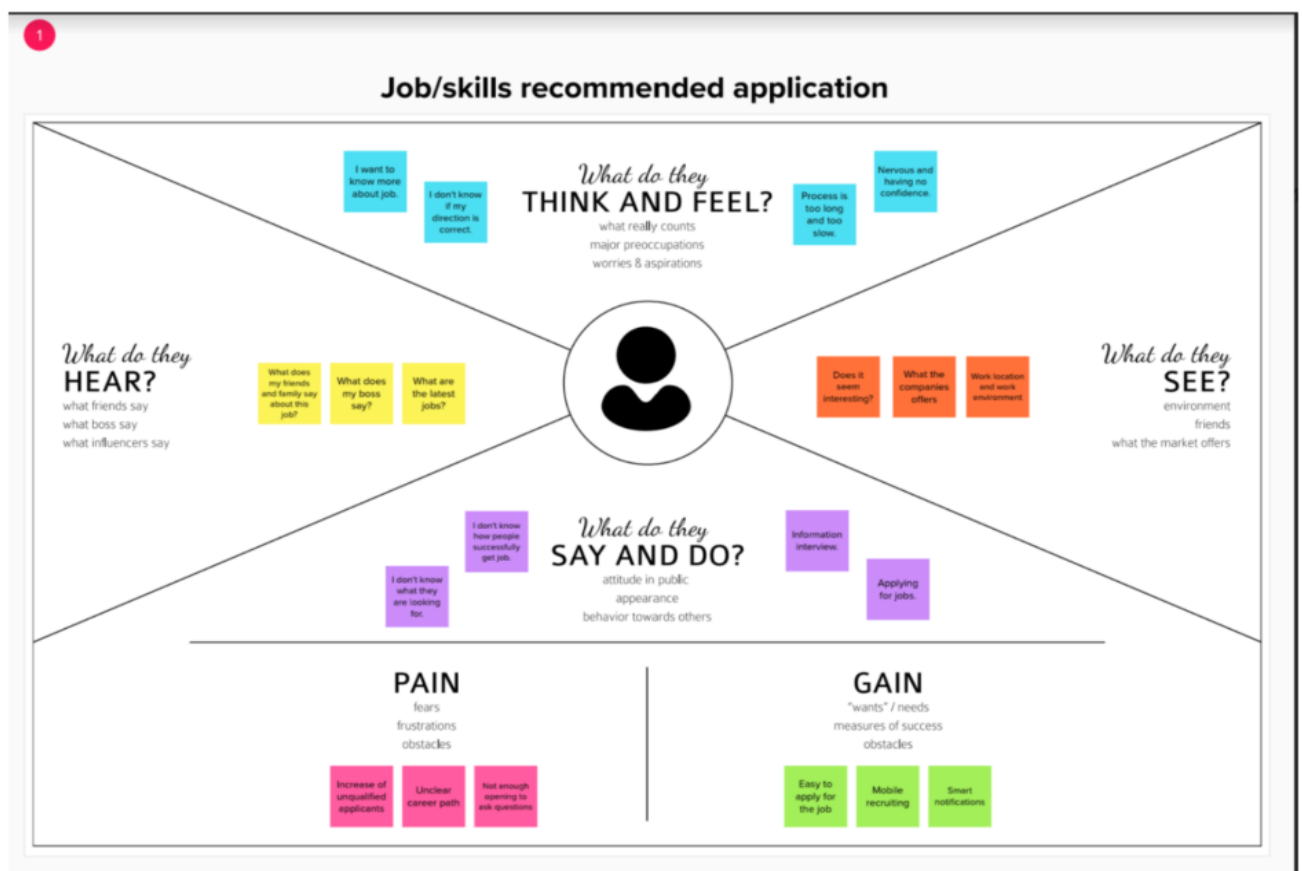
Problem:

The current problem recruitment is done manually, most available jobs in Nigeria can only be applied at the agency can be done for which job seekershave to go to the agency check the available jobs at the agency.

Solution:

 "The purpose of job oriented application to help both the job seekers and recruiters find the right organization or the employers."

3. IDEATION & PROPOSED SOLUTION
3.1 Empathy Map Canvas

Job/skills recommended application

3.2 Ideation and Brainstroming:

3.3 Proposed Solution

Proposed Solution :

S. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	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.
2.	Idea / Solution description	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 iii) carried out an evaluation to quantify recommendation abilities of two state-of-the art methods, considering different configurations, within the proposed framework. We thus present a general panorama of job recommendation task aiming to facilitate research and real-world application design regarding this important issue.
3.	Novelty / Uniqueness	The best position are suggested to any person according to her skills. While the position of known profiles are assumed

		should be noted that there are usually multiple advisable positions corresponding to a set of skills. A recommendation systemshould return a set of most likely positions and all of them can be equally valid. The recommendation method we use is simply based on representing both positions and profiles as comparable vectors and seeking for each profile the positions with the most similar vectors.
4.	Social Impact / Customer Satisfaction	Students will be benefited as they will get to know which job suits them based on their skill set and therefore Lack of Unemployment can be reduced.
5.	Business Model (Revenue Model)	We can provide the application for job seekers in a subscription based and we can share the profiles with companies and generate the revenue by providing them best profiles.
6.	Scalability of the Solution	Data can be scaled up and scaled down according to number of current job openings available.

3.4 Problem Solution Fit

Template:

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

4. REQUIREMENT ANALYSIS

4.1 Function Requirement

Software Required:

Python, Flask, Docker
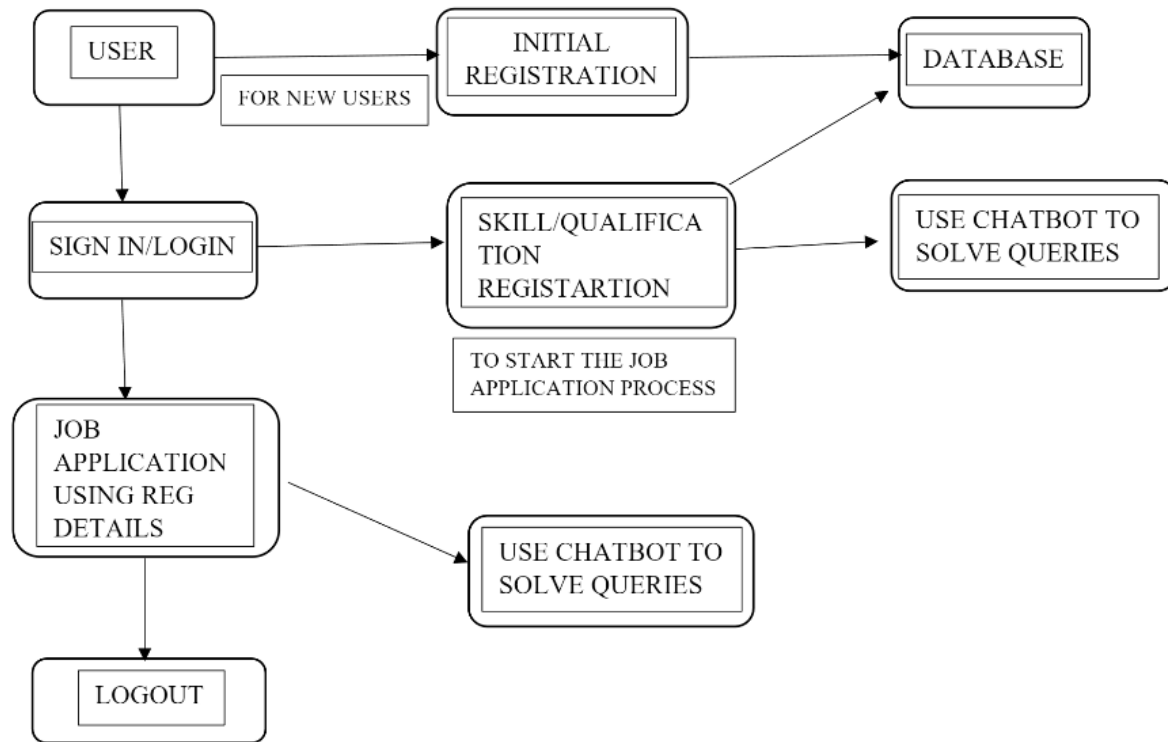
4.2 Non-Function Requirement

System Required:
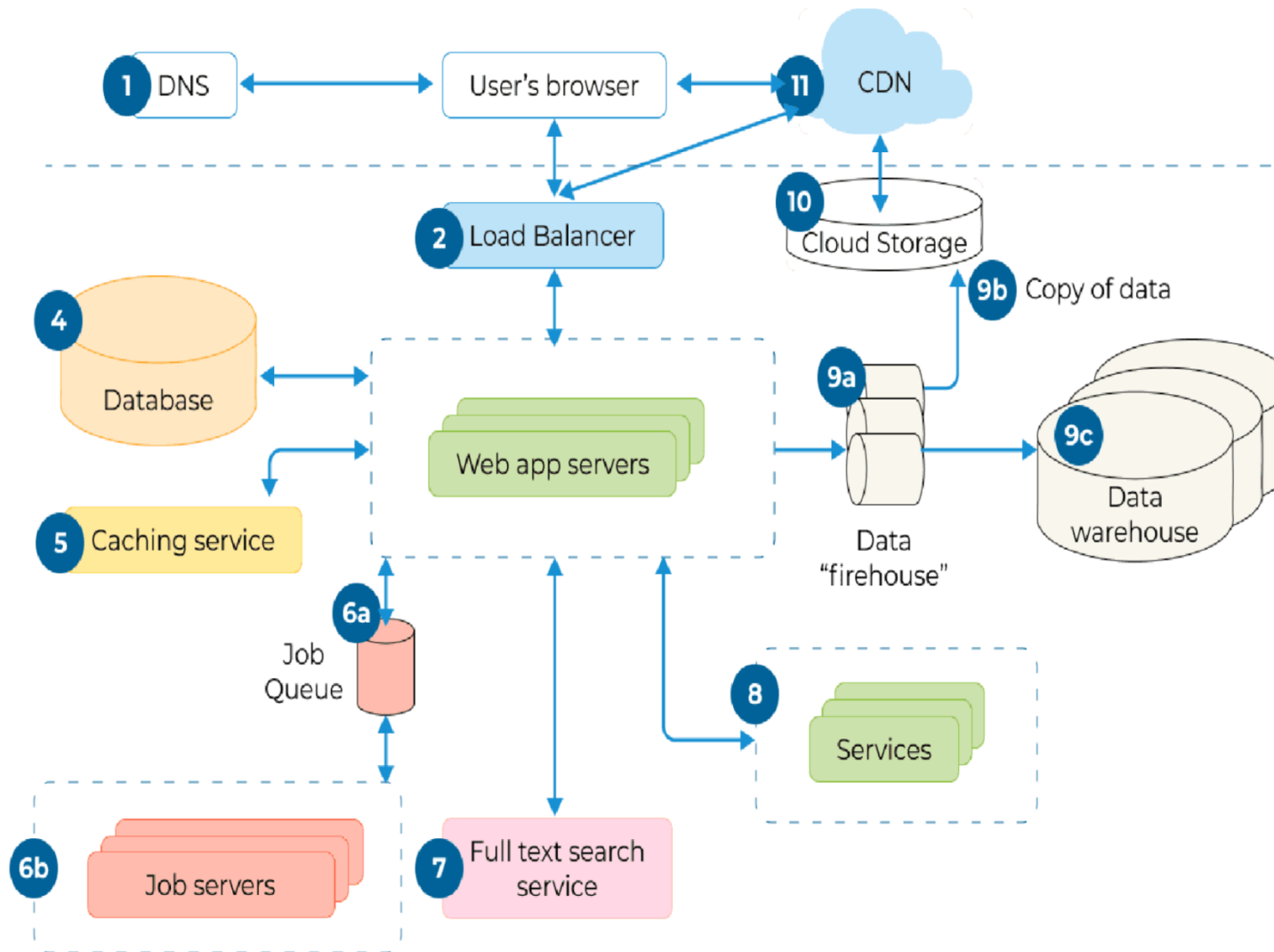
8GB RAM, Intel Core i3, OS- Windows/Linux/MAC

,Laptop or Desktop
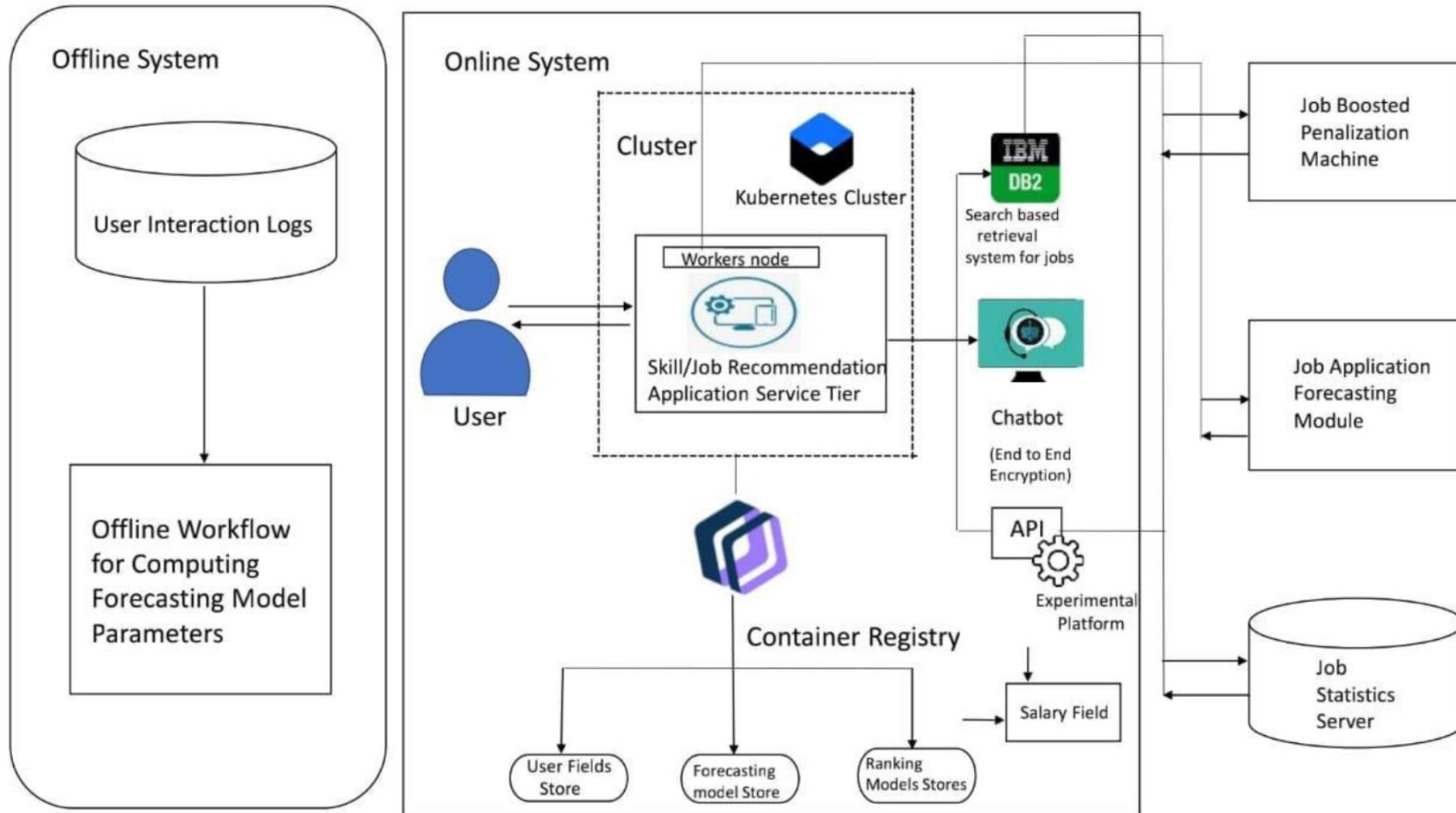
5. PROJECT DESIGN

5.1 Data Flow Diagrams

```
  ┌──────────┐              ┌─────────────────┐              ┌──────────────┐
  │  USER    │─────────────▶│    INITIAL      │─────────────▶│  DATABASE    │
  │          │              │  REGISTRATION   │              │              │
  └──────────┘   ┌──────────────────┐         │              └──────────────┘
      │          │  FOR NEW USERS   │                               ▲
      │          └──────────────────┘                               │
      ▼                                                             │
  ┌──────────────┐           ┌─────────────────┐          ┌──────────────────┐
  │ SIGN IN/LOGIN│──────────▶│ SKILL/QUALIFICA │─────────▶│ USE CHATBOT TO   │
  │              │           │ TION            │          │ SOLVE QUERIES    │
  └──────────────┘           │ REGISTARTION    │          └──────────────────┘
      │                      └─────────────────┘
      │                  ┌────────────────────────┐
      │                  │  TO START THE JOB      │
      │                  │  APPLICATION PROCESS   │
      ▼                  └────────────────────────┘
  ┌──────────────┐
  │ JOB          │
  │ APPLICATION  │              ┌──────────────────┐
  │ USING REG    │─────────────▶│ USE CHATBOT TO   │
  │ DETAILS      │              │ SOLVE QUERIES    │
  └──────────────┘              └──────────────────┘
      │
      ▼
  ┌──────────────┐
  │   LOGOUT     │
  └──────────────┘
```

5.2 Solution & Technical Architecture

SOLUTION ARCHITECTURE

TECHNICAL ARCHITECTURE

Offline System

User Interaction Logs

Offline Workflow for Computing Forecasting Model Parameters

Online System

Cluster

Kubernetes Cluster

Workers node

Skill/Job Recommendation Application Service Tier

User

Container Registry

User Fields Store

Forecasting model Store

Ranking Models Stores

IBM DB2

Search based retrieval system for jobs

Chatbot (End to End Encryption)

API

Experimental Platform

Salary Field

Job Boosted Penalization Machine

Job Application Forecasting Module

Job Statistics Server

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	I can receive confirmation email & click confirm	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can access my account / dashboard	High	Sprint-1
	Dashboard	USN-6	Create a model set that contains those models, then assign it to a role.	Assign that group to the appropriate roles on the Roles page	High	Sprint-1
Customer (Web user)	Identity-Aware	USN-7	Open, public access, User-authenticated access, Employee-restricted access.	Company public website. App running on the company intranet. App with access to customer private information.	High	Sprint-1
Customer Care Executive	Communication	USN-8	A customer care executive is a professional responsible for communicating the how's and why's regarding service expectations within a company.	For how to tackle customer queries.	Medium	Sprint-1
Administrator	Device management	USN-9	You can Delete/Disable/Enable devices in Azure Active Directory but you cannot Add/Remove Users in the directory.	Ease of use.	Medium	Sprint-1

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Priority	Acceptance criteria	Team Members
Sprint-1	UI Design	USN-1	As a user, I can see and experience an awesome user interface in the website	Medium	Better Impression about a website	Eviganas Banu J
Sprint-1	Registration	USN-2	As a user, I can register for the application by entering my email, password, and confirming my password.	High	I can access my account / dashboard	Eviganas Banu J
Sprint-1		USN-3	As a user, I will receive confirmation email once I have registered for the application	High	I can receive confirmation email & click confirm	Eviganas Banu J
Sprint-1		USN-4	As a user, I can register for the application through Facebook	Low	I can register & access the dashboard with Facebook Login	Eviganas Banu J
Sprint-1		USN-5	As a user, I can register for the application through Gmail	Medium	I can receive confirmation email & click confirm	Eviganas Banu J
Sprint-1	Login	USN-6	As a user, I can log into the application by entering email & password	High	I can access my account / dashboard	Eviganas Banu J

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Priority	Acceptance criteria	Team Members
Sprint-!	Flask	USN-7	As a user, I can access the website in a second	High	I can access my account / dashboard	Eviganas Banu J

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Priority	Acceptance criteria	Team Members
Sprint-1	Dashboard	USN-8	As a user, If I Logged in correctly, I can view my dashboard and I can navigate to any pages which are already listed there.	High	I can access all the pages/ dashboard	Eviganas Banu J
			Submission Of Sprint-1			
Sprint-2	User Profile	USN-9	As a user, I can view and update my details	Medium	I can modify my details/data	Susilarani K
Sprint-2	Database	USN-10	As a user, I can store my details and data in the website w	Medium	I can store my data	Susilarani K
Sprint-2	Cloud Storage	USN-11	As a user, I can upload my photo, resume and much more in the website.	Medium	I can Upload my documents and details	Susilarani K
Sprint-2	Chatbot	USN-12	As a user, I can ask the Chatbot about latest job openings, which will help me and show the recent job openings based on my profile	High	I can know the recent job openings	Susilarani K

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Priority	Acceptance criteria	Team Members
Sprint-2	Identity-Aware	USN-13	As a User, I can access my account by entering by correct login credentials. My user credentials is only displayed to me.	High	I can have my account safely	Susilarani K
			Submission of Sprint-2			

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Priority	Acceptance criteria	Team Members
Sprint-3	Sendgrid service	USN-14	As a user, I can get a notification or mail about a job opening with the help of sendgrid service.	Medium	I can get a notification in a second.	Priyadharshini R
Sprint-3	Learning Resource	USN-15	As a user, I can learn the course and I will attain the skills which will be useful for developing my technical skills.	High	I can gain the knowledge and skills	Priyadharshini R
Sprint-3	Docker	USN-16	As a user, I can access the website in any device	High	I can access my account in any device	Priyadharshini R
Sprint-3	Kubernates	USN-17	As a user, I can access the website in any device	High	I can access my account in any device	Priyadharshini R
Sprint-3	Deployment in cloud	USN-18	As a user, I can access the website in any device	High	I can access my account in any device	Priyadharshini R
Sprint-3	Technical support	USN-19	As a user, I can get a customer care support from the website which will solve my queries.	Medium	I can tackle my problem & queries.	Priyadharshini R

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Priority	Acceptance criteria	Team Members
			Submission of Sprint-3			
Sprint-4	Unit Testing	USN-15	As a user, I can access the website without any interruption	High	I can access the website without any interruption	Abinaya T Kanakavalli M
Sprint-4	Integration testing	USN-16	As a user, I can access the website without any interruption	High	I can access the website without any interruption	Abinaya T Kanakavalli M

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Priority	Acceptance criteria	Team Members
Sprint-4	System testing	USN-17	As a user, I can access the website without any interruption	High	I can access the website without any interruption	Abinaya T Kanakavalli M
Sprint-4	Correction	USN-18	As a user, I can access the website without any interruption	High	I can access the website without any interruption	Abinaya T Kanakavalli M
Sprint-4	Acceptance testing	USN-19	As a user, I can access the website without any interruption	High	I can access the website without any interruption	Abinaya T Kanakavalli M
			Submission of Sprint-4			

6.2 Sprint Delivery planning:

Project Tracker, Velocity & Burndown Chart:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story PointsCompleted (as on End Date)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20

Velocity:

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

6.3 Report from JIRA

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

7. CODING & SOLUTIONING

7.1 Feature 1

Registration page

```html
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style> body{ font-family: Calibri,
Helvetica, sans-serif; background-color:
pink;
}
.container {
    padding: 50px;
  background-color: lightblue;
}

input[type=text], input[type=password], textarea {
  width: 100%; padding: 15px; margin: 5px 0 22px
  0; display: inline-block; border: none;
  background: #f1f1f1;
}
input[type=text]:focus, input[type=password]:focus
  { background-color: orange; outline: none;
} div
 {
          padding: 10px 0;
        } hr { border: 1px
solid #f1f1f1; margin-
bottom: 25px;
}
.registerbtn { background-
  color: #4CAF50; color:
  white; padding: 16px 20px;
  margin: 8px 0; border:
  none; cursor: pointer;
  width: 100%; opacity: 0.9;
```

```html
}
.registerbtn:hover {
  opacity: 1;
}
</style>
</head>
<body>
<form action="file:///D:/Skill%20Job%20Recommender/login.html?username=admin&password=PSW">
  <div class="container">
  <center> <h1> Student Registeration Form</h1> </center>
  <hr>
  <label> Firstname </label>
<input type="text" name="firstname" placeholder= "Firstname" size="15" required />
<label> Middlename: </label>
<input type="text" name="middlename" placeholder="Middlename" size="15" required />
<label> Lastname: </label>
<input type="text" name="lastname" placeholder="Lastname" size="15"required />
<div>
<label>
Course :
</label>

<select>
<option value="Course">Course</option>
<option value="BCA">BCA</option>
<option value="BBA">BBA</option>
<option value="B.Tech\B.E">B.Tech/B.E</option>
<option value="MBA">MBA</option>
<option value="MCA">MCA</option>
<option value="M.Tech">M.Tech</option>
</select>
</div>
<div>
<label>
Gender :
</label><br>
<input type="radio" value="Male" name="gender" checked > Male
<input type="radio" value="Female" name="gender"> Female
<input type="radio" value="Other" name="gender"> Other

</div>
<label>
Phone :
</label>
<input type="text" name="country code" placeholder="Country Code" value="+91" size="2"/>
<input type="text" name="phone" placeholder="phone no." size="10"/ required> Current
Address :
<textarea cols="80" rows="5" placeholder="Current Address" value="address" required>
</textarea>
 <label for="email"><b>Email</b></label>
 <input type="text" placeholder="Enter Email" name="email" required>

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

    <label for="psw-repeat"><b>Re-type Password</b></label>
    <input type="password" placeholder="Retype Password" name="psw-repeat" required>
    <button type="submit" class="registerbtn">Register</button>
</form>
```

```
</body>
</html>
```

Login.html

```html
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<title> Login Page </title>
<style>
Body { font-family: Calibri, Helvetica, sans-serif;
  background-color: pink;
} button { background-color: #4CAF50; width:
100%;
        color: orange; padding: 15px;
        margin: 10px 0px; border: none;
        cursor: pointer;
         } form { border: 3px solid #f1f1f1;
    } input[type=text], input[type=password] {
        width: 100%; margin: 8px 0; padding:
        12px 20px; display: inline-block;
        border: 2px solid green; box-sizing:
        border-box;
    } button:hover { opacity:
 0.7;
    }
  .cancelbtn { width: auto; padding:
    10px 18px; margin: 10px 5px; }


 .container { padding: 25px;
        background-color: lightblue; }
</style>
</head> <body>
    <center> <h1> Student Login Form </h1> </center> <form>
        <div class="container">
            <label>Username : </label>
            <input type="text" placeholder="Enter Username" name="username" required>
            <label>Password : </label>
            <input type="password" placeholder="Enter Password" name="password" required>
            <button type="submit">Login</button>
            <input type="checkbox" checked="checked"> Remember me
            <button type="button" class="cancelbtn"> Cancel</button> Forgot <a
            href="#"> password? </a>
        </div>
```

```
    </form>
  </body>
</html>
```

7.2 Feature 2

```
import { useToast } from "@chakra-ui/react";

import React, { useContext } from "react";

import { Link, useNavigate } from "react-router-dom";

import { AppContext } from "../context/AppContext";


const Navbar = () => {
  const navigate = useNavigate();


  const toast = useToast();


  const { user, setUser, setSkills } = useContext(AppContext);


  const logout = () => {
    setUser(null);


    setSkills([]);


    toast({
      title: "Logged out successfully!",
      status: "info",
      duration: 3000,
      isClosable: true,
      variant: "left-accent",
      position: "top",
```

```jsx
  });

  localStorage.removeItem("user");

  navigate("/");
};

return (
  <div className="navbar bg-base-100 border-b-2">
    <div className="flex-1">
      <Link
        className="btn btn-ghost normal-case text-xl"
        to={user ? "/dashboard" : "/"}
      >
        F-ing Jobs
      </Link>
    </div>
    {user && (
      <div className="flex-none gap-2">
        <div className="dropdown dropdown-end">
          <label tabIndex={0} className="btn btn-ghost btn-circle avatar ">
            <div className="w-10 rounded-full ring ring-opacity-50 ring-purple-700">
              <img src="https://placeimg.com/80/80/people" />
            </div>
          </label>
          <ul
            tabIndex={0}
```

```
        className="mt-3 p-2 shadow menu menu-compact dropdown-content
bg-base-100 rounded-box w-52"
      >
        <li>
          <a
            className="justify-between"
            onClick={() => navigate("/profile")}
          >
            Profile
          </a>
        </li>
        <li>
          <a onClick={logout}>Logout</a>
        </li>
      </ul>
    </div>
  </div>
  )}
  </div>
 );
};


export default Navbar;
```

CHATBOT :

Chatbot has been implemented to provide assistance .

```
window.watsonAssistantC  hatOptions = {    integrationID: "d73273d3-3f44-
430484ee-8fd243016d1d", // The ID of this integration.
 region: "jp-tok",
 // The region your integration is hosted in.
```

```
                    serviceInstanceID: "81229104-ee6b-46daac1c-67ede110663a", // The
            ID of your service instance.
                                    onLoad: function(instance) {
                                        instance.render(); }
                        };
                            setTimeout(function(){
                        const t=document.createElement('script');

                            t.src="https://webchat.global.assistant.watson.app
                            domain. cloud/versions/" +
                            (window.watsonAssistantChatOptions.clie
                            ntVersion || 'latest') +
                            "/WatsonAssistantChatEntry.js";
                        document.head.appendChild(t);
                            });
```

7.3 Database Schema(if Applicable) :

using SendGrid's Python Library

https://github.com/sendgrid/sendgrid-python

import os

from sendgrid import SendGridAPIClient

from sendgrid.helpers.mail import Mail

from_address we pass to our Mail object, edit with your name

FROM_EMAIL = 'Your_Name@SendGridTest.com'

def SendEmail(to_email):

   """ Send an email to the provided email addresses

   :param to_email = email to be sent to

   :returns API response code

   :raises Exception e: raises an exception """

   message = Mail(

```python
        from_email=FROM_EMAIL,
        to_emails=to_email,
        subject='A Test from SendGrid!',
        html_content='<strong>Hello there from SendGrid your URL is: ' +
        '<a href="https://github.com/cyberjive">right here!</a></strong>')
    try:
        sg = SendGridAPIClient(os.environ.get('SENDGRID_API_KEY'))
        response = sg.send(message)
        code, body, headers = response.status_code, response.body, response.headers
        print(f"Response Code: {code} ")
        print(f"Response Body: {body} ")
        print(f"Response Headers: {headers} ")
        print("Message Sent!")
    except Exception as e:
        print("Error: {0}".format(e))
    return str(response.status_code)


if __name__ == "__main__":
    SendEmail(to_email=input("Email address to send to? "))
```

8. TESTING

8.2 User Acceptance Testing

➤ **Purpose of Document**

The purpose of this document is to briefly explain the test coverage and open issues of

 the Skills/Job Recommender.

Application project at the time of the release to User Acceptance Testing (UAT).

➤ **Defect Analysis**

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

were resolved.

Section	Total Cases	Not Tested
Print Engine	7	0
Client Application	5	0
Security	3	0
Outsource Shipping	7	0

Resolution	Severity 1	Severity 2	Severity 3	Severity 4
By Design	3	2	1	1
Duplicate	1	0	2	0
External	2	0	0	1
Fixed	5	2	5	7
Not Reproduced	0	0	1	0
Skipped	0	0	0	1
Won't Fix	0	5	1	1
Totals	11	9	10	11

1. **Test Case Analysis**

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

Exception Reporting	6	0	0	6
Final Report Output	3	0	0	3
Version Control	2	0	0	2

9. RESULTS

The project has been completed as we expected.We ensured that Database was designed and well connected to our project.The Expected results were gotten.

10. ADVANTAGES & DISADVANTAGES

ADVANTAGES:
- ➤ Person who looks for a job can easily find a suitable job based on their skill set.
- ➤ Person can check their eligibility by attending eligibility test.
- ➤ Most of the Recruiters find the suitable person based on the scores they have gotten in the eligibility.

DISADVANTAGES
- ➤Person Job May get technical difficulty while taking the eligibility

- ➤ Job seeker may have trouble to contact recruiters directly.

11. CONCLUSION

The application has been developed to make job search easier .The application that we have developed is user friendly .User can find a job based on their skillset in the short period of time. The jobseeker certainly get benefit by using this application. In the addition,Chatbot Has been implemented with the help of IBM whatson . The chatbot helps jobseeker and organization when they experience the difficulties.

12. FUTURE SCOPE

The linked in the wellknown application to find a job and stay connected with professional and organization.The job seekers and organization use linked in to find

a job.In the future , There are lots of possibilities to enhance our project similar to linkedin.

13. APPENDIX
SOURCE CODE

__init__.py

```python
from dotenv import dotenv_values
from flask import Flask
from flask_cors import CORS
import ibm_db

# Get the environment variables
config = dotenv_values("backend/.env")

# Connect to db
try:
    # conn = 'dd'
    conn = ibm_db.pconnect(
        f"DATABASE={config['DB2_DATABASE']};HOSTNAME={config['DB2_HOSTNAME']};
PORT={config['DB2_PORT']};SECURITY=SSL; SSLServerCertificate=backend/
                        DigiCertGlobalRootCA.crt;UID={config['DB2_USERNAME']};
PWD={config['DB2_PASSWORD']}", '', '')
    print("Connected to IBM_DB2 successfully!!")
    print(conn)
except:
    print("Failed to connect to Database!")


def create_app():
    # Tell flask to use the build directory of react to serve static content
    app = Flask(__name__, static_folder='../build', static_url_path='/')

    CORS(app)

    # Set the secret key for flask
    app.config['SECRET_KEY'] = config['APP_SECRET']

    # Import and register auth_router
    from .auth_router import auth
    app.register_blueprint(auth, url_prefix='/api/auth')
```

```python
    from .files_router import files
    app.register_blueprint(files, url_prefix='/api/files')

    from .user_router import user
    app.register_blueprint(user, url_prefix='/api/user')

    # In production serve the index.html page at root

    @app.route("/")
    def home():
        return app.send_static_file('index.html')

    return app
```

auth_middleware.py

```python
from functools import wraps
import jwt
from flask import request
from backend import conn, config
import ibm_db

# Middleware function that checks for JWT token in header
# All routes that have the @token_required decorator will be protected


def token_required(f):
    @wraps(f)
    def decorated(*args, **kwargs):
        token = None
        if "Authorization" in request.headers:
            token = request.headers["Authorization"].split(" ")[1]
        if not token:
            return {
                "error": "Unauthorized"
            }, 401
        try:
            # Get the user's email from the decoded token
            data = jwt.decode(
```

```python
        token, config["APP_SECRET"], algorithms=["HS256"])

        # Retreive user's info from the database
        sql = f"select * from users where email='{data['email']}'"
        stmt = ibm_db.prepare(conn, sql)
        ibm_db.execute(stmt)
        current_user = ibm_db.fetch_assoc(stmt)

        # If user does not exist throw error.
        if current_user is None:
            return {
                "error": "Unauthorized"
            }, 401
    except Exception as e:
        return {
            "error": str(e)
        }, 500

    # Pass the authorized user in function args.
    return f(current_user, *args, **kwargs)

return decorated
```

auth_router.py

```python
from flask import Blueprint, jsonify, request
from backend import conn, config
import bcrypt
import jwt
import ibm_db

auth = Blueprint("auth", __name__)

LOGIN_FEILDS = ('email', 'password')
SIGNUP_FEILDS = ('name', 'email', 'phone_number', 'password')


@auth.route("/login", methods=['POST'])
def login_user():
    # Check if all the required feild are present
```

```python
    for feild in LOGIN_FEILDS:
        if not (feild in request.json):
            return jsonify({"error": f"All feilds are required!"}), 409
    email = request.json['email']
    password = request.json['password']
    sql = f"select * from users where email='{email}'"
    stmt = ibm_db.prepare(conn, sql)
    ibm_db.execute(stmt)
    user = ibm_db.fetch_assoc(stmt)
    if not user:
        return jsonify({"error": "Invalid credentials!"}), 401
    if bcrypt.checkpw(password.encode('utf-8'),
            user["PASSWORD"].encode('utf-8')):
        token = jwt.encode(
            {"email": email},
            config["APP_SECRET"],
            algorithm="HS256"
        )
        return jsonify({"name": user["NAME"], "email": email, "phone_number":
user["PHONE_NUMBER"], "token": token}), 200
    else:
        return jsonify({"error": "Invalid credentials!"}), 401


@auth.route("/signup", methods=['POST'])
def register_user():
    # Check if all the required feild are present
    for feild in SIGNUP_FEILDS:
        if not (feild in request.json):
            return jsonify({"error": f"All feilds are required!"}), 409

    email = request.json['email']
    phone_number = request.json['phone_number']
    name = request.json['name']
    password = request.json['password']

    # Sql stmt to check if email/number is already in use
    sql     =     f"select    *    from    users    where    email='{email}'    or
phone_number='{phone_number}'"
    stmt = ibm_db.prepare(conn, sql)
    ibm_db.execute(stmt)
```

```python
        user = ibm_db.fetch_assoc(stmt)
        if user:
            return jsonify({"error": f"Email/Phone number is alread in use!"}), 409

        # If user does not exist, then create account
        hashed_password = bcrypt.hashpw(
            password.encode('utf-8'), bcrypt.gensalt())
        sql       =       f"insert       into       users(name,email,phone_number,password)
values('{name}','{email}','{phone_number}',?)"
        stmt = ibm_db.prepare(conn, sql)
        ibm_db.bind_param(stmt, 1, hashed_password)
        ibm_db.execute(stmt)
        token = jwt.encode(
            {"email": email},
            config["APP_SECRET"],
            algorithm="HS256"
        )
        return jsonify({"name": name, "email": email, "phone_number": phone_number,
"token": token}), 200
```

files_router.py

```python
from flask import Blueprint
from backend.auth_middleware import token_required
import ibm_boto3
from ibm_botocore.client import Config, ClientError
from backend import config

cos = ibm_boto3.resource("s3",
            ibm_api_key_id=config["COS_API_KEY_ID"],
            ibm_service_instance_id=config["COS_INSTANCE_CRN"],
            config=Config(signature_version="oauth"),
            endpoint_url=config["COS_ENDPOINT"]
            )

files = Blueprint("files", __name__)


def multi_part_upload(bucket_name, item_name, file_path):
    try:
        print("Starting file transfer for {0} to bucket: {1}\n".format(
```

```python
            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_boto3.s3.transfer.TransferConfig(
            multipart_threshold=file_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 {0} Complete!\n".format(item_name))
    except ClientError as be:
        print("CLIENT ERROR: {0}\n".format(be))
    except Exception as e:
        print("Unable to complete multi-part upload: {0}".format(e))


@files.route('/avatar', methods=["POST"])
@token_required
def upload_profile_photo(current_user):
    return "hello"
```

user_router.py

```python
from flask import Blueprint, jsonify, request
from backend import conn
from backend.auth_middleware import token_required
import ibm_db

user = Blueprint("user", __name__)
```

```python
@user.route("/skills", methods=["GET", "POST", "DELETE"])
@token_required
def manage_skills(current_user):
    # Get user_id of current user
    user_id = current_user['USER_ID']

    # Handle GET request
    if request.method == 'GET':
        skills = []

        sql = f"select name from skills where user_id={user_id}"
        stmt = ibm_db.prepare(conn, sql)
        ibm_db.execute(stmt)
        dict = ibm_db.fetch_assoc(stmt)

        # Iterate over all the results and append skills to the array
        while dict != False:
            skills.append(dict['NAME'])
            dict = ibm_db.fetch_assoc(stmt)

        return jsonify({"skills": skills}), 200

    # Get the skills from the request
    if not ('skills' in request.json):
        return jsonify({"error": f"All feilds are required!"}), 409

    skills = request.json['skills']

    # If no skills are provided then return empty array
    if skills == []:
        return jsonify({"skills": []}), 200

    # Handle POST request
    if request.method == "POST":
        # Prepare the SQL statement to insert multiple rows
        values = ''
        for i in range(len(skills)):
            if i == 0:
                values += 'values'
```

```python
            values += f"('{skills[i]}',{user_id})"
            if i != len(skills)-1:
                values += ','
        sql = f"insert into skills(name,user_id) {values}"
        stmt = ibm_db.prepare(conn, sql)
        status = ibm_db.execute(stmt)

        if status:
            return jsonify({"message": "Updated skills successfully!"}), 200
        else:
            jsonify({"error": "Something went wrong!!"}), 409

    # Handle DELETE request
    if request.method == 'DELETE':
        values = ""
        for i in range(len(skills)):
            values += f"'{skills[i]}'"
            if i != len(skills)-1:
                values += ','
        sql = f"delete from skills where name in ({values})"
        stmt = ibm_db.prepare(conn, sql)
        status = ibm_db.execute(stmt)
        if status:
            return jsonify({"message": "Deleted skills successfully!"}), 200
        else:
            jsonify({"error": "Something went wrong!!"}), 409
```

avatar.svg

```
<svg width="480" height="480" fill="none"
xmlns="http://www.w3.org/2000/svg"><rect opacity=".1" width="480"
height="480" rx="32" fill="#fff"/><path d="M374.308 240c0 71.691-58.117
129.808-129.808 129.808S114.692 311.691 114.692 240 172.809 110.192
244.5 110.192 374.308 168.309 374.308 240z" fill="#F6F6F6" stroke="#fff"
stroke-width="10.385"/><path fill-rule="evenodd" clip-rule="evenodd"
d="M244.5 256.2c-21.627 0-64.8 10.854-64.8 32.4v16.2h129.6v-16.2c0-
21.546-43.173-32.4-64.8-32.4m0-16.2c17.901 0 32.4-14.499 32.4-32.4 0-
17.901-14.499-32.4-32.4-32.4-17.901 0-32.4 14.499-32.4 32.4 0 17.901 14.499
32.4 32.4 32.4" fill="#35374A" opacity=".3"/></svg>
```

JobCard.jsx

```jsx
import React, { useEffect } from "react";

const JobCard = ({ title, company, description, link }) => {
  return (
    <div className="max-w-sm flex flex-col rounded overflow-hidden shadow-lg border-2 border-slate-200">
      <>
        <div className="px-6 py-4">
          <div className="font-bold text-xl">{title}</div>
          <div className="text mb-2 text-gray-400">{company}</div>
          <p className="text-ellipsis overflow-hidden text-gray-800 text-sm">
            {description}
          </p>
        </div>
        <div className="px-6 pt-4 pb-2 mt-auto mb-2">
          <a
            href={link}
            target="__blank"
            className="bg-transparent hover:bg-purple-400 text-purple-400 font-semibold hover:text-white py-2 mb-0 mt-4 px-4 border border-purple-400 hover:border-transparent rounded"
          >
            Apply
          </a>
        </div>
      </>
    </div>
```

```jsx
  );
};


export default JobCard;
```

Login.jsx

```jsx
import React, { useContext, useState } from "react";

import { Link, useNavigate } from "react-router-dom";

import { AppContext } from "../context/AppContext";

import { loginUser } from "../proxies/backend_api";

import { emailRegex } from "../utils/helper";


const Login = () => {
  const { setShowAlert, setUser } = useContext(AppContext);


  const navigate = useNavigate();


  const [inputs, setInputs] = useState({
    email: "",
    password: "",
  });


  const [error, setErrors] = useState({
    email: "",
    password: "",
  });


  const handleChange = ({ target: { name, value } }) => {
    setErrors((prev) => {
```

```
      return { ...prev, [name]: "" };
    });
    setInputs((prev) => ({ ...prev, [name]: value }));
  };


  const checkInputErrors = () => {
    let status = true;
    if (inputs.email.trim() === "" || !emailRegex.test(inputs.email.trim())) {
      setErrors((prev) => {
        return { ...prev, email: "Enter a valid email" };
      });
      status = false;
    }


    if (inputs.password.trim() === "") {
      setErrors((prev) => {
        return { ...prev, password: "Enter a valid password" };
      });
      status = false;
    }


    if (inputs.password.trim().length < 6) {
      setErrors((prev) => {
        return { ...prev, password: "Minimum 6 characters" };
      });
      status = false;
    }
    return status;
  };
```

```jsx
const handleLogin = async () => {
  if (checkInputErrors()) {
    const data = await loginUser(inputs);
    if (data.error) {
      setShowAlert({ type: "error", message: data.error, duration: 3000 });
      return;
    }
    setUser(data);
    setShowAlert({
      type: "success",
      message: `Welcome back ${data.name}`,
      duration: 3000,
    });
    localStorage.setItem("user", JSON.stringify(data));
    navigate("/dashboard");
  }
};

return (
  <div className="flex flex-col justify-center items-center gap-10 mt-5">
    <div>
      <button className="bg-base-300 rounded-box flex flex-row justify-evenly items-center gap-10 px-10 py-5 w-fit mx-auto">
        <span>Sign in with Github</span>
        <img src={`github-dark.png`} alt="github" width="14%" />
      </button>
      <div className="divider max-w-xs">or</div>
      <form
```

```jsx
      onSubmit={(e) => e.preventDefault()}
      className="card bg-base-300 rounded-box flex flex-col justify-center
items-center gap-5 px--10 py-5 w-fit mx-auto"
    >
      <div>
        <input
          value={inputs.email}
          type="text"
          name="email"
          placeholder="email"
          className="input input-bordered input-primary w-full"
          onChange={handleChange}
        />
        {error.email !== "" && (
          <p className="text-sm text-red-500 mt-1 font-medium">
            {error.email}
          </p>
        )}
      </div>
      <div>
        <input
          value={inputs.password}
          type="password"
          name="password"
          placeholder="password"
          className="input input-bordered input-primary w-full"
          onChange={handleChange}
        />
        {error.password !== "" && (
```

```jsx
              <p className="text-sm text-red-500 mt-1 font-medium">
                {error.password}
              </p>
            )}
          </div>
          <div className="text-center">
            <button
              type="submit"
              onClick={handleLogin}
              className="btn btn-sm btn-primary mb-4"
            >
              Login
            </button>
            <p>
              Don't have an account?{" "}
              <Link className="text-blue-400" to="/signup">
                Sign up
              </Link>
            </p>
          </div>
        </form>
      </div>
    </div>
  );
};

export default Login;
```

Navbar.jsx

```jsx
import { useToast } from "@chakra-ui/react";

import React, { useContext } from "react";

import { Link, useNavigate } from "react-router-dom";

import { AppContext } from "../context/AppContext";


const Navbar = () => {
  const navigate = useNavigate();


  const toast = useToast();


  const { user, setUser, setSkills } = useContext(AppContext);


  const logout = () => {
    setUser(null);


    setSkills([]);


    toast({
      title: "Logged out successfully!",
      status: "info",
      duration: 3000,
      isClosable: true,
      variant: "left-accent",
      position: "top",
    });


    localStorage.removeItem("user");
```

```jsx
    navigate("/");
  };


  return (
    <div className="navbar bg-base-100 border-b-2">
      <div className="flex-1">
        <Link
          className="btn btn-ghost normal-case text-xl"
          to={user ? "/dashboard" : "/"}
        >
          F-ing Jobs
        </Link>
      </div>
      {user && (
        <div className="flex-none gap-2">
          <div className="dropdown dropdown-end">
            <label tabIndex={0} className="btn btn-ghost btn-circle avatar ">
              <div className="w-10 rounded-full ring ring-opacity-50 ring-purple-700">
                <img src="https://placeimg.com/80/80/people" />
              </div>
            </label>
            <ul
              tabIndex={0}
              className="mt-3 p-2 shadow menu menu-compact dropdown-content bg-base-100 rounded-box w-52"
            >
              <li>
```

```jsx
            <a
              className="justify-between"
              onClick={() => navigate("/profile")}
            >
              Profile
            </a>
          </li>
          <li>
            <a onClick={logout}>Logout</a>
          </li>
        </ul>
      </div>
    </div>
    )}
  </div>
  );
};

export default Navbar;
```

SearchBar.jsx

```jsx
import React from "react";
import { BsSearch } from "react-icons/bs";

const SearchBar = ({ setquery, onClick }) => {
  const handlesubmit = (e) => {
    e.preventDefault();
    onClick();
  };
```

```jsx
  return (
    <form className="flex items-center" onSubmit={handlesubmit}>
      <label htmlFor="simple-search" className="sr-only">
        Search
      </label>
      <div className="relative w-full">
        <div className="flex absolute inset-y-0 left-0 items-center pl-3 pointer-events-none">
          <BsSearch />
        </div>
        <input
          onChange={(e) => setquery(e.target.value)}
          name="search"
          type="text"
          id="simple-search"
          className="bg-gray-50 border border-gray-300 text-gray-900 text-sm rounded-lg focus:ring-blue-500 focus:border-blue-500 block w-full pl-10 p-2.5 dark:bg-gray-700 dark:border-gray-600 dark:placeholder-gray-400 dark:text-white dark:focus:ring-blue-500 dark:focus:border-blue-500"
          placeholder="Search"
          required=""
        />
      </div>
      <button
        type="submit"
        className="p-2.5 ml-2 text-sm font-medium text-white bg-purple-700 rounded-lg border border-purple-700 hover:bg-purple-800 focus:ring-4 focus:outline-none focus:ring-purple-300"
      >
```

```jsx
      <BsSearch />
      <span className="sr-only">Search</span>
    </button>
  </form>
 );
};


export default SearchBar;
```

Signup.jsx

```jsx
import React, { useContext, useEffect, useState } from "react";

import { useNavigate } from "react-router-dom";

import { AppContext } from "../context/AppContext";

import { registerUser } from "../proxies/backend_api";

import { emailRegex } from "../utils/helper";


const SignUp = () => {
  const { setUser } = useContext(AppContext);

  const navigate = useNavigate();

  const [inputs, setInputs] = useState({
    name: "",
    email: "",
    phone_number: "",
    password: "",
    confirm_password: "",
  });
```

```javascript
const [error, setErrors] = useState({
  name: "",
  email: "",
  phone_number: "",
  password: "",
  confirm_password: "",
});

const handleChange = ({ target: { name, value } }) => {
  setErrors((prev) => {
    return { ...prev, [name]: "" };
  });
  setInputs((prev) => ({ ...prev, [name]: value }));
};

const checkInputErrors = () => {
  let status = true;
  if (inputs.email.trim() === "" || !emailRegex.test(inputs.email.trim())) {
    setErrors((prev) => {
      return { ...prev, email: "Enter a valid email" };
    });
    status = false;
  }

  if (inputs.name.trim() === "") {
    setErrors((prev) => {
      return { ...prev, name: "Enter a valid name" };
    });
    status = false;
```

```javascript
    }

    if (inputs.phone_number.trim() === "") {
      setErrors((prev) => {
        return { ...prev, phone_number: "Enter a valid phone number" };
      });
      status = false;
    }

    if (inputs.confirm_password.trim() === "") {
      setErrors((prev) => {
        return { ...prev, confirm_password: "Enter a valid  password" };
      });
      status = false;
    }

    if (inputs.password.trim() === "") {
      setErrors((prev) => {
        return { ...prev, password: "Enter a valid password" };
      });
      status = false;
    }

    if (inputs.password.trim().length < 6) {
      setErrors((prev) => {
        return { ...prev, password: "Minimum 6 characters" };
      });
      status = false;
    }
```

```javascript
    if (inputs.password.trim() !== inputs.confirm_password.trim()) {
      setErrors((prev) => {
        return { ...prev, confirmPassword: "Password don't match" };
      });
      status = false;
    }
    return status;
  };


  const handleSignUp = async () => {
    if (checkInputErrors()) {
      const data = await registerUser(inputs);
      if (data.error) {
        toast({
          title: data.error,
          status: "error",
          duration: 3000,
          isClosable: true,
          variant: "left-accent",
          position: "top",
        });
        return;
      }
      setUser(data);
      toast({
        title: `Your journey starts here ${data.name}`,
        status: "success",
        duration: 3000,
```

```jsx
      isClosable: true,
      variant: "left-accent",
      position: "top",
    });
    localStorage.setItem("user", JSON.stringify(data));
    navigate("/profile");
  }
};

return (
  <>
    <div>
      <button className="bg-base-300 rounded-box flex flex-row justify-evenly items-center gap-10 px-10 py-5 w-fit mx-auto">
        <span>Sign in with Github</span>
        <img src={`github-dark.png`} alt="github" width="14%" />
      </button>
      <div className="divider max-w-xs">or</div>
      <div className="card bg-base-300 rounded-box flex flex-col justify-center items-center gap-3 px-10 py-5 w-fit mx-auto">
        <div>
          <input
            value={inputs.name}
            type="text"
            name="name"
            placeholder="name"
            className="input input-bordered input-primary w-full"
            onChange={handleChange}
          />
```

```jsx
        {error.name !== "" && (
          <p className="text-sm text-red-500  font-medium">{error.name}</p>
        )}
      </div>
      <div>
        <input
          value={inputs.email}
          type="text"
          name="email"
          placeholder="email"
          className="input input-bordered input-primary w-full"
          onChange={handleChange}
        />
        {error.email !== "" && (
          <p className="text-sm text-red-500  font-medium">{error.email}</p>
        )}
      </div>
      <div>
        <input
          value={inputs.phone_number}
          type="text"
          name="phone_number"
          placeholder="phone number"
          className="input input-bordered input-primary w-full"
          onChange={handleChange}
        />
        {error.phone_number !== "" && (
          <p className="text-sm text-red-500  font-medium">
            {error.phone_number}
```

```jsx
        </p>
      )}
    </div>
    <div>
      <input
        value={inputs.password}
        type="password"
        name="password"
        placeholder="password"
        className="input input-bordered input-primary w-full"
        onChange={handleChange}
      />
      {error.password !== "" && (
        <p className="text-sm text-red-500  font-medium">
          {error.password}
        </p>
      )}
    </div>
    <div>
      <input
        value={inputs.confirm_password}
        type="password"
        name="confirm_password"
        placeholder="confirm password"
        className="input input-bordered input-primary w-full"
        onChange={handleChange}
      />
      {error.confirm_password !== "" && (
        <p className="text-sm text-red-500  font-medium">
```

```jsx
              {error.confirm_password}
            </p>
          )}
        </div>
        <div className="text-center">
          <button
            onClick={handleSignUp}
            className="btn btn-sm btn-primary mb-4"
          >
            Sign Up
          </button>
        </div>
      </div>
    </div>
    </>
  );
};

export default SignUp;
```

Skill.jsx

```jsx
import React, { useEffect, useState } from "react";

const Skill = ({ skill, setSelectedSkills, disabled }) => {
  const [isSelected, setIsSelected] = useState(false);

  useEffect(() => {
    if (isSelected) {
      setSelectedSkills((prev) => [...prev, skill]);
```

```jsx
    } else {
      setSelectedSkills((prev) => prev.filter((item) => item !== skill));
    }
  }, [isSelected]);

  return (
    <li className="hover:text-white flex gap-1 items-center justify-between p-1 rounded-sm">
      {skill}
      <button
        disabled={disabled}
        onClick={() => setIsSelected(!isSelected)}
        className={`cursor-pointer border-2 ${
          !isSelected ? "border-green-500" : "border-red-400"
        } p-1 rounded-lg`}
      >
        {!isSelected ? "Add" : "Remove"}
      </button>
    </li>
  );
};

export default Skill;
```

AppContext.jsx

```jsx
import { createContext, useEffect, useState } from "react";
import { useNavigate } from "react-router-dom";


export const AppContext = createContext();
```

```
export const AppProvider = ({ children }) => {
  const navigate = useNavigate();

  const [skills, setSkills] = useState([]);

  const [user, setUser] = useState(null);

  useEffect(() => {
    let temp_user = JSON.parse(localStorage.getItem("user"));
    if (!temp_user) {
      navigate("/");
    } else {
      setUser(temp_user);
    }
  }, []);

  return (
    <AppContext.Provider value={{ user, setUser, skills, setSkills }}>
      {children}
    </AppContext.Provider>
  );
};
```

backend_api.js

```
import { BASE_URL } from "../utils/helper";

export const loginUser = async (inputs) => {
  try {
```

```javascript
    const response = await fetch(`${BASE_URL}/auth/login`, {
      method: "POST",
      body: JSON.stringify(inputs),
      headers: {
        "Content-Type": "application/json",
      },
    });
    const data = await response.json();
    return data;
  } catch (error) {
    console.error(error);
  }
};

export const registerUser = async (inputs) => {
  try {
    const response = await fetch(`${BASE_URL}/auth/signup`, {
      method: "POST",
      body: JSON.stringify(inputs),
      headers: {
        "Content-Type": "application/json",
      },
    });
    const data = await response.json();
    return data;
  } catch (error) {
    console.error(error);
  }
};
```

Profile.jsx

```jsx
import {
  Progress,
  SkeletonCircle,
  SkeletonText,
  Spinner,
  useToast,
} from "@chakra-ui/react";
import React, { useContext, useEffect, useState } from "react";
import { AiOutlineClose } from "react-icons/ai";
import { BsLinkedin } from "react-icons/bs";
import { GoMarkGithub } from "react-icons/go";
import { MdDeleteForever } from "react-icons/md";
import { RiEdit2Fill } from "react-icons/ri";
import { TfiTwitterAlt } from "react-icons/tfi";
import { VscAdd } from "react-icons/vsc";
import { AppContext } from "../context/AppContext";
import {
  getUserSkills,
  removeUserSkills,
  saveUserSkills,
  updateUserDetails,
} from "../proxies/backend_api";

const Profile = () => {
  const toast = useToast();

  const { user, setUser, skills, setSkills } = useContext(AppContext);
```

```javascript
const [addSkill, setAddSkill] = useState("");

const [newSkills, setNewSkills] = useState([]);

const [removedSkills, setRemovedSkills] = useState([]);

const [isEditingEnabled, setIsEditingEnabled] = useState(false);

const [loading, setLoading] = useState(false);

const [userInfo, setUserInfo] = useState({
  name: "",
  phone_number: "",
});

const handleUserInfoChange = ({ target: { name, value } }) => {
  setUserInfo((prev) => ({ ...prev, [name]: value }));
};

const changeSkills = () => {
  if (
    addSkill !== "" &&
    !skills.find((item) => item.toLowerCase() === addSkill.toLowerCase())
  ) {
    setNewSkills((prev) => [...prev, addSkill.trim()]);
    setSkills((prev) => [...prev, addSkill.trim()]);
  }
  setAddSkill("");
```

```javascript
  };

  const removeSkills = (skill_name) => {
    setRemovedSkills((prev) => [...prev, skill_name]);

    setSkills((prev) => prev.filter((item) => item !== skill_name));

    setNewSkills((prev) => prev.filter((item) => item !== skill_name));
  };

  const updateSkills = async () => {
    setLoading(true);

    let skillsAdded = false,
      skillsRemoved = false;

    if (newSkills.length !== 0) {
      skillsAdded = await saveUserSkills(newSkills, user.token);
    }

    if (removeSkills.length !== 0) {
      skillsRemoved = await removeUserSkills(removedSkills, user.token);
    }

    if (skillsAdded || skillsRemoved) {
      toast({
        title: "Profile Updated!",
        status: "info",
        duration: 3000,
```

```javascript
      isClosable: true,

      variant: "left-accent",

      position: "top",

    });
  }


  setNewSkills([]);


  setRemovedSkills([]);


  setLoading(false);
};


const updateUserInfo = async () => {
  setLoading(true);


  const data = await updateUserDetails(userInfo, user.token);


  if (data) {
    setUser((prev) => {
      prev = { ...prev, name: data.name, phone_number: data.phone_number };


      localStorage.setItem("user", JSON.stringify(prev));


      return prev;
    });


    toast({
      title: "Profile Updated!",
```

```
        status: "info",

        duration: 3000,

        isClosable: true,

        variant: "left-accent",

        position: "top",

      });
    }


    setLoading(false);


    setIsEditingEnabled(false);
  };


  useEffect(() => {
    if (user) {
      (async () => {
        setLoading(true);


        let data = await getUserSkills(user?.token);


        if (data) setSkills(data);


        setLoading(false);
      })();


      setUserInfo({
        name: user.name,

        phone_number: user.phone_number,

      });
```

```jsx
    }
  }, [user]);

  return (
    <>
      {loading && <Progress size="xs" isIndeterminate colorScheme={"purple"}
/>}
      <div className="my-5 mx--10">
        <div className="border-2 border-blue-100 w-full h-fit rounded-xl p-5 flex
flex-col gap-3">
          <div className="flex justify-between w-full min-h-[25vh]">
            <div className="flex flex-col justify-between">
              <h1 className="md:text-2xl  text-xl font-medium flex items-center
gap-4">
                Your Profile{" "}
                <button>
                  {isEditingEnabled ? (
                    <AiOutlineClose
                      color="#ff8977"
                      onClick={() => setIsEditingEnabled(!isEditingEnabled)}
                    />
                  ) : (
                    <RiEdit2Fill
                      color="#4506cb"
                      onClick={() => setIsEditingEnabled(!isEditingEnabled)}
                    />
                  )}
                </button>
              </h1>
              <div className="flex flex-col gap-3">
```

```jsx
{isEditingEnabled ? (
  <>
    <input
      name="name"
      value={userInfo.name}
      className="input input-bordered w-full input-xs p-3 text-lg input-primary"
      type="text"
      placeholder="name"
      onChange={handleUserInfoChange}
    />
    <input
      disabled
      value={user?.email}
      className="input input-bordered w-full input-xs p-3 text-lg input-primary"
      type="text"
      placeholder="name"
    />
    <input
      name="phone_number"
      value={userInfo.phone_number}
      className="input input-bordered w-full input-xs p-3 text-lg input-primary"
      type="number"
      placeholder="phone number"
      onChange={handleUserInfoChange}
    />
    <button
      className="btn btn-xs btn-outline btn-primary"
```

```
          onClick={updateUserInfo}
        >
          Update
        </button>
      </>
    ) : (
      <>
        <h2 className="md:text-2xl xl:text-2xl sm:text-xl">
          {user?.name}
        </h2>
        <p className="md:text-xl sm:text-md text-gray-700">
          {user?.email}
        </p>
        <span className="text-gray-700">{user?.phone_number}</span>
      </>
    )}
  </div>
</div>
<div className="flex flex-col justify-end w-fit gap-4">
  <img
    src="avatar.webp"
    alt="profile"
    className="md:w-36 w-20 rounded-md object-contain"
  />
</div>
</div>
<div className="divider my-2"></div>
<div className="flex flex-col">
  <div className="flex justify-between gap-2 flex-col">
```

```jsx
<h4 className="text-xl">Skills</h4>
<form
  className="flex gap-5 items-center"
  onSubmit={(e) => e.preventDefault()}
>
  <input
    autoComplete="off"
    value={addSkill}
    type="text"
    name="addSkill"
    placeholder="Add skills"
    onChange={(e) => setAddSkill(e.target.value)}
    className="input input-bordered w-full input-primary max-w-xl
input-sm"
  />

  <button
    className="hover:rotate-90 transition-all"
    onClick={changeSkills}
  >
    <VscAdd size={20} />
  </button>
</form>
{loading ? (
  <Spinner
    thickness="3px"
    speed="0.65s"
    emptyColor="gray.200"
    color="blue.500"
```

```jsx
              size="md"
              className="m-3"
            />
          ) : (
            <ul className="flex gap-2 flex-wrap">
              {skills?.map((addSkill, ind) => (
                <li
                  className="bg-indigo-100 rounded p-2 flex gap-2 items-center"
                  key={ind}
                >
                  {addSkill}
                  <MdDeleteForever
                    color="#ff8977"
                    onClick={() => removeSkills(addSkill)}
                    size={20}
                  />
                </li>
              ))}
            </ul>
          )}

          <button
            className="btn btn-sm w-fit btn-primary"
            type="button"
            onClick={updateSkills}
          >
            Save
          </button>
        </div>
```

```jsx
        <div className="divider my-2"></div>
        <div className="flex justify-between gap-2 flex-col">
          <h4 className="text-xl">Resume/Portfolio</h4>
          <div className="flex gap-5">
            <input
              className="input input-bordered w-full input-primary max-w-xl
input-sm"
              type="text"
              placeholder="paste the link"
            />
            <button className="btn btn-primary btn-sm">update</button>
          </div>
        </div>
        <div className="divider my-2"></div>
        <div className="flex gap-2 flex-col">
          <h3 className="text-xl">Socials</h3>
          <div className="flex flex-col gap-2">
            <div className="flex gap-5 items-center">
              <GoMarkGithub size={20} />
              <input
                type="text"
                placeholder="paste the link"
                className="border-2 border-gray-300 rounded-md px-3 my-1 max-
w-md"
              />
            </div>
            <div className="flex gap-5 items-center">
              <BsLinkedin size={20} />
              <input
```

```jsx
                type="text"

                placeholder="paste the link"

                className="border-2 border-gray-300 rounded-md px-3 my-1 max-
w-md"

              />
            </div>
            <div className="flex gap-5 items-center">
              <TfiTwitterAlt size={20} />
              <input

                type="text"

                placeholder="paste the link"

                className="border-2 border-gray-300 rounded-md px-3 my-1 max-
w-md"

              />
            </div>
            <button className="btn btn-primary btn-sm max-w-fit">
              save
            </button>
          </div>
        </div>
      </div>
    </div>
  </>
 );
};


export default Profile;
```

Dashboard.jsx

```jsx
import {
  Progress,
  SkeletonCircle,
  SkeletonText,
  Spinner,
} from "@chakra-ui/react";
import axios from "axios";
import React, { useContext, useEffect, useState } from "react";
import JobCard from "../components/JobCard";
import SearchBar from "../components/SearchBar";
import Skill from "../components/Skill";
import { AppContext } from "../context/AppContext";
import { getUserSkills } from "../proxies/backend_api";

const Dashboard = () => {
  const { user, skills, setSkills } = useContext(AppContext);

  const [selectedSkills, setSelectedSkills] = useState([]);

  const [skillsLoading, setSkillsLoading] = useState(false);

  const [jobsLoading, setJobsLoading] = useState(false);

  const [query, setquery] = useState("");

  const [posts, setPosts] = useState(null);
```

```javascript
const id = import.meta.env.VITE_ADZUNA_API_ID;

const key = import.meta.env.VITE_ADZUNA_API_KEY;

const baseURL_with_skills =
`http://api.adzuna.com/v1/api/jobs/in/search/1?app_id=${id}&app_key=${key
}&results_per_page=15&what=${query}&what_and=${selectedSkills.join(
  " "
)}&&content-type=application/json`;

const baseURL =
`http://api.adzuna.com/v1/api/jobs/in/search/1?app_id=${id}&app_key=${key
}&results_per_page=15&what=${query}&content-type=application/json`;

const searchJobsFromQuery = async () => {
  setJobsLoading(true);

  if (query !== "" || !posts) {
    const { data } = await axios.get(baseURL);
    setPosts(data.results);
  }

  setJobsLoading(false);
};

const searchWithSkills = async () => {
  setJobsLoading(true);

  const { data } = await axios.get(baseURL_with_skills);
```

```
    setPosts(data.results);

    setJobsLoading(false);
  };

  useEffect(() => {
    if (user) {
      (async () => {
        setSkillsLoading(true);
        setSkills(await getUserSkills(user.token));
        setSkillsLoading(false);
      })();
    }
  }, [user]);

  useEffect(() => {
    searchWithSkills();
  }, [selectedSkills]);

  useEffect(() => {
    searchJobsFromQuery();
  }, []);

  return (
    <>
      {(jobsLoading || skillsLoading) && (
        <Progress size="xs" isIndeterminate colorScheme={"purple"} />
      )}
      <div className="flex gap-10 m-10">
```

```jsx
    <div className="hidden lg:flex bg-purple-600 w-1/5 p-5 h-3/6 rounded-lg
text-center flex-col gap-4">
      <div className="text-2xl text-white capitalize font-extrabold">
        Your skills
      </div>
      {skillsLoading ? (
        <Spinner
          className="self-center my-5"
          thickness="3px"
          speed="0.65s"
          emptyColor="gray.200"
          color="black.100"
          size="lg"
        />
      ) : (
        <ul className="list-none text-gray-200 flex flex-col gap-2">
          {skills?.length === 0 ? (
            <p className="text-gray-300">
              Skills you add in the profile section will appear here!!
            </p>
          ) : (
          skills.map((skill, ind) => (
            <Skill
              skill={skill}
              key={ind}
              setSelectedSkills={setSelectedSkills}
              disabled={skillsLoading}
            />
          ))
```

```jsx
        )}
      </ul>
    )}
    <p className="text-white text-sm">
      (Include your skills in the search result)
    </p>
  </div>


  <div className="mx-auto min-w-[80%] ">
    <SearchBar setquery={setquery} onClick={searchJobsFromQuery} />
    {query === "" ? (
      <h2 className="text-2xl mt-5">Recommended Jobs</h2>
    ) : (
      <h2 className="text-2xl mt-5">
        Search for keywords {query}
        {filterUsingSkills && `,${skills.join(",")}`}
      </h2>
    )}

    <div className="mt-5 grid grid-cols-1 lg:grid-cols-3 md:grid-cols-2 gap-5">
      {jobsLoading
        ? [...new Array(10)].map((_, ind) => (
            <div key={ind}>
              <SkeletonCircle size="8" className="mb-5" />
              <SkeletonText
                mt="4"
                noOfLines={8}
                spacing="4"
```

```jsx
                color={"red"}
              />
            </div>
          ))
        : posts?.map((post, ind) => (
            <JobCard
              key={ind}
              title={post.title}
              company={post.company.display_name}
              description={post.description}
              link={post.redirect_url}
            />
          ))}
      </div>
    </div>
  </div>
</>
  );
};

export default Dashboard;
```

Auth.jsx

```jsx
import { Tab, TabList, TabPanel, TabPanels, Tabs } from "@chakra-ui/react";
import React, { useContext, useEffect } from "react";
import { useNavigate } from "react-router-dom";
import Login from "../components/Login";
import SignUp from "../components/Signup";
```

```jsx
import { AppContext } from "../context/AppContext";

const Auth = () => {
  const navigate = useNavigate();

  const { user } = useContext(AppContext);

  useEffect(() => {
    if (user) navigate("dashboard");
  }, []);

  return (
    <div className="flex flex-col justify-center items-center gap-10 mt-5">
      <Tabs isFitted variant="line" colorScheme={"purple"}>
        <TabList mb="1em">
          <Tab>Login</Tab>
          <Tab>SignUp</Tab>
        </TabList>
        <TabPanels>
          <TabPanel>
            <Login />
          </TabPanel>
          <TabPanel>
            <SignUp />
          </TabPanel>
        </TabPanels>
      </Tabs>
    </div>
  );
```

```
};

export default Auth;
```

helper.js

```javascript
export const emailRegex = /^[\w-.]+@([\w-]+\.)+[\w-]{2,4}$/;

export const urlRegex =
  /((([A-Za-z]{3,9}:(?:\/\/)?)(?:[-;:&=\+\$,\w]+@)?[A-Za-z0-9.-]+(:[0-9]+)?|(?:www.|[-;:&=\+\$,\w]+@)[A-Za-z0-9.-]+)((?:\/[\+~%\/.\w-_]*)?\??(?:[-\+=&;%@.\w_]*)#?(?:[\w]*))?)/;

export const BASE_URL = import.meta.env.VITE_BACKEND_ENDPOINT;
```

App.jsx

```javascript
import { useEffect } from "react";
import { HashRouter, Route, Routes } from "react-router-dom";
import Navbar from "./components/Navbar";
import { AppProvider } from "./context/AppContext";
import Auth from "./screens/Auth";
import Dashboard from "./screens/Dashboard";
import Profile from "./screens/Profile";

function App() {
  useEffect(() => {
    window.watsonAssistantChatOptions = {
      integrationID: import.meta.env.VITE_WATSON_INTEGRATION_ID, // The ID
of this integration.
```

```jsx
      region: import.meta.env.VITE_WATSON_REGION, // The region your
integration is hosted in.

      serviceInstanceID: import.meta.env.VITE_WATSON_SERVICE_INSTANCE_ID,
// 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);

    });

  }, []);

  return (

    <HashRouter>

      <AppProvider>

        <Navbar />

        <Routes>

          <Route path="/" element={<Auth />} />

          <Route path="/dashboard" element={<Dashboard />} />

          <Route path="/profile" element={<Profile />} />

        </Routes>

      </AppProvider>

    </HashRouter>

  );
```

```
}

export default App;
```

main.jsx

```jsx
import { ChakraProvider } from "@chakra-ui/react";
import React from "react";
import ReactDOM from "react-dom/client";
import App from "./App";
import "./index.css";

ReactDOM.createRoot(document.getElementById("root")).render(
  <React.StrictMode>
    <ChakraProvider>
      <App />
    </ChakraProvider>
  </React.StrictMode>
);
```

Index.css

```css
@import
url("https://fonts.googleapis.com/css2?family=Ubuntu&display=swap");

@tailwind base;
@tailwind components;
@tailwind utilities;

:root {
```

```css
  font-family: Inter, Avenir, Helvetica, Arial, sans-serif;
  font-size: 16px;
  line-height: 24px;
  font-weight: 400;

  color-scheme: light;
  /* color: rgba(255, 255, 255, 0.87);
  background-color: #242424; */

  font-synthesis: none;
  text-rendering: optimizeLegibility;
  -webkit-font-smoothing: antialiased;
  -moz-osx-font-smoothing: grayscale;
  -webkit-text-size-adjust: 100%;
}

* {
  margin: 0;
  padding: 0;
  font-family: "Ubuntu", sans-serif;
}

body::-webkit-scrollbar {
  width: 5px;
  background-color: none;
  border-radius: 20px;
}

body::-webkit-scrollbar-thumb {
```

```css
  background-color: #adadad;
  border-radius: 20px;
}


body {
  max-height: 100vh;
}
```

Deployment.yaml

```yaml
## Enter your <docker_username> before use

apiVersion: v1
kind: Service
metadata:
  name: test
  labels:
    app: test
spec:
  type: NodePort
  ports:
    - port: 5000
      name: http
      nodePort: 30080
  selector:
    app: app
---
apiVersion: extensions/v1beta1
kind: Deployment
```

```yaml
metadata:
  name: test
spec:
  replicas: 1
  template:
    metadata:
      labels:
        app: app
    spec:
      containers:
        - name: ibm_project
          image:https://github.com/IBM-EPBL/IBM-Project-3989-1658678612
          ports:
            - containerPort: 5000
      imagePullSecrets:
        - name: regcred
```

main.py

```python
from backend import create_app

app = create_app()

if __name__ == '__main__':
    from waitress import serve
    serve(app, port=5000)
```

package.json

```json
{
  "name": "react-flask-app",
  "private": true,
  "version": "0.0.0",
  "type": "module",
  "scripts": {
    "start": "vite",
    "build": "vite build",
    "preview": "vite preview",
    "server": "cd backend && flask --debug run"
  },
  "dependencies": {
    "axios": "^1.1.3",
    "daisyui": "^2.33.0",
    "react": "^18.2.0",
    "react-dom": "^18.2.0",
    "react-icons": "^4.6.0",
    "react-router-dom": "^6.4.2"
  },
  "devDependencies": {
    "@types/react": "^18.0.17",
    "@types/react-dom": "^18.0.6",
    "@vitejs/plugin-react": "^2.1.0",
    "autoprefixer": "^10.4.12",
    "postcss": "^8.4.18",
    "tailwindcss": "^3.1.8",
    "vite": "^3.1.0"
  }
}
```

postcss.config.cjs

```
module.exports = {
  plugins: {
    tailwindcss: {},
    autoprefixer: {},
  },
}
```

tailwind.config.cjs

```
/** @type {import('tailwindcss').Config} */
module.exports = {
  darkMode: "class",
  content: ["./index.html", "./src/**/*.{js,ts,jsx,tsx}"],
  theme: {
    extend: {},
  },
  plugins: [require("daisyui")],
  daisyui: {
    themes: ["light"],
  },
};
```

vite.config.js

```
import react from "@vitejs/plugin-react";
import { defineConfig } from "vite";

// https://vitejs.dev/config/
export default defineConfig({
  plugins: [react()],
```

```
  server: {
    port: 3000,
    cors: false,
  },
});
```

Dockerfile

```dockerfile
# Build step #1: build the React front end
FROM node:16-alpine as react-builder
WORKDIR /app
ENV PATH /app/node_modules/.bin:$PATH
COPY package.json ./
COPY ./src ./src
COPY ./public ./public
COPY ./index.html ./vite.config.js ./postcss.config.cjs ./tailwind.config.cjs ./.env ./
RUN npm install
RUN npm run build

# Build step #2: build the API with the client as static files
FROM python:3.10
WORKDIR /app
COPY --from=react-builder /app/dist ./dist
COPY main.py ./main.py

RUN mkdir ./backend
COPY backend/ ./backend/
RUN pip install -r ./backend/requirements.txt
```

EXPOSE 5000

ENTRYPOINT ["python","main.py"]

GITHUB & PROJECT DEMO LINK:

All the tasks of developing the application were uploaded on the github.

The github has been uploaded below.

https://github.com/IBM-EPBL/IBM-Project-31630-1660203701