

Job Portal Management System

| Team 8 | | | | |
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| Team Members | Ashika Kalmady | Jacob Mathew | Jacob Jose | Meghna Allam |
| NU Email ID | Kalmady.a@north eastern.edu | Alapatt.j@northeaster n.edu | Jose.ja@northeaster n.edu | Allam.me@northeaster n.edu |

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1. OVERVIEW

The job portal management system is a place where students can search and apply for job opportunities. The goal of the job portal management system is to provide a convenient and effective way for students to find job opportunities and for employers to find talented candidates.

2. PROBLEM STATEMENT

Students with busy schedules can't set aside time to look for co-ops and internships. A practical and effective method that enables students to look for and apply for employment openings while on the go is required. Due to the absence of reminders and updates in a timely manner, busy students frequently lose out on chances. There is a need for a system that provides an organized and transparent recruitment process for busy students seeking internships and co-ops.

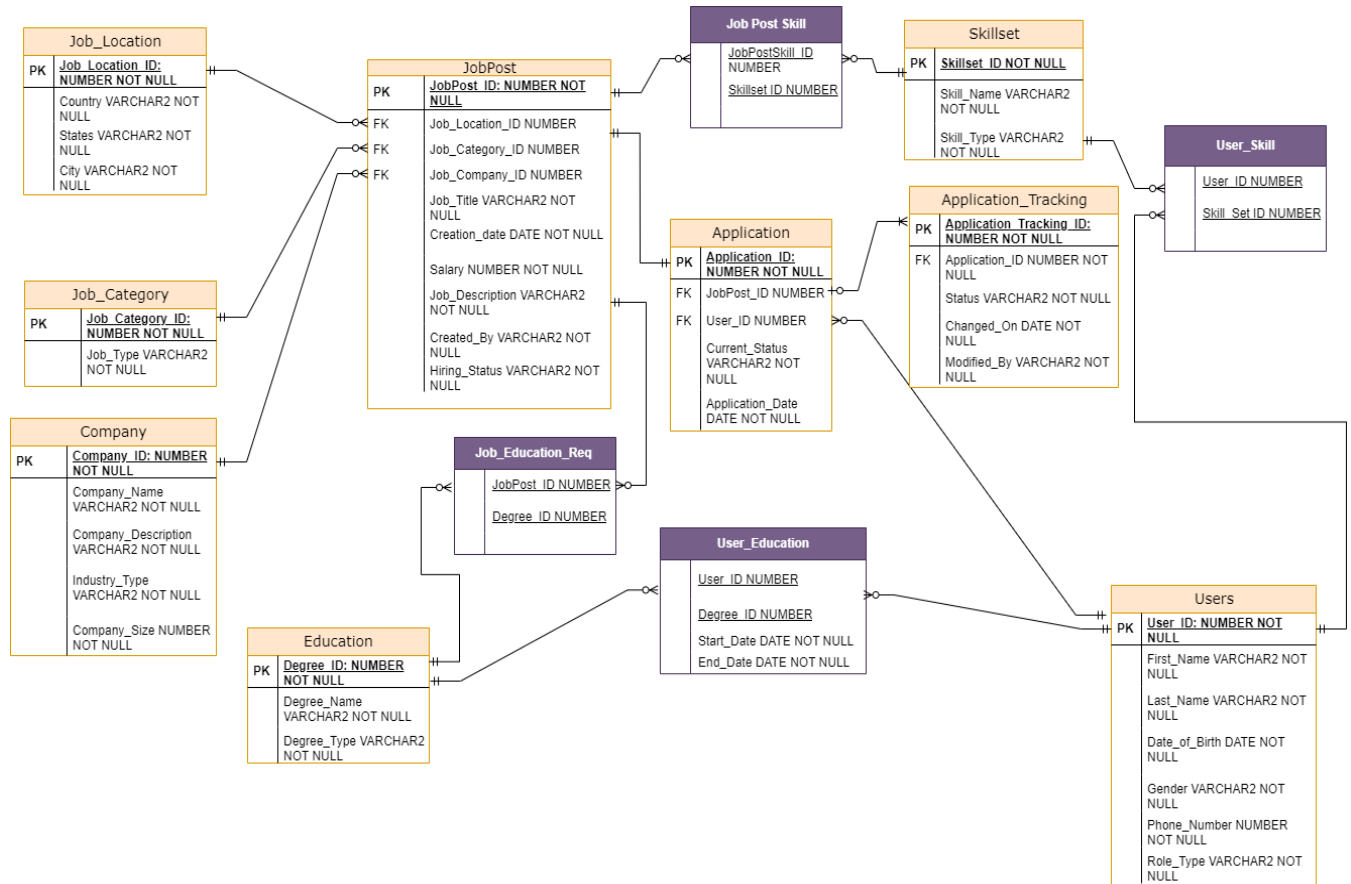
3. OBJECTIVES

To provide a centralized and efficient platform for students to easily search and access relevant co-op and internship opportunities, saving them time and effort in their job search.

1. Create a centralized database to store internship and co-op roles.
2. Ensure easy access to the database from multiple job posting websites like LinkedIn, indeed, and Glassdoor.
3. Simplify the job search process for students with busy schedules.
4. Students can search for jobs based on preferred location, job type (remote, onsite, hybrid), and skill set.
5. Secure and confidential to ensure students' personal information is protected.

4. ENTITY RELATIONSHIP DIAGRAM

When it comes to designing a database, Entity Relationship (ER) diagrams play a big role. Based on the business idea, we have drafted a representation of the ER model containing tables with relations.



5. TABLES

Based on the business, we have created an idea of how many tables this system will consist of. These tables will define the database through column name, data type, constraints, and the description of those entities.

i. Job Post Entity:

| Attributes | Data Types | Constraints | Description |
|-----------------|------------|-------------|--|
| Job_Post_ID | NUMBER | PRIMARY KEY | Unique identifier for each job post |
| Job_Location_ID | NUMBER | FOREIGN KEY | |
| Job_Catery_ID | NUMBER | FOREIGN KEY | |
| Job_Company_ID | NUMBER | FOREIGN KEY | |
| Degree_ID | NUMBER | FOREIGN KEY | |
| Skill_Set_ID | NUMBER | FOREIGN KEY | |
| Job_Title | VARCHAR2 | NOT NULL | Title of the position |
| Creation_Date | DATE | NOT NULL | The date on which the job post was posted |
| Hiring_Status | VARCHAR2 | NOT NULL | Hiring status of the job if it is available or not |
| Description | VARCHAR2 | NOT NULL | Description of the job |
| Salary | NUMBER | NOT NULL | Salary of the job post |
| Created_By | VARCHAR2 | NOT NULL | Name of the person who created the Job Post |

ii. Application Entity:

| Attributes | Data Types | Constraints | Description |
|------------------|------------|-------------|---|
| Application_ID | NUMBER | PRIMARY KEY | Unique identifier for each Application made |
| User_ID | NUMBER | FOREIGN KEY | |
| Job_Post_ID | VARCHAR2 | FOREIGN KEY | |
| Current_Status | VARCHAR2 | NOT NULL | Current status of the applied job |
| Application_Date | DATE | NOT NULL | Applied day current date |

iii.

Application_Tracking Entity

| Attributes | Data Types | Constraints | Description |
|-------------------------|------------|-------------|---|
| Application_Tracking_ID | NUMBER | PRIMARY KEY | |
| Application_ID | NUMBER | FOREIGN KEY | |
| Status | VARCHAR2 | NOT NULL | Status of the application |
| Changed_On | DATE | NOT NULL | Current Date of the system if the Status is changed |
| Modified_By | VARCHAR2 | NOT NULL | Name of the person who modifies the Job Status |

iv. Skill Set Entity:

| Attributes | Data Types | Constraints | Description |
|--------------|------------|-------------|--------------------------------------|
| Skill_Set_ID | NUMBER | PRIMARY KEY | Unique identifier for each skill set |
| Skill_Name | VARCHAR2 | NOT NULL | Name of the user skill |
| Skill_Type | VARCHAR2 | NOT NULL | Type of skill relevant to the skill |

v. User Education (Junction Table)

| Attributes | Data Types | Constraints | Description |
|------------|------------|-------------|-----------------------|
| User_ID | NUMBER | | |
| Degree_ID | NUMBER | | |
| Start_Date | DATE | NOT NULL | Degree Start date |
| End_Date | DATE | NOT NULL | Degree Completed date |

vi. Users Entity:

| Attributes | Data Types | Constraints | Description |
|---------------|------------|-------------|--|
| User_ID | NUMBER | PRIMARY KEY | Unique identifier for each user |
| Degree_ID | NUMBER | FOREIGN KEY | |
| Skill_Set_ID | NUMBER | FOREIGN KEY | |
| First_Name | VARCHAR2 | NOT NULL | First name of the user |
| Last_Name | VARCHAR2 | NOT NULL | Last name of the user |
| Date_of_Birth | DATE | NOT NULL | Date of birth of the user |
| Gender | CHAR(10) | NOT NULL | Gender of the user |
| Phone_Number | NUMBER | NOT NULL | Contact number of the user |
| Email_ID | VARCHAR2 | NOT NULL | Email id of the user |
| Role_Type | VARCHAR2 | NOT NULL | Whether the user is jobseeker or Recruiter |

vii. Entity:

Education

| Attributes | Data Types | Constraints | Description |
|-------------------|------------|-------------|-----------------------------------|
| Degree_ID | NUMBER | PRIMARY KEY | Unique identifier for each degree |
| Degree_Name | VARCHAR2 | NOT NULL | Course perused by each student |
| Degree_Type | VARCHAR2 | NOT NULL | Type of degree of the user |
| Degree_Completion | DATE | NOT NULL | Degree completion date |

viii. Job Location Entity:

| Attributes | Data Types | Constraints | Description |
|-----------------|------------|-------------|---|
| Job_Location_ID | NUMBER | PRIMARY KEY | Unique identifier for each job location |
| Country | VARCHAR2 | NOT NULL | Country of the job posted |
| State | VARCHAR2 | NOT NULL | State of the job posted |

| | | | |
|------|----------|----------|------------------------|
| City | VARCHAR2 | NOT NULL | City of the job posted |
|------|----------|----------|------------------------|

ix. Job Category Entity:

| Attributes | Data Types | Constraints | Description |
|-----------------|------------|-------------|---|
| Job_Category_ID | NUMBER | PRIMARY KEY | Unique identifier for each job category |
| Job_Type | VARCHAR2 | NOT NULL | Type of the job posted (On-sight, Remote, Hybrid) |

x. Company Entity:

| Attributes | Data Types | Constraints | Description |
|---------------------|------------|-------------|------------------------------------|
| Company_ID | NUMBER | PRIMARY KEY | Unique identifier for each company |
| Company_Name | VARCHAR2 | NOT NULL | Name of the company |
| Company_Description | VARCHAR2 | NOT NULL | Brief description of the company |
| Industry_Type | VARCHAR2 | NOT NULL | Type of industry of the company |
| Company_Size | NUMBER | NOT NULL | Size of the company |

6. BUSINESS RULES

1. USER entity must contain the attributes: User_ID, First_Name, Last_Name, Date_of_Birth, Gender, Phone_number, Role_Type.
2. Gender attribute in USER entities can have values - male, female or other.
3. Role_type attribute in USER entity can have values – Jobseeker and Recruiter
4. USER with Role_Type Jobseeker can search for jobs any number of times.
5. USER with Role_Type Recruit can add new Job posts and modify the status in APPLICATION_TRACKING entity.
6. SKILLSET entity must contain the attributes: Skill_Set_ID, Skill_name, Skill_Type.
7. Skill_Type attribute in SKILLSET entity can have values- technical and soft skill.
8. USER entity is associated with SKILLSET via USER_SKILL.
9. JOB_POST entity must contain the attributes: JobPost_ID, Job_Location_ID, Job_Category_ID, Job_Company_ID, Creation_Date, Job_Tile, Description, Salary, Created_By, Hiring_Status.
10. Hiring_Status attribute in JOB_POST entity has values – Available, Expired 11. JOB_POST is associated with SKILL SET via JOB_POST_SKILL.
12. JOB_POST is associated with APPLICATION entity.
13. APPLICATION entity must contain the attributes: Application_ID, JobPost_ID, User_ID, Current_Status, Application_Date
14. The Current_Status attribute in APPLICATION entity can have values – applied, Hired, Interview Scheduled, rejected.
15. The USER entity is associated with the APPLICATION entity.
16. APPLICATION_TRACKING entity must contain the attributes: Application_ID, Application_Tracking_ID, Status, Changed_On, Modified_By
17. APPLICATION_TRACKING is associated with APPLICATION ENTITY
18. EDUCATION entity must contain the attributes: Degree_ID, Degree_Name, Degree_Type
19. Degree_Type in EDUCATION entity has values – Bachelors, Masters, Ph.D. and other
20. EDUCATION entity is associated with JOB_POST entity via bridge table JOB_EDUCATION_REQ
21. USER entity is associated with EDUCATION via bridge table USER_EDUCATION
22. Bridge table USER_EDUCATION has attributes: User_ID, Degree_ID, Start_Date, End_Date
23. JOB_LOCATION entity must contain the attributes: Job_Location_ID, country, state, city.
24. JOB_LOCATION entity must be associated with JOB_POST entity

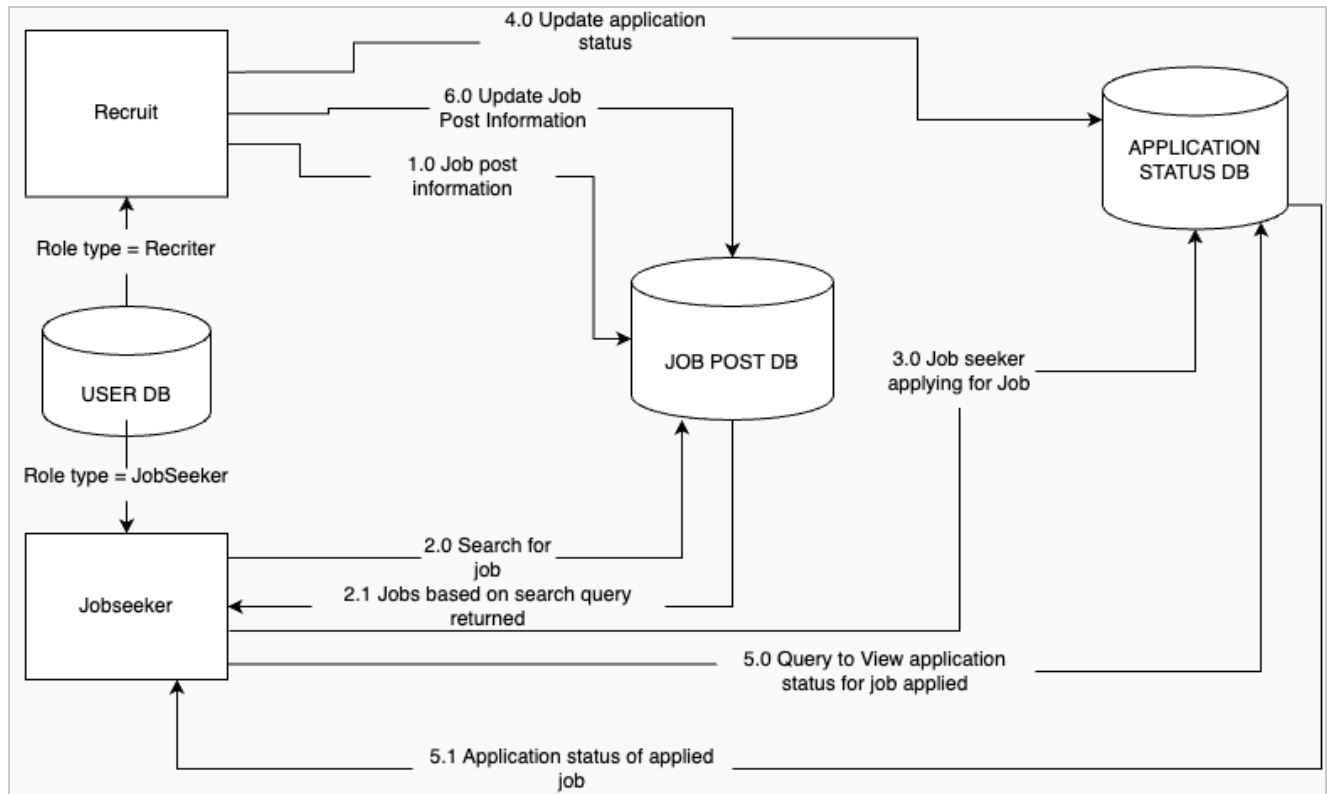
25. JOB_CATEGORY entity must contain the attributes: Job_Category_ID and Job_Type
26. Job_Type attribute in JOB_CATEGORY entities can have values – On-site, Remote, Hybrid.
27. JOB_CATEGORY entity is associated with the JOB_POST entity
28. COMPANY entity must contain the attributes: Company_ID, Company_Name, Company_Description, Industry_Type and Company_Size
29. Industry_Type attribute in COMPANY entity can have values – Information Technology and Services, Retail, Health care, etc.
30. COMPANY entity is associated with the JOB_POST entity 31. COMPANY can post multiple jobs under multiple locations.
32. User education completion must be greater than the start date of degree
33. If the User is still pursuing his degree, then end_date attribute should be expected completion date of the degree.
34. User degree start_date must be greater than their Date of birth
35. A user can apply to a JobPost_ID only once.
36. Phone_Number attribute in USER entity can only have unique values.

7. VIEWS

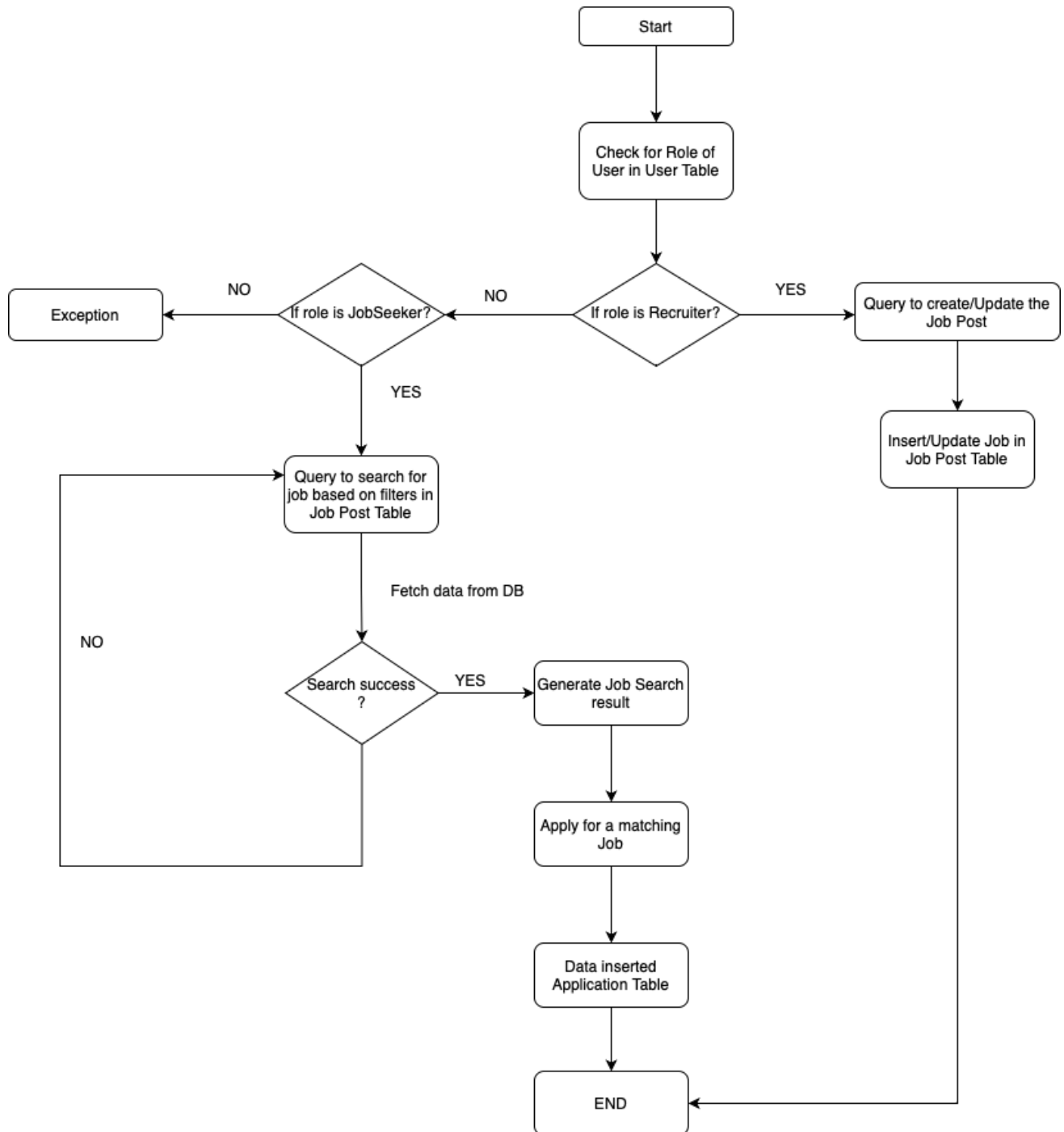
| Sl. No | View Name | Description |
|--------|--------------------|--|
| 1. | Acceptance_Rate | Acceptance rate for each company based on the number of people applied and hired |
| 2. | User_Application | Number of job applications submitted by each user |
| 3. | Jobseeker_Analysis | The acceptance rate of people who got hired |
| 4. | Decision_Time | Time taken by a company to hire a jobseeker |

| | | |
|-----|--------------------|---|
| 5. | Top_Skills | Top skills that most job posts require |
| 6. | Trending_Jobs | Top jobs that are trending based on no.of applications made |
| 7. | Recruiter_Analysis | Tracks the number of candidates each recruiter has sourced and those hired. The report includes information on the total number of candidates sourced, the number of candidates that were hired, and the percentage of candidates that were hired |
| 8. | Jobpost_Analysis | tracks the number of applications received for each job listing according to the job description. |
| 9. | Salarybased_Job | The report includes information on the number of job postings for each salary range, as well as the most listed job titles and industries for each salary range |
| 10. | Application_status | Keeps a track on the application status for all the applied job and when the application status changes |

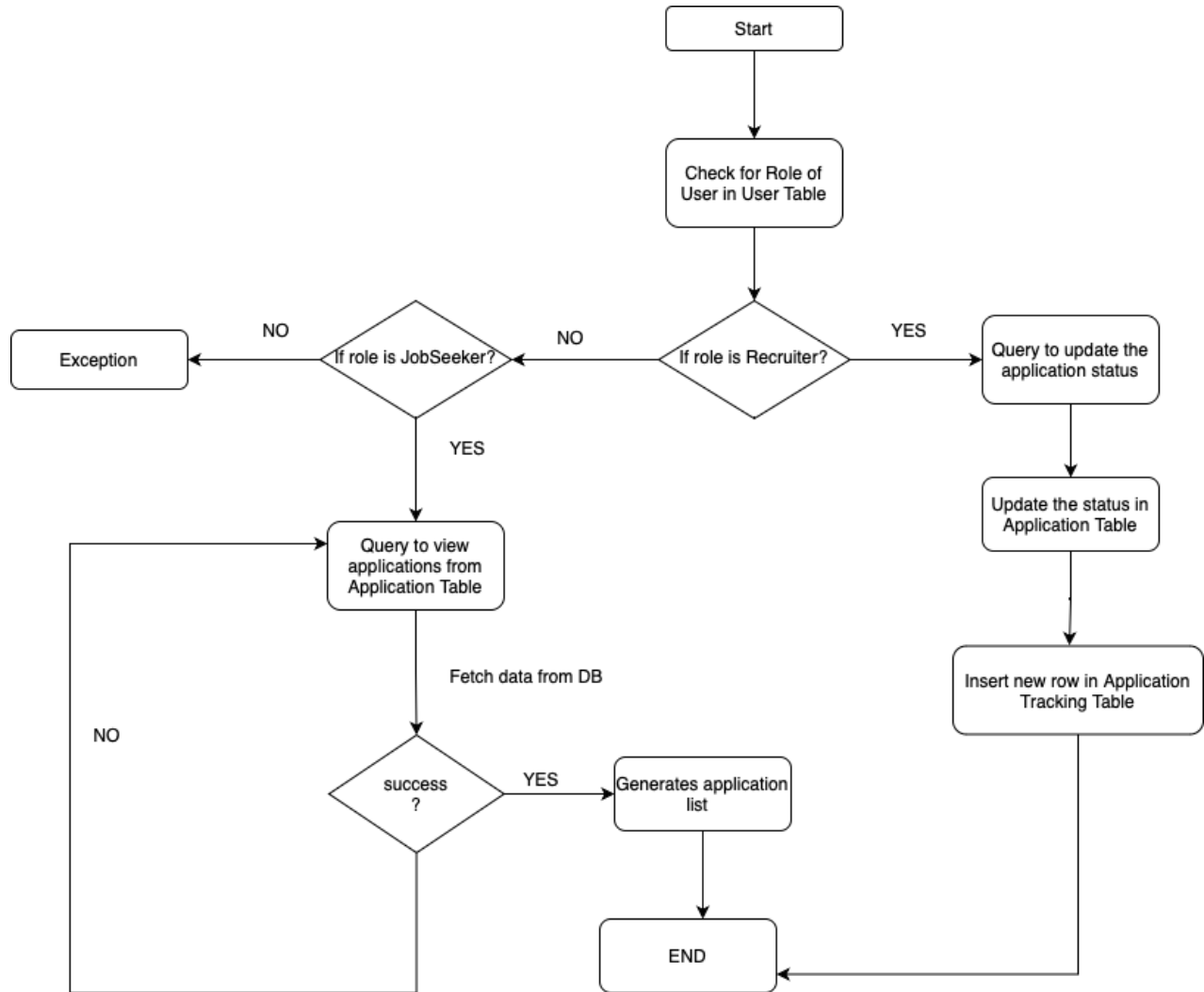
8. DATA FLOW DIAGRAM:



1. Flow Diagram: Job Post insert/ update/view/search flow



2. Flow Diagram: Job Application Status flow



9. ACCESS CONTROL

1. Table:

| | |
|--------------|---|
| Recruiter | <ul style="list-style-type: none">• Access to insert, update, and delete on the details of Job_Post table.• Access to view, and update the Application, Application_Tracking table. |
| Jobseeker | <ul style="list-style-type: none">• Access to view, update the User table• Access to view the Education, Skill_Set, Job_Post, Application and Application_Tracking |
| System Admin | <ul style="list-style-type: none">• Access to create, view, update and delete all the tables |

2. Views

| Role Type: System Admin | | |
|-------------------------|-----------------------------------|---|
| Table Name | Access | Description/ Example |
| All | Create, read, update, delete data | System Admin has access to all the views and tables |
| User_Application | View Data | System Admin can view all the jobs submitted by the user |
| Decision_Time | View data | System Admin will be able to view how long it takes for the application status to change right from the jobseeker applies for the job |
| Jobseeker_Profile | read, update, delete data | System Admin will be able to access to all views and tables of the users entity |

| Role Type: Recruiter | | |
|----------------------|-----------|---|
| Table Name | Access | Description/ Example |
| Acceptance_Rate | View Data | Recruiter can view the acceptance rate for every job post |
| Recruiter_Analysis | View data | Recruiter can view the number of candidates each recruiter has sourced and those hired |
| Jobseeker_Profile | View data | Recruiter will have view access to the jobseeker's profile |
| Jobpost_Analysis | View data | Recruiter will have view access for the number of applications received for each job listing |
| Application_status | View data | Recruiter will have the access to track application status for all the applied jobs and update access when the application status changes |

| Role Type: Jobseeker | | |
|----------------------|--------|-------------------------|
| Table Name | Access | Description/ Example |

| | | |
|--------------------|-----------|---|
| Acceptance_Rate | View Data | Jobseeker can view the acceptance rate for every job post |
| Job_Metrics | View Data | Jobseeker can view overview of the number of job postings in a particular industry based on the criteria of degree, skills set, location, company, and job type |
| Top_Skills | View data | Jobseeker can view the top skills based on the most in-demand skills for a particular job or industry |
| Trending_Jobs | View data | Jobseeker can view the most in-demand jobs |
| Jobseeker_Profile | View data | Jobseeker will be able to access all views and tables of the users entity |
| Application_status | View | Jobseeker will have access to modify, read access to track the status of each job applied |
| Salarybased_Job | View | Jobseeker will have view access to salary offered by the company for a particular job |