Bilkent University

CS353
DATABASE SYSTEMS

<u>Project Design Report</u>
Company Interview and Employment Review Platform Database System

<u>GROUP 5</u>

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1. Revised E/R Model

We revised our E/R model according to assistant's feedback.

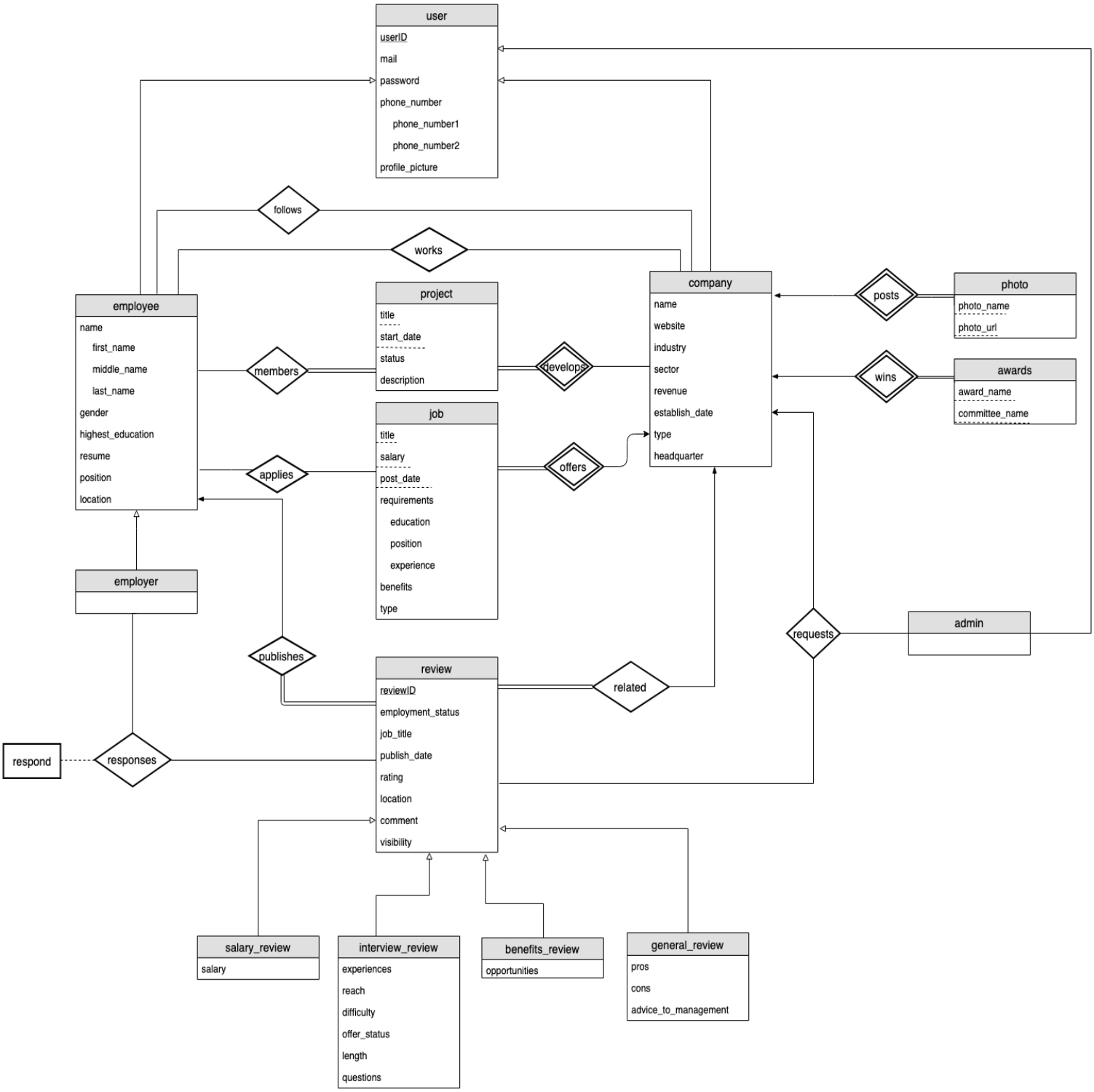
For E/R diagram:

1. Binary relationships between company-admin, company-review were converted to the ternary relationship.
2. total_followers() and size() method in company were deleted. The follows relationship is added between company and employee.
3. The member relationship between project and employee was converted to the total participation.
4. The publish relationship between review and employee was converted to the total participation.
5. The develop relationship between company and project was changed.
6. The related relationship between the company and the review was converted to the total participation.
7. The distance method was deleted from the job.
8. The admin became an instance of user. All the attributes in admin was deleted.
9. respond attribute was added to responses relationship.
10. photo entity's attributes were changed: "photo_name" , "photo_url" were added; "tag" was deleted.
11. award entity's attributes were changed: "award_name" , "comittee_name" were added; "type" was deleted.

For Limitations:

We wrote down all limitations again as follows:

1. The Company Review System cannot be used without login.
2. System supports at most 50 000 company user.
3. System supports at most 200 000 standard user.
4. System supports at most 1000 reviews for single company.
5. Employer can only respond reviews about its own company.
6. Users can only have one profile picture.
7. Standard Users can upload only one resume.
8. Employees can work for at most 2 companies at the same time.
9. Standard User cannot apply a job if experience level of user is not sufficient for job.
10. Reviews' rating and difficulty level are between 0-10.


user
userID
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salary
interview_review
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difficulty
offer_status
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questions
benefits_review
opportunities
general_review
pros
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advice_to_management

2. Relational Schemas

2.1 User

Relational Model:

user(<u>userID</u>, mail, password, phone_number1, phone_number2, profile_picture)

Functional Dependencies:

userID -> mail, password, phone_number1, phone_number2, profile_picture

mail -> password, phone_number1, phone_number2, profile_picture

Candidate Keys:

{ (userID), (mail) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE user(
        userID          varchar(20) PRIMARY KEY,
        mail            varchar(40) NOT NULL,
        password        varchar(20) NOT NULL,
        phone_number1       varchar(20),
        phone_number2       varchar(20),
        profile_picture         varchar(200) ) Engine=InnoDB;
```

2.2 Employee

Relational Model:

employee(<u>employeeID</u>, first_name, middle_name, last_name, gender, highest_education, resume, position, location)

Functional Dependencies:

employeeID -> first_name, middle_name, last_name, gender, highest_education, resume, position, location

Candidate Keys:

{(employeeID)}

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE employee(
        employeeID          varchar(20) PRIMARY KEY,
        first_name          varchar(40) NOT NULL,
        middle_name         varchar(40),
        last_name           varchar(40) NOT NULL,
        gender              varchar(20),
        highest_education   varchar(40),
        resume              varchar(40) NOT NULL,
        position            varchar(40),
        Location            varchar(40),
        FOREIGN KEY(employeeID) REFERENCES user(userID) ) Engine=InnoDB;
```

2.3 Employer

Relational Model:

employer(employerID)

Functional Dependencies:

None

Candidate Keys:

{(employerID)}

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE employer(
employerID              varchar(20) PRIMARY KEY,
FOREIGN KEY(employerID) REFERENCES employee(employeeID) ) Engine=InnoDB;
```

2.4 Company

Relational Model:

company(<u>companyID</u>, name, website, industry, sector, revenue, establish_date, type, headquarter)

Functional Dependencies:

companyID -> name, website, industry, sector, revenue, establish_date, type, headquarter

Candidate Keys:

{ (companyID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE company(
        companyID       varchar(20) PRIMARY KEY,
        name            varchar(20) NOT NULL,
        website         varchar(50),
        industry        varchar(10) NOT NULL,
        sector          varchar(10) NOT NULL,
        revenue         double,
        establish_data  date NOT NULL,
        type            varchar(10) NOT NULL,
        headquarter     varchar(10) NOT NULL,
        FOREIGN KEY(companyID) REFERENCES user(userID) ) Engine=InnoDB;
```

2.5 Follows

Relational Model:

follows(<u>employeeID</u>, <u>companyID</u>)

Functional Dependencies:

None

Candidate Keys:

{ (employeeID, companyID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE follows(
        employeeID          varchar(20),
        companyID           varchar(20),
        PRIMARY KEY(employeeID, companyID),
        FOREIGN KEY(employeeID) REFERENCES employee(employeeID),
        FOREIGN KEY(companyID) REFERENCES company(companyID) ) Engine=InnoDB;
```

2.6 Works

Relational Model:

works(employeeID, companyID)

Functional Dependencies:

None

Candidate Keys:

{ (employeeID, companyID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE works(
        employeeID          varchar(20),
        companyID           varchar(20),
        PRIMARY KEY(employeeID, companyID),
        FOREIGN KEY(employeeID) REFERENCES employee(employeeID),
        FOREIGN KEY(companyID) REFERENCES company(companyID) ) Engine=InnoDB;
```

2.7 Job

Relational Model:

job(companyID, title, salary, post_date, education, position, experience, benefits, type)

Functional Dependencies:

(companyID, title, salary, post_date) -> education, position, experience, benefits, type

Candidate Keys:

{(companyID,title, salary, post_date)}

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE job(
        companyID           varchar(20),
        title               varchar(40),
        salary              double,
        post_date           date,
        education           varchar(40),
        position            varchar(20) NOT NULL,
        experience          varchar(40),
        benefits            varchar(40),
        type                varchar(40) NOT NULL,
        PRIMARY KEY(companyID,title, salary, post_date),
        FOREIGN KEY(companyID) REFERENCES company(companyID) ) Engine=InnoDB;
```

2.8 Project

Relational Model:

project(companyID ,title, start_date, status, description)

Functional Dependencies:

(companyID, title, start_date) -> status, description

Candidate Keys:

{(companyID ,title, start_date)}

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE project(
        companyID           varchar(20),
        title               varchar(20),
        start_date          date,
        status              varchar(40),
        description         varchar(40),
        PRIMARY KEY(companyID ,title, start_date),
        FOREIGN KEY(companyID) REFERENCES company(companyID) ) Engine=InnoDB;
```

2.9 Photo

Relational Model:

photo(companyID, photo_name, photo_url)

Functional Dependencies:

None

Candidate Keys:

{ (companyID, photo_name, photo_url) }

Normal Form:

BCNF

Table Definition:

```
create table photo(
        companyID     varchar(20),
        photo_name    varchar(20),
        photo_url     varchar(200),
        PRIMARY KEY(companyID, photo_name, photo_url),
        FOREIGN KEY(companyID) REFERENCES company(companyID) ) Engine=InnoDB;
```

2.10 Award

Relational Model:

award(<u>companyID, award_name, committee_name</u>)

Functional Dependencies:

None

Candidate Keys:

{(companyID, award_name, committee_name)}

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE award(
        companyID           varchar(20),
        award_name          varchar(20),
        committee_name      varchar(20),
        PRIMARY KEY(companyID, award_name, committee_name),
        FOREIGN KEY(companyID) REFERENCES company(companyID) ) Engine=InnoDB;
```

2.11 Applies

Relational Model:

applies(employeeID, companyID, title, salary, post_date)

Functional Dependencies:

None

Candidate Keys:

{ (employeeID,companyID,title,salary,post_data) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE applies(
        employeeID    varchar(20),
        companyID     varchar(20),
        title         varchar(40),
        salary        double,
        post_date     date,
        PRIMARY KEY ( employeeID, companyID, title, salary, post_date ),
        FOREIGN KEY ( employeeID) REFERENCES employee(employeeID),
        FOREIGN KEY ( companyID, title, salary,post_date ) references job(companyID, title, salary, post_date) ) Engine=InnoDB;
```

2.12 Review

Relational Model:

review(reviewID, employment_status, job_title, date, rating, location, comment, visibility)

Functional Dependencies:

reviewID -> employment_status, job_title, date, rating, location, comment, visibility

Candidate Keys:

{ (reviewID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE review(
        reviewID            int PRIMARY KEY,
        Employment_status   bit NOT NULL,
        job_title           varchar(40) NOT NULL,
        publish_date        date NOT NULL,
        rating              double NOT NULL,
        location            varchar(40) NOT NULL,
        comment             varchar(500) NOT NULL,
        visibility          bit NOT NULL ) ) Engine=InnoDB;
```

2.13 Responses

Relational Model:

responses(reviewID, employerID, respond)

Functional Dependencies:

None

Candidate Keys:

{ (reviewID, employerID,respond) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE responses(
        respond         varchar(200),
        reviewID        int,
        employerID      varchar(20),
        PRIMARY KEY (reviewID, employerID, respond),
        FOREIGN KEY (reviewID) references review(reviewID),
        FOREIGN KEY (employerID) references employer(employerID) ) Engine=InnoDB;
```

2.14 Publishes

Relational Model:

publishes(reviewID, employeeID)

Functional Dependencies:

None

Candidate Keys:

{ (reviewID, employeeID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE publishes(
        reviewID            int,
        employeeID          varchar(20),
        PRIMARY KEY (reviewID, employeeID ),
        FOREIGN KEY (reviewID) references review(reviewID),
        FOREIGN KEY (employeeID) references employee(employeeID) ) Engine=InnoDB;
```

2.15 Related

Relational Model:

related(reviewID, companyID)

Functional Dependencies:

None

Candidate Keys:

{ (reviewID, companyID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE related(
        reviewID            int,
        companyID           varchar(20),
        PRIMARY KEY ( reviewID, companyID),
        FOREIGN KEY ( reviewID) references review(reviewID),
        FOREIGN KEY ( companyID) references company(companyID) ) Engine=InnoDB;
```

2.16 Admin

Relational Model:

admin(adminID)

Functional Dependencies:

None

Candidate Keys:

{ (adminID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE admin(
        adminID                 varchar(20) PRIMARY KEY,
        FOREIGN KEY(adminID) REFERENCES user(userID) ) Engine=InnoDB;
```

2.17 Salary_Review

Relational Model:

salary_review(reviewID, salary)

Functional Dependencies:

reviewID -> salary

Candidate Keys:

{ (reviewID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE salary_review(
        reviewID            int PRIMARY KEY,
        salary              double NOT NULL,
        FOREIGN KEY(reviewID) REFERENCES review(reviewID) ) Engine=InnoDB;
```

2.18 Benefits_Review

Relational Model:

benefits_review(reviewID, opportunities)

Functional Dependencies:

reviewID -> opportunities

Candidate Keys:

{ (reviewID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE benefits_review(
        reviewID            int PRIMARY KEY,
        opportunities       varchar(100) NOT NULL,
        FOREIGN KEY(reviewID) REFERENCES review(reviewID) ) Engine=InnoDB;
```

2.19 General_Review

Relational Model:

general_review(reviewID, pros, cons, advice_to_management)

Functional Dependencies:

reviewID -> pros, cons, advice_to_management

Candidate Keys:

{ (reviewID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE general_review(
        reviewID                int PRIMARY KEY,
        pros                    varchar(100) NOT NULL,
        cons                    varchar(100) NOT NULL,
        advice_to_management    varchar(200),
        FOREIGN KEY(reviewID) REFERENCES review(reviewID) ) Engine=InnoDB;
```

2.20 Interview_Review

Relational Model:

interview_review(reviewID, experiences, reach, difficulty, offer_status, length, questions)

Functional Dependencies:

reviewID -> experiences, reach, difficulty, offer_status, length, questions

Candidate Keys:

{ (reviewID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE interview_review(
        reviewID            int PRIMARY KEY,
        experiences         varchar(200) NOT NULL,
        reach               varchar(20) NOT NULL,
        difficulty          int NOT NULL,
        offer_status                bit NOT NULL,
        length              int NOT NULL,
        Questions           varchar(200) NOT NULL,
        FOREIGN KEY(reviewID) REFERENCES review(reviewID) ) Engine=InnoDB;
```

2.21 Requests

Relational Model:

requests(reviewID, companyID, adminID)

Functional Dependencies:

None

Candidate Keys:

{ (reviewID, companyID, adminID) }

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE requests (
        reviewID            int,
        companyID           varchar(20),
        adminID             varchar(20),
        PRIMARY KEY (reviewID, companyID, adminID),
        FOREIGN KEY (reviewID) references review(reviewID),
        FOREIGN KEY (companyID) references company(companyID),
        FOREIGN KEY (adminID) references admin(adminID) ) Engine=InnoDB;
```

2.22 Members

Relational Model:

members(employeeID, companyID, title, start_date)

Functional Dependencies:

None

Candidate Keys:

{(employeeID, companyID, title, start_date)}

Normal Form:

BCNF

Table Definition:

```
CREATE TABLE members (
        employeeID          varchar(20),
        companyID           varchar(20),
        title               varchar(40),
        start_date           date,
        PRIMARY KEY ( employeeID, companyID, title, start_date),
        FOREIGN KEY ( employeeID ) references employee(employeeID)
        FOREIGN KEY ( companyID ) references project(companyID) ) Engine=InnoDB;
```

3. Functional Dependencies and Normalization of Tables

All tables are in Boyce-Codd Normal Form, therefore, there is no need for normalization.

4. Functional Components

4.1 Use Cases / Scenarios

Company Interview and Employment Review Platform Database System,there are 5 types of actors which are User, Employee, Employer, Company and the Admin. The roles of each user type have both differences and similarities. In order to use the system, all types of actors should register and login to the system. The offered features of the system according to actor types are follows:

User

- A user can register and login to the system with userID and password.
- A user can reach his/her profile page which includes the personal information such as the mail address, userID, phone number, and profile picture.
- A user can change his/her password in profile page.
- An user can edit the account settings; s/he can change profile picture, phone number, password, or mail address.
- A user can search a job.

Employee

- An employee can register and login to the system with userID and password.
- An employee can reach his/her profile page which includes the personal information such as the mail address, userID, name, gender, highest education information, resume, position, location, phone number, and profile picture.
- An employee can change his/her password in profile page.
- An employee can edit the account settings; s/he can change profile picture, phone number, password, or mail address and s/he can upload resume.
- An employee can list the companies with company names,websites, industries, sectors, revenue, establish dates, types and headquarters.
- An employee can view a specific company.
- An employee can follow a specific company.
- An employee can apply for a job, in this case the employee should fill out the specifications which are posted by the company. This application requirements can be education level, the applied position, or experience.
- An employee can make a review. S/he should specify the review type such as salary review, interview review, benefits review or a general review. After

deciding the review type, s/he should fill out the review specifications which are related with the review type and rate the overall experience.

Employer

- An employer can register and login to the system with userID and password.
- An employer can reach his/her profile page which includes the personal information such as the mail address, userID, name, gender, highest education information, resume, position, location, phone number, profile picture.
- An employer can change his/her password in profile page.
- An employer can edit the account settings; s/he can change profile picture, phone number, password, or mail address and s/he can upload resume.
- An employer can list the companies with company names,websites, industries, sectors, revenue, establish dates, types and headquarters.
- An employer can view a specific company.
- An employer can follow a specific company.
- An employer can respond to the reviews which are related with his/her company.

Company

- A company can register and login to the system with userID and password.
- A company can reach his/her profile page which includes the account information such as the name, website, industry, sector, revenue, establish_date, type, headquarter.
- A company can change its password in profile page.
- A company can edit the account settings; it can change profile picture, phone number, password, or mail address.
- A company can view their developed projects.
- A company can list the past applications of an applicant to one if their offered jobs.
- A company can list all of their own reviews.
- A company can send a request to an admin for a specific review to be removed.
- A company can post a new job offer where they need to specify the required information about the job.
- A company can accept an applicant for an applied job.
- A company can reject an applicant for an applied job.
- A company can post a photo.
- A company can develop a new project where they need to specified the required project information.
- A company can view the list of their followers.

- A company can get a list view of the applicants of one of their jobs

Admin

- An admin can login to the system with userID and password.
- An admin can reach his/her profile page which includes the account information such as the name, website, industry, sector, revenue, establish_date, type, headquarter.
- An admin can edit the account settings; s/he can change profile picture, phone number, password, or mail address.
- An admin can get a list view of all the review removal request s/he has received.
- An admin can accept a removal request where afterwards the corresponding company is notified.
- An admin can reject a removal request where afterwards the corresponding company is notified.

4.2 Algorithms

Photos

Users can have profile picture and companies can publish pictures in our system. We plan to implement this feature via storing such images in our server's local file system. In our database, we store the image paths of these images. We access these mapped path information via SQL statement and load the image from the local file system of our server. We will use stored image paths to access it.

Resume

Employees must upload their resume in our system. We again plan to implement this feature via storing such files in our server's local file system. In our database, we store the file paths of these files. We access these mapped path information via SQL statement and load the file from the local file system of our server. We will use stored file paths to access it.

Sorting/Searching

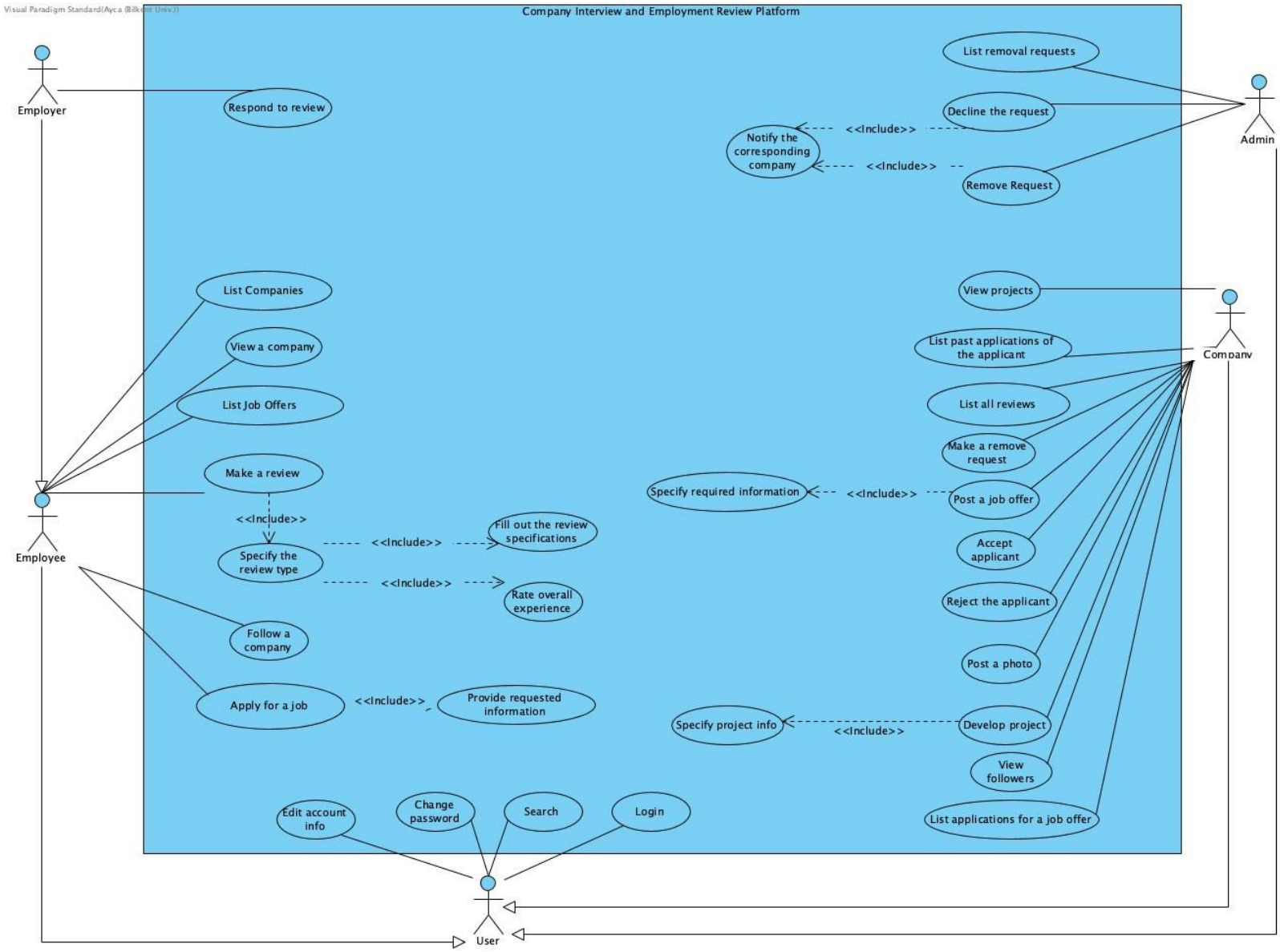
We are planning to write search and sort algorithms for user to use our system easily. They will just write their desired keyword and possible solutions will shown to the user.

Also, we are planning to write sort algorithms for users to sort jobs according to their desire, education and field. We are planning to write these algorithms with SQL statements.

4.3 Data Structures

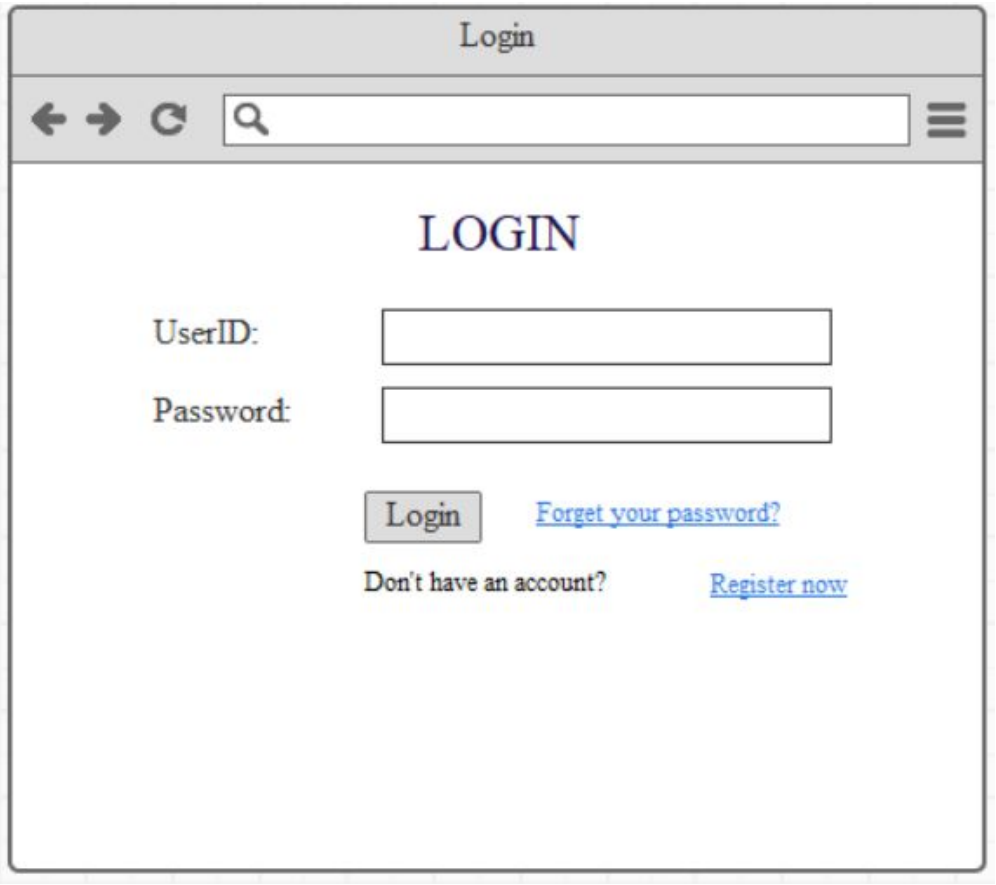
We are using SQL's built-in data types such as NUMERIC, DATE, BIT, STRING.

4.4 Use-Case Diagram



5. User Interface Design and Corresponding SQL Statements

5.1 Login Page



Accessible by: Anyone entered the website

Available actions: Login the system

Available navigations: Reset password, register

Procedure: User fills out the userID and password sections. If the provided information checks out, user is directed to home page. If not error message will pop up.

Inputs: @userID, @password

SQL Statements

SELECT * FROM user WHERE userID = @userID AND password = @password;

5.2 Register Page

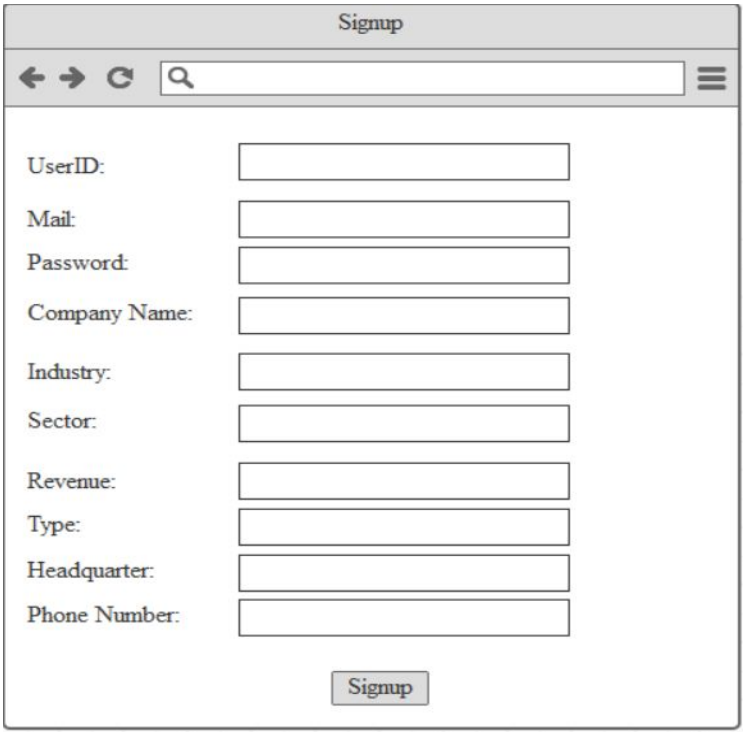


Figure 1: Standard user register page

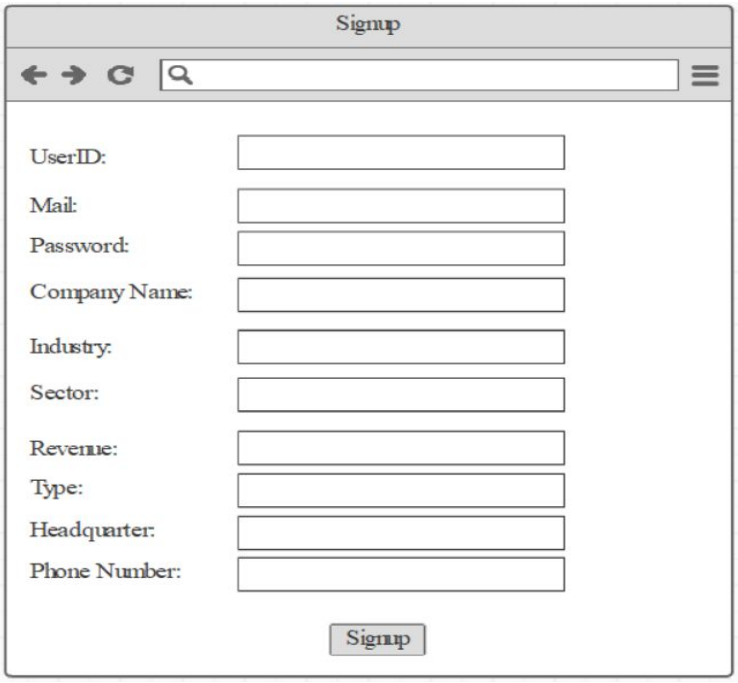


Figure 2 : Company Register Page

Accessible by : Anyone entered the website who had not logged in.

Available actions: Register the system.

Available navigations: Login

Procedure: First user is asked to declare the profile type : Standard user or Company. If user has selected standard user, s/he is prompted to choose a unique user id, valid password with a valid e-mail address and also their name, surname, gender, location, phone number. If user gets approval from system, s/he presses "Create Account" button and is directed to login page. If the system does not approve the provided informations such as not uniqueness or invalid e-mail address, there is an error message.

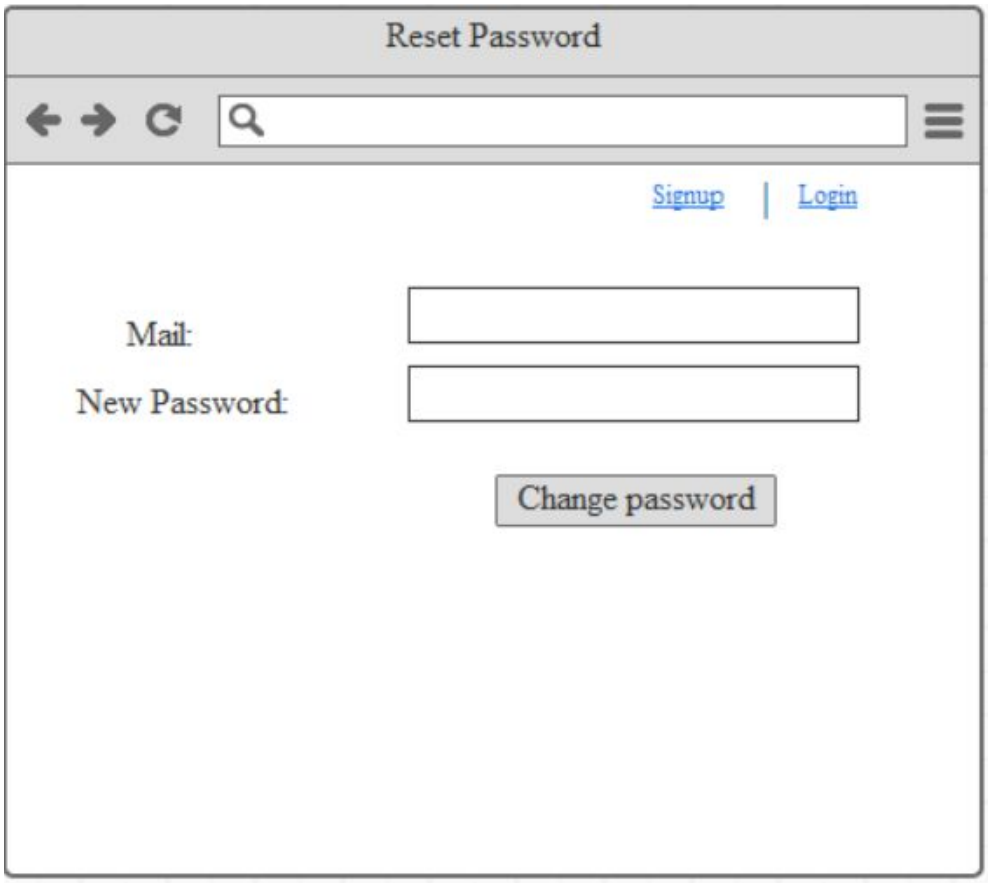
If user has selected the company type; unique userID, unique password, valid mail,name of the company, industry type, sector, revenue, type, headquarter, phone number are required.

Inputs: @userID, @password, @mail

SQL Statements

```
INSERT INTO user(

userID, mail, password, phone_number1, phone_number2  profile_picture)

VALUES(@userID, @mail, @password, @phone_number1, NULL, NULL);


INSERT INTO employee(

userID, first_name, middle_name, last_name, gender, highest_education, resume, position, location)

VALUES(@userID, @first_name, @middle_name, @last_name, @gender, NULL, NULL, NULL, @location);


INSERT INTO company(

userID, name, website, industry, sector, revenue, establish_date, type, headquarter)

VALUES(@userID, @name, NULL, @sector, @revenue, NULL, @type, @headquarter);
```

5.3 Reset Password Page



Accessible by: Anyone entered the website

Available actions: Reset password

Available navigations: Login, Register

Procedure: If user wants to change password, an e-mail including the link to new password page is sent to user's provided mail address. If user clicks the link s/he can change the password.

Inputs: @mail, @new_password

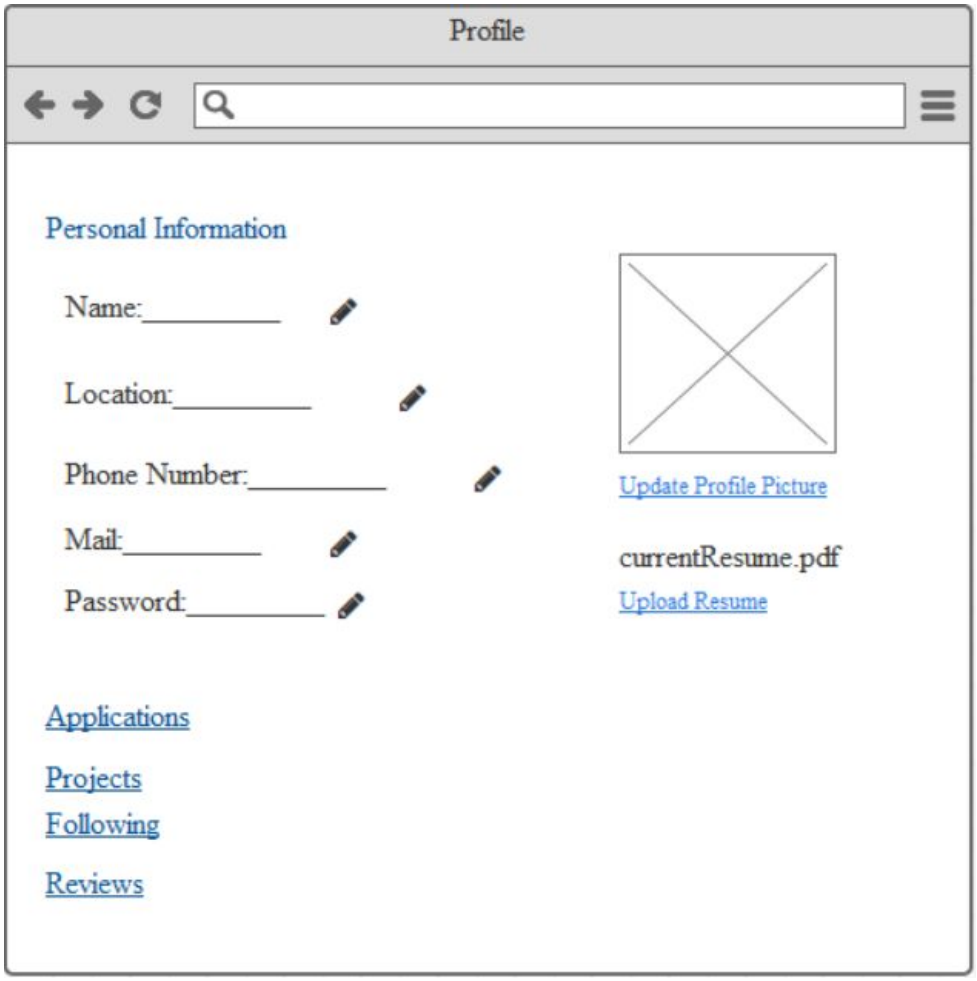
SQL Statements

UPDATE user

SET password = @new_password

WHERE mail = @mail;

5.4 Standard User Profile Page



Accessible by: Standard User

Available actions: Update resume , Update profile picture

Available navigations: Job List, Company List, Project List, Review List

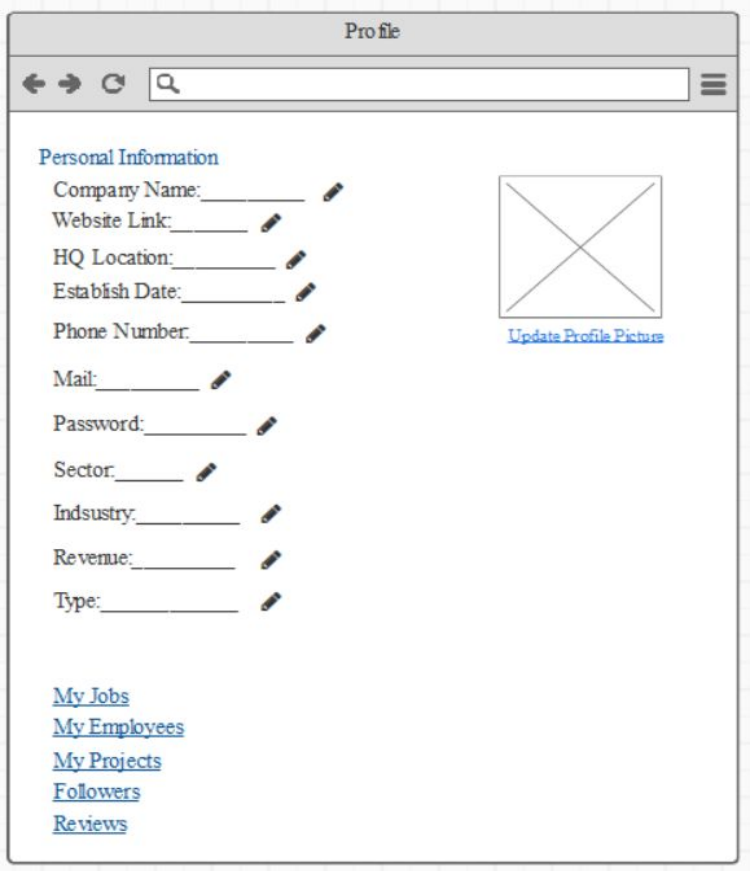
Procedure: User can access the list of applied job and project lists, followed company list and also reviews. Also user can change personal informations.

Inputs: @employeeID, @companyID, @new_resume, @new_picture

SQL Statements

```
SELECT *
FROM employee
WHERE employeeID = @employeeID;

INSERT INTO works(
companyID, employeeID)
VALUES(@companyID,@employeeID);

UPDATE employee
SET resume = @new_resume
WHERE employeeID = @employeeID;

UPDATE user
SET profile_picture = @new_picture
WHERE userID = @employeeID;
```

5.5 Company Profile Page



Accessible by: Company User

Available actions: Update company information, display lists.

Available navigations: Job List, Project List, Review List, Follower List, Employee List

Procedure: Company user can access the list of applicants, reviews, followers, projects, jobs and employees of its own. Also company can see and update its information

Inputs: @companyID, @new_picture

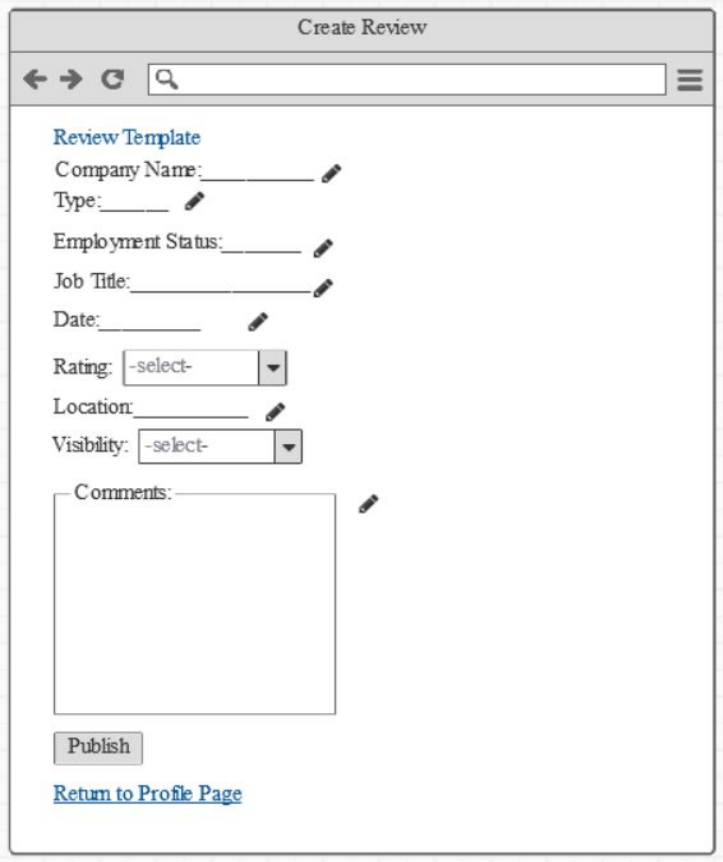
SQL Statements

SELECT *

FROM company

```
WHERE companyID = @companyID;

UPDATE user
SET profile_picture = @new_picture
WHERE userID = @companyID;
```

5.6 Create Review Page



Accessible by: Standard User

Available actions: Create a new review with specified type.

Available navigations: Standard User Profile page

Procedure: Standard user creates a review about a company by specifying review type and filling review's attributes.

Inputs: @reviewID, @employment_status,@ job_title, @publish_date, @rating, @location, @comment, @visibility, @companyID, @employeeID

SQL Statements

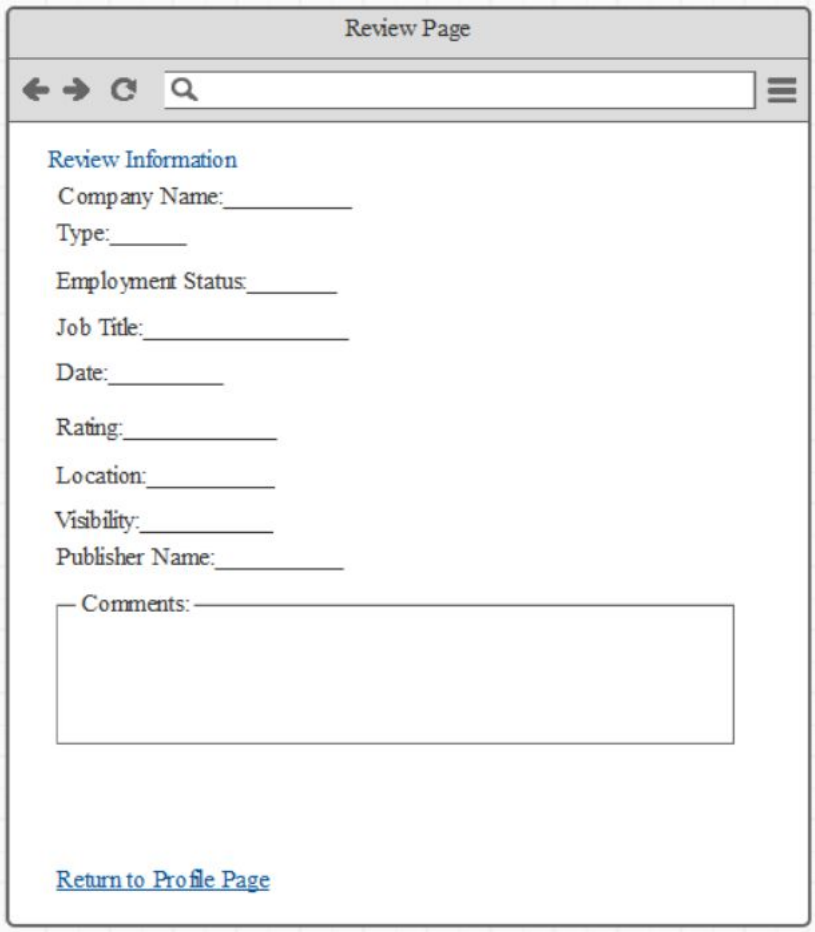
INSERT INTO review(

reviewID, employment_status, job_title, publish_date, rating, location, comment, visibility)

VALUES(@reviewID, @employment_status,@ job_title, @publish_date, @rating, @location, @comment, @visibility);

```
INSERT INTO publishes(
reviewID, employeeID)
VALUES(@reviewID,@employeeID);

INSERT INTO related(
reviewID, companyID)
VALUES(@reviewID,@companyID);
```

5.7 Review Page



Accessible by: All users

Available actions: -

Available navigations: User profile page

Procedure: Shows a review of a designated type such as interview,salary,benefits or general about a company from a publisher user.

Inputs: @reviewID, @employeeID

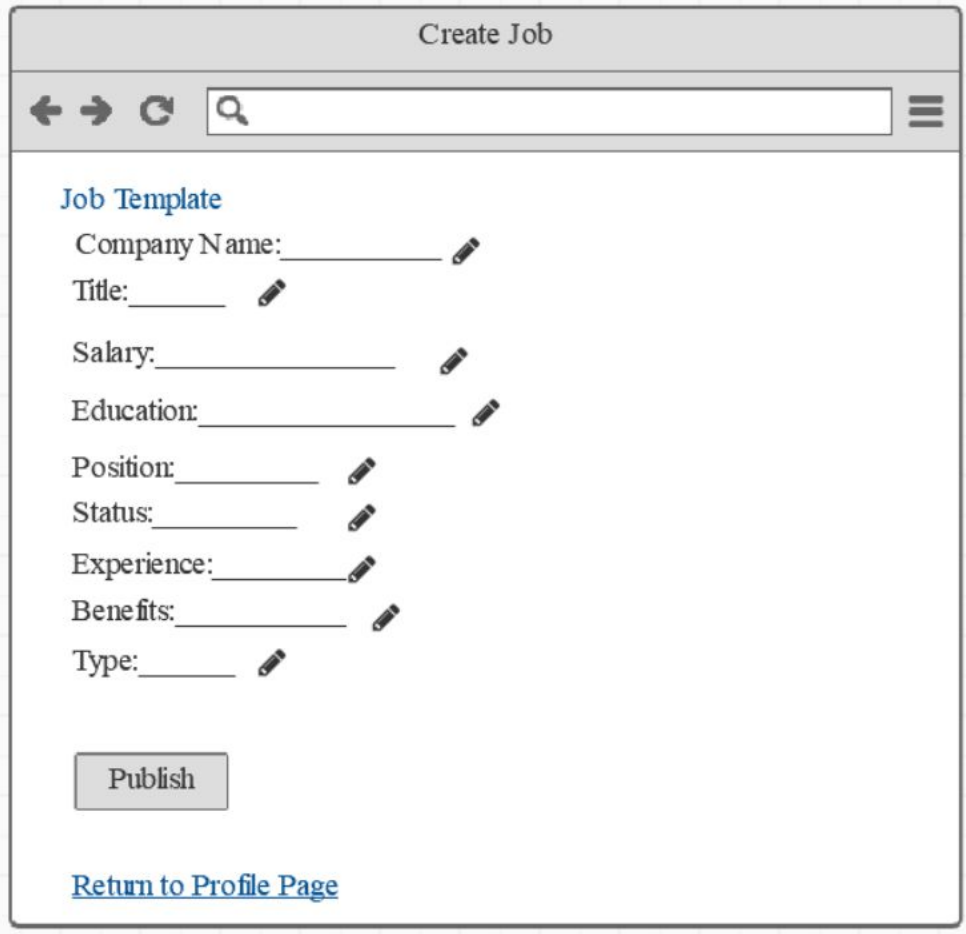
SQL Statements

SELECT *

FROM publishes

WHERE employeeID = @employeeID AND reviewID =@reviewID

5.8 Create Job Page



Accessible by: Company User

Available actions: Create a new job

Available navigations: Company Profile page

Procedure: Company user posts new job offerings by specifying job's attributes.

Inputs: @companyID, @title, @salary, @post_date, @education, @position, @experience, @benefits, @type

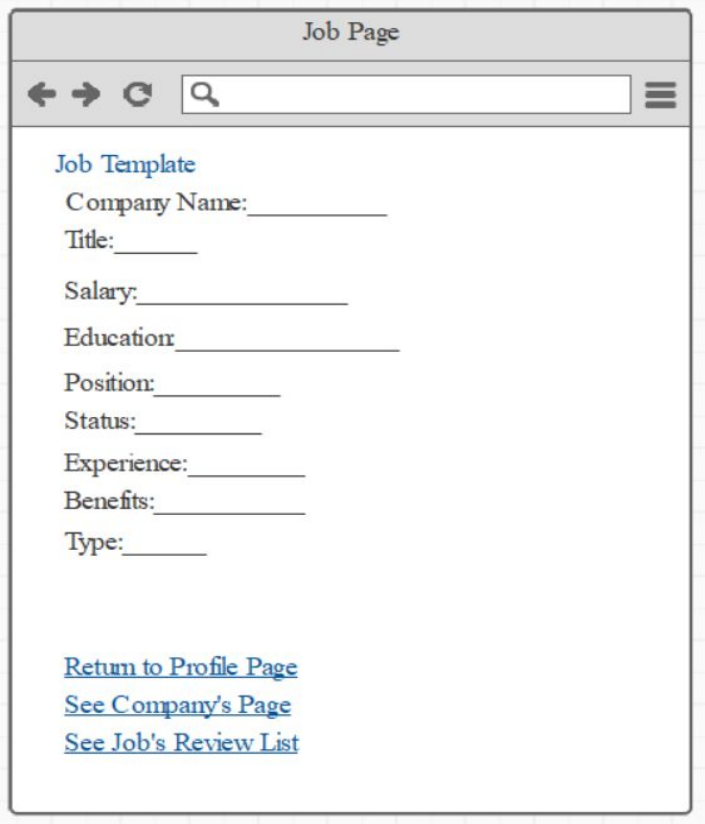
SQL Statements

INSERT INTO job(

companyID, title, salary, post_date, education, position, experience, benefits, type)

VALUES(@companyID, @title, @salary, @post_date, @education, @position, @experience, @benefits, @type);

5.9 Job Page



Accessible by: All users

Available actions: -

Available navigations: User Profile Page, Company Page, Job's Review Page

Procedure: Shows a job description from a Company.

Inputs: @reviewID, @employeeID

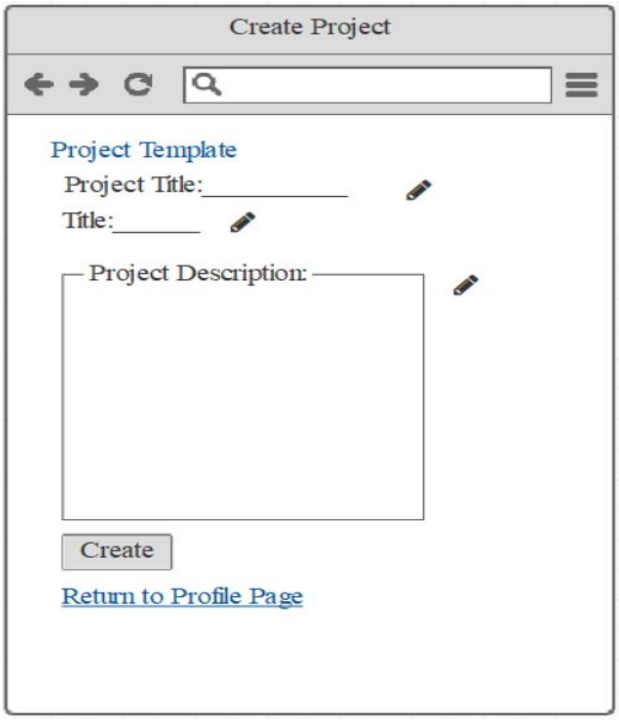
SQL Statements

SELECT *

FROM job

WHERE companyID = @companyID AND title = @title AND salary = @salary AND post_date = @post_date;

5.10 Create Project Page



Accessible by: Company User

Available actions: Create a new project

Available navigations: Company Profile page

Procedure: Company user develops new projects by specifying project's attributes and members.

Inputs: @companyID, @title, @start_date, @status, @description

SQL Statements

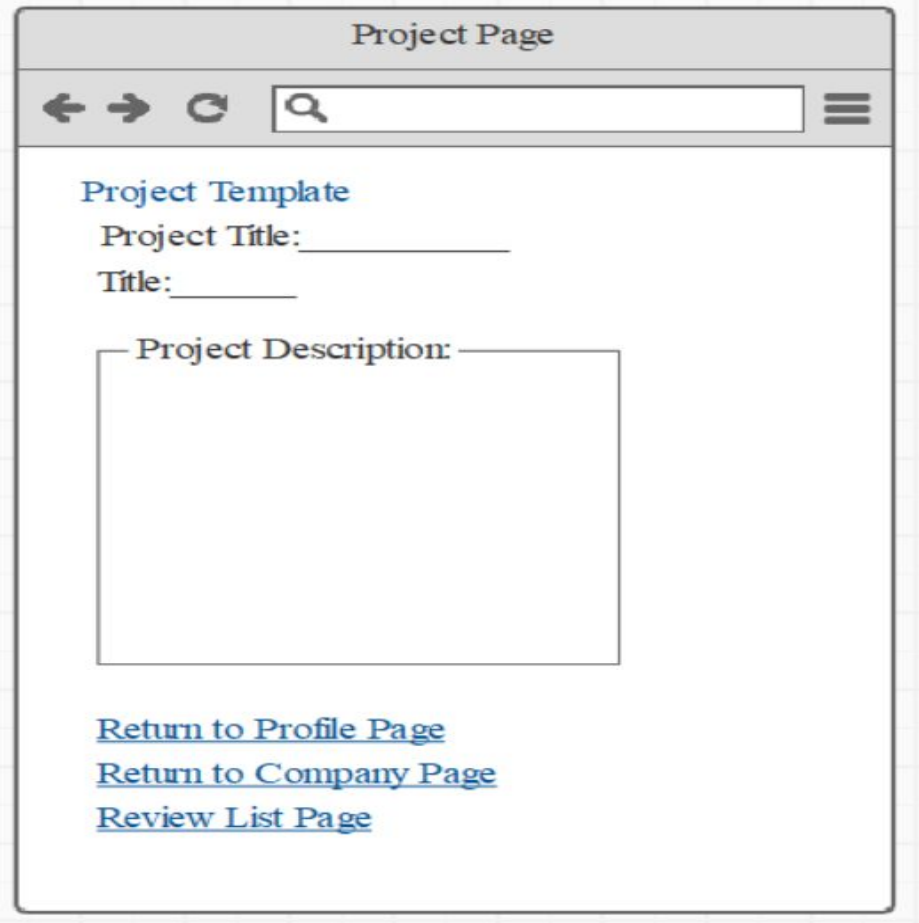
INSERT INTO project(

companyID, title, start_date, status, description)

VALUES(@companyID, @title, @start_date, @status, @description);

```
INSERT INTO members(
companyID, employeeID, title, start_date)
VALUES(@companyID, @title, @start_date);
```

5.11 Project Page



Accessible by: All users

Available actions: -

Available navigations: User Profile Page, Company Page

Procedure: Shows a project description from a Company.

Inputs: @companyID, @title, @start_date

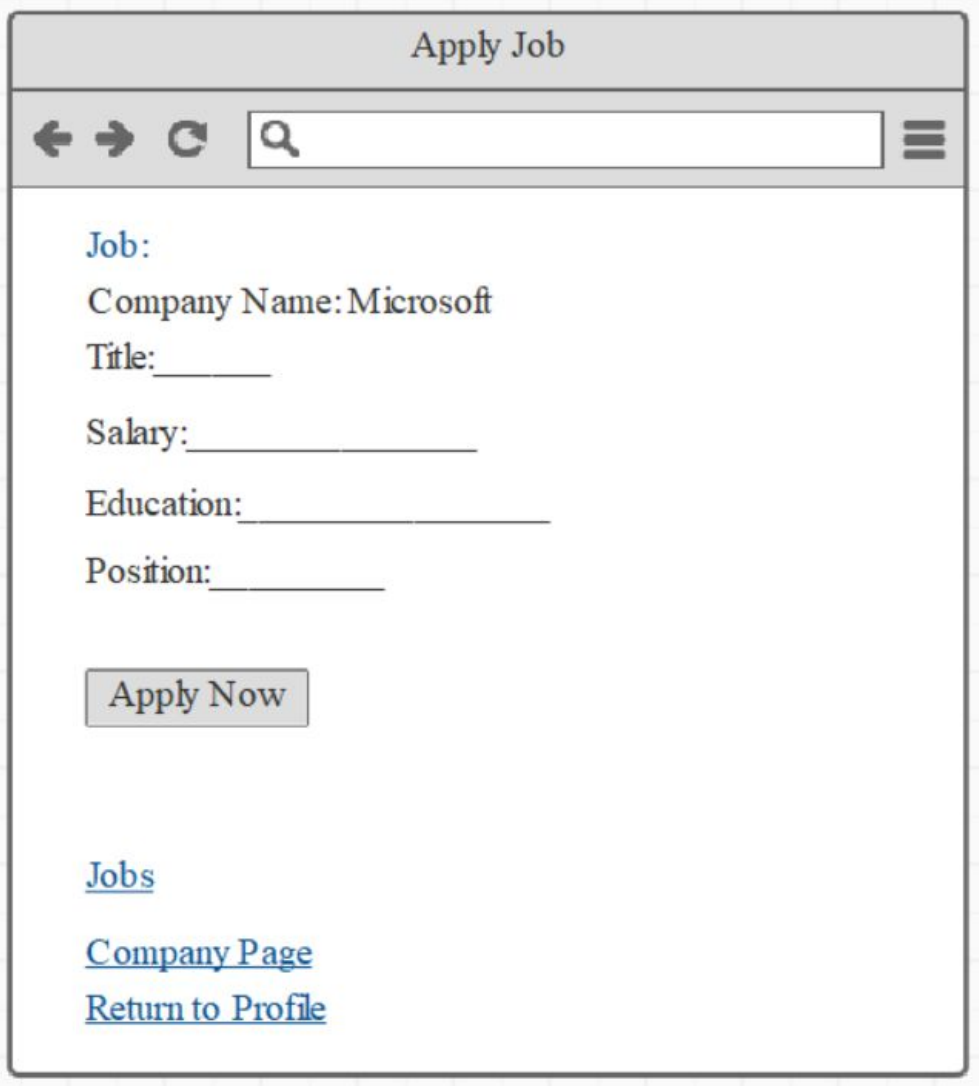
SQL Statements

SELECT *

FROM project

WHERE companyID = @companyID AND title = @title AND start_date = @start_date

5.12 Apply a Job Page



Accessible by: Standard User

Available actions: Apply a job

Available navigations: Job Page, Company Profile Page, Standard User Profile Page

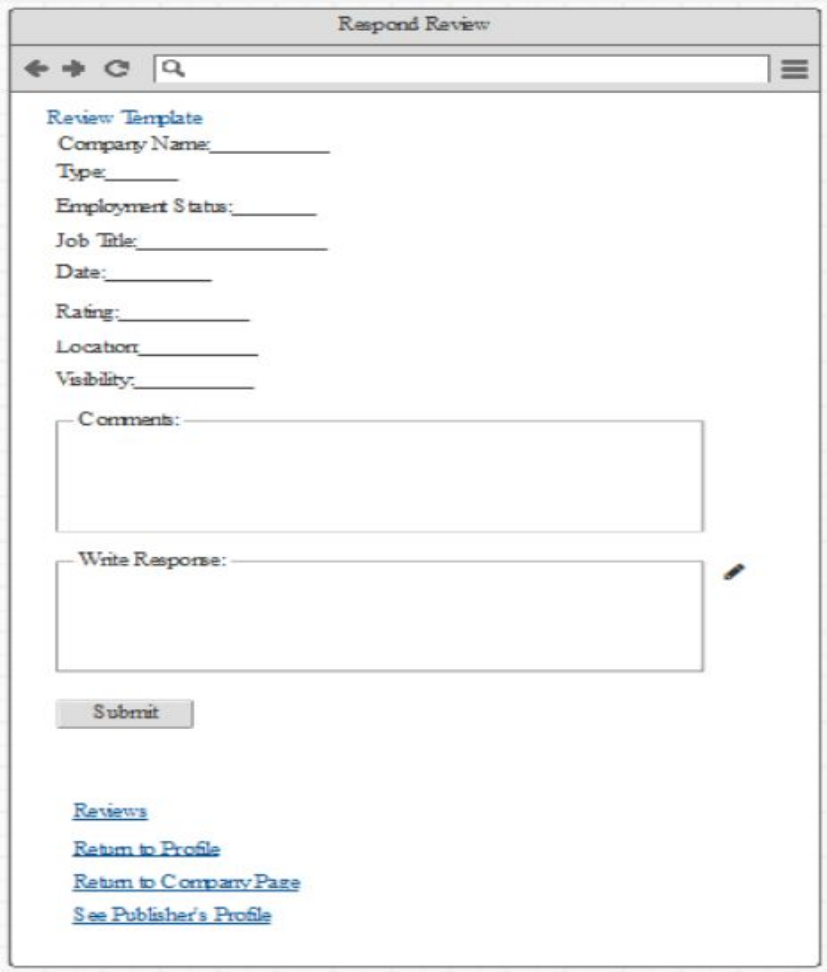
Procedure: Standard user sends application request.

Inputs: @employeeID,@companyID, @title, @salary, @post_date

SQL Statements

```
INSERT INTO applies(
employeeID, companyID, title, salary, post_date)
VALUES(@employeeID,@companyID, @title, @salary, @post_date);


SELECT *
FROM job
WHERE companyID = @companyID AND title = @title AND salary = @salary AND post_date =
@post_date;
```

5.13 Respond a Review Page



Accessible by: Employer User

Available actions: Respond a review

Available navigations: Review Page, Company Page, Writer's Profile Page, Employer's own Page

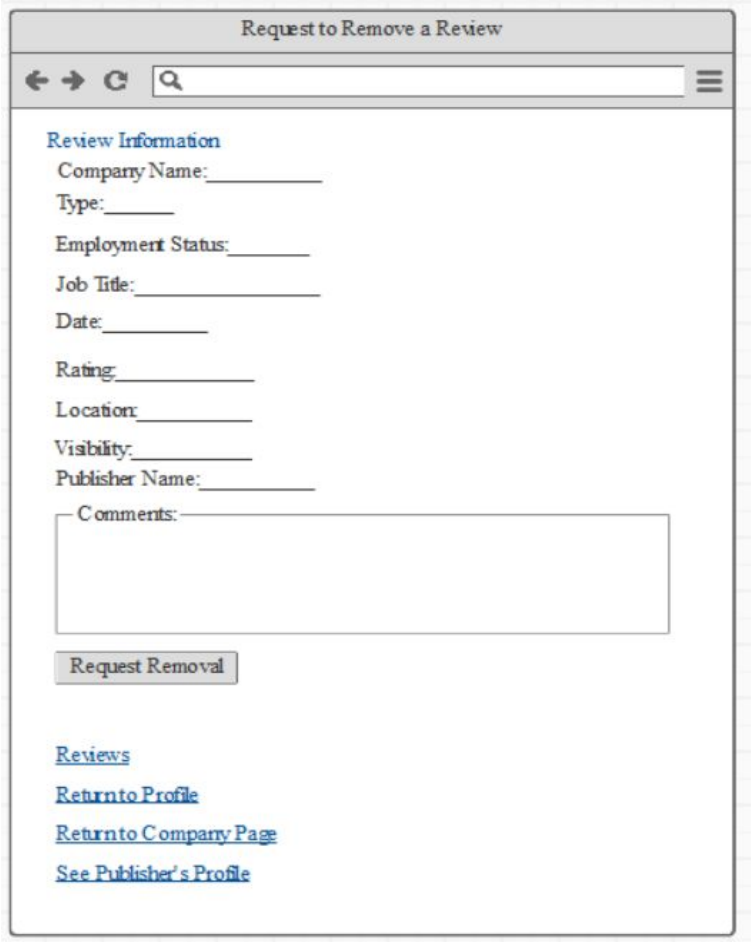
Procedure: Employer can access the review that belongs to its own company. S/he can respond it by filling the provided text area.

Inputs: @employerID, @reviewID, @respond

SQL Statements

```
INSERT INTO responses(
employerID, reviewID, respond)
VALUES(@employerID, @reviewID, @respond);
```

5.14 Request to Remove a Review Page



Accessible by: Company User

Available actions: Send request to admin regarding removal of review

Available navigations: Review Page, Company Profile Page, Writer's Profile Page,

Procedure: Company fills out a removal request form about its own company and sends it to admin.

Inputs: @reviewID, @companyID, @adminID

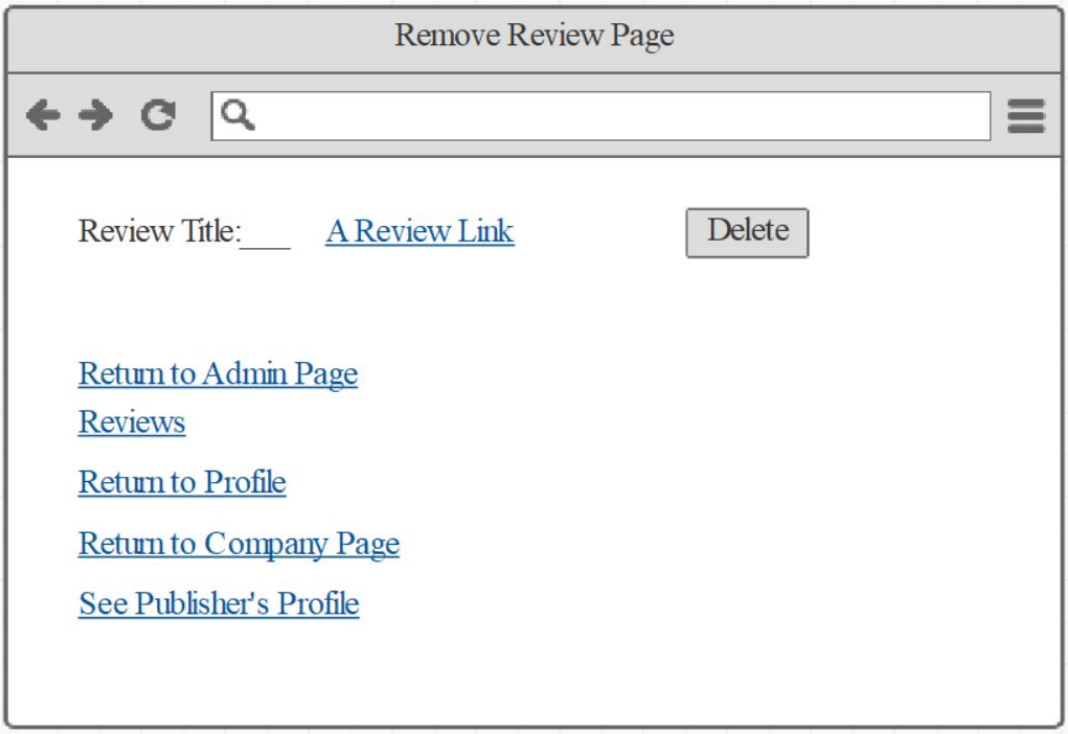
SQL Statements

INSERT INTO requests(

reviewID, companyID, adminID)

VALUES(@reviewID, @companyID, @adminID);

5.15 Remove a Review Page



Accessible by: Admin User

Available actions: Deletes a review

Available navigations: Review Page, Company Profile Page, Writer's Profile Page, Admin Profile Page

Procedure: Admin can remove a review that requested by company itself

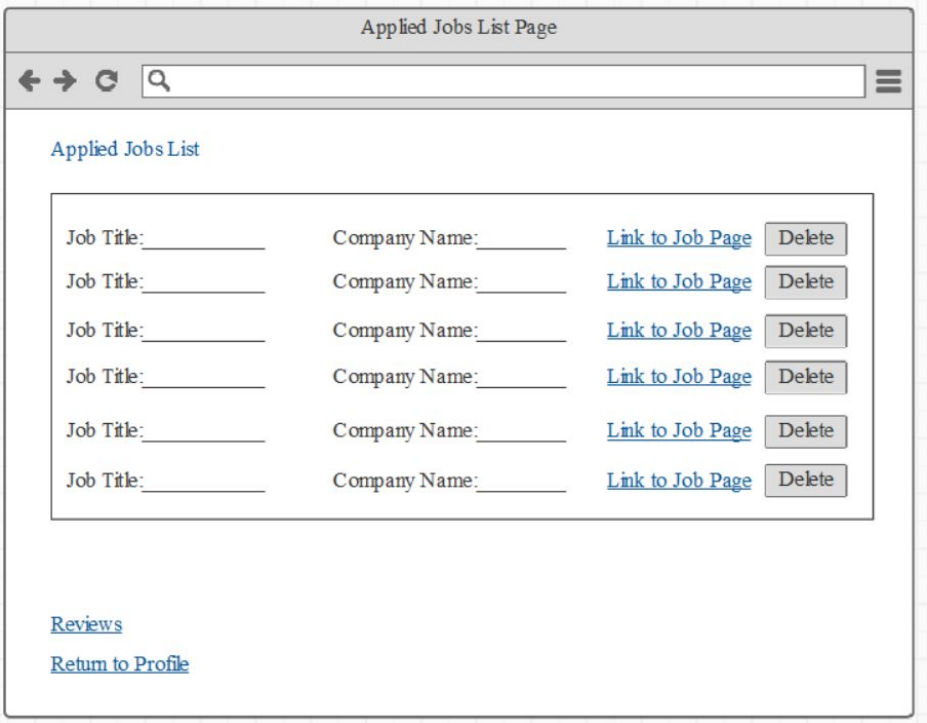
Inputs: @reviewID

SQL Statements

DELETE FROM review

WHERE reviewID = @reviewID;

5.16 Applied Job List Page



Accessible by: Standard User

Available actions: Update the applications

Available navigations: Job Page, Standard User Profile Page, Review Page

Procedure: User can see every application that s/he has been made also can cancel the application

Inputs: @employeeID, @companyID, @title, @salary, @post_date

SQL Statements

SELECT *;

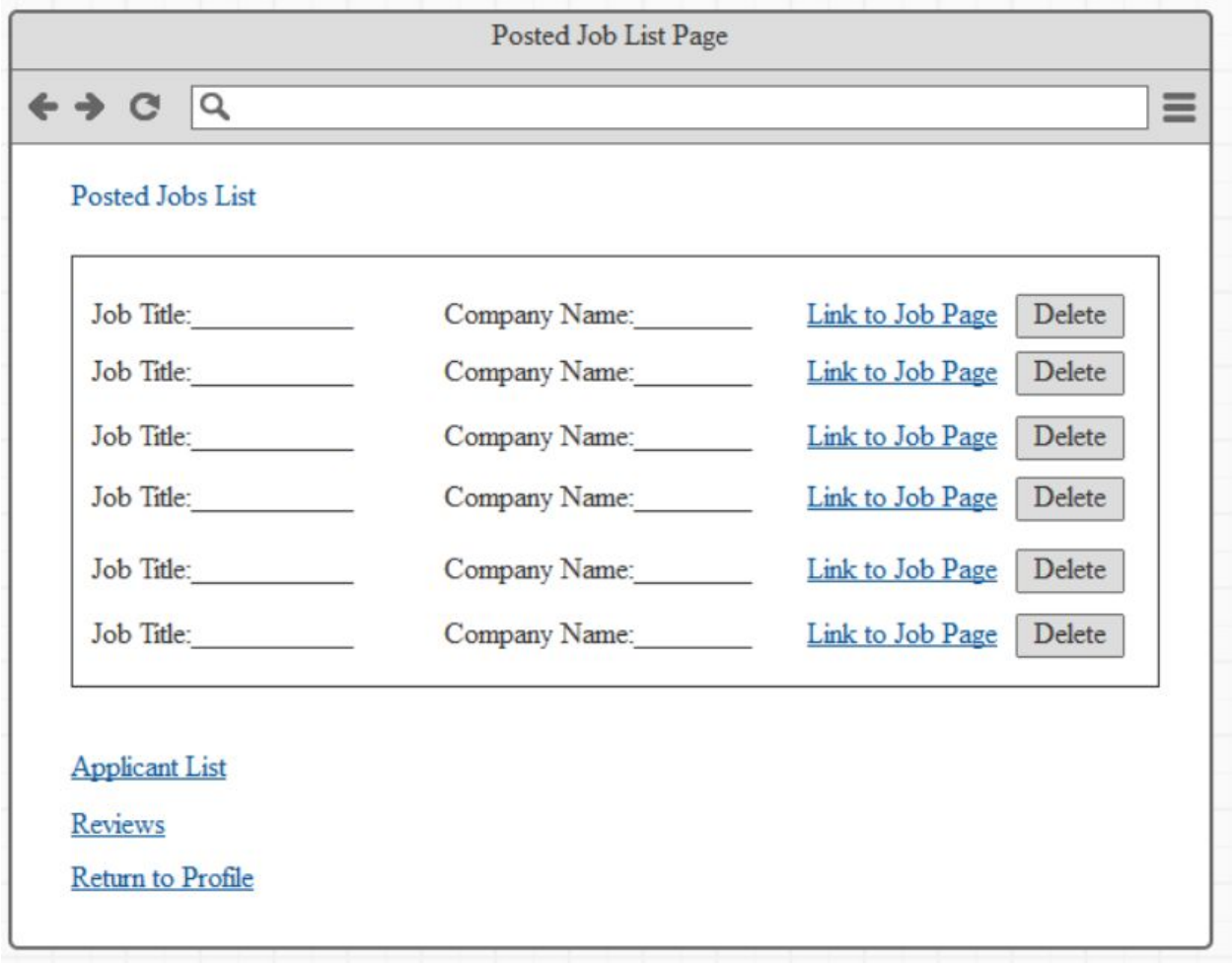
FROM applies

WHERE employeeID = @employeeID;

DELETE FROM applies

WHERE userID = @userID AND companyID = @companyID AND title = @title AND salary = @salary AND post_date = @post_date

5.17 Posted Job List Page



Accessible by: Company User

Available actions: Update the job offerings

Available navigations: Job Page, Company Profile Page, Applicant List Page, Review Page

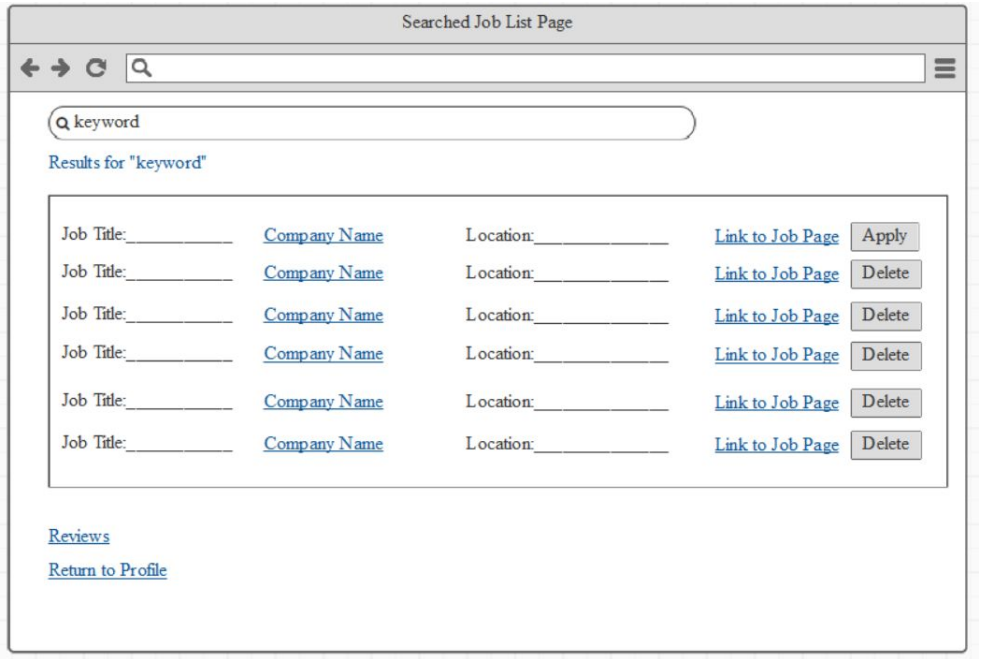
Procedure: Company can see every jobs that it has been offered also can change its applicability

Inputs: @companyID, @title, @salary, @post_date

SQL Statements

```
SELECT *;

FROM job

WHERE companyID = @companyID;


DELETE FROM job

WHERE companyID= @companyID AND title = @title AND salary = @salary AND post_date = @post_date
```

5.18 Searched Job List Page



Accessible by: Every User

Available actions: See the searched job offerings

Available navigations: Job Page, Publisher Company Page, User's own Profile Page, Review Page

Procedure: User searches certain jobs with the search bar. Results comes with this page. It shows job's important attributes such as company name and location.

Inputs: @companyID, @title, @salary, @post_date

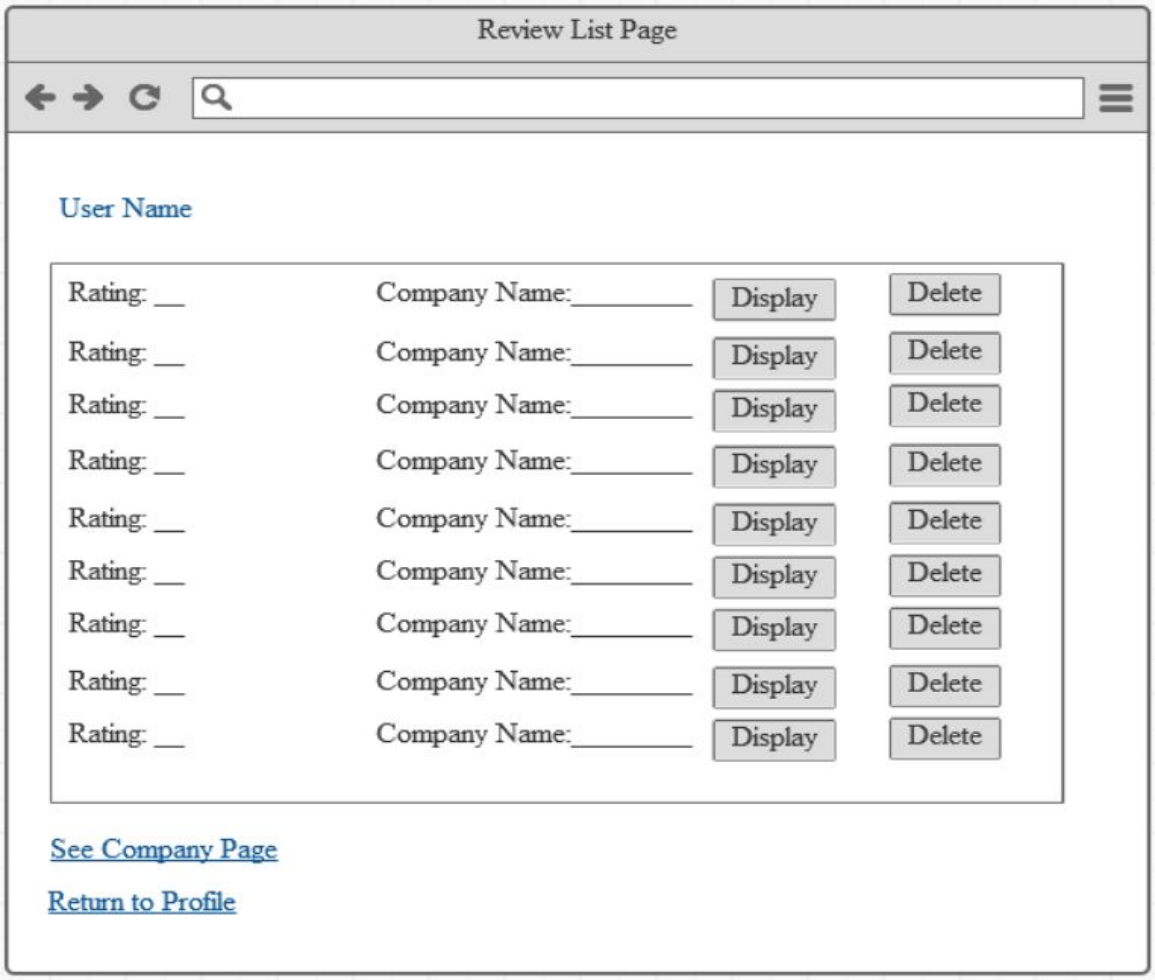
SQL Statements

SELECT name, location;

FROM job INNER JOIN company

WHERE title = @title;

5.19 Review List Page



Accessible by: Standard User

Available actions: Update the review

Available navigations: Job Page, Company Page, Standard User Profile Page

Procedure: User can see every review that s/he has been made also can update the review

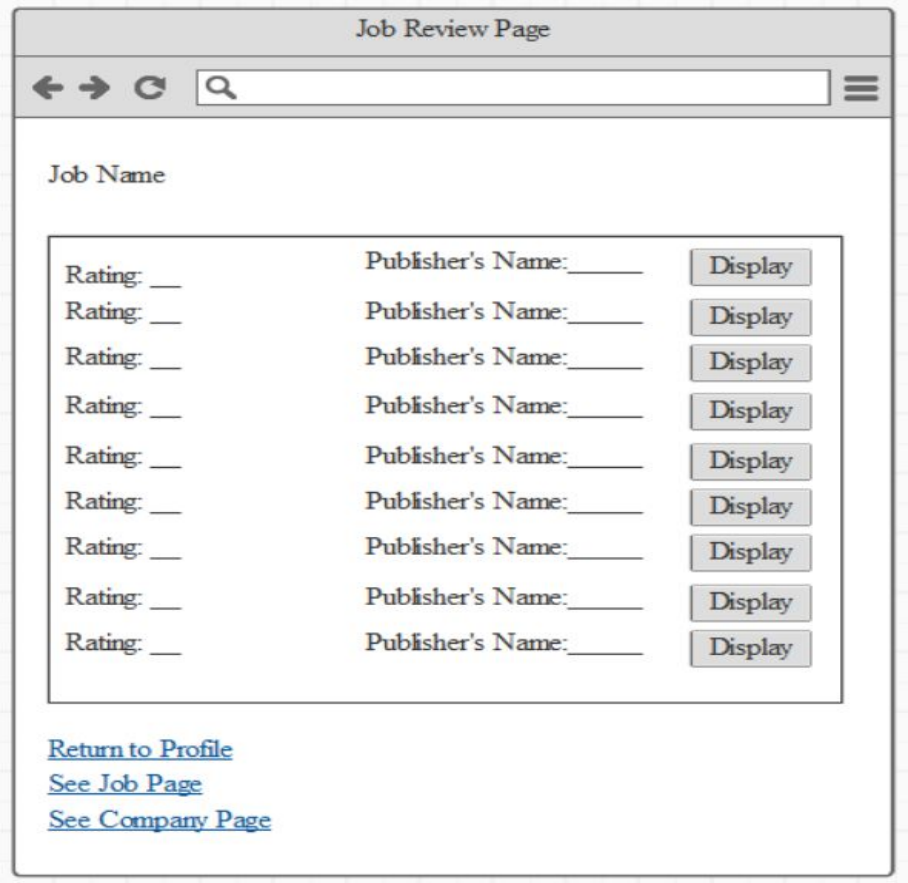
Inputs: @userID, @reviewID

SQL Statements

SELECT *;

```
FROM publishes
WHERE userID = @userID;

DELETE FROM publishes
WHERE userID= @userID AND reviewID = @reviewID;
```

5.20 Job's Review Page



Accessible by: Every User

Available actions: -

Available navigations: Job Page, Company Page, Standard User Profile Page

Procedure: User can see every reviews that have been made about a certain job

Inputs: @companyID, @reviewID

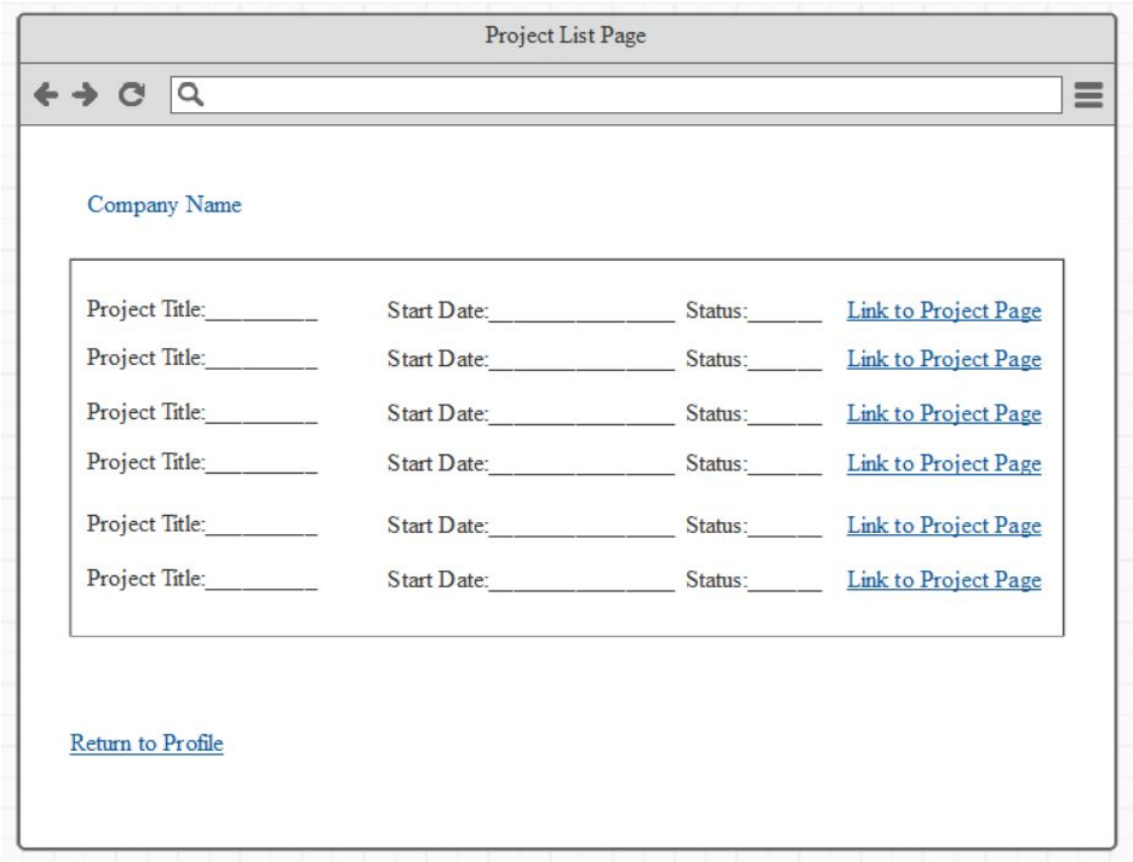
SQL Statements

SELECT *;

FROM review R, job J

WHERE reviewID = @reviewID AND R.job_title = J.title AND J.companyID = @companyID;

5.21 Project List Page



Accessible by: Company User

Available actions: Update the project offerings

Available navigations: Company Profile Page, ProjectPage

Procedure: Company can see every projects which it develops

Inputs: @companyID, @title, @start_date

SQL Statements

SELECT *

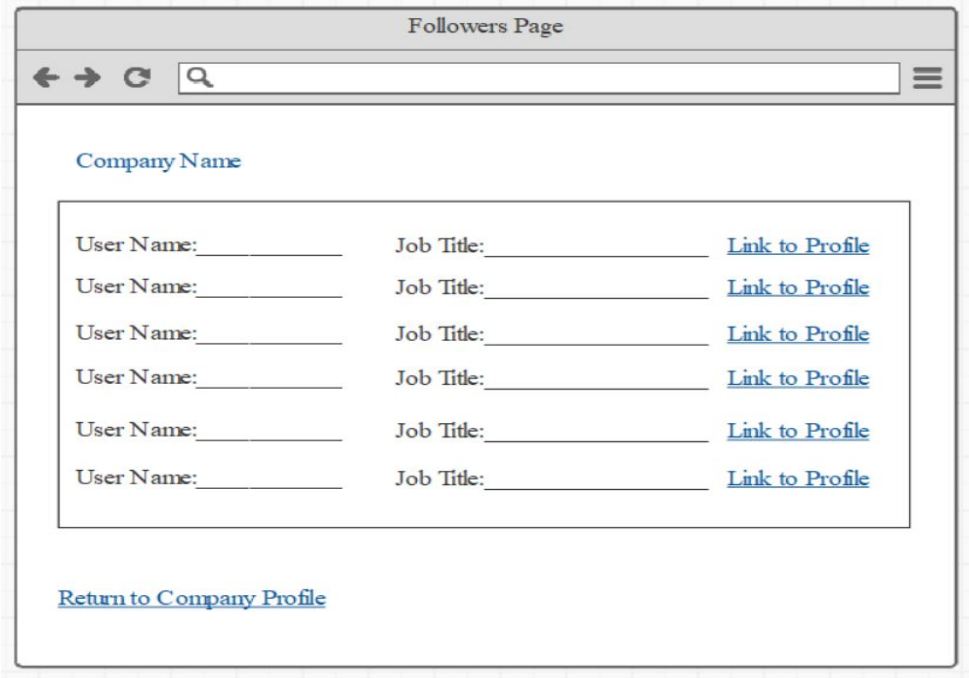
FROM members

WHERE .companyID = @companyID AND title = @title AND start_date = @start_date

DELETE FROM project

WHERE companyID= @companyID AND title = @title AND start_date = @start_date;

5.22 Followers Page



Accessible by: Company User

Available actions: -

Available navigations: Company Profile Page, User Profile Page

Procedure: Company can see its followers.

Inputs: @companyID

SQL Statements

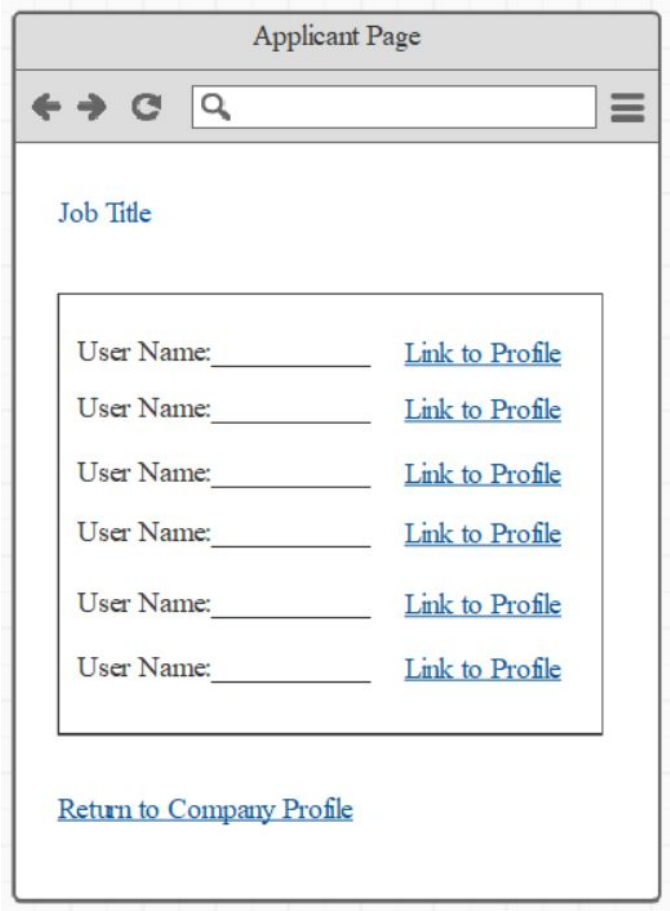
SELECT E.name, E.employeeID

FROM follows AS F, employee E

WHERE F.companyID = @companyID AND

F.employeeID = E.employeeID;

5.23 Applicant Page



Accessible by: Company User

Available actions: Accept applicant, Reject Applicant,

Available navigations: Company Profile Page, User Profile Page

Procedure: Company can see applicants to its job offers.

Inputs: @companyID, @title, @salary, @post_date

SQL Statements

```
SELECT *
FROM employee AS E
WHERE E.employeeID IN( SELECT A.employeeID
                       FROM applies AS A
                       WHERE A.employeeID = E.employeeID and A.companyID =@companyI
```

6. Advanced Database Components

6.1 Views

6.1.1 ReviewsList View

ReviewsList view for standard user to see his/her former reviews.

```
CREATE VIEW ReviewsList AS(
        SELECT R.job_title, R.date, R.rating, R.comment
        FROM publishes AS P, review as R, employee AS E
        WHERE P.reviewID = R.reviewID AND
         E.employeeID = P.employeeID
);
```

6.1.2 Applications View

Application view for employee to view his/her former applications.

```
CREATE VIEW Applications AS(
        SELECT C.name, A.title
        FROM applies AS A, employee AS E, company as C
        WHERE A.employeeID = E.employeeID AND
        A.companyID = C.companyID
);
```

6.1.3 ParticipatedProjects View

ParticipatedProjects view for employee to view his/her projects.

```
CREATE VIEW ParticipatedProjects AS(
        SELECT M.title
        FROM members AS M, employee AS E
        WHERE E.employeeID = M.employeeID

);
```

6.1.4 JobsWithHighSalaries View

This view will be used for listing the all jobs whose salaries are higher than the average.

```
CREATE VIEW JobsWithHighSalaries AS(
```

```
        SELECT title
        FROM job
        WHERE salary > (AVG(salary) FROM job)
);
```

6.1.5 CompaniesWithHighRatings View

CompaniesWithHighRatings View to list all companies whose ratings are higher than the average

```
CREATE VIEW CompaniesWithHighRatings AS(
        SELECT C.name
        FROM company as C, review AS R, related as R1
        WHERE C.companyID = R1.companyID AND
        R.reviewID = R1.reviewID AND
        R.rating> (AVG(rating) FROM review)
);
```

6.1.6 ApplicableJobs View

ApplicableJobs View to show applicable jobs to employee. These jobs will be customized with the employee's education level.

```
CREATE VIEW ApplicableJobs AS(
        SELECT *
        FROM job AS J
        WHERE J.education in ( SELECT E.education
                               FROM employee AS E
                               WHERE E.education = J.education)
);
```

6.2 Triggers

- When a Review is added, updated or deleted, the relations (publishes, related and responses) will be updated.
- When an application is rejected or accepted, the corresponding application is removed from "applies" relation.
- When a company accept the job application, user is inserted to "works" relation with corresponding company.
- When a project is added, updated or deleted by company, "members" relationship will be updated.

6.3 Constraints

11. The Company Review System cannot be used without login.
12. System supports at most 50 000 company user.
13. System supports at most 200 000 standard user.
14. System supports at most 1000 reviews for single company.
15. Employer can only respond reviews about its own company.
16. Users can only have one profile picture.
17. Standard Users can upload only one resume.
18. Employees can work for at most 2 companies at the same time.
19. Standard User cannot apply a job if experience level of user is not sufficient for job.
20. Reviews' rating and difficulty level are between 0-10.

7. Implementation Plan

At data layer we will use MySQL server in our project as database management system. For application logic and user interface we will code in PHP and a small amount of JavaScript.

8. Website

https://github.com/aeyc/Company-Interview-and-Employment-Review-Platform-Database-System