

Spring 2022 CPSC 332-02 – File Structures and Databases

Project Description

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Important Date:

1. Project Part A – Due on Monday, March 28, 2022, 5:00pm
2. Project Part B – Due on Monday, May 16, 2022, 5:00pm

Project submission should be made via Canvas. Each student should work on the project in groups of 4-6, and submit a final report, a demo and presentation for the project. Each student of the group will be asked to submit a review of their group members, where each member will assign the percentage of contribution towards the project for their group members. Logically, an equal contribution from each member is expected. Any student who receives a review lower than 25 % from their group members may receive a lower grade than other members.

Note: Project submissions made through email will not be accepted. Only submissions made on Canvas shall receive grades.

Maximum Marks: 60 points

The project comprises 2 main parts, including extra credit options – for additional functionality or extra credit part.

Database Application Project:

You are a freelance software development team that will be receiving a project request from a client about Job Posting application.

The client will bring you a set of business requirements that his or her company would like you to use to implement the application that they want. The client will be strict in ensuring that their requirements are met, so please take note on meeting those requirements as a priority. The project you will be commissions for will involve the following:

- Building an ER Diagram based on the provided requirements
- Building a Relational Model based on you ER Diagram

- Normalize your database to 3NF
- Building the Physical Model inside your environment.
- Populating your database with sample data.
- Create a demo application to showcase your database design in PHP and MySQL

Client Business Requirements:

Your customer is called My Job, an American worldwide employment website for job listing. Your team will design a database for their job listing website. The database is used for job posting, storing user information, and searching jobs.

1. **Anyone** can search any jobs by title and/or location. Location can be city and state, or zip code.
2. **All users** must sign up with a unique email and a very strong password before posting or applying any jobs.
3. **Password** is at least 8 characters long and must have at least one upper case, one lower case, one number, and one special character.
4. **User** needs to also provide first name, last name, email, and phone number.
5. **User** can sign up multiple times but cannot use the same email address.
6. **Anyone** can sign up as **employee** and/or **employer**.
7. Only **employer** can post a job announcement, so to become an **employer**, a **user** needs to provide extra information: Company name, Company Email, Company Phone number, Company address, and Role in Hiring Process. Company Address is optional.
8. **Employer** role in the hiring process includes Owner, CEO, Assistant or Manager, Human Resources Generalist, Hiring Manager, Recruiter, or Other.
9. **Employer** can keep track all their job postings and view all the **candidates** who already applied.
10. **Employer** can review the applicants and update the status: Applied, Rejected, Interviewed, or accepted.
11. **Employer** can apply for other jobs and track their application status as well.
12. All job postings must include:
 - a. Job Title
 - b. Job Description
 - c. Address
 - d. Qualifications
 - e. Responsibilities
 - f. Education (No Education Required, High School Degree, Associate's Degree, Bachelor's Degree, Master's Degree, or Doctoral Degree)
 - g. Job Type (Full-Time, Part-Time, Contract, Temporary, or Internship)
 - h. Contact Details
 - i. Experience Level (entry level, mid-level, or senior level)
 - j. Salary Range (\$35,000+, \$40,000+, \$50,000+, \$70,000+, or \$100,000+)
 - k. Benefits (Health Insurance, Vision Insurance, Dental Insurance, Life Insurance, Pension, and 401(k))
 - l. Date Posted

m. Deadline

13. **Employee** can keep track all the jobs they already applied and check their application status: status: Applied, Rejected, Interviewed, or accepted.
14. All tables must have a timestamp, so we know when the record is inserted.

Additional Submission Requirements for the Project

1. Provide a SQL script to create a database called “myjob” in MySQL server. Make sure that your script can create the database and all the tables without an issue.
2. Create a VIEW which has first names, last names, and email of all employees who apply more than one jobs.
3. Create a VIEW which shows the employers (first name, last name, and email) who post more than 3 jobs.
4. Create a view which shows all users that have both roles (employee and employer)

Extra credit:

Provide additional functionalities and make your website look professional. You can use any free or opensource CSS templates that are available on internet. **[5 points]**

Submission 1 – Project Part A [20 points]:

Submit your ER Diagram and your Relational Model (one per group.) Make sure the following are shown:

- Tables
- Primary keys
- Foreign keys: Specifically write foreign keys in a separate table or show through schema diagram
- Relationships

Submission 2 – Project Part B [30 points]:

Submit your development files, presentation, and final report (one per group.) For your development files, include a SQL Script of your populated database that you created in your environment.

Your final report will outline the process of taking the requirements and showing the design process of the database. The recommended outline is as follows:

Title (Application Name, Project Team Name, Class, Date, Team Members)

Introduction

Database Design Process

Requirements

ER Diagram

Relational Model

Physical Model

Application Design

Overview

SQL Queries

Final Product

Summary

Presentations [10 points]:

You will not need to present your demo or presentation. However, please submit it so that your demo is in working order and your presentation demonstrates the different functions required in your application.

Extra credit:

In the requirements, there will be some opportunities for extra credit. Review closely and see if you want to implement them into your product.