

# CMPE 321 - Assignment 3

## Project Management System

**Due date 07.05.2018 23:55**

In this assignment, you are supposed to implement a project management application with a web-based user interface. Use one of the following languages PHP / Java / JavaScript - Node.js / Python (or use Piazza to suggest another) and use one of the relational database systems (MySQL, PostgreSQL, e.g.). You don't need to style your user interface, just care for the functionality.

There are 2 types of users in the system:

1. Administrators (You can think of this as CEO, CTO, etc.)
2. Project Managers

Note that entities are not limited by these user types. These are the ones that can log in to the system. In addition to these, your system shall have entities such as projects, tasks, employees, etc.

Administrators can:

- Add/Edit/Delete Project Managers (with their login credentials. Change password, reset password, sign up options are not necessary)
- Add/Edit/Delete Projects (a project has name, start date, estimated total task-days, etc. Use your creativity)
- Add/Edit/Delete Employees (employees do not login to the system)
- \* Administrators can be predefined in your database

Project Managers can:

- Add/Edit/Delete Tasks (a task has start date, no of days it takes, employee(s) working on etc.)

There should be multiple administrators, project managers, employees, and projects in the system. A project can have multiple project managers. A task always belongs to a one and only project and it can be assigned to an employee or employees by only that project's project manager(s). Tasks are defined with a date and can take day or days to complete. An employee cannot be assigned to multiple tasks for the same day.

A simple flow of the system as follows: Administrators define a project and assign it to one or more project managers (also see the trigger part below for the auto added project manager). Project Managers create tasks to the project that he/she is assigned to manage and assigns the tasks to the employees.

### **Stored Procedure (SP)**

You are supposed to write 2 stored procedures: completed and incomplete (ongoing/coming) projects. Both taking one argument: project manager id, returning completed and incomplete projects belonging to that project manager. If the argument supplied is ALL, these SPs shall return all completed and incomplete projects, respectively. A project is complete if there is at least one task related to it and all of its tasks are simply past dated. Also note that only administrators should be able to use this feature with different params and the param ALL. A project manager can only run it with his/her own id; not with any other.

### **Trigger**

You are supposed to write two triggers.

- A trigger on your Projects: If a project is added, a project manager with the least project assignment on him/her should be automatically assigned to the newly added project.
- A trigger on your Employees: If an employee gets deleted all the task assignments on him/her should also be deleted.

### **SQL Injection - Bonus**

If you avoid SQL injection on your login page, you will be awarded bonus points.

### **Report**

You are supposed to submit a report in pdf format. Your report shall have the following sections:

- Title Page
- Introduction (briefly describe your project, technology stack and implementation details)
- Interface (add some screenshots. However, high quality images may bloat the size of your report. In that case, try reducing image quality before embedding them)
- Database (an ER diagram is compulsory. Use a drawing application. Do not draw it on paper and take its photograph e.g.)
- Conclusion

### **Submission**

You are supposed to submit a zip file (not a rar, tar, etc.) which contains 3 folders: code, report, and database. In the database folder, there should be a single sql file which is the exported version of your working database. Demo date will be announced later.

Tentative grading criteria:

- Demo: 50%
- Report: 30%
- SP: 10%
- Trigger: 10%
- SQL Injection (Bonus): 10%

Use moodle to submit your file. The naming convention for the zip file is:

CMPE321\_#AssignmentNo\_#Name\_#Surname\_#StudentNo.zip

(e.g. CMPE321\_3\_Bob\_Alan\_2018100001.zip)

*\*Please do not use any special or non-english characters.*

*If the submission package does not fit to moodle, submit a dropbox/google drive etc. link.*