Assignment:: CW2 (Design, Implement Database with its interface) (50%)

Introduction

The aim of this course is to learn about databases and interfaces. The lectures and the labs are designed to support your technical skills to achieve this goal. The grades are distributed as following:

1. 50% Final exam
2. 50% Course work (CW1 (15%) & CW2(35%)

Task Introduction:

This task aims to test and train you on understanding datasets, converting the dataset into database design, implementing the database, creating web interface to access the database and finally writing a report to explain the work to your client. The technologies that will be used are (MySQL, MySql workbench, PHPMyAdmin, HTML, CSS, JS, PHP, NodeJS, others). You will be assessed on a weekly basis for three weeks.

Required:

You will be given a dataset in csv format. You are required to:

1. Study the dataset, define the data type to accommodate the dataset
2. Design database schema, tables, links, primary keys, foreign keys, relations.
3. Implement the database design in MySQL
4. Deliver Entity Relational Diagram from the database implementation.
5. Design sketch for the interface to connect to the database.
6. Implement the design (HTML/CSS/JS/PHP/NodeJS)
7. Test the system.
8. Write a full report.
9. Create a video for how your application work

The above required tasks will be divided into three sections:

1. Database design (Week 2).
2. Database implementation (Week 5).
3. Interface design and implementation (Week 10).

Task A: **Database design (Week 5)** (30% of total marks of CW)

The first task is to choose your dataset. You will be provided with several dataset to choose from. It is similar to shopping for data. Choose the dataset of your liking. The dataset will be different in terms of complexity, readiness, quality, size and others. Once you are locked for a certain dataset, you are good for the second stage.

Studying the dataset is very crucial for developing a correct database. You will need to go through the dataset line by line. Allow your brain to create pattern and connection of your dataset. Please remember that most of the dataset contains errors or incomplete. This is a real life dataset that will train you for the real development problems.

Once your design is ready, you are ready for task B.

**Note: Please always remember that you can move between tasks if you discover a problem along the way.**

**Please Note: 10% of total marks will go to weekly report that you will deliver every lab. It is a one page report about the assigned Task(A/B/C).**

Task B: **Database implementation (Week 7).** (30% of total marks of CW)

If you have mastered the basic commands and database tools, this task will be very simple. So if you are not familiar with database tools like PHPMyAdmin, Mysql Workbench, consider spending sometimes exploring the tools and play with simplier databases to master the topics. The implementation process will contains:

1. Candidate keys, Primary Keys, Foreign Keys
2. Relational database implementation between tables with constrains.
3. Entity relational diagram generation and verifications
4. Testing the database using select statements

**Please Note: 10% of total marks will go to weekly report that you will deliver every lab. It is a one page report about the assigned Task(A/B/C).**

Task C: **Interface design and implementation (Week 12).** (40% of total marks of CW)

Congratulations, you have reached the final task where you have to design and implement an interface that interact with the database. The interface that follow the below instructions

1. Web based on interface, you can hosted locally. Implementation on the cloud or UNMC mercury will be a plus.
2. Web application should be mobile compatible.
3. Web application should be able to perform all tasks on the database (Select, Update, Insert, delete)

**Please Note: 10% of total marks will go to weekly report that you will deliver every lab. It is a one page report about the assigned Task(A/B/C).**

**SUBMISSION INSTRUCTIONS**

You are required to submit a report to include ALL of the followings:

* Table to include:
  1. Group number (1....6)
  2. Group Name (Create One)
  3. List of names of the group members.
* A written report (approximately. 1000 words) summarizing your opinion about the dataset.
  1. Why did you choose the datatypes of each field?
  2. Reason behind the design of the tables and connections between the tables including PK, FK?
  3. What kinds of errors did you find in the dataset?
  4. How did you find the completeness of the dataset?
  5. How did you address those problems? Task A: **(30% marks)**
* Each group should submit ER diagram about the database design plus a complete dump of the database. The report should be accompanied with all select, insert, delete, update statements that the interface will user. General statics about the database should be visualized with the select statements about the data insights. Task B: **(30% marks)**
* The code of the project should be uploaded to GitHub. Simple screenshot video should be complied to show how the interface work. The video should be less than 2 minutes. The video should show all interaction with the database, select, insert, delete, update. The video should show the mobile compatibility of the website. Task **C: (40% marks)**

Submission file:

▪ A single (PDF) file, named as GX-Final-COMP1031.pdf, where x is your GROUP NUMBER. Deadline: 24rd April 2020 23:59:00