**COURSE CCPS** **510**

**DATABASE SYSTEMS (DBMS) I**

**ASSIGMENT-II**

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**Please place all your answers and screen shots of your results into this document. Once you finish working on this file, please email me.**

Database Design and Development

# Objective:

In this project students learn:

* How to gather requirements for a project,
* How to translate these requirements into a database design,
* Finalize the design using both database modelling and normalization techniques,
* Populate the database with test data, and
* Document the database design with standardized documents.

# Submissions:

The project will be divided into groups. Groups may choose a presenter to present their work in apprx. 10 min. Imagine you are in the interview process and presenting your work/skills. You will be graded

* Complete /neat work
* Clean and error free codes
* Presentation skills (Powerpoint files, body language)
* Detailed Rubric will be added to same document

# Group Work

The project will be completed in groups max of 3 students in each group ( ideal number of member is 2 though). No individual submission will be accepted. It will be each student’s responsibility to both contribute equally to the project as well as allowing their teammates to participate.

## Interim Meeting if needed

You may ask your professor to have quick meeting to check your work/progress.

# The Project

Each group will complete the project based on a topic of their choice. Reaching into their past experiences, current scenarios, or areas of interest each group must select a topic and solution on which to build the database portion of the full solution (we will only be doing the database for this project). The group will go through the requirements gathering, design, and development stages of the process and by the end of the project should have a much better understanding of how the database is built from start to finish.

Your project may not follow any of the ideas that we have covered already this term in class or in the textbook.

**Some potential ideas may include: (First Come First Serve basis . If another group email first they have right to secure one of below project topic)**

* Library system
* Beauty Boutique
* Car Dealership / Auto sales
* Clothing Store
* Used Car Dealer
* IT Hardware Repair / Maintenance system
* Movie/Music/Show Database
* Movie Rental Store
* Machinery Maintenance Tracking
* Horse Riding center
* Rent a Ride Car Rentals
* Veterinarian’s clinic
* Daycare Center
* Hotel Management System
* Customer/Order/ Inventory/ Sales Management System (not too big scale though)

Through the design process students will be asked to outline their potential project, create a problem statement, a solution statements, create a scenario where the database will be used, design, document, and develop the database and populate the database with test data.

## Minimum Scenario Requirements

Although each database will be different, there are a few minimums that must be observed to satisfy the scope, scale, and weighting of the project. Therefore, the project must include, at a minimum, the following (please add more if your project requires it, an incomplete project that meets all the minimums will get a lower mark that a project that is a complete solution for the problem statement.):

* A minimum of 7 tables, including at least one bridge/junction (associative) table
  + simple lookup list tables do not count towards the total   
    *example: countries would not be considered a counted table, unless your database was related to geography or other international subject matter*
* A minimum of 5 fields for each entity
* At least 5 sample records for each tables (INSERT INTO)
* A minimum of 5 Reporting SELECT queries created to provide information to the software destination. Please make sure your reports are not just simple SELECT \* FROM Table (Example list of all customers..)

Instead ;  
*example: an employee list giving both the employees names and details as well as their office information (i.e. joining tables back together again or performing basic calculations)  
example: a list of salesman and the customers that they service*

*example : List of all customers who ordered last week but not received product yet*

## **Milestone 1 (Week 9)**

The first milestone will be a general topic and requirements gathering process. You will be requested to submit a 2-to-3-page document including a cover page. The document must include the following:

* A paragraph briefly describing the topic and the providing a **problem statement**,
* A paragraph stating how the database will assist in providing the **solution**,
* A paragraph how the database will fit with other potential parts of the system architecture to provide a complete solution (i.e. the database will be accessed though a \_\_\_\_\_ to provide data to \_\_\_\_\_ for use in the \_\_\_\_\_\_\_.) It is expected that the database will be part of a complete software process, even though group’s will only be designing and developing the database only.
* A point form list, or table format, of the business requirements/rules for your project

## **Milestone 2 (Week 11)**

The first milestone will be a general topic and requirements gathering process. You will be requested to submit a 2-to-3-page document including a cover page. The document must include the following:

* Completed and fined tuned ERD (Using Draw.io or your own drawing)
* Representation of usage of any Normalization techniques (From Un-normalized table to 1st or 2nd normal table)
* Physical table Creations with all required Constraints (Primary Keys, Foreign Keys, Unique, CHECK constraints)

## Final Submission (*Due Week 13)*

The final submission will include a ZIP file that includes all the necessary documents.

The submission will consist of a complete database design and test ready solution. The following must be included:

* An updated version of the milestone submission reflecting any changes made through the design process and including any design decisions that potentially impacts the business rules (example: we decided to add a bridge table between the \_\_\_ table and the \_\_\_ table, even though it is a 1-to-many relationship, such that we can add additional flexibility in the design for future scalability and potential business rules exceptions).
* A Completed ERD or Schema Diagram (draw.io)
* A single SQL file Table Creation Script including the creation of all tables and constraints in the database. (Do not forget to add Primary Keys, Foreign Keys, DEFAULT ,check constraints if /when needed) More the better
* A single SQL file Data Insertion Script for inserting sample test data.
* A single SQL file which has SELECT Reporting Creation Script for creating the required reports providing easy data presentation (You choose these reports to show us some details)

**Rubric**

