Project Guidelines and Deliverables

This is an <u>individual project</u> and every student will develop an extensive database. A project will give you an opportunity to apply your new knowledge to solve a real-world data problem. The completed project report, must include the following sections:

Important: The sample projects provided were from a class that worked as groups. As such their project might be larger in size than yours. Apart from the number of entities and the required select statements, most other form factors remain the same. **<u>While you may use the sample project as a reference or a source of inspiration, please refer to your project deliverables and guidelines for your individual submissions. Please contact me if you have any questions.</u>**

Section	Content	Related Chapter
1	Introduction describing your database, including **current data management problems in your chosen area**, motivation for your DB, potential benefits and potential users of your DB, etc. a) Chosen Area: Your chosen field of application is the business area you wish to focus on, for example healthcare, banking or any business sector where data is stored. b) Data Management Problems: Data mismanagement can cause a variety of issues with severe consequences. Please read some literature on these issues in your chosen area. c) Motivation: Try to map the inherent qualities of your database (Data Integrity, Reduced Data Redundancy etc. to some of the data management problems you identified). d) Potential Benefits: Explain how some of the problems you described in (1b) could be avoided by using your database. e) Potential Users: Who are the future users that could benefit from your database. Are there any additional issues you described in (1b) which were not discussed in (1d) that these future users could avoid. *(<u>A minimum of 1 and a maximum of 2 pages is required for a complete section 1</u>)* *(Please note: this section is intended for you to gain a working understanding of Database related to a business area. This knowledge will greatly help you in job interviews<u>.</u> I have personally used and recommend choosing an area you wish to pursue your career)*	Ch 1
2	A detailed description of your business rules and user requirements. a) Imagine you are the owner of the business and you must describe your business activities to a database developer you hired. b) The business rules must clearly define the entities, attributes, datatypes of the attributes, relationships and cardinalities. *(Please note: Your business rules will be similar to the <u>Homework Questions (2 & 3) or In Class Questions (2 & 3)</u> you have already solved. Please adopt a similar language and modify to suit your application)*	Ch 2, Ch 3

3	An enhanced entity relation diagram (EERD) that represents all the entities, attributes, and relationships you described in step 2. a) Your EERD must feature <u>at-least one</u> of each of the following: Unary Relation, Binary Relation, Ternary Relation and Associative Entity. b) You must have at least 6 entities. c) Each entity must participate in any of the relationships indicated in (3a). For example, a vast majority of your entities may participate in binary relation and only a few (at least one) must participate in Ternary or Unary relationships. *(Please note: Your EERD will be similar to the <u>Homework Solutions (2 & 3)</u> or <u>In Class Solutions (2 & 3)</u> you have already solved. Please adopt a similar representation and modify to suit your application)* *(Additional note: Develop your EERD in Draw.io and export in the required format to include in your project report)*	Ch2, Ch 3
4	Develop Relations in the 3rd normal form. a) First you must develop relations from your EERD in step 3 b) Find the appropriate slides in CH 4 to assist you. (Based on the relation type and cardinalities, the Primary and Foreign key implementations will differ) c) After developing the relations, you must normalize it. *(Developing relational schema and normalization requires strict rule adherence. Please make sure you refer the CH 4 slides while you solve this section)*	Ch 4
5	Write the SQL code (script file) which includes the commands to create tables and to insert records into the tables for your databases. There should tables must participate in a meaningful interaction (relationships) according to your business rule. a) The tables participating in meaningful interaction should also be available as a result of step 2.	Ch 6&7 or Ch 5a&5b (These indicate the sql coding chapters)
6	Submission Guidelines: Your submission must include the screen shots of all tables and the records in the tables using DESC and SELECT commands.	Ch 6&7 or Ch 5a&5b (These indicate the sql coding chapters)
7	Your submission must include SQL queries and screen shots of the results of those queries tested with MySQL. The queries should include accessing a single table as well as joining multiple tables. Include at least 5 SELECT Queries, with atleast 3 multiple table-joins. a) Your Select statements <u>must not</u> all be (select * from table_name format) b) The select statements must provide meaningful information to a potential user. c) <u>At least 4 </u>of your select statements must feature table joins. (Refer to additional SQL exercises and its solutions)	Ch 6&7 or Ch 5a&5b (These indicate the sql coding chapters)

d) Use the select statement with aggregate functions (Sum, Count, Avg etc.). Hint: Using aggregate functions may require the use of 'Group By' or 'Having' clauses. *(Please Note: The general select statement file will be an excellent resource for this section.)*	

Sample Project Information:
- I will provide sample projects from my previous classes for your reference.
  - The sample projects may have errors, and it serves only as a reference.
  - The sample projects are not a "gold standard" but serves as a guide to an acceptable format and submission.
  - The sample projects may be larger or smaller than your project. Please follow your project guidelines to determine the adequate size of your project.
  - You may (and I encourage you to) modify the presentation style to suit your requirement.
  - You must follow the guidelines provided to you with regards to your submission. Use the sample project as an inspiration source only.

Instructor Assistance:
- You will attempt the project only after solving In Class Questions (ICQ) and Homework's.
- I will provide direct assistance to both ICQ's and Homework's. You are expected to use these exercises to learn and develop a working understanding of DBMS which you can implement in your project.
- My help for your project will be minimal compared to class activities. I expect your self-work in the project to provide you with the necessary confidence to tackle job interviews etc., where I cannot help you.

Prior Student Experience:
- I am happy to report that my previous students (although grumpy at first) have enjoyed the project most in my class.
- Many have featured it on their LinkedIn pages and used it to land jobs with competitive salaries
- **Remember, almost every interviewee makes grand promises of excellence if hired. The employer prefers those who show up with proofs.**

Three Project Deliverables:
- Deliverable 1 (5%) – **Due 9/20/23**
  - Section 1 (a). Please submit your chosen area (For example, Finance, Healthcare etc.)
- Deliverable 2 (25%) – **Due 10/20/23**
  - Sections 1, 2 and 3
- Deliverable 3 (70%) – **Due 11/20/23**
  - **Complete Project Report which includes All Sections**
  - You should make every effort to produce a well-organized, neat, and professional looking final report.
  - The final deliverable must be in PDF or Word files.