**COMPX223-2023 Project Deliverable 1 report template**

**Group Name:**

**Contribution table**

Please specify the contribution (in percentage) each group member has made.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Part 1 | Part 2 | Part 3 | Part 4 |
|  | 0% | 0% | 0% | 0% |
|  | 0% | 0% | 0% | 0% |
|  | 0% | 0% | 0% | 0% |

**Note:** Each group member is supposed to contribute to all four parts of the deliverable 1. You would not get any marks of a part on which you didn't do any work.

**Part 1: ER Diagram (40 points)**

Task 1: Draw the ER Diagram of the database that consists of entities, attributes, relationships and cardinalities, and underline the attribute(s) that will be used as primary key

Task 2. Explain the attributes that are not self-explanatory, for example, attributes with unclear names, that will be normalised, or have constraints on the values.

**Part 2: Relational Model (10 points)**

Task: Create the relational model from the ER diagram developed in Part 1. Make sure to (1) underline primary keys, (2) point out the foreign keys and the relations they reference (look at Week 2 lecture slides on Relational Model for examples) and (3) normalise to 1NF.

**Part 3: SQL Tables (20 points)**

Task: Convert the relational model in Part 2 to SQL tables. Make sure to use appropriate data types, specify the primary and foreign keys, and include sensible check constraints.

**Part 4: Testing and reflection (30 points)**

Task 1: Insert at least two rows into all tables.

Task 2: Write a query that retrieves data from all tables. For example, retrieve the details of each customer including the details of courses they have attended and equipment they have purchased. Show the results.

Task 3: Write a query that selects each class, showing details about the course, attending students and instructors, the first aid supplies used, and if the class has been paid for yet. Show the results.

Task 4: Discuss the problems or challenges encountered when designing the database (between 200-300 words). This can include the following:

* Any assumptions you have made based on insufficient information from the client.
* Any limitations of your design that affect what data can be stored or could cause anomalies that should be addressed when designing the application.
* Any changes made to the design (ER, Relational model, or table definition) and why these changes were made.

**Appendix: marking rubrics (100 points)**

**Part 1: ER Diagram (40 points)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Entities** | Excellent use of entities, including using entities to capture temporal data correctly, using entities to replace ‘plural’ attributes or attributes with predefined elements.  **10 points** | One major entity is missing. Or one or two unnecessary entities are included  **8 points** | Two major entities missing. Many entities that shouldn’t be included.  **5 points** | Majority of entities are used incorrectly.  **2 points** | No ER diagram  **0 points** |
| **Attributes** | All attributes attached to correct entities/ relationships. All key attributes underlined. Attributes that not self-explanatory are explained.  **10 points** | Majority of attributes attached to correct entities/ relationships. Not all key attributes underlined. Some attributes that are not self-explanatory are not explained  **8 points** | Some major attributes are missing or attached to incorrect entities/ relationship. Some key attributes underlined incorrectly or not at all. Attributes that are not self-explanatory are not explained.  **5 points** | No key attributes. Not enough attributes for basic functionality of application.  **2 points** | No attribute. Attributes attached to other attributes.  **0 points** |
| **Relationships** | Excellent use of relationships.  **10 points** | One or two required relationships are missing. There are minor mistakes like circular references or three-way relationships not used correctly.  **8 points** | Some incorrect relationships. e.g. user interactions with the application modelled as relationships  **5 points** | Entities not connected correctly using relationship. Relationships connected to other relationships.  **2 points** | No relationships  **0 points** |
| **Cardinalities** | Excellent use of cardinalities. For example, design shows consideration of the difference between (0,\*) and (1,\*) or using correct cardinalities for three-way relationships.  **10 points** | Minor errors in cardinalities. For example, one or two missing cardinalities or cardinalities in incorrect places  **8 points** | A number of missing or incorrect cardinalities. All cardinalities completely backwards.  **5 points** | Many missing cardinalities. Many incorrect cardinalities.  **2 points** | Few or no cardinalities.  **0 points** |

**Part 2: ER Diagram to Relational Model (10 points)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ER diagram fully converted into relations. Primary keys underlined. Foreign keys included correctly. Attributes normalised appropriately.  **10 points** | Minor errors in relations. Minor errors in foreign keys or attribute normalisation.  **8 points** | One or two major relations are missing. Some attributes missing. Or major errors in foreign keys **5 points** | Major relations missing.  **2 points** | No relational model  **0 points** |

**Part 3: Relational Model to database tables (20 points)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Complete table definitions. Appropriate data types used. Correct primary keys and references. Not null used correctly. Includes sensible check constraints.  **20 points** | Minor errors in table definitions. For example, in appropriate data types used, or errors in primary keys and references, or errors in check constraints  **16 points** | Some errors in table definitions, including errors in data types, missing primary keys or references, no check constraints  **10 points** | Many errors in Table definitions. Table definitions do not match relational schema.  **4 points** | No table definitions provided.    **0 points** |

**Part 4: Testing and reflection (30 points)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Insert Statements** | All tables contain meaningful data. Insert statements provided.  **10 points** | Missing data in one or two tables contain data. Data doesn’t match client requirements. Insert statements provided.  **8 points** | Missing data in a number of tables.  Insert statements provided.  **5 points** | Query results showing data in table but no insert statements provided.  **2 points** | No data inserted into table.  **0 points** |
| **Query** | Tables joined correctly. SQL query and result provided.  **10 points** | Tables joined with minor errors. SQL query and result provided.  **8 points** | Tables joined with minor errors. Only SQL query or result provided.  **5 points** | Simple query that does not join tables.  **2 points** | Missing query  **0 points** |
| **Reflection** | Sufficient descriptions about changes made and the reasons of changes. Or Sufficient descriptions of problem and challenges encountered and how they were addressed.  **10 points** | Only descriptions about changes made are given, reasons are not provided. Or only descriptions of problem and challenges encountered and how they were addressed are not clear.  **8 points** | Reflection is brief.  **5 points** | Reflection is minimal.  **2 points** | No reflection  **0 points** |