Introduction

In your previous assessments, you worked with sample databases or models that satisfied one or more organisational needs. Even though these sample databases may not match the sizes and operational demands of real-life production databases, they nonetheless demonstrate some of the best practices for designing, implementing, and manipulating relational database systems. In this assessment, you are expected to demonstrate the knowledge and skills you have learned throughout this course by developing a relational database of your choice.

Outline

Find a local business, school, social club, sports club, church, non-profit organisation or any other small to medium sized organisation of your choice in your area having issues or problems which could be addressed by either designing a new database or improving the existing one. Do some background research to gain a clear understanding of the operations of that organisation. You might need to consult staff in the organisation, other resourceful individuals, or related documentation to get a better understanding of operations of the organisation. Ensure that you obtain permission from the organisation if you are going to collect private or sensitive information beyond what is available in the public domain.

Once the organisation and the issue to address have been identified the next step is to collect information you will need to model a database that would address the issues. Since you are developing a relational database, the most obvious modelling technique is the Entity Relationship Diagram (ERD). Look out for any possible anomalies and resolve them through a normalization process. Once you create the normalised ERD, you can start the physically implementing your database within the Microsoft SQL Server™ environment. That involves writing Transact SQL (T-SQL) statements for creating the database structures, including the database itself, tables, indexes, constraints, and other objects. Write some T-SQL commands to populate all tables in your database with some sample data. Next, think of some questions or queries that could be answered through the proposed database. The aim of this step is to ensure that the database you designed will provide a solution to the issues and problems identified. Write the queries in natural language followed by the equivalent T-SQL views. Also include some stored procedures, triggers, and other programming objects that you feel are needed to make the database easier to use. Enable mixed mode authentication and create at least one user account for your database. Package all the code in one script and group the commands into appropriate batches such that the logical flow of execution makes sense. Ideally, it should be possible to create the entire database and its objects with a single execution of the script. Lastly, create a full backup of your database.

The above mentioned is just a guide to get you started and will not be sufficient to earn a high mark. Additional marks are allocated for suitable coding standards, comments, naming conventions, exception handling, readability, and code efficiency.

Summary

Submit the following three files in one compressed or zip folder.

1. A document that includes the following information:

   a. Introduction and background of chosen organisation (not more than ½ a page).
   b. An ERD that accurately represents the proposed database.
   c. The normalization steps you took when you created the ERD. Optionally, justify how the database meets the requirements for at least Third Normal Form (3NF).
   d. A list of all tables, stored procedures, views, triggers, and other objects with a description for each
   e. List of questions or queries, in plain natural language, that could be answered through the proposed database.

2. The T-SQL script file for creating the entire database and its objects, including sample data.

3. A full SQL Server database backup containing all the objects as identified in the database.

Mark Allocation

No#.	Item	Description	Mark
1	Introduction	Background of Organisation and Problem Statement	5
2	Entity Relationship Diagram	Complete ERD with all Keys, Attributes, Relationships and Cardinalities	10
3	Normalization Process	Steps or Justification of 3NF Requirements	5
4	Entity Identification and explanation	Description of all objects in the database	10
5	List of questions or queries	Written in plain natural language	5
6	Physical database implementation	Database creation. Tables, indexes, constraints, and sample data.	20
7	Queries and Views	At least 5 (marks depend on the complexity)	15
8	Stored Procedures, Triggers, Logins and other objects	Marks depend on the complexity. Any static procedures will receive a mark of 0	20
9	Coding Standards	Naming, Comments, Exception Handling, Readability, Efficiency	5
10	Backup	The backup should be working	5
		Total Marks	**100**

Additional Information

- This is an individual or group assignment. Groups may not exceed 3 people.
- Names of all group members must appear on the cover page.
- Submit your assignment in one compressed or zip folder on Teams before the due date.
- All information, diagrams and SQL code must be your own original work.
- Plagiarism is a serious offence. Belgium Campus uses software that can scan for plagiarism and a student caught doing this will get 0 for this assignment.
- No mark will be awarded if the assignment is not uploaded via Teams Assignments.
- Late assignments will not be accepted; missing the deadline is an automatic 0.
- Any form of cheating will be taken seriously and may result in disciplinary action including disqualification from future assessments.
- Auto-generated scripts or using Design View will not be acceptable under any circumstances.