Subject:	Database Development 361
Assessment:	Project
Total:	110 Marks

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 for an organisation of your choice.

More specifically, this is a database design and implementation project. The aim of the project is to develop an efficient, high-quality database that meets the needs of a chosen organisation and its stakeholders. The project is divided into two phases, with Milestone 1 focusing on Database Design phase and Milestone 2 being the Database Implementation phase. The two milestones are your Assignment 3 and Assignment 4 respectively and should be submitted before their given due dates.

Outline

Think about 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 that is having issues or problems which could be addressed by either designing a new database or improving an 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. Describe the proposed physical database environment including data file organisation and security measures. Once you have designed the database, 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. Create the T-SQL views for each of the queries as well as some stored procedures, and other programming objects necessary to address the issues and problems identified earlier during the project.

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 the workability and usefulness of your database solution as well as usage of suitable coding standards, comments, naming conventions, exception handling, readability, and code efficiency.

Summary

Project Milestone 1 (Assignment 3)

Submit a Database Design Specification document that includes the following information:

a. Introduction - Background of chosen organisation (1 paragraph).
b. Objectives - Identify issues or problems that the proposed database is solving.
c. Conceptual Model
    - An ERD that accurately represents the proposed database.
    - 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. Logical Design - List of all tables (including datatypes and constraints), stored procedures, views, and other objects with a description for each.
e. Physical Design - proposed data model, database management system (DBMS), database environment (database server), database file organization, physical database objects, security and access control measures, and performance requirements.

Project Milestone 2 (Assignment 4)

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

1. The T-SQL script file for creating the entire database and its objects, including sample data. All code must be your own original work and any code generated through automated tools or some other interfaces will not be accepted.

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

Mark Allocation

Project Milestone 1 (Assignment 3)

No#.	Item	Description	Mark
1	Introduction	Background of organisation and problem statement	5
2	Objectives	Scope, Objectives and Constraints	10
3	Conceptual Model	Complete ERD with all Keys, Attributes, Relationships and Cardinalities; Normalization Steps or Justification of 3NF	20
4	Logical Design	Data dictionary objects and their descriptions (including data types and constraints)	10
5	Physical Design	Proposed data model, DBMS, physical database environment, data file	5

		organisation, security and performance requirements	
TOTAL			**50**

Project Milestone 2 (Assignment 4)

6	Physical database implementation	Database creation. Tables, indexes, constraints, and sample data.	20
7	Queries and Views	At least 3 (marks depend on the complexity)	15
8	Stored Procedures, Views, and other objects	Marks depend on the complexity. Any static procedures will receive a mark of 0	15
9	Coding Standards	Naming, Comments, Exception Handling, Readability, Efficiency	5
10	Backup	Backup file; The backup should be working	5
TOTAL			**60**

Additional Information

- This is a group assignment. Groups must have a minimum of 2 people but may not exceed 4 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.