Marmara University – Faculty of Engineering – Department of Computer Engineering

Fall 2020 – CSE3055 Database Systems
Project

Step #1	Proposal	0 pts	Due: 23.11.2020.Mon

1) You are going to study in groups. The groups will be composed of at most three and at least two members.

2) Determine a practical, applicable to real business, database project that you want to implement. Specify the scope of your project. Give a name to your project.

3) Submit a report, approximately 1 page A4, and take the approval of your lab instructor before beginning to study on your project. You may take the approval via e-mail.

- **a)** Name of the project
- **b)** Student ID, first name, last name of all group members.
- **c)** Project description and scope.
- **d)** Customer info.

4) Write the following sentence in a text file: "We hereby swear that the work done on this project is totally our own; and on our honor, we have neither given nor received any unauthorized and/or inappropriate assistance for this project. We understand that by the school code, violation of these principles will lead to a zero grade and is subject to harsh discipline issues." Rename it as "we_swear.txt" and include this file in the zip submission file.

5) Only one of the group members (*i.e.* group representative, in short "GrRep") is going to submit all steps of the project using GrRep's info all the time. Zip all your documents into a single file using filename GrRepStudentNumber_PS1.zip (*e.g.* 150118123_PS1.zip) and submit it to the site http://ues.marmara.edu.tr before deadline.

Step #2	Requirement analysis & Conceptual database design	2 pts	Due: 03.12.2020.Thu

1) Submit a report that contains data and requirement analysis of your database. Your report should contain the followings:

- **a)** Entities and their definitions.
- **b)** Business processes and their definitions.
- **c)** Business rules, constraints, etc.
- **d)** Other functional & non-functional business requirements.
- **e)** Customer-related documents you have collected from the company/customer in order to prove that your project will be an implementation of real business.

2) Create a diagram that shows the entities, attributes and relationships in your database using Entity-Relationship Model.

- **a)** The diagram should obey the rules of Entity-Relationship drawing conventions.
- **b)** Attach your ER diagram.

3) Do not use any handwritten text, image, object, etc.

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5) Only one of the group members (*i.e.* group representative, in short "GrRep") is going to submit all steps of the project using GrRep's info all the time. Zip all your documents into a single file using filename GrRepStudentNumber_PS2.zip (*e.g.* 150118123_PS2.zip) and submit it to the site http://ues.marmara.edu.tr before deadline.

Step #3	Logical database design and mapping & Physical design and database implementation + (Req. ana. & Concep. db. des.)	8 pts	Due: 01.01.2021.Fri

1) Develop a Microsoft SQL Server database with the following characteristics:

- **a)** The name of the database should be same as your project name in capital letter format.
- **b)** Create at least 8 tables in your database.
  - **i)** Each table should be normalized to third normal form.
  - **ii)** Use the most appropriate data types for the fields of the tables.
  - **iii)** Populate your data to an acceptable amount. Each table should contain at least 25 records, however a few of them may contain less than 25 depending on your business.
  - **iv)** Use indices/indexes, where necessary. Be sure to have at least one.
  - **v)** Use uniques, where necessary. Be sure to have at least one.
  - **vi)** Use identities, where necessary. Be sure to have at least one.
  - **vii)** Use check constraints, where necessary. Be sure to have at least one.
  - **viii)** Use defaults, where necessary. Be sure to have at least one.
  - **ix)** Use computed columns, where necessary. Be sure to have at least one.
- **c)** Create at least 5 views in your database.
  - **i)** Do not simply write "SELECT… FROM…WHERE…" statements.
- **d)** Create at least 1 trigger in your database.
- **e)** Create at least 10 stored procedures in your database.
  - **i)** You may create them for insertions, updates, deletions or specific business rules.
  - **ii)** Try to do different jobs in each procedure.

2) Submit a detailed report.

- **a)** Project description: explain what your database project is about.
- **b)** Scope: what is included/exclude? Which processes are supported, which ones are not?
- **a)** Data and requirements analysis for the database and business processes.
- **b)** Diagram of whole database.
- **c)** Tables
  - **i)** Name of the fields/columns.
  - **ii)** Definition of the table.
  - **iii)** Data types of the fields.
  - **iv)** Information about indexes, primary key, foreign key.
  - **v)** Information about uniques, identity, check constraints, defaults, computed columns, if any.
  - **vi)** Information about triggers, if any.
- **d)** Views
  - **i)** Name of the store procedure.
  - **ii)** Definition.
  - **iii)** Screenshots of the code of each view and its output.

e) Triggers

i) Name of the trigger.

ii) Definition, and when/how it works.

iii) Screenshot of the code of each trigger, and screenshots of before and after states of the table data that each trigger works on.

f) Stored procedures

i) Name of the store procedure.

ii) Definition.

iii) Screenshots of the code of each stored procedure, and screenshots of before and after states of the data that each stored procedure works on.

3) Write the following sentence in a text file: "We hereby swear that the work done on this project is totally our own; and on our honor, we have neither given nor received any unauthorized and/or inappropriate assistance for this project. We understand that by the school code, violation of these principles will lead to a zero grade and is subject to harsh discipline issues." Rename it as "we_swear.txt" and include this file in the zip submission file.

4) Only one of the group members (*i.e.* group representative, in short "GrRep") is going to submit all steps of the project using GrRep's info all the time.

5) Backup your database. Zip your database backup file with all your documents into a single file using filename GrRepStudentNumber_PS3.zip (*e.g.* 150118123_PS3.zip) and submit it to the site http://ues.marmara.edu.tr before deadline.

6) There will be a demo session for each project. Demo sessions will be arranged and announced later.

Step #4	**Web interface**	**4 pts**	**Due: 13.01.2021.Wed**

1) Create a user-friendly web interface for your database.

2) Web inferface should support all your business rules and processes.

3) You can use your stored procedures to insert, update, delete or select data.

4) Write the following sentence in a text file: "We hereby swear that the work done on this project is totally our own; and on our honor, we have neither given nor received any unauthorized and/or inappropriate assistance for this project. We understand that by the school code, violation of these principles will lead to a zero grade and is subject to harsh discipline issues." Rename it as "we_swear.txt" and include this file in the zip submission file.

5) Only one of the group members (*i.e.* group representative, in short "GrRep") is going to submit all steps of the project using GrRep's info all the time. Zip all your documents into a single file using filename GrRepStudentNumber_PS4.zip (*e.g.* 150118123_PS4.zip) and submit it to the site http://ues.marmara.edu.tr before deadline.

6) There will be a demo session for each project. Demo sessions will be arranged and announced later.