

SE 307 DATABASE MANAGEMENT SYSTEMS

TERM PROJECT

***** Please Read Carefully *****

1. INTRODUCTION

In this project you are expected to design and develop a **database application** for the **Graduate Thesis System (GTS)**.

2. DATABASE DESIGN

A **database** for GTS will be designed for storing data about each and every graduate thesis completed. The following are the data requirements (business rules) that must strictly be satisfied:

1. Each thesis has the following mandatory attributes: thesis no (numeric), title, abstract, author, year, type (one of Master, Doctorate, Specialization in Medicine, and Proficiency in Art), university, institute, number of pages, language of the thesis text, and submission date,
2. A person can be author of more than one theses (for example, a person can prepare a Master thesis, later s/he can prepare a Doctorate thesis),
3. A thesis can have only one author (unlike scientific papers, there is no co-authorship in theses),
4. A thesis must have at least one supervisor,
5. A thesis can have at most two supervisors (one supervisor, and one co-supervisor),
6. A person can supervise many theses,
7. A university can have many institutes,
8. An institute can be part of only one university,
9. A thesis can be associated with one or more subject topics (users select from a list of subject topics; they do not enter subject topics freely),
10. A thesis can be associated with zero or more keywords (unlike subject topics, users enter keywords freely),
11. A thesis can be written in only one of several languages like Turkish, English, French, etc.

3. APPLICATION DEVELOPMENT

A **database application** will be developed for GTS. The following are the rules regarding the expected functionality of the application and other related issues.

1. Develop a web or desktop or mobile application in any programming language and/or platform you like.
2. There must be **user interfaces for entering/updating data in parent tables** other than the thesis table. For example, user can add/change/delete universities, new institutes, etc.
3. There must be a **thesis submission user interface for authors**, where authors fill in the required fields of the theses they want to submit.
4. There must be a **detailed thesis search user interface** where user can query the thesis database by entering any combination of thesis data. For example, user can search the

database for a specific author, or for specific keywords, or for specific years, or combinations of all fields, etc. Theses found after the search must be listed in an ordered fashion, and user can select a thesis to see its all details in a carefully designed screen. You may wish to look at YÖK thesis database portal for a highly useful search facility (<https://tez.yok.gov.tr/UlusalTezMerkezi/>).

4. DELIVERABLES

You are required to create and deliver a **detailed project report** in which you explain both the design of the database and the development of the application.

You are expected to:

1. **Design** the thesis database according to business rules given above.
2. **Draw** the ER diagram of your design in Crow's Foot notation and put it into your report.
3. **Create** the tables, relationships, and necessary indexes in MS SQL Server (make logical and reasonable assumptions about data types and max-lengths of attributes, otherwise you will have grade reduction).
4. **Draw** the relational database diagram (**fit into single page**) and put it into your report.
5. **Populate** your database with meaningful sample data (at least 5 records in each table).
6. **Put** the SQL commands into your report.
 - a. Create commands you have used to create entitites, relationships, and indexes.
 - b. Insert Into commands you have used to populate the database.

In your project report, you will include your application's **design and implementation details**, along with screenshots from the user interfaces. In the report, I would like to see how you access the database, what type of difficulties you encounter, what are the advantages of the techniques you use to manipulate the data, etc. Add your application **source code** into the **appendix section** of your project report.

At the end of the semester, you will **demonstrate your application** in 5-10 minutes to the class.

Submit your project report via e-mail to volkantunali@maltepe.edu.tr. The subject must be like "SE 307 Project - Volkan Tunali" (Use your own name, of course!). You will **attach** two files, a DOCX and a PDF. You will name your files exactly the same as the e-mail subject. These small details are very important!

Try to do all work by yourself, please do not prepare something copy-pasted from some other resources. Never present the work of your friends as if it is your own work! Projects that obviously look prepared this way will not be evaluated and graded.

Projects must be done individually or in group of maximum 2 people.