ITEC414: Database Systems, Fall 2020

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Project Phases and Completion Dates

Database Project Description

The goal of the database project is to provide students with a real world experience in **requirements definition**, **conceptual modeling**, **logical design**, **physical design**, and **operation** of a relational database.

Requirements Analysis and Definition	**(Completion Date: Refer to syllabus)**

Objective: Scope definition (choice of a DBMS, system users and applications, interface definition, storage and processing requirements), requirements analysis, data requirements, processing requirements.

- Briefly describe and characterize your database project application domain. Be very precise and concise. Indicate the choice of a database management system (in ITEC414 we use MySQL). Describe the functional and non-functional requirements clearly. A section must be devoted to requirements definition.
- You may indicate examples of queries the users want.
- Include business rules
- List of tables and their attributes

Conceptual design model	**(Completion Date: Refer to syllabus)**

Objective: To produce a conceptual model for the database that is independent of any DBMS. Use ER diagrams.

- Include appropriate comments about conceptual modeling. Include an ER diagram for the problem. Be sure to underline the key attributes, show multiplicity, full/partial participation (min/max cardinality).
- Show snapshots or wireframe of user interface.
- List the queries required.
- User Interface Wireframes.

Data model mapping (logical design)	**(Completion Date: Refer to syllabus)**

Objective: To map (transform) the conceptual schema in ER into the data model of the chosen DBMS (in our case, the relational model), to identify the functional dependencies, to normalize the resulting relations, and to define external views.

- Clearly show the relations (tables), their attributes, primary and foreign keys.
- For each relation, indicate its functional dependencies and its normal form.

Physical database (implementation)	(Completion Date: Refer to syllabus)
Objective: To define and implement the actual relations, to create relations (tables), populate the relations, implement any necessary transactions or embedded program or online scripts. • Provide SQL DDL definitions for your database. • Populate the relations with meaningful data. • Provide a listing of each relation and its data. If your database will have Web interfaces, provide snapshots of such interfaces.	

Presentation and demonstration	(Completion Date: Refer to syllabus)
Objective: 30-minute presentation by each team; present the design (architecture and the rationale) and demonstrate (outside classroom) the best features of the project. • The presentations normally focus on the ER diagram (to provide a conceptual view), discuss the resulting relations (keys, attributes, etc.) and their normal form, a rationale for the normal form achieved, and a sampling of interesting SQL queries and their output.	

Professionalism is important

You will be graded on the quality of the work you produce, not on how many hours a week you spend on it. Use your energy and time wisely. However, you are requested to create professionally-looking documents, not only for "clients," but also for communication among yourselves. Choose a name for your group project and always write team members' names on the project assignments you turn in. Each part of project worth different (see below table) points and is graded based on accuracy, consistency, and completeness of its contents as well as its organization (e.g., appropriate title, section and paragraph names) and appearance (e.g., consistent page numbers).

This is a single document that will grow through implementation of the deliveries.

While technical accuracy is most important, so is professionalism and neatness (readability). All your documents must be typeset professionally: consistent formatting, consistent use of font type and font sizes, consistent chapter, section and page numbering, etc., must be maintained. Any signs of rushed effort or sloppiness or lack of care in preparation, misspelling, poor grammar, improper or random uses of lowercase/upper case letters, incorrect use of punctuation symbols, etc., will be penalized.

To maintain consistency among all projects, follow these minimal guidelines:

- Use a 12pt san serif font (e.g., Calibri)
- Allow 1-inch margins on all sides
- Typeset page numbers (centered) on the bottom of each page

Keep a Log of Your Activities

Maintain a log of the time each individual team member spends on the project and a description of what he/she did during that time. The logs will help the team and the individual team members to see how they spend their time and help you make better predictions of the time needed by the different phases of a software project. Attach the log to the end of each project part you turn in. Each team will be provided with a Google Docs document, called Activity Log.

Project grade distribution:

Major Deliveries	**points**
Requirements Analysis and Definition	50
Conceptual, Logical, and Physical database design	50
Data model mapping (logical database design)	20
Physical database design and implementation	60
Front/back-end programming	80
Presentation and demonstration	40
Total	**300**
Up to 10% will be deducted from individual members (not the entire team) whose contribution toward project is poor. This is determined by monitoring the activity log and the peer evaluation.	