



Semester Project Phase 1

Due: Tuesday, September 19th, 2022

Total: 20 Points

Project Overview

The Semester project consists of four deliverables reflective of the implementation of a real-world database. Each of these deliverables will build upon each other to create a comprehensive database system that includes a requirements document, a design document, a schema implementation script, and finally a graphical user interface with simple CRUD Operations.

Since each project phase will depend upon each other, as it is in the real world, you will need to do each in the order specified below. The weight of each phase is as follows:

Phase	Description	Due Date	Points
1	Project Scope and Requirements Document	Sept 19 th	20
2	Entity Relationship Diagram and Schema Specifications	Oct 20 th	30
3	Database Creation and Seed Scripts	Nov 10 th	30
4	Java GUI Application	Dec 8 th	30
Total			100

The due dates are subject to change depending on the progress of the class. However, once it is determined, there are no exceptions for late work. See the class policy of late for details. You are expected to submit each phase on its due date to receive full credit for that phase. There is no make-up work for each phase. Since the later phases of the project depends upon the earlier phases, it is in your best interest to complete the phases by the expected date. Every student is expected to work on this project independently and every project is expected to be unique in terms of the organization you choose to use, as well as the design you choose to implement for it. The project will close with a presentation of your GUI implementation on the due date of the last phase, April 26th.

Phase 1

The role of a database architect is to gather the key data points of an organization to plan the proper database structure to facilitate that data. Your task here is to gather the data requirements for an organization (real or made up) of which pertains to your interest. Some examples include: books, movies, music, computer games, geographical locations, genomic sequences, flights, etc. The only exception to this would be the University database that we have been using throughout the semester.

For this phase, your task is to create a document that details the business case of the project, your assumptions, and the scope of the project. You must state the business case, its entities, the requirements that are need by the different roles of the users, and finally the constraints of each entity and its attributes. You may state any assumptions you want, but your design must reflect those assumptions.

Scope and Complexity

1. The detailed description of your application must include some of the functionalities that the application will support.
2. Your application must be relatively substantial with at least 6 entities or more.
3. There must exist more than 3 foreign key relations in the database.
4. Primary keys must be clearly defined, including at least one table with a composite primary key



5. All attributes must be reflective of the entity that it resides in. For example: A student entity has a first and last name, a student id, an email, an address, a phone number, etc. Things that are not part of the student should not be in the student entity, such as class name which would belong in a class table.

Requirements

1. A detailed description of the project that will include the Business case, the scope of the application, the users of the application, the expected functionalities of the application for each user, and finally the relationships that need to be addressed in the database to meet the business needs of the users. There shall be at the very least 3 users.
2. A list of at least 6 entities
3. For each entity propose a draft of their attributes, including the candidate keys that will be primary keys
4. An explanation of the different relationships between the entities
5. An explanation of at least 5 different scenarios for queries that the need to be answered by the different users of your application. There should be at least one query for each user, with the at least 15 queries since you have at minimum 3 different users.
6. Projects from any other class, resource, or otherwise will not be permitted as a valid submission and will be counted as plagiarism.

Submission

Submit your Phase 1 project as Word document in D2L under the Project Phase 1 Group Assignment. Please note that the submission is time stamped, so submissions after the due date and time will be counted as late and penalties will be applied respectively. Only one person needs to submit the project.

Assessment

5 Points—Detailed description covers the scope of the application and functionalities are clearly stated.

5 Points—Entities are clearly defined, and attributes are reflective of each entity based on the context of that entity

5 Points—Relationships between entities are defined and reasoning for the relationships are clearly explained

5 Points—Scenarios for each use case are defined and presents possible use cases for the business case

Grades will be assessed on the entire group. If you find that one of your group members are not participating, this must be addressed within your team and a majority consensus will need to bring forth the complaint. An email to me with all students in a group must be sent to me with the complaint so that we can resolve the matter. If the matter cannot be resolved, the group will be forced into individual projects and all deliverables will be expected from each student. It is in your best interest to work with each other so that this does not happen since the workload is meant to be for a group of three and not one student.

Learning Outcomes

This first phase of the project is designed to introduce you to the role of a database architect. It also demonstrates the importance of requirements gathering and user scoping in designing a good database. Often this phase is overlooked by developers, but in the end, if one delivers a product that the user does not understand and it does not reflect their needs, your project will fail. Understanding that each application must start with the end user in mind and their input is just as valid,



if not more important than the developer's is key to a successful implementation of any software and is the key to creating a database that stores clear and concise data.

Disclaimer

Please review the syllabus on academic integrity and the submission policy. I will follow both strictly, so please adhere to the policy for each assignment and project.