Group Project Guidelines

CIDM 3350

# Introduction

The group project is intended to demonstrate your capability to apply knowledge and skills of Databases to a real-world example. The group project aims to further develop an understanding of Database Design and SQL.

Working in a group gives you the opportunity to hone skills to work effectively with group members, contribute knowledge, and manage time. Those skills are necessary and essential skills for the workplace.

Benefits to group work include the provision of opportunities to “learn collaborative,” experience and learn about different views and ideas from group members, and to increase problem-solving skills.

# Deliverables

|  |  |  |  |
| --- | --- | --- | --- |
| Phases | Deliverables | Possible  Points | Due Date |
| Idea formation | Individual project idea document | 5 | Sept. 10, 2018  11:55 pm CDT |
| Individual project idea presentation | 5 | Sept. 11, 2018  (in-class) |
| Group  formation | Group self-enroll in WTClass | N/A | Sept. 11, 2018  (in-class) |
| Phase 1 | Phase 1 Report | 20 | Oct 8, 2018  11:55 pm CDT |
| Group presentation | 10 | Oct. 9, 2018  (in-class) |
| Phase 2 | Phase 2 Report | 30 | Nov. 13, 2018. 11:55  pm CDT |
| Phase 3 | Phase 3 Report | 50 | Dec 3, 2018. 11:55  pm CDT |
| Group final presentation | 10 | Dec 4, 2018  (in-class) |
| Group work log report | 10 | Dec. 10, 2018. 11:55  pm CDT |
| Peer evaluation | 10 | Dec. 10, 2018. 11:55  pm CDT |
| Total 150 points | | |  |

# Individual project idea

## Individual project idea document

This “individual” assignment aims to help every student come up with the idea for the course project. Your idea will be an input to your group project topic.

The individual project idea document should have the following outline:

### The specific topic you are thinking

For instance, you may think:

* + Sports team & game
  + Events in Amarillo (or Canyon)
  + Health information that store Amarillo-based doctors and certain reviews by patients, etc.
  + Places for group meetings on campus or near campus
  + Places for lunch on campus or near campus
  + Rental Properties
  + Real estates
  + Retail stores

### Possible end-users of your database

Please state who will be possible end-users of your database which stores the data you will have collected.

### Data sources: Where you will get a set of sample data

Keep in mind that you should be able to collect the data the real world. Your project idea should be realistic. You **MUST** reference the website(s) that store raw data. For instance, you will state something like:

“I will collect data from XXX provided by Texas state open data portal (data.texas.gov) to develop the database that can retrieve data about XXX.”

Examples of data sources:

* + [https://data.texas.gov](https://data.texas.gov/)
  + <https://data.fortworthtexas.gov/>
  + <https://data.austintexas.gov/>
  + Yelp
  + Foursquare
  + TripAdvisor
  + Wikipedia

Examples of databases:

* + - A recipe box, with the ability to store recipes found around the websites XXX, organized by ingredients and cuisine types.
    - A database of historic Canyon properties, with the ability to answer a query like, “Show me the buildings that had metal railings on their balconies at any time in the 1960s.”
    - A database of the organic food community in Canyon, linking restaurants, farms that supply them, organized by food type.

Individual project idea presentation

Every student will give a presentation to the entire class about his or her individual project idea. Each presentation will last 2-3 minutes. I will download your idea document to the class computer, and you will use the document for your presentation. You can submit your idea document in the MS Word or PPT or PDF format which works best for you.

## Possible points & Due date

|  |  |  |  |
| --- | --- | --- | --- |
| Deliverables |  | Due | Points |
| Individual Idea Document (WTClass) | The document includes three key elements, and those elements are tied to the one topic. | Sept. 10, 2018  11:55 pm CDT | 5 |
| Individual Idea Presentation  (In-class) | Deliver all three elements to the entire class in the classroom. | Sept. 11, 2018 Class time | 5 |
| Total | | | 10 |

# Group formation

Students will find their group members. Each group can have up to three members. Each group should self-enroll in WTClass during class time, Sept. 11 immediately after individual project idea presentation.

If you could not find group members, it is imperative that you should talk to the professor as early as possible. The professor will help you find members.

# Phase 1 report & Presentation

## Phase 1 Report

Phase 1 report should have the following outline:

1. The specific topic

Each group will make a decision on the specific topic to work through this semester. You and your member may pick only one member’s idea. Otherwise, you and your member may combine some part of each one’s topic. In this process you may tweak initial each one’s idea and reflect common interests. Respect your fellow member’s interests and inspiration.

In addition to you and your member’s interests, you should consider the following decision criteria:

* + Your ER diagram for this course project MUST have **at least five entities**.
  + You should be able to bring real-world data for every attribute included in the entity.
  + You should be able to bring real-world sample data for at least **ten instances of each entity** (corresponding to **ten rows of each table**).

o Let’s say one of the entities is a STUDENT entity. In that case, you must be able to sample data of ten students (which are ten instances of a STUDENT entity, corresponding to ten rows of a STUDENT table).

1. End-users of the database

Please state who will be possible end-users of your database which stores the data you will have collected.

1. Data sources: where your group collects a set of sample data

You must specify the website(s) which will provide you a set of real-world data.

FYI, you will insert the set of sample real-world data to your tables in Relational Database, and you will retrieve the data from your database using SQL Server in the final phase, using SQL Server.

1. Business rules

Business rules should be clear enough to provide proper information about entity, attributes, relationship, and constraints.

Example:

STUDENT – CLASS:

For each student, we want to store his or her first name, last name, middle initial, and email. For each class, we want to store class section number and class time.

* + A student should take at least one class, and can take many classes.
  + A class can be taken by many students but should be taken by at least one student.

1. ER Diagram

Your ER Diagram should accurately reflect business rules, and should have at least five entities. Your ER diagram should be drawn, using Crow’s Foot notation, and must be clear and complete. Your ER Diagram should be implementable with no Many- to-Many relationships.

1. Project Plan

Your project plan should include the following information, in order, and presented in subtitled sections:

*Group Name*. Choose your group name, or your group may decide to use the default group name.

*Group composition*. List all members.

*Leader and Other roles*. You will choose a leader in the first group meeting. The leader gets no extra points in class grade. You simply need someone to be the coordinator of your group. Decide amongst yourselves what you want the leader’s role to be, what other role you want to establish, and who will fill them, as listed below:

* + Data collector
  + Integrator
  + Editor
  + Proofreader
  + Version controller
  + Graphic designer to make the report visually appealing
  + Detail-oriented verifier, etc.

*Group Norms*. List and describe all the norms that your group wishes to enact. Group norms are standards for behavior and attitude. People tend to have different expectations and desires when working in a group. For instance, some people like to postpone decisions, others want a clearly determined path on day one. You may want norms

related to respecting each other’s time, ideas, constraints, and strengths, among other items. At a minimum, I want you to develop three norms:

1. The first norm is how you will *communicate*. Say that you choose to communicate by email. That’s great, but now you also need to specify how long members have to reply. Do you expect a response within 24 hours? Within 4 hours? Team get into trouble when they want quick replies, but fail to set a precise norm defining promptness. Should all emails copy all members? That is probably a good idea, but you need to figure out what works for your team. Do not set any norm that all members cannot meet.
2. The second norm is for how you will make *group decisions*. Do you want to vote or reach consensus? How long can you postpone a decision? What if the group cannot reach agreement? What is the leader’s role in decision making?
3. The third norm is for how and when you will *signal progress and complete work*. Some of you will be anxious to see concrete signs of work along the way; others may like to think for a longer period and crank more at the end. You need to figure out how and when to provide signs to each other of work completed and how to voice concerns about work not yet done or work not done as expected. Agree on “check-in” mechanisms along the timeline that work for everyone, allaying the anxieties of your more anxious members without creating an undue sense of urgency to your more laid-back members.

## Presentation

Your group will deliver a presentation on Phase 1 Report in the classroom on Oct. 9, 2018. Your presentation will last between 5 and 7 minutes. Every member should participate in this presentation.

Presentation 1 should deliver the following items:

1. The specific topic
2. End-user of the database
3. Data sources
4. Business rules
5. ER Diagram

# Phase 2 report

Phase 2 report should have the following outline, building on your phase 1 report:

1. The objectives of the database
2. End-users of the database
3. Data sources
4. Business rules

Make sure that business rules accurately reflect the real-world business.

In the process of normalization, taking a bottom-up approach, you may identify new business rules. Highlight new business rules you identified or business rules you corrected.

1. ER Diagram

Make sure the ER Diagram accurately reflect business rules, using Crow’s foot notation. For instance, look at the entity whether it has all attributes you mentioned in the Business rules.

1. Normalization
   1. A bottom-up approach

Show each table with at least ten rows of real-world data.

For instance, let’s say you have the ASSIGNMENT entity which has EMP\_ID, PROJ\_ID, PROJ\_NAME, CONTACT, HOURS attributes. You will show the corresponding table and columns with your data, as shown below. Looking at your table structure with data will help you identify multi-valued attributes, partial dependencies, and transitive dependences.

You should show all the tables you have with at least ten rows of real-world data you have.



* 1. 1NF
     1. Explain why the tables are in 1NF or not.
     2. If not, state every step to make it in 1NF.
     3. State relational tables in 1NF.
  2. 2NF
     1. Explain why the tables are in 2NF or not.
     2. If not, state every step to make it in 2NF.
     3. State relational tables in 2NF.
  3. 3NF
     1. Explain why the tables are in 3NF or not.
     2. If not, state every step to make it in 3NF.
     3. State relational tables in 3NF.
  4. Correcting the initial ER Diagram

Your ER diagram should be drawn, using Crow’s Foot notation, and must be clear and complete. Your ER Diagram should be implementable with no Many-to-Many relationships. Please make sure to accurately mark primary keys and foreign key, and cardinalities.

Also state which part was corrected after normalization.

\*\*Please make sure that business rules, relational tables, and the ER Diagram are consistent.

# Phase 3 report & Presentation

* 1. Phase 3 Report (Worth 50 points)

Phase 3 report should have the following outline, building on your phase 2 report:

1. The objectives of the database
2. Who are end-users?
3. Data sources
4. Business rules
5. ER Diagram
6. Normalization
7. DDL: Creating tables
   * Create the tables in one of your member’s database on Class SQL Server. Copy & Paste the exact CREATE TABLE code you used into your report document.
8. DML: Inserting data
   * Insert your data to the tables. Copy & Paste the INSERT statements into your report document.
   * Include screenshots which show the content of each table you created on SQL Server, using the SELECT statement.
   * State whose database on Class SQL Server has the tables and data for the project.
9. Associated queries for three different use cases

Your use case should require **at least SELECT FROM WHERE clauses & joining tables.** Your use case should reflect what end-users wish to retrieve data from your database. DDL & DML statements are not use cases.

1. Use case 1: state your use case 1.
   1. SQL code to answer your use case 1.
   2. The answer SQL Server returned when you ran the SQL code.
2. Use case 2: state your use case 2.
   1. SQL code to answer your use case 2.
   2. The answer SQL Server returned when you ran the SQL code.
3. Use case 3: state your use case 3.
   1. SQL code to answer your use case 3.
   2. The answer SQL Server returned when you ran the SQL code.

If you include **two more use cases**, your group will get **extra 5 points per case**. Likewise, each case should require **at least SELECT FROM WHERE clauses & joining tables.**

#### Possible extra points: 5 points \* 2 cases = 10 points

1. Use case 4: state your use case 4.
   1. SQL code to answer your use case 4.
   2. The answer SQL Server returned when you ran the SQL code.
2. Use case 5: state your use case 5.
   1. SQL code to answer your use case 5.
   2. The answer SQL Server returned when you ran the SQL code.

## 7.2. Final Presentation

Your group will deliver a presentation on Phase 3 Report in the classroom on Thursday, Dec. 10, 2018. Your presentation will last between 6 and 8 minutes. Every member should participate in this presentation.

Presentation slides should deliver the following items:

1. The objectives of the database
2. Who are end-users?
3. Data sources
4. Business rules
5. Final version of ER Diagram
6. Examples of data in your tables on SQL Server you implemented

Include screenshots which show the content of the table, using SELECT \* FROM table\_name should be on your slides.

1. Associated queries for all use cases & answers to corresponding queries Include screenshots which show the SQL Code and the answer returned.

If you have a total of five use cases, please include all of them and give us an explanation about each use case and the answer.