**Principle of Data Management CSCI 320 General Information Project**

01/11/2019

1. **Project Description**

This is a semester long group project. Project Goals:

* Group project of 3-4 students. Groups will not change after assigned.
* Select a project domain from the list of provided projects. There are 4 project domains; a maximum of three groups are allowed to work on the same domain. This is a first- come first-serve selection process.
* Your group will design and implement the database system outlined in the selected domain. Domains will not change after they are assigned.
* Your group at the end of the semester will present their project to the class. Presentations will be proximately 20 minutes in length.

The project will be broken into 4 phases, a presentation, and a group evaluation. Each phase will build on the prior phase. As basic description of each phased is outlined here. More details in the remainder of the document.

* Phase 0: Group and domain selection. Due: 1/21/2019 11:59pm.
* Phase 1: Basic Database Design and Modeling and progress report. Due: 2/24/2019 11:59 pm.
* Phase 2: Basic Database System Implementation and progress report. Due: 3/24/2019 11:59pm.
* Phase 3: Final Database System, report, and presentation. Due: 4/14/2019 11:59pm.
* Group Evaluation: Individual group evaluation Due: 4/14/2019 11:59pm.
* Project Presentation: In-class group presentation last two weeks of class. Due: 4/14/2018 11:59pm.

Feedback will be provided for each phase.

# Phases

Below is an outline of the minimum submission requirements for each part of the project. Submissions are due by 11:59 pm on the day they are due. No late submissions will be accepted. No email submissions will be accepted.

## Phase 0

In this phase the following items are due:

* Group member names.
* Group Name
* Ranking of top three domain choices. MyCourses submission times will be used to choose domains for groups. The earlier you submit the higher the likelihood you will receive your top choice of domain.

The submission should be a PDF file that includes the information above. No other file formats will be accepted.

## Phase 1

During this phase you will begin to outline your project design. The following items are due:

* Report outlining:
  + - your progress,
    - a description of your design,
    - any choices made in the design process,
    - issues faced in the design process and solutions to the issues,
    - explanation of your ER diagram and reduction to tables,
    - a description of the data you plan to use.
* ER diagram: separate file is fine but must be a PDF.
* A listing of sample data used in your database.
* A storyboard of your final UI. Basically, a sample of what the UI will look like. A simple storyboard of actions that a user can perform is sufficient. Example each of the purpose of the UI shown in each of the mockups. This does not have to be fancy at this point. Hand drawn mockups are fine.

Note: This does not have to be the final design of your database. You can make changes as the semester goes on. However, you must report these changes in later phases.

For this phase you will submit the following:

* A report as described above. listed below.
* An ER diagram. The ER diagram must be in the form of a PDF. It must also be legible. ER diagrams that cannot be read will receive no credit.
* A listing of your sample data. CSV files are sufficient for this task.
* A PDF displaying the storyboard of your UI.

Zip these items in to zip file called phase1.zip and submit to the MyCourses dropbox for Phase 1. Zip file format only; no 7zip, rar, etc.

Only one submission per group is required. The dropbox will only accept one file and only save the last submission.

## Phase 2

During this phase you will begin to implement your database system. The goal is to outline the progress you made since Phase 1. The following tasks must be worked and reported on during this phase:

* Finish and solidify your design. Your design should be outlined in detail. At this point major design changes should not happen. Any major changes in design from Phase 1 must be noted and discussed.
* Your submission for this phase must include an updated ER diagram and a UML diagram of the application. The ER diagram is of the underlying database, and the UML is of the application software.
* Must also include the reduction of your ER diagram to relations.
* A description of your application software. This includes descriptions of:
* the user interface. The user interface does not have to be fancy. A command line interface is acceptable.
* the underlying structure of the application. This includes how the database and application will interact.
* users and use cases for your application. Explain the intended users for your application and outline how they can use the application. What information will they provide and what information will they receive.
* A sample of the SQL queries, table creation, indices, etc. This is a sampling of the SQL code you have written. Give a description of what the SQL code does and what its intended usage in your application.
* A sample of the data used in your project. Each data item should outline the domain, or allowed values, for each piece of data. This is a more detailed version of what you outlined in Phase 1.
* A screenshot of your current UI with descriptions of what the screenshots are showing. This is a more detailed version of the UI description you outlined in Phase 1.
* A zip file containing the current code of your application and database. The code does not have to be 100% functional. It is understood that it is a work in progress.

Zip these items in to zip file called phase2.zip and submit to the MyCourses dropbox for Phase 2. Zip file format only; no 7zip, rar, etc.

Only one submission per group is required. The dropbox will only accept one file and only save the last submission.

## Phase 3

The final phase of the project. In this phase you will submit your final report and final application/database software. Think of this as describing the project to a manager or potential customer.

The following items will be submitted:

* Final Report. The report will outline the following:
* Description of your project. Assume the reader has no idea of the project details.
* Outline the design choices made along the way. Include why certain choices were made. This should include images, charts, and tables to give the reader some context.
* Outline the overall design of your underlying database. Explain the tables and attributes for each table. References to your ER diagram is encouraged. This

should include images, charts, reference to your ER diagram, and tables to give the reader some context.

* Describe a subset of SQL used in your database. Provide SQL examples and describe what the SQL does and what it is used for. Choose interesting or complex queries. Include SQL for table creation, indices, queries, etc. This section is intended to highlight the SQL written for this project. Include where in the code it can be found, file(s) and line number(s) are sufficient.
* Outline the design of your application. Describe design choices made. Describe actions users can take. This should include items like screenshots, images, charts, or sections of code/references to UML to give the reader some context.
* Describe actions users of your application can conduct. Include examples the reader can follow to perform some of these actions.
* Describe the overall project process. Describe things like what went well, issues encountered and how your group overcame them, what you learned, etc.
* Describe contributions made by individual team members. Examples would be, “Group member A was responsible for most of the UI”, or “Group member B was the leader and kept us on track,” etc.
* An ER diagram displaying the current structure of your database in the form of a PDF.
* A UML diagram displaying the current structure of your application in the form of a PDF.
* A csv file containing example data used to populate your database.
* A zip file containing everything needed to build, populate, and run your project. This should include:
* Any code created.
* Any data needed to populate the database.
* A README explaining the process needed to build the project.
* A README explaining the basic operation of the application.

Zip these items in to zip file called phase3.zip and submit to the MyCourses dropbox for Phase 3. Zip file format only; no 7zip, rar, etc.

Only one submission per group is required. The dropbox will only accept one file and only save the last submission.

## Individual Group Evaluation

This is the only part of the project that is to be completed individually. For this task each group member will submit a PDF evaluating the group, including them self. This is each member’s chance to complain about or give praise to fellow members. These will not be shared with the other group members.

The evaluation will include the following:

* Evaluation of each group member, include them self. This includes giving details on what the group member did well and any issues with the group member. Give details.
* Divide 20 points among the group members based of effort and contributions to the project. Higher the contributions the more points awarded, lower the contributions the less points awarded. You should defend each of your point awards.

These evaluations will affect the final grade on the project for each member. Be fair and honest.

Conflicting evaluations will be discussed with each group member individually to gain more details.

Each member will submit their individual group evaluations to MyCourses.

## In-class Presentation

During the last two weeks of class each group will present to the class their project. Presentations will be about 20 minutes long and should hit on the topics discussed in your final report.

Presentations will be submitted to MyCourses on the date stated above. Changes cannot be made to the presentation material after submission.

You must introduce each group member and provide a demo of your application. Assume you are presenting to a group of co-workers or clients.

Formal attire is not required for the presentations.

One group member will submit a copy of your presentation in MyCourses.

# Project Constraints

This section outlines details about any project constraints or limitations. Constraints/Limitations:

* Your project must use the H2 Database to implement the underlying database.
* Your project application must be written in Java. In particular Java 11.
* Any special third-party packages, applications, and tools used must be easily accessible. They must also be easy and quick to set up.
* Your project must be able to run and compile on any OS.
* Your project must not access any third-party site or systems during its operation/setup. The use of version control is encouraged but not required.
* A User Interface is required, but does not need to be a fancy Graphical User Interface. This is a database class, not a UI class.
* SQL cannot be just simple queries. Complex queries using joins, aggregate functions, indices, etc. are required. SQL should do the majority of the data processing, not your application.

# Grading

Your implementation will be grading according to the following:

* Phase 0: 5%
* Phase 1: 15%
* Phase 2: 15%
* Phase 3: 50%
* Presentation: 10%
* Group Evaluation: 5%
* Effort: +/- up to 100%

Effort is based on group evaluation, instructor observations, and other factors. A member that contributes very little to the project can have their overall project score reduced. A member that contributes above and beyond, or members that contribute more to overcome the lack of effort of another member, may have their score increased.

# Submission

Follow the submission instructions for each section of the project. Late submissions will not be accepted. Emailed submissions will not be accepted.