Project for DATA 1201: Introduction to Relational Database

## Learning Objectives

* Design a database according to the requirements of a chosen case study
* Implement complex SQL queries to retrieve information from multiple tables
* Create useful sample data to test queries

## Project Overview

Your task in this assessment is to work as a group to create a database and queries for your chosen case study. This project has two phases: Design and Implementation.

## External Resources and Code

As per the academic honesty guidelines, you may not copy code (even with modification) from other students, or from other sites on the internet. You may not consult other groups or look at their code. You may not share your code with other groups. Any submission that violates the academic honesty guidelines will be considered an academic integrity violation.

## Phases and Marking Criteria

This assessment is divided into two phases.

1. Database Design (40 percent of project mark)
2. Database Implementation (60 percent of project mark)

Requirements and marking criteria for each phase are detailed below.

# Phase 1: Database Design

## Phase Overview and Submission Requirements

First of all, formulate a case study, which represents your question.

Second, produce a well-formatted ER diagram using the case study above, as well as some sample data in table format.

You should submit two documents to the dropbox for this assessment:

1. ER Diagram: This should be an image, PDF, or Word document containing your ERD.
2. Sample data: This should be an image, PDF, Word document, or Excel document containing your sample data.

## ER Diagram Requirements

Your ER diagram should have the following information:

1. Tables with names and columns. (At least 5 tables/entities must be identified)
2. Indications of which columns are primary or foreign keys.
3. Relationships between tables, including ordinality.

## Sample Table Requirements

For each table in your design, create a small table of sample data by handwriting it, putting it in a spreadsheet, or putting it table within a word processing program.

Sample data should fulfill the following requirements:

1. Tables should include the column names as well as minimum 5 rows of useful sample data.
2. Rows should be relevant to the type of information that client wants to retrieve. (Eg, You should include a customer who has played in Cincinnati, but does not live in Cincinnati).
3. Foreign keys should exist as a primary key in the related table.
4. Indicate which requirements relate to each row in your sample data.

**You DO NOT need to produce .sql files to create or insert data into a database for this phase.**

For example, sample tables for a vendor and product database might look like this:

**Product**

|  |  |  |  |
| --- | --- | --- | --- |
| Id | Name | VendorId | UnitPrice |
| 1 | Gum drops | 2 | .99 |
| 2 | Candy canes | 1 | 1.50 |

**Vendor**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Id | Name | Address | City | State | Phone |
| 1 | Wonka Co | 123 Fake St | Tampa | FL | 555-555-5555 |
| 2 | North Pole Inc | 555 Fiction Ave | Minneapolis | MN | NULL |

## Marking Criteria

This phase will be marked out of 40 points.

1. Database Design: 30 points
   1. Correct tables are identified (Minimum 5 tables)
   2. Correct columns are identified
   3. Relationships are identified.
   4. Primary keys and foreign keys are identified.
   5. Data is normalized to 3NF
2. Sample data: 10 points
   1. Each table has minimum 5 rows of data
   2. Table entries make sense
   3. Keys are consistent in rows.

# Phase 2: Database Implementation

## Phase Overview and Submission Requirements

Your task in this phase is to create your database and queries using the ER diagrams from phase one (updated to reflect your feedback).

You should submit this assessment on D2L. Submit the following individual files to the project dropbox:

* Create\_yourdatabasename.sql : This file should create and populate sample database.
* Query\_yourdatabasename.sql : This file should contain all of your data retrieval queries, one after the other.

You SHOULD NOT zip your submission folder.

## Database Creation Requirements

In a file called Create\_yourdatabasename.sql, create a database called TPP. Your database should:

* Delete the database if it already exists
* Create the database.
* Create tables based off your design.
* Have appropriately named tables and columns.
* Use primary and foreign keys sensibly.
* Use constraints sensibly.

Also populate your database with sample data. Start with the sample data from Phase 1, adding more where you see fit.

Your sample data should:

* Include at least five rows per table.
* Use foreign key values from other sample tables where appropriate.
* Act as a test case for your retrieval queries.

Your sample data should include rows that are created to test whether or not your retrieval queries are working correctly. As you create your queries, try to break them by adding tricky sample data to your tables.

## Retrieval Query Requirements

In a file called query\_yourdatabasename.sql, create 10 queries to retrieve meaningful information for your case study. You may assume that the database and tables exist, but you should connect to your database with the USE command at the start of the file.

**Important**: Try including queries that spans all of the features that you have learnt for the course.

## Marking Criteria

This phase will be marked out of 60 points.

1. Database creation: 15 points
   1. Script runs without errors
   2. Database structure reflects feedback from phase 1
   3. Data types are reasonable
   4. Primary keys, foreign keys and other constraints are reasonable
2. Database population: 15 points
   1. Script runs without errors
   2. Rows represent reasonable test values for queries
3. 10 Queries: 30 points ( 3 points each)
   1. Query runs without errors
   2. Query returns correct results for any set of rows
   3. Query is reasonably efficient
   4. Query is formatted according to best practices
   5. Most importantly, query covers all of the features learnt in the course