

# **Database Management**

Restaurant Database

# Purpose

The purpose of this assignment is to gain experience designing, implementing, and using a relational database. This assignment is to be completed by your study groups.

# Background

Your team is tasked to develop a database for a client that is an online ordering startup, currently covering 30 restaurants in 6 cities. Consumers can order to-go meals from participating restaurants via the client’s online ordering platform. The client has a member management team and wants to capture data on its members and their orders. The database will support the member management team’s routine operations (identifying and signing up new members and providing data to the marketing team for analyzing member behaviors and preferences).

# Requirements

The member management team wants to keep the current member order management practices and conduct analyses to better understand the members’ behaviors and preferences. Customer preferences can vary depending upon the geographical location (e.g., salads might be more popular in warmer climates or potatoes in colder locations). Besides the member management, the client also needs to keep track of marketing activities, menu offerings, and staffing requirements.

1. (10 points) Describe the database you will need to create for your client. Your explanation should be written in terms that the client can understand. State the business rules that are important for the application.
2. (20 points) Create the conceptual model needed to support your client’s database.
   1. List the entities, attributes, and relationships from the sample data.
   2. Draw an entity-relationship (E-R) diagram using the Crow’s feet or Chen notation. Make sure you are consistent in the notation you use and it corresponds to the notation used in class.
3. (15 points) Transform the E-R diagram into a relational database design that includes all the keys, data types, and constraints (e.g., null or not-null values). Show how the transformation rules are applied.
4. (10 points) Implement the database. Use Oracle, which is provided by GSU. You will need to create the (dummy) data for the database; e.g., 10-15 entries for each relation. Show the data that you input to your database by using the Select \*; command.

1. (25 points) Identify 10 important, non-trivial queries for this database. Write the queries in English and state the importance of each query, within the context of the application domain. Write the queries in SQL and run them against the database. Show the SQL commands. Provide screen shots of the results obtained. Trivial queries are, for example, ‘retrieve the names of the customers,’ or ‘identify the customers who live in Atlanta and are over 21 years of age.’ At least 7 of the queries should require a join operation. One of the queries should use some form of a trigger or a way to capture integrity constraints.
2. (10 points) Discuss the real-world significance of this database. You will need to research and understand the purposes of customer relationship management systems. Do not simply write down the general purpose of a customer relationship management system. Identify what additional constructs should be included in the database and state how they would be useful. This question requires well-conceived and well-written arguments that reflect the role of data and its analysis.
3. (10 points) Create a set of ppt slides that you would use to guide your presentation to the client. Make sure that the slides are presented from a management perspective.

# Useful Resources

To drawing the E-R diagram, you may use an online drawing tool, but be sure to employ the notation studied in class. Note that some tools mix conceptual with logical design. These must be separate so do not use a tool that does so.