

# **Database Management**

**Design and Implementation of a Relational Database**

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This assignment is to be completed in groups of 3-5 students.

The purpose of this assignment is to provide an opportunity to design a database management system and implement some of the relations. Oracle is provided as software by GSU. You will need to get your userid and password and download the software.

1. [10 points]

Select an application for which a database management system is needed. Describe the application and justify why it is an important application from a management perspective.

1. [15 points]

State 3 important business rules that the database needs to be able to support. Explain how the database will support these business rules. An example is: employees must be designated as being either full-time or part-time employees. Note: Stating mapping ratios or min/max cardinalities is not a business rule.

1. [25 points]

Create a conceptual model for this application. Include proper names for entities, attributes, and relationships. Identify min/max cardinalities. You may use either the Chen or Crow’s Feet representation. Use the notation presented in class. There should be 5-8 entities in the conceptual model.

1. [15 points]

List 5 non-trivial queries that you would want to run against a populated database. For each query, justify why it would be important for the operations of a company.

1. [15 points]

For each entity, create a corresponding entity relation. Implement the entity relations in Oracle using your Oracle account provided for this course. Populate the relations with data. You will need to make up the data, which should be a reasonable reflection of the data that could occur in such an application. Show the populated relations. You can do this by using the “select \* command. There should be at least 5-10 entries for each relation.

1. [20 points]

Describe how you would expand your conceptual model if you were to implement it for a real-world application. Identify what additional constructs (entities, relationships, attribute) you would add and the purpose of each. Based on the expanded model, what additional queries would you be able to answer?