**CS3431 C16: Project Description**

**Phase 2**

**Building a Database Application using Oracle SQL**

Due Date:

Teams: The project is done in the same team of two as the previous project phase.

Description:

In this phase you are required to convert the database model you created for a Hospital System to a working relational database using Oracle.

For this phase of the project, use the relational model below (slightly modified from Phase 1):

**Guide** (DriverLicense, FirstName, LastName, Phone, VehicleType, Title, Salary, HireDate)

**Vehicle** (LicensePlate, VehicleType, Make, Model, Year, MaxPassenger)

**Tour** (TourID, TourName, Description, City, State, Duration, VehicleType, AdultCost, ChildCost)

**Location** (LocationID, LocationName, Type, Address, Longitude, Latitude)

**Traveling** (TourID, LocationID)

**Customer** (CustomerID, FirstName, LastName, Address, Phone, Age)

**TravelingWith** (TravelingWithID, CustomerID, FirstName, LastName, Age)

**BookedTour** (BookedTourID, PurchaseDate, TravelDate, TotalPrice, TourID, DriverLicense, LicensePlate, CustomerID)

VehicleType may be car, amphibious or bus. Title may be junior guide, guide, or senior guide. The location type may be historic, museum, or restaurant. Do not attempt to link the guide, vehicle, and tour through the VehicleType. For now, the data entered will be manually checked to see that it matches.

**Part 1 (40 Points): Create the database**

Given the relational model above, do the following:

1. Build the database in Oracle that reflects the given requirements in Phase 1
2. The database you will create must include
   1. All tables with descriptive names and fields.
   2. For the fields, choose the appropriate data types
   3. Add the appropriate constraints, which must include (you may add more):
      1. Primary Keys and Unique constraints
      2. Foreign Key constraints
      3. Not Null constraints
      4. Domain constraints

**Part 2 (30 Points): Populate the Database**

Insert records in the database such that:

1. All the constraints that you defined in Part 1 will be obeyed
2. Each of the above queries must return some records in their results
3. Insert information for at least:
   1. 6 BookedTours
   2. 5 Customers, each of which has between 2 and 5 traveling companions. At least one customer has 5 traveling companions. One of the customers has two booked tours.
   3. 5 tour guides. Be sure to cover each of the 3 vehicle types.
   4. 5 vehicles. Be sure to cover each of the 3 vehicle types.
   5. 4 different tours.
      1. Tours 1 and 4 include 2 locations.
      2. Tour 2 includes 5 locations.
      3. Tour 3 includes 3 locations.
      4. A location may appear on more than one tour.
4. The information inserted must result in some record being returned for the queries in Part 3.

**Part 3 (60 Points—6 points each): SQL Queries**

Write SQL queries against the tables you created above to answer the following queries:

Q1: Report vehicles that can carry more than 10 passengers.

Q2: For a given tour guide (say TourID = 10), report which of the 5 company vehicles that the tour guide can drive. Assume that the categories are distinct: car license permits driving only of cars, bus license only permits driving of buses, etc.

Q3: Report the number of booked tours each customer has. Also include the FirstName, LastName, and Age

Q4: Report the number of booked tours to which each tour guide has been assigned. Also include the FirstName, LastName, and Title of the tour guide.

Q5: Report the number of each location type (historic, museum, restaurant) along with the tour name that each tour contains.

Q6: Report the number of people taking each of the different tours. Include the TourName, City, State and VehicleType. Make sure to count the primary customer as well as those who are traveling along with him or her.

Q7: Report primary customers who have booked tours in 2015 and 2016.

Q8: Report which is the most popular tour, i.e. the tour that has been booked the most often (appears most often in BookedTours). Do not factor in traveling companions of the primary customer.

Q9: Report the total number of tours taken by people (primary customers and traveling companions).

Q10: For a specific booked tour, insert the TotalPrice by calculating $100 per adult ( >= 18 yrs) and $50 per child (<18 yrs).

**Deliverables:**

Each team should deliver two files as follows:

1. Any comments or assumptions that you have, you can include them in a separate .doc or .pdf file.
2. Text file (.sql) that contains all SQL commands from Part1, Part2, and Part3 above (Put the insert statements before the queries). The file must be executable from SQL using command:

SQL > @<fileName>

The file must run correctly, first drops all tables, then creates all tables, inserts data, and then execute queries. If the file’s syntax was not correct (and the file did not run), you will lose 20 points in addition to any other deductions.

Above each SQL query, also write the query in text enclosed between /\* \*/. In this case, SQL will treat this text as a comment and will execute normally. For example:

/\* Q7 Report primary customers who have booked tours in 2015 and 2016 \*/

SELECT …

FROM …

WHERE …

**Important Notes:**

* The .sql file you create is just a regular text file. It does not have any special format. Put the file in the right directory so SQL can reach it. You may write a full path in the command, e.g., “@<full-path>”
* Check this link about adding comments within the SQL commands (be careful by putting space after “/\*” and before “\*/”, otherwise some commands may execute multiple times, and give you strange errors. That is “/\* … \*/“

<https://docs.oracle.com/cd/B28359_01/server.111/b28286/sql_elements006.htm#SQLRF51086>

1. Put the two files in a single zip file that will be submitted as below.

**Submission (Each team gives one submission):**

* Submit electronically by the due date via myWPI website. Make sure your two files (the text file .sql, and your report .doc or .pdf) are zipped, and you upload one file.
* Each team submits one copy (from either of the team members).
* ***No hard copy submissions***
* ***The team members’ names must be written inside the report file***