CS3431 A19 Wong
Assignment 2: SQL 1 – 4

Due Date: F 9/6 at 11:59pm.
Late Policy: 10% off until Sa 9/7 at 5pm. 0 points afterwards. Maximum grade is 100 points.
Submission: submit your Cruise2.sql file to Canvas using the Assignment 2 link. Only the most recently submitted assignment will be graded and checked for lateness.

This homework is to be done individually. You may speak to your classmates about the assignment but you cannot exchange information on the actual SQL code that needs to be written. This means you cannot look at another student's code. However, you can give a similar SQL example that involves code.

You will be creating an expanded version of the database from assignment 1. The data is located in the spreadsheet CS3431-A19 Assignment2.xlsx. There are now 6 tables of data, one on each spreadsheet tab: Reservation, Customer, TravelAgent, Cruise, Company, and Ship.

a. The Company, Customer, and TravelAgent schema and data remain the same.
b. The data for Cruise table's ship names has changed.

<u>Begin with the schema from Assignment 1 including all of the constraints, and add or modify to it following the directions below. As with Assignment 1, only use named constraints.</u>

Use a text editor to create **Cruise2.sql** that will include all of your SQL commands:

1. (5 points) The first set of commands will drop the tables and sequences so you can run your Cruise2.sql file over and over. Do not use "Cascade Constraints" with your drop commands.

2. (15 points) Write the SQL commands to create the new and modified tables following the instructions below:
    a. Create the Ship table with the given table names, field names, and datatypes given in the spreadsheet.
        1. The combination of shipName and companyName is the primary key.
        2. The Ship table references the Company table. In other words, each ship belongs to a single company.
        3. The Peninsular & Oriental Steam Navigation Company, founded in 1822, was the first company to offer passengers commercial leisure Cruise in 1844. As a result, the yearBuilt field should be restricted to the year 1822 or after.
        4. The tonnage field in the Ship table can only have the values from 50,000 to 110,000 inclusive but with intermediate values at every 15,000 tons. For example, 65,000 and 110,000 tons are valid values but not 54,000 or 105,000 tons.
        5. Enter the data for the Ship table from the given spreadsheet.
        6. Create a query to display the table's data
    b. The Cruise table now solely references the Ship table. If a Ship is deleted, then the referential integrity should be set so all cruises referencing it will be deleted as well. Do not reference the Company table.
    c. The Reservation table now has a new paymentDate field that is initially null for every record. Be careful with your insert commands to handle these null values.
    d. The Customer table has a unique key that consists of the first name, last name and phone number.

Before you proceed to the next section, you will want to create a high level summary of the database schema (refer to section 2.2.2 in your textbook) so you can see all of the tables and its attributes in one place. You can use underline to indicate a primary key and italics to indicate that a field is a foreign key. For example,

Books (ISBN, FirstName, LastName, Title, *PubID*)

An alternative method is to use PK and FK after a field name to indicate primary and foreign keys:

Books (ISBN PK, FirstName, LastName, Title, PubID FK)

You will NOT submit this schema as part of your assignment. It is strictly for your convenience.

3. Write the following SQL commands, one SQL query per part (20 points each)
    a. Create the following 3 updates:
        a. Update all of the dates in travelDate to be 395 days later (one non-leap year and 30 days later).
        b. Update the payment deadlines in Reservation to be 120 days before the travel date, or the current date (use SYSDATE), whichever is later.
        c. If the travel date is in the past, make the payment date the same as the travel date.

    For example, if today is August 31, 2019 and
        a. the travel date is September 4, 2019, then the payment deadline is August 31, 2019
        b. the travel date is February 22, 2018, then the payment deadline is February 22, 2018
        c. the travel date is May 17, 2020, then the payment deadline is January 18, 2020.

    You will find it useful to search for the Oracle function that determines the maximum value in a series. Hint: it is not max(), which is an aggregate function!

For the remaining parts, use the updated data from part 3.a:

    b. List ships and the company it belongs to where the stock symbol has a letter 'R' in it, and the total capacity of people on the ship is over 3500. Display the ship name, company name, and a header of TotalPeople for the total ship capacity. Do NOT use a join to write this query. Instead use a nested query in the where statement.

    c. For each ship list the company name, ship name and the total amount of sales the ship is generating – the sum of all the cruises sold together with the total tips customers will be paying on the cruises. Subtotals for each company should be displayed and a total for all cruises displayed at the bottom of the table. Display the total amount of sales with a TotalPrice header and with the following format: 2 digits to the right of the decimal place are displayed, a dollar sign before the amount, and if the total is less than a dollar, a leading single 0 is displayed to the left of the decimal point. For example, the following are all valid displays: $15322.48, $0.29, $4500.00. Use multiple theta joins for this query instead of nested queries.

    d. Determine the company that has the greatest number of travel days out of all reservations. Display the name of the company and the total number of travel days with the header of SUMDAYS.