For this exercise you will use the Camping Store (`camping`) schema available on our Oracle server.

1) Reverse engineer the Camping Store schema into a **physical** level diagram using SQL Developer's `Data Modeler -> Import -> Data Dictionary` function. Use your own database connection, select the `camping` schema, and all of the tables. Copy and paste a picture of the diagram into your homework submission document.
2) Write a SQL statement to show the total dollar amount sold to customers summarized by state/province of their customer site address and each month of each Year (YYYY-MM).
3) Write a SQL statement to show the total dollar amount sold summarized by product name and each month of each Year (YYYY-MM) along with RANK (order by increasing RANK). Only include sales by reps who met or exceeded their 2017 sales quota.
4) Write a SQL statement to show all Canadian based customer's name, state/province and total dollar amount sold on "Outdoor Products" or "Environmental Line" product types.
5) Write a SQL statement to show the product name and total profit for the product that has the largest profit margin (extended price compared to product cost) when sold over the internet.
6) Who is the "best" customer? Justify your rationale and back it up with queries and data. You may also wish to graph various data to support your justification.
7) Which month (be sure to say from which year) had the largest percentage increase in sales over the prior month? Justify your rationale and show your SQL query (Hint: Look at the LAG function).
8) Create a VIEW in your own schema that joins together all of the columns in all of the tables. Be aware of Cartesian products e.g., between the ship address and customer.
9) Import all of the data from your VIEW into Microsoft Excel. Create a pivot table from the resulting data set and then summarize the data according to total sales by product line and customer state/province.
10) Import all of the data from your VIEW into Tableau. Create an appropriate visualization from the resulting data set that summarizes the data according to total sales by product type and customer country over time (e.g., monthly).

Additional Notes:

- This is an individual assignment. Do not collaborate.
- Assemble all of the responses to the questions in one MS Word or Google Docs document.
- For the SQL Queries, repeat the question. Format your query in Courier New font (at least 12 point size). Paste in the results of the query into MS Word. Follow this Example:

Ex1: Show the total number of orders and the total dollar amount ordered by year.
SQL:

```
SELECT   TO_CHAR(o.order_date, 'YYYY') AS Order_Year,
         COUNT(*) AS Order_Count,
         SUM(od.quantity * od.extended_price) AS Total_Dollars
FROM     camping.customerorder o INNER JOIN camping.orderdetail od
           ON o.order_no = od.order_no
GROUP BY TO_CHAR(o.order_date, 'YYYY')
ORDER BY TO_CHAR(o.order_date, 'YYYY');
```

Results:

ORDER_YEAR	ORDER_COUNT	TOTAL_DOLLARS
2018	474	1013385
2019	654	1242528

- Do not use MS Word to write your queries as MS Word will make "smart quotes" out of your text strings and SQL will not understand these.
- In places where you need to "justify your rationale" you are to write at least one paragraph.

- When creating views, show the SQL syntax you used to create the view.
- When documenting your results from Excel and Tableau, make a screen capture but only paste in the relevant portion of the picture to your document. (Do not paste in a screen shot of the entire desktop). (Crop the picture with MS Paint)
- "Total sales" means to multiply the quantity ordered times the price the customer paid. This is the same as saying the total dollar amount ordered by customers. Be sure to exclude returned items.
- This is an individual assignment. If you have any questions, please let me know.
- At the end of the assignment answers, please write in a paragraph:
    - Where did you carry out the work (Baruch computer lab, own PC/laptop etc.)
    - How many hours did you spend working on the assignment?
    - What was the most difficult part of completing the assignment?

Resources

There are a number of different ways in which you may choose to complete this assignment. Here are some suggested alternatives:

1) Use SQL Developer, Excel and Tableau on a Baruch campus lab computer to connect to the Oracle database server on campus (IP: 10.3.2.61 Port: 1521 Service: pdb2) using your Oracle account credentials. There is nothing for you to install or configure.
2) Use SQL Developer, Excel and Tableau installed on your laptop to connect to the Oracle database server on campus (IP: 10.3.2.61 Port: 1521 Service: pdb2) using your Oracle account credentials. You will need to do the following on your laptop:
    a. Install Oracle SQL Developer http://holowczak.com/getting-started-with-oracle-sql-developer/
    b. Install Microsoft Office (with Excel)
    c. Install Tableau http://holowczak.com/downloading-and-installing-tableau-10/
3) Use SQL Developer, Excel and Tableau installed on your laptop to connect to a local copy of Oracle 12c that you install. You will need to do the following on your laptop:
    a. Install Oracle 12c Standard edition http://holowczak.com/installing-oracle-12c-standard-edition-on-windows-10-professional/
    b. Install Oracle SQL Developer http://holowczak.com/getting-started-with-oracle-sql-developer/
    c. Install Microsoft Office (with Excel)
    d. Install Tableau http://holowczak.com/downloading-and-installing-tableau-10/
    e. SQL Script file to create tables for Oracle: http://holowczak.com/wp-content/uploads/sql/camping_store_sales_database_Oracle.sql
4) Use Oracle Live SQL to work on the SQL Queries portion of the assignment:
    a. *Create an account* at the Oracle Live SQL Web site, upload and execute a Script file to create the database schema: http://holowczak.com/getting-started-with-oracle-livesql/
    b. SQL Script file for Oracle: http://holowczak.com/wp-content/uploads/sql/camping_store_sales_database_Oracle.sql
    c. Note: You will need to re-run the script each time you log back in to Oracle SQL Live.
5) Create a MySQL instance to work on the SQL Queries portion of the assignment:
    a. Install MySQL on your own PC or create a MySQL instance on Gearhost: http://holowczak.com/getting-started-with-gearhost-for-mysql-database-development/
    b. SQL Script file to create the Camping Store schema in MySQL: http://holowczak.com/wp-content/uploads/sql/camping_store_sales_database_MySQL.sql
    c. Reverse Engineering a MySQL Schema using MySQL Workbench: http://holowczak.com/reverse-engineering-a-mysql-database-using-mysql-workbench/
6) Create a Microsoft SQL Server instance to work on the SQL Queries portion of the assignment:
    a. Install SQL Server on your own PC or create a SQL Server instance on Gearhost: http://holowczak.com/getting-started-with-gearhost-for-sql-server-database-development/

b. SQL Script file to create the Camping Store schema in SQL Server: http://holowczak.com/wp-content/uploads/sql/camping_store_sales_database_SQL_Server.sql
c. Reverse Engineering a SQL Server Schema using Visual Studio: http://holowczak.com/database-reverse-engineering/3/

Other relevant Tutorials

- Getting Started with SQL Developer: http://holowczak.com/getting-started-with-oracle-sql-developer/
- Reverse Engineering a Data Model using SQL Developer: http://holowczak.com/reverse-engineer-a-data-model-oracle-sql-developer/
- Getting Started with Tableau: http://holowczak.com/getting-started-with-tableau-10/