# Assignment 04- (Section B)

**Read this before starting:**You have to **submit** me **3 files**, for queries submit me the log file [label each query properly], shema_art.sql and data_art.sql

**Question #1 (Marks 12)**
We provide you with a sample database which is based on a global fictitious company that sells computer hardware including storage, motherboard, RAM, video card, and CPU.
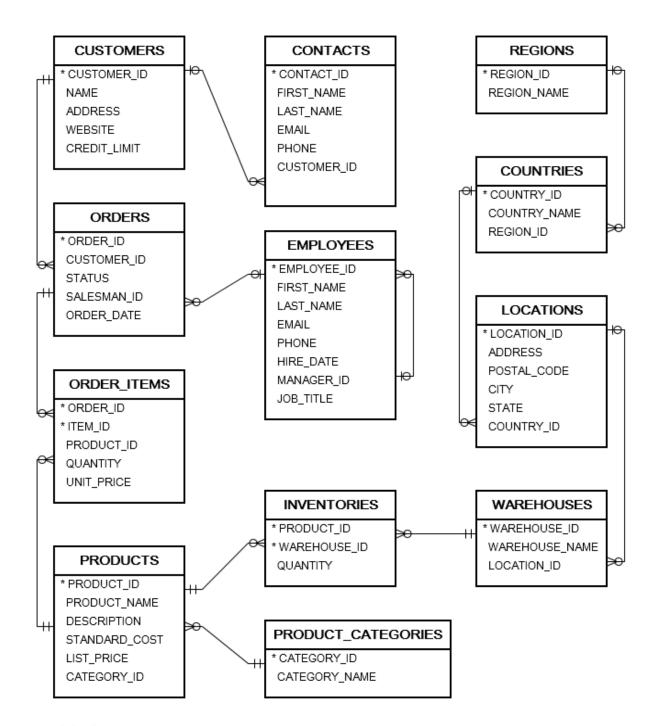The company maintains the product information such as name, description standard cost, list price, and product line. It also tracks the inventory information for all products including warehouses where products are available. Because the company operates globally, it has warehouses in various locations around the world.
The company records all customer information including name, address, and website. Each customer has at least one contact person with detailed information including name, email, and phone. The company also places a credit limit on each customer to limit the amount that customer can owe. Whenever a customer issues a purchase order, a sales order is created in the database with the pending status. When the company ships the order, the order status becomes shipped. In case the customer cancels an order, the order status becomes canceled.
In addition to the sales information, the employee data is recorded with some basic information such as name, email, phone, job title, manager, and hire date.

To do the following tasks, it needs to execute the **schema.sql** to build the database schema and run **data.sql** to insert the data.

The following illustrates the sample database diagram:

**Task 1.1: [2 Marks]**
Write the SQL query to list the region names and the number of countries within the regions in the above database.

**Task 1.2: [2 Marks]**
Write the SQL query to find all customers who have made orders before 2017. List must include the customer ID, customer name, and ordered by their ID values in descending.

**Task 1.3: [2 Marks]**

Write the SQL query to list all customers who have the sequential letters 'co' in the customer name. List must include the customers' ID, names and ordered by their names in ascending.

**Task 1.4: [2 Marks]**
Write the SQL query to list all products' ID, Name and price where the products haven't been purchased by any customer in the database. The list must be ordered by the product price.

**Task 1.5: [2 Marks]**
Write the SQL query to list all the warehouses and their total sales. Here, given a product, the total sale of the product is calculated by the sold quantity of the product and its unit price. The list must be ordered by the total sales in the descending. [Reminder: one product_ID may link to more than one warehouses in the provided data. You can ignore this and just count the sale of the product to all its linked to warehouse. ]

**Task 1.6: [2 Marks]**
Write the SQL query to list the employees and the quantity of orders that they proceeded in the database. The output list must include employee ID, name, and the quantity of orders. The list must be sorted by the quantity of orders in the descending order.

**Question 2: [10 Marks]**
The Gill Art Gallery wishes to maintain data on their customers, artists and paintings. They may have several paintings by each artist in the gallery at one time. Paintings can be bought and sold several times. In other words, the gallery may sell a painting, then buy it back at a later date and sell it to another customer.
Here is an example record for a customer with his history purchases.

**Gallery Customer History Form**

Customer Name

Jackson, Elizabeth                    Phone  (206) 284-6783
123 – 4th Avenue
Fonthill, ON
L3J 4S4

Purchases Made

| Artist | Title | Purchase Date | Sales Price |
|---|---|---|---|
| 03 - Carol Channing | Laugh with Teeth | 09/17/2000 | 7000.00 |
| 15 - Dennis Frings | South toward Emerald Sea | 05/11/2000 | 1800.00 |
| 03 - Carol Channing | At the Movies | 02/14/2002 | 5550.00 |
| 15 - Dennis Frings | South toward Emerald Sea | 07/15/2003 | 2200.00 |

**Task 2.1: [2 Marks]**

Draw the dependency diagram of the table and normalize the table to ensure all generated tables are in 3NF. Present all tables generated from the normalization. **You have to present the results step by step from 1NF to 3NF**.

**Task 2.2: [2 Marks]**
Write a set of SQL queries to implement the database schema. You can follow the template in Question 1 – schema.sql. To create each table, it must declare the primary keys, foreign keys, constrains and ON Delete Cascade or ON Update Cascade [update cascade is not supported by sqlplus].

**Task 2.3: [2 Marks]**
Write a set of SQL queries to add data into the database implemented in Task 2.2. You can follow the template in Question 1 – data.sql . The database must include at least five customers, six artists, 10 paintings, and 15 transactions on purchasing.

**Task 2.4: [2 Marks]**
Write a SQL query to list every customer and their purchased paintings. The list must be sorted by customer name first and painting title second.

**Task 2.5: [2 Marks]**
Write a SQL query to list the TOP-Three customers whose expenditure are the top-3 most in the database.