Advanced SQL

Assignment 1

Assignment Due:

Submission

Your submission will be a single text-based SQL file (.sql) with appropriate header and commenting. Please ensure your file runs when the entire file is executed in SQL Developer.

Create a new Worksheet in SQL Developer. Save the file as **A1_Group#.sql**.
Only one submission per group please.

Style Guide

Your SQL should be written using the standard coding style:

- all keywords are to be upper case,
- all user-defined names are to be lower case, (example: table and field names)
- there should be a carriage return before each major part of the SQL statements (i.e. before SELECT, FROM, WHERE and ORDER BY)

See the following sample:

```
SELECT columns
FROM tables
WHERE conditions
ORDER BY column1, column2;
```

Submission Checklist

Use the following checklist, to make sure you have completed the assignment successfully.

Tasks to be completed	Yes	No
You have read the assignment group submission and completion policies and all instructions provided in the assignment document and have not missed a word.		
Student information and the assignment information have been added to the header of the submission. (Same as the template provided in the assignment documents)		
All questions are answered in a text file (a SQL worksheet) and are saved as a **.sql** file.		
Comments are included. (questions definition or any additional explanation)		
All SQL statements are executed successfully without errors. (Use "Run Script" to execute all statements together.)		
For each question, you have both query and the query result in your answer.		

Group Work

This assignment is to be completed in groups of 3. Please only one submission per group. The comment header MUST have all students' name and student number.

It is suggested that you **ALL do it individually** and then meet to compare answers. Those not doing the work may be barred from your group resulting in a zero and incomplete on the assignment.

Assignment Marking Scheme

Question	Weight	Question	Weight
1	10	6	10
2	10	7	10
3	10	8	10
4	10	9	10
5	10	10	10

VERY IMPORTANT:

Being part of a group is the same as being a part of a team for these assignments. When you submitted your work as part of a group, you are saying that:

- You understood what was submitted and that you fully participated with ALL the group members.
- It does not mean letting others do your work for you.
- It does not mean watching the others do the work.
- For your full participation, you get a mark equal to all the others in the group.
- If on the test, which is very much like the assignment, you cannot answer it strongly indicates that you did not participate and understand the assignment but depended on others for the mark you received. That is very much like submitting their work and claiming it is your work.

Tasks

For each question, the columns' title and the format of the output result must match the sample output columns given in that question.

1. Write a query to display employee ID, first name, last name, and hire date for employees who have been hired after the last employee hired in August 2016 but two months before the first employee hired in December 2016.
   Sort the result by hire date and employee ID.
   The query returns 9 rows.
   Include both the query and the result in your answer.
   See the output columns:

   ```
   EMPLOYEE_ID     FIRST_NAME     LAST_NAME     HIRE_DATE
   -----------     ----------     ---------     ----------
   ```

2. Display manager ID for managers with more than one employee. Answer this question without using the `COUNT()` function.
   Sort the result by manager ID.
   The query returns 15 rows.

   Include both the query and the result in your answer.

   See the output columns:

   ```
   Manager ID
   ----------
   ```

3. Use the previous query and SET Operator(s) to display manager ID for managers who have only one employee.
   Sort the result by manager ID.

   You are not allowed to use `COUNT()`.
   The query returns 3 rows.

   Include both the query and the result in your answer.

   See the output columns:

   ```
   Manager ID
   ----------
   ```

4. Write a SQL query to display products that have been ordered multiple times in one day in 2016.
   Display product ID, order date, and the number of times the product has been ordered on that day.
   Sort the result by order date and product ID.
   The query returns 6 rows.
   Include both the query and the result in your answer.
   See the following output columns:

   ```
   Product ID   Order Date     Number of orders
   ----------   ----------     ----------------
   ```

5. Write a query to display customer ID and customer name for customers who have purchased all these three products: Products with ID 7, 40, 94.
   Sort the result by customer ID.
   The query returns 1 row.

   Include both the query and the result in your answer.

   ```
   CUSTOMER ID     NAME
   -----------     ----
   ```

6. Write a query to display employee ID and the number of orders for employees with the maximum number of orders (sales).
   Sort the result by employee ID.
   The query returns one row.
   Include both the query and the result in your answer.
   See the following output:

   ```
   Employee ID     Number of Orders
   -----------     ----------------
   ```

7. Write a query to display the month number, month name, year, total number of orders, and total sales amount for each month in 2017.
   Sort the result according to month number.
   Include both the query and the result in your answer.
   The query returns 10 rows.
   See the output columns:

   ```
   Month Number   Month   Year   Total Number of Orders   Sales Amount
   -----------    -----   ----   ---------------------    ------------
   ```

8. Write a query to display month number, month name, and average sales amount for months with the average sales amount greater than average sales amount in 2017.
   Round the average amount to two decimal places.
   Sort the result by the month number.
   The query returns 5 rows.
   Include both the query and the result in your answer.
   See the output columns:

   ```
   Month Number   Month   Year   Average Sales Amount
   -----------    -----   ----   --------------------
   ```

9. Write a query to display first names in EMPLOYEES that start with letter B but do not exist in CONTACTS.
   Sort the result by first name.
   The query returns 2 rows.
   Include both the query and the result in your answer.
   See the sample output.

   ```
   First Name
   -----------
   ```

10. Write a query to calculate the values corresponding to each line and generate the following output including the calculated values. Include your query and the query result in your answer.

    ```
    The number of employees with total order amount over average order amount: ?
    The number of employees with total number of orders greater than 10: ?
    The number of employees with no order: ?
    The number of employees with orders: ?
    ```

Example Submission

```
-- **********************
-- Student1 Name: Your Name Student1 ID: #########
-- Student2 Name: Your Name Student2 ID: #########
-- Student3 Name: Your Name Student3 ID: #########
-- Date: The date of assignment completion
-- Purpose: Assignment 1 - DBS311
-- **********************


-- Question 1 – write a brief note about what the question is asking
-- Q1 SOLUTION --

SELECT order id AS "order id", COUNT(item id) AS "number of items"
FROM order_items
WHERE order id < 5
GROUP BY order_id
ORDER BY order_id;

  order id      number of items
------------    ---------------------
         1               13
         2                9
         3                8
         4                8

```

Good luck.