

**Software Engineer**

**SQL Practical Test Paper**

Read the following scenario and attend to the assignment requirements.

BCM Ltd is a financial institution recently set up. While the company provides financial services and advices, it makes use of an off-the-shelf information system to help operate its daily activities. The system data is hosted on an Oracle database.

However, as the owner is still managing the company's internal expenses and invoices manually, he is looking forward to move to a simple information system as a way of having a better view on his Purchase Orders and payments to make a better follow up and to be able to undertake decisions that are more accurate.

All information were kept in an excel sheet but have already been loaded in the existing Oracle database in its raw format in table "XXBCM\_ORDER\_MGT". The first column in the table contains both the order reference and order lines. The table contains the list of expenses managed by the owner in terms of Purchase Orders raised as well as the respective Invoices received from his suppliers. A tracking of payments effected per invoice is also maintained in the transactions.

You are requested to work on the analysis part based on the existing database data loaded and come up with appropriate solutions.

Upload all your scripts to [GitHub](https://github.com/) and send us a link to the repo.

Your assignment consists of the following tasks:

1. Create the “XXBCM\_ORDER\_MGT" table using the script - DB\_Prequisite.sql
2. Based on the data provided implement a database schema with necessary tables, columns, data types and constraints. Create your tables in the database with appropriate naming convention. The tables should be appropriately normalized.
3. Develop a SQL procedure to trigger a migration process that will extract information from table "XXBCM\_ORDER\_MGT" and load them in tables that you created with proper data format. You are expected to create a database package with appropriate functions or procedures. All the database objects that you need to create shall be available on your working database environment and properly compiled.
4. The owner wishes to have a report displaying a summary of Orders with their corresponding list of ***distinct*** ***invoices and their total amount*** to be able to reconcile his orders and payments. The report shall contain the details as per table below ordered by latest *Order Date* on top. Implement a Stored Procedure or Function to return the required information.

|  |  |
| --- | --- |
| **Column Name** | **Specifications** |
| Order Reference | Exclude prefix PO and return only numeric value, e.g. PO001 shall return value 1. |
| Order Period | Period based on *Order Date*. Example of expected format “JAN-17”. |
| Supplier Name | First character in each word to uppercase and the rest to lowercase. |
| Order Total Amount | Format “99,999,990.00”. |
| Order Status | As per record. |
| Invoice Reference | As per record. |
| Invoice Total Amount | Format “99,999,990.00”. |
| Action | Return the following value based on the invoice statuses.  If all invoice statuses are Paid, display “OK”.  If any of the invoice statuses is Pending, display “To follow up”.  If any of the invoice Statuses is Blank, display “To verify”. |

1. Return details for the ***THIRD (3rd) highest Order Total Amount*** from the list. Only one record is expected with the following information. Implement a Stored Procedure or Function to return the required information.

|  |  |
| --- | --- |
| **Column Name** | **Specifications** |
| Order Reference | Exclude prefix PO and return only numeric value, e.g. PO001 shall return value 1. |
| Order Date | Example of expected format “January 01, 2017”. |
| Supplier Name | In upper case. |
| Order Total Amount | Format “99,999,990.00”. |
| Order Status | As per record. |
| Invoice References | For that specific Order, list all invoice references *delimited by comma*. For example., “INV\_PO999.1, INV\_PO999.2, INV\_PO999.3” |

1. List all suppliers with their respective ***number of orders and total amount ordered*** from them between the period of ***01 January 2017 and 31 August 2017***. Output details as per below. Implement a Stored Procedure or Function to return the required information.

|  |  |
| --- | --- |
| **Column Name** | **Specifications** |
| Supplier Name | As per record. |
| Supplier Contact Name | As per record. |
| Supplier Contact No. 1 | First contact number formatted as “999-9999” or “5999-9999”. |
| Supplier Contact No. 2 | Second contact number formatted as “999-9999” or “5999-9999”. |
| Total Orders | Total number of orders. |
| Order Total Amount | Format “99,999,990.00”. |