



Software Engineer

Assignment

Technology SBU

February 2025

Read the following scenario and attend to the assignment requirements.

Moris 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 "BCM_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 "BCM_ORDER_MGT" table using the script - DB_Prerequisite.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.

For the following questions, 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.

3. Develop a **SQL procedure** to trigger a migration process that will extract information from table "BCM_ORDER_MGT" and load them in tables that you created with **proper data format**.
 - Store the Supplier address such that the Town\Village info can be readily retrieved

4. The owner wishes to have a report displaying a summary of Orders with their corresponding list of **distinct invoices and their total amount** grouped by the **Supplier Region**. The report shall contain the details as per table below ordered by descending *Order Total Amount* on top region-wise. Implement a Stored Procedure or Function to return the required information.

Column Name	Specifications
Region	Town\Village of Supplier.

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 <i>Order Date</i> . Example of expected format (YYYY-DD) "2024-01".
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 "No Action". If any of the invoice statuses is Pending, display "To follow up". If any of the invoice Statuses is Blank, display "To verify".

5. Return details for the **median value of the 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 "01-JAN-2024".
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 with the value pipe-delimited (). For example., "INV_PO999.1 INV_PO999.2 INV_PO999.3"

6. List all suppliers with their respective **number of orders and total amount ordered** from them between the period of **01 January 2024 and 31 August 2024, ordered by number of orders**. Output details as per below **month-wise**. Implement a Stored Procedure or Function to return the required information.

Column Name	Specifications
Month	Format – 'January 2024'

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".

Notes:

- The following considerations must be factored in the development of the scripts.
 - Clean Code
 - Error Handling
 - Re-usability
 - Unit Testing
 - Performance
 - Security
- **For each of the tasks, provide a listing of the output**
- At submission, specify the tools used to tackle the assignment
 - You may use a database and scripting language of your choice (PLSQL, SQL, etc)
- You may make appropriate assumptions.