**Case Study: Online Store Management System**

**Problem Statement:**

Design and implement an Online Store Management System using Oracle SQL and PL/SQL. The system will be used to manage products, customers, orders, and shipping. Your task is to create the necessary database schema, populate the database with sample data, and develop PL/SQL procedures to handle product ordering, order processing, and generating sales reports.

**Requirements:**

1. **Product Management**:
   * Implement the functionality to add, update, delete, and search for products.
   * Ensure that each product has attributes such as PRODUCT\_ID, NAME, DESCRIPTION, PRICE, STOCK\_QUANTITY, and CATEGORY.
2. **Customer Management**:
   * Implement the functionality to add, update, delete, and search for customers.
   * Ensure that each customer has attributes such as CUSTOMER\_ID, FIRST\_NAME, LAST\_NAME, EMAIL, PHONE\_NUMBER, and ADDRESS.
3. **Order Management**:
   * Implement the functionality to create, update, and cancel orders.
   * Ensure that each order has attributes such as ORDER\_ID, CUSTOMER\_ID, ORDER\_DATE, STATUS, and TOTAL\_AMOUNT.
4. **Shipping Management**:
   * Implement the functionality to track shipments and update the status of shipped orders.
   * Track shipments with attributes such as SHIPMENT\_ID, ORDER\_ID, SHIPMENT\_DATE, STATUS, and TRACKING\_NUMBER.

**Tasks:**

1. **Design the Database Schema**:
   * Create the Products, Customers, Orders, and Shipments tables with the appropriate fields and constraints.
   * Define primary keys and foreign keys to maintain data integrity.
2. **Populate the Database with Sample Data**:
   * Insert sample records into the Products, Customers, Orders, and Shipments tables to facilitate testing of the system.
3. **Develop PL/SQL Procedures**:
   * Create a procedure to handle product ordering. The procedure should check product availability, insert a new order record, and update the stock quantity.
   * Create a procedure to handle order processing. The procedure should update the order status and generate a shipment record.
   * Create a procedure to generate sales reports, including details such as order ID, customer information, product details, order date, and total amount.

**Expected Outcomes:**

1. **Products Table**:
   * Contains all information about the products available in the online store.
2. **Customers Table**:
   * Contains details of all registered customers.
3. **Orders Table**:
   * Tracks the order history, including order details and status.
4. **Shipments Table**:
   * Tracks the shipment history, including shipment details and status.
5. **PL/SQL Procedures**:
   * Efficiently manage product ordering, order processing, and generating sales reports, maintaining accurate records in the database.

**Deliverables:**

1. SQL scripts to create the Products, Customers, Orders, and Shipments tables.
2. SQL scripts to insert sample data into the tables.
3. PL/SQL scripts for the procedures to order products, process orders, and generate sales reports.
4. Documentation explaining how to set up and use the system, including how to run the PL/SQL procedures.

**Database Schema:**

1. **Products Table**:
   * **PRODUCT\_ID**: Number, Primary Key
   * **NAME**: Varchar2(100)
   * **DESCRIPTION**: Varchar2(255)
   * **PRICE**: Number
   * **STOCK\_QUANTITY**: Number
   * **CATEGORY**: Varchar2(50)
2. **Customers Table**:
   * **CUSTOMER\_ID**: Number, Primary Key
   * **FIRST\_NAME**: Varchar2(50)
   * **LAST\_NAME**: Varchar2(50)
   * **EMAIL**: Varchar2(100)
   * **PHONE\_NUMBER**: Varchar2(15)
   * **ADDRESS**: Varchar2(255)
3. **Orders Table**:
   * **ORDER\_ID**: Number, Primary Key
   * **CUSTOMER\_ID**: Number, Foreign Key References Customers(CUSTOMER\_ID)
   * **ORDER\_DATE**: Date
   * **STATUS**: Varchar2(50)
   * **TOTAL\_AMOUNT**: Number
4. **Shipments Table**:
   * **SHIPMENT\_ID**: Number, Primary Key
   * **ORDER\_ID**: Number, Foreign Key References Orders(ORDER\_ID)
   * **SHIPMENT\_DATE**: Date
   * **STATUS**: Varchar2(50)
   * **TRACKING\_NUMBER**: Varchar2(50)

**Case Study Task:**

* **Design**: Create the database schema as provided.
* **Implement**: Insert sample data into the tables.
* **Develop**: Write PL/SQL procedures for ordering products, processing orders, and generating sales reports.
* **Test**: Test the procedures with various scenarios (e.g., ordering a product, processing an order, generating reports, ensuring proper updates).