**Case Study: Manufacturing Inventory and Production Management System**

**Problem Statement:**

Design and implement a Manufacturing Inventory and Production Management System using Oracle SQL and PL/SQL. The system will be used to manage raw materials, finished products, production processes, and inventory levels. Your task is to create the necessary database schema, populate the database with sample data, and develop PL/SQL procedures to handle raw material procurement, production scheduling, and generating inventory reports.

**Requirements:**

1. **Raw Material Management**:
   * Implement the functionality to add, update, delete, and search for raw materials.
   * Ensure that each raw material has attributes such as MATERIAL\_ID, NAME, DESCRIPTION, SUPPLIER, UNIT\_COST, and QUANTITY\_AVAILABLE.
2. **Product Management**:
   * Implement the functionality to add, update, delete, and search for finished products.
   * Ensure that each product has attributes such as PRODUCT\_ID, NAME, DESCRIPTION, UNIT\_PRICE, and STOCK\_AVAILABLE.
3. **Production Process Management**:
   * Implement the functionality to manage production processes and track their status.
   * Ensure that each production process has attributes such as PROCESS\_ID, PRODUCT\_ID, MATERIAL\_ID, QUANTITY\_USED, START\_DATE, END\_DATE, and STATUS.
4. **Inventory Management**:
   * Implement the functionality to track inventory levels of raw materials and finished products.
   * Ensure that each inventory record has attributes such as INVENTORY\_ID, ITEM\_TYPE (raw material or product), ITEM\_ID, QUANTITY, and LAST\_UPDATED.

**Tasks:**

1. **Design the Database Schema**:
   * Create the RawMaterials, Products, ProductionProcesses, and Inventory 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 RawMaterials, Products, ProductionProcesses, and Inventory tables to facilitate testing of the system.
3. **Develop PL/SQL Procedures**:
   * Create a procedure to handle raw material procurement. The procedure should update the quantity of raw materials in inventory.
   * Create a procedure to handle production scheduling. The procedure should update the status of production processes and the inventory levels of raw materials and finished products.
   * Create a procedure to generate inventory reports, including details such as material and product information, quantities, and last update dates.

**Expected Outcomes:**

1. **RawMaterials Table**:
   * Contains all information about the raw materials used in the manufacturing process.
2. **Products Table**:
   * Contains details of all finished products manufactured.
3. **ProductionProcesses Table**:
   * Tracks the production processes, including material usage and process status.
4. **Inventory Table**:
   * Tracks inventory levels of raw materials and finished products.
5. **PL/SQL Procedures**:
   * Efficiently manage raw material procurement, production scheduling, and generating inventory reports, maintaining accurate records in the database.

**Deliverables:**

1. SQL scripts to create the RawMaterials, Products, ProductionProcesses, and Inventory tables.
2. SQL scripts to insert sample data into the tables.
3. PL/SQL scripts for the procedures to handle raw material procurement, production scheduling, and generate inventory reports.
4. Documentation explaining how to set up and use the system, including how to run the PL/SQL procedures.

**Database Schema:**

1. **RawMaterials Table**:
   * **MATERIAL\_ID**: Number, Primary Key
   * **NAME**: Varchar2(100)
   * **DESCRIPTION**: Varchar2(255)
   * **SUPPLIER**: Varchar2(100)
   * **UNIT\_COST**: Number
   * **QUANTITY\_AVAILABLE**: Number
2. **Products Table**:
   * **PRODUCT\_ID**: Number, Primary Key
   * **NAME**: Varchar2(100)
   * **DESCRIPTION**: Varchar2(255)
   * **UNIT\_PRICE**: Number
   * **STOCK\_AVAILABLE**: Number
3. **ProductionProcesses Table**:
   * **PROCESS\_ID**: Number, Primary Key
   * **PRODUCT\_ID**: Number, Foreign Key References Products(PRODUCT\_ID)
   * **MATERIAL\_ID**: Number, Foreign Key References RawMaterials(MATERIAL\_ID)
   * **QUANTITY\_USED**: Number
   * **START\_DATE**: Date
   * **END\_DATE**: Date
   * **STATUS**: Varchar2(20)
4. **Inventory Table**:
   * **INVENTORY\_ID**: Number, Primary Key
   * **ITEM\_TYPE**: Varchar2(50) (Raw Material or Product)
   * **ITEM\_ID**: Number
   * **QUANTITY**: Number
   * **LAST\_UPDATED**: Date

**Case Study Task:**

* **Design**: Create the database schema as provided.
* **Implement**: Insert sample data into the tables.
* **Develop**: Write PL/SQL procedures for handling raw material procurement, production scheduling, and generating inventory reports.
* **Test**: Test the procedures with various scenarios (e.g., procuring raw materials, scheduling production, generating reports, ensuring proper updates).