**Case Study: Manufacturing Production Tracking System**

**Problem Statement:**

Design and implement a Manufacturing Production Tracking System using Oracle SQL and PL/SQL. The system will be used to manage production orders, track production progress, and record production outputs. Your task is to create the necessary database schema, populate the database with sample data, and develop PL/SQL procedures to handle production order creation, progress tracking, and generating production reports.

**Requirements:**

1. **Production Order Management**:
   * Implement the functionality to create, update, delete, and search for production orders.
   * Ensure that each production order has attributes such as ORDER\_ID, PRODUCT\_ID, ORDER\_DATE, QUANTITY, and STATUS.
2. **Production Progress Management**:
   * Implement the functionality to log and track production progress.
   * Ensure that each progress log has attributes such as LOG\_ID, ORDER\_ID, STAGE, LOG\_DATE, and NOTES.
3. **Production Output Management**:
   * Implement the functionality to record production outputs.
   * Ensure that each output record has attributes such as OUTPUT\_ID, ORDER\_ID, OUTPUT\_DATE, QUANTITY\_PRODUCED, and QUALITY\_STATUS.

**Tasks:**

1. **Design the Database Schema**:
   * Create the ProductionOrders, ProductionProgress, and ProductionOutputs 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 ProductionOrders, ProductionProgress, and ProductionOutputs tables to facilitate testing of the system.
3. **Develop PL/SQL Procedures**:
   * Create a procedure to handle production order creation. The procedure should insert a new order record and initialize the production progress.
   * Create a procedure to log production progress. The procedure should insert a new progress log and update the order status.
   * Create a procedure to record production outputs. The procedure should insert a new output record and finalize the order status.
   * Create a procedure to generate production reports, including details such as order information, production progress, and outputs.

**Expected Outcomes:**

1. **ProductionOrders Table**:
   * Contains all information about the production orders in the manufacturing facility.
2. **ProductionProgress Table**:
   * Tracks the progress of each production order through different stages.
3. **ProductionOutputs Table**:
   * Records the outputs of each production order, including quantity produced and quality status.
4. **PL/SQL Procedures**:
   * Efficiently manage production order creation, progress tracking, and generating production reports, maintaining accurate records in the database.

**Deliverables:**

1. SQL scripts to create the ProductionOrders, ProductionProgress, and ProductionOutputs tables.
2. SQL scripts to insert sample data into the tables.
3. PL/SQL scripts for the procedures to handle production order creation, progress tracking, and generate production reports.
4. Documentation explaining how to set up and use the system, including how to run the PL/SQL procedures.

**Database Schema:**

1. **ProductionOrders Table**:
   * **ORDER\_ID**: Number, Primary Key
   * **PRODUCT\_ID**: Number
   * **ORDER\_DATE**: Date
   * **QUANTITY**: Number
   * **STATUS**: Varchar2(50)
2. **ProductionProgress Table**:
   * **LOG\_ID**: Number, Primary Key
   * **ORDER\_ID**: Number, Foreign Key References ProductionOrders(ORDER\_ID)
   * **STAGE**: Varchar2(50)
   * **LOG\_DATE**: Date
   * **NOTES**: Varchar2(255)
3. **ProductionOutputs Table**:
   * **OUTPUT\_ID**: Number, Primary Key
   * **ORDER\_ID**: Number, Foreign Key References ProductionOrders(ORDER\_ID)
   * **OUTPUT\_DATE**: Date
   * **QUANTITY\_PRODUCED**: Number
   * **QUALITY\_STATUS**: 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 handling production order creation, progress tracking, and generating production reports.
* **Test**: Test the procedures with various scenarios (e.g., creating production orders, tracking progress, recording outputs, generating reports, ensuring proper updates).