**Case Study: Loan Management System**

**Problem Statement:**

Design and implement a Loan Management System using Oracle SQL and PL/SQL. The system will be used to manage loan applications, process loan requests, and generate loan reports. Your task is to create the necessary database schema, populate the database with sample data, and develop PL/SQL procedures to handle loan application processing, status tracking, and report generation.

**Requirements:**

1. **Loan Application Management**:
   * Implement the functionality to add, update, delete, and search for loan applications.
   * Ensure that each application has attributes such as APPLICATION\_ID, CUSTOMER\_ID, LOAN\_AMOUNT, APPLICATION\_DATE, and STATUS.
2. **Loan Processing**:
   * Implement the functionality to process loan applications and update their status.
   * Ensure that each processing record has attributes such as PROCESSING\_ID, APPLICATION\_ID, PROCESSING\_DATE, DECISION, and REMARKS.
3. **Report Generation**:
   * Implement the functionality to generate loan reports.
   * Reports should include details such as total loan applications, approved loans, rejected loans, and pending applications.

**Tasks:**

1. **Design the Database Schema**:
   * Create the LoanApplications, LoanProcessings, and LoanReports 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 LoanApplications and LoanProcessings tables to facilitate testing of the system.
3. **Develop PL/SQL Procedures**:
   * Create a procedure to handle loan application management. The procedure should insert, update, and delete application records.
   * Create a procedure to process loan applications. The procedure should insert processing records and update application status.
   * Create a procedure to generate loan reports. The procedure should aggregate data to provide insights into loan application status.

**Expected Outcomes:**

1. **LoanApplications Table**:
   * Contains all information about the loan applications received.
2. **LoanProcessings Table**:
   * Tracks the processing of each loan application.
3. **LoanReports Table**:
   * Stores the generated loan reports.
4. **PL/SQL Procedures**:
   * Efficiently manage loan applications, process loans, and generate reports, maintaining accurate records in the database.

**Deliverables:**

1. SQL scripts to create the LoanApplications, LoanProcessings, and LoanReports tables.
2. SQL scripts to insert sample data into the LoanApplications and LoanProcessings tables.
3. PL/SQL scripts for the procedures to handle loan application management, loan processing, and generate loan reports.
4. Documentation explaining how to set up and use the system, including how to run the PL/SQL procedures.

**Database Schema:**

1. **LoanApplications Table**:
   * **APPLICATION\_ID**: Number, Primary Key
   * **CUSTOMER\_ID**: Number
   * **LOAN\_AMOUNT**: Number
   * **APPLICATION\_DATE**: Date
   * **STATUS**: Varchar2(50)
2. **LoanProcessings Table**:
   * **PROCESSING\_ID**: Number, Primary Key
   * **APPLICATION\_ID**: Number, Foreign Key References LoanApplications(APPLICATION\_ID)
   * **PROCESSING\_DATE**: Date
   * **DECISION**: Varchar2(50)
   * **REMARKS**: Varchar2(255)
3. **LoanReports Table**:
   * **REPORT\_ID**: Number, Primary Key
   * **REPORT\_DATE**: Date
   * **TOTAL\_APPLICATIONS**: Number
   * **APPROVED\_LOANS**: Number
   * **REJECTED\_LOANS**: Number
   * **PENDING\_APPLICATIONS**: Number

**Case Study Task:**

* **Design**: Create the database schema as provided.
* **Implement**: Insert sample data into the LoanApplications and LoanProcessings tables.
* **Develop**: Write PL/SQL procedures for handling loan application management, loan processing, and generating loan reports.
* **Test**: Test the procedures with various scenarios (e.g., managing loan applications, processing loans, generating reports, ensuring proper updates).