**Case Study: Car Rental System**

**Problem Statement:**

Design and implement a Car Rental System using Oracle SQL and PL/SQL. The system will be used to manage car rentals, customer information, and car availability for a car rental company. Your task is to create the necessary database schema, populate the database with sample data, and develop PL/SQL procedures to handle rental management, customer registration, and car availability tracking.

**Requirements:**

1. **Rental Management**:
   * Implement the functionality to add, update, delete, and search for rentals.
   * Ensure that each rental has attributes such as RENTAL\_ID, CUSTOMER\_ID, CAR\_ID, START\_DATE, END\_DATE, and STATUS.
2. **Customer Registration**:
   * Implement the functionality to register new customers.
   * Ensure that each customer record has attributes such as CUSTOMER\_ID, FIRST\_NAME, LAST\_NAME, EMAIL, PHONE\_NUMBER, and ADDRESS.
3. **Car Availability Tracking**:
   * Implement the functionality to track car availability.
   * Ensure that each car has attributes such as CAR\_ID, MAKE, MODEL, YEAR, RATE\_PER\_DAY, and AVAILABLE.

**Tasks:**

1. **Design the Database Schema**:
   * Create the Rentals, Customers, and Cars 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 Rentals, Customers, and Cars tables to facilitate testing of the system.
3. **Develop PL/SQL Procedures**:
   * Create a procedure to handle rental management. The procedure should insert, update, and delete rental records.
   * Create a procedure to manage customer registration. The procedure should insert new customer records.
   * Create a procedure to track car availability. The procedure should update car availability based on rentals.

**Expected Outcomes:**

1. **Rentals Table**:
   * Contains all information about the rentals made by customers.
2. **Customers Table**:
   * Stores customer information for the car rental company.
3. **Cars Table**:
   * Tracks the car availability and details for the car rental company.
4. **PL/SQL Procedures**:
   * Efficiently manage rentals, customer registration, and car availability, maintaining accurate records in the database.

**Deliverables:**

1. SQL scripts to create the Rentals, Customers, and Cars tables.
2. SQL scripts to insert sample data into the tables.
3. PL/SQL scripts for the procedures to handle rental management, customer registration, and car availability tracking.
4. Documentation explaining how to set up and use the system, including how to run the PL/SQL procedures.

**Database Schema:**

1. **Rentals Table**:
   * **RENTAL\_ID**: Number, Primary Key
   * **CUSTOMER\_ID**: Number, Foreign Key References Customers(CUSTOMER\_ID)
   * **CAR\_ID**: Number, Foreign Key References Cars(CAR\_ID)
   * **START\_DATE**: Date
   * **END\_DATE**: Date
   * **STATUS**: 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. **Cars Table**:
   * **CAR\_ID**: Number, Primary Key
   * **MAKE**: Varchar2(50)
   * **MODEL**: Varchar2(50)
   * **YEAR**: Number
   * **RATE\_PER\_DAY**: Number
   * **AVAILABLE**: Number

**Case Study Task:**

* **Design**: Create the database schema as provided.
* **Implement**: Insert sample data into the Rentals, Customers, and Cars tables.
* **Develop**: Write PL/SQL procedures for handling rental management, customer registration, and car availability tracking.
* **Test**: Test the procedures with various scenarios (e.g., managing rentals, registering customers, tracking car availability, ensuring proper updates).