**Case Study: Hotel Reservation System**

**Problem Statement:**

Design and implement a Hotel Reservation System using Oracle SQL and PL/SQL. The system will be used to manage hotel bookings, customer information, and room availability for a hotel chain. Your task is to create the necessary database schema, populate the database with sample data, and develop PL/SQL procedures to handle booking management, customer registration, and room availability tracking.

**Requirements:**

1. **Booking Management**:
   * Implement the functionality to add, update, delete, and search for bookings.
   * Ensure that each booking has attributes such as BOOKING\_ID, CUSTOMER\_ID, ROOM\_ID, CHECK\_IN\_DATE, CHECK\_OUT\_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. **Room Availability Tracking**:
   * Implement the functionality to track room availability.
   * Ensure that each room has attributes such as ROOM\_ID, ROOM\_TYPE, RATE, and AVAILABLE.

**Tasks:**

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

**Expected Outcomes:**

1. **Bookings Table**:
   * Contains all information about the bookings made by customers.
2. **Customers Table**:
   * Stores customer information for the hotel chain.
3. **Rooms Table**:
   * Tracks the room availability and details for the hotel.
4. **PL/SQL Procedures**:
   * Efficiently manage bookings, customer registration, and room availability, maintaining accurate records in the database.

**Deliverables:**

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

**Database Schema:**

1. **Bookings Table**:
   * **BOOKING\_ID**: Number, Primary Key
   * **CUSTOMER\_ID**: Number, Foreign Key References Customers(CUSTOMER\_ID)
   * **ROOM\_ID**: Number, Foreign Key References Rooms(ROOM\_ID)
   * **CHECK\_IN\_DATE**: Date
   * **CHECK\_OUT\_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. **Rooms Table**:
   * **ROOM\_ID**: Number, Primary Key
   * **ROOM\_TYPE**: Varchar2(50)
   * **RATE**: Number
   * **AVAILABLE**: Number

**Case Study Task:**

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