Database & Data Warehouse Training Assignment

Task Brief

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| Department | ITN- Data Engineering Team |
| Academic Year | 2022-2023 Summer |
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| Task Title | The Beachside Hotel |
| Issue Date | 20/8/2022 |
| Submission Date | 10/9/2022 |
| Submission Format | |
| Word document contains the database design, screenshots and description for each requirement, explaining the executed command/script and the results of execution. | |
| Unit Learning Outcomes | |
| Design a relational database system using appropriate design tools and methods for a substantial problem.  Develop a fully functional relational database system, based on an existing system design.  Perform ETL process using appropriate tools and technologies.  Initiate reports and dash boards using BI tool. | |
| Transferable skills and competencies developed | |
| Analytical thinking, analysis, and research skills | |
| **Vocational scenario** | |
| As a database developer at **Orchid Data Development Company (ODD),** you got a new project to develop a database system for a hotel named **the Beachside Hotel**. ODD Company conducted a meeting with the Beachside Hotel Manager and they required a System for their hotel. The Beachside Hotel Manager required a system that would allow the customer to search for a room, book a room, cancel a room and book additional service. In addition, the customer must pay online through the banking system to book any service at the hotel.  To book a room at Beachside Hotel, the customer must have an account that includes a unique ID refers to his/her National ID. Also, first name, last name, phone number, birthdate, gender and address. Each customer has one or many payment card(s). Each payment card has an ID, issue date an expiry date. The customer can book one or many rooms at the Beachside Hotel. The customer can choose the type of room he/she wants to book. The room types are single, double and family room. Each room contains a unique number, number of beds, room location, sea view option, a breakfast option and price per night. You also need to keep the customer's check in and check out date of the room, if the room is occupied, and the availability of the room.  In addition, there are extra facilities the customer can book in Beachside Hotel such as spa and gym. The customer can book one and only one spa service. Where the Spa includes spa service name, service price, opening time and closing time. Moreover, the customer can attend the gym and book various services at the gym. Many customers can book the Gym. The Gym includes gym name, opening time, closing time, machine type, and subscription price and gym services.  The hotel manager requested to perform the following operations using the database system:   1. Registration and deletion of customers’ accounts 2. Adding, deleting and updating rooms and services 3. Updating the reservation status (Availability) for the rooms 4. Create a trigger to make sure that the customer cannot book an occupied room 5. Lists displaying the following:    1. All **unreserved** rooms ordered by number of beds, in descending order    2. All double and family rooms with a **price below 130$** per night, in ascending order of price.    3. The details of all rooms, including the name of the customer staying in the room, **if the room is occupied**.    4. All spa services with name, gender and phone number of registered customers 6. Total revenue per night from all **double rooms** 7. Total number of customers who booked a **single room** with **sea view** option 8. Create a **database job** to find the total cost for each reservation. 9. Return a list of reservations that end in **July 2006**, including the name of the customer, the room number(s) and the reservation dates. 10. Create an audit table to save any operation on the reservation’s table, including the user’s name, operation’s date and name and reservation id. 11. Create a function 12. Return a list of all reservations for rooms **with SPA body mask service**, displaying the customer’s name, the reservation id, the room number and the dates of reservation. 13. Return a list of all rooms reserved for a **specific customer**, including the customer’s name, the room(s) reserved and the starting data of the reservation. 14. Return a list of all rooms **which have at least 3 beds** and that are reserved on any date in April 2004. 15. Return a list of all customer names and the number of reservations **sorted** starting with the customer with the most reservations and then by the customer’s last name. 16. Display the name, address and the phone number of a customer whose phone number **like** (choose a phone number from the existing data) 17. Write a query to find the total number of **reservations** for each **region**   In addition, your manager asked you to suggest additional queries that may ease the process of management and produce appropriate management information.  There is a list of rules and restrictions that must be applied to the developed database to ensure the accuracy of the data entered, which are as follows:   1. Do not include any room without specifying the number of beds 2. If the customer did not fill in the address, fill it with "Jordan" by default. 3. All customers must be over 18 years old 4. Fill in the room availability with 'Available' or 'Unavailable' option only. Also, the sea view option and breakfast option with “yes” or “no” options only. | |
| Assignment activity and guidance | |
| **Task 1:** Implementing the database system   1. Choose an appropriate database management system (DBMS) to design the required database system based on the relational database you designed in the first assignment. 2. Create simple procedure to insert, update and delete data in the database and Implement the validation methods mentioned in the scenario.   **Task 2:**   1. Load data from multiple files (txt or csv) in order to practice ETL process.   **Task 3:**   1. Connect to BI tool and generate simple reports and dashboards using useful and meaningful queries. | |
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