**Airbnb Project**

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**Database Design and Implementation**

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**Project Summary:**

In this project, we created a Hotel and Experiences (Activities) Database (similar to Airbnb) that contains booking details and reviews provided by the customer. Broadly, there are two objectives for this project.

1. To Track the booking details of Stays and Experiences of the customers.
2. To Track the reviews provided by the customers.

By modeling the conceptual and logical designs of the database, we were able to better grasp numerous design elements. Physical table creation in Oracle DBMS comes next. Executing queries was followed by performance optimization utilizing indexing. In addition to the above, we also wanted to incorporate additional data in the database 1) To know average ratings provided by the customers of a particular hotel and 2) Total average spent on the hotels and experiences by the customers in a particular time frame. For this, we created all the 10000 records manually for the last 6 months. The design can be further improved by incorporating amenities, hosts reviews for the customers and footfall of the customers browsing vs actual booked.

**Below is the final list of tables considered in the database:**

1. Customer
2. Host
3. Hotel
4. Experience(activities)
5. Hotel\_bookings – booking details of the stay
6. Experience\_bookings- Booking details for the experience.
7. Hotel\_reviews – provided by the customers for each stay.
8. Experience\_reviews – provided by the customers of each experience or activity.

**Brief Statistics of the Database:**

|  |  |
| --- | --- |
| Total No of Customers | 4890 |
| Total No of Hosts | 250 |
| Total No of Hotels | 250 |
| Total No of experiences | 100 |
| Total No of Hotel bookings | 10000 |
| Total No of Experience bookings | 2000 |
| Total No of Hotel reviews | 1750 |
| Total No of Experience reviews | 500 |

**ER Diagram:**

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Created using: <https://app.quickdatabasediagrams.com/#/d/utm3kf>

**Assumptions:**

1. Experiences are independent of hotels and booked separately.
2. Reviews are recorded separately for hotels and experiences.
3. A customer can book multiple times of a particular hotel/experience, but single booking belongs to one customer.
4. Reviews are provided by customers of each stay
5. Reviews can be provided only if the customers book a hotel or experience
6. A customer can provide multiple reviews/feedback for one hotel booking or experience.
7. Refunds and fines are not considered for this design.
8. Bookings cancelled are not considered for this design.
9. Hosts reviews for the customers are not considered for this design.

**Data Integrity:**

Data integrity refers to the maintenance and consistency of data across the course of a database. Integrity constraints in tables are used to protect data integrity in databases. Business rules are applied to database tables by integrity constraints. Column-level limits and table-level restrictions are two different types of constraints.

* NOT NULL - Ensures that a column cannot have a NULL value
* UNIQUE - Ensures that all values in a column are different
* PRIMARY KEY- A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table
* FOREIGN KEY- Prevents actions that would destroy links between tables
* CHECK - Ensures that the value in a column satisfies a specific condition
* DEFAULT - Sets a default value for a column if no value is specified
* CREATE INDEX -Used to create and retrieve data from the database very quickly

**List of Entities(Tables) with Attributes and Indexes**

**Customers**

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**Hosts**

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**Hotels**

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**Experience**

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**Hotel\_booking**

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**Experience\_booking**

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**Hotel\_review**

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**Experience\_review**

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**Queries:**

1. No of times the hotels got average rating of >=3 by each customer

Application

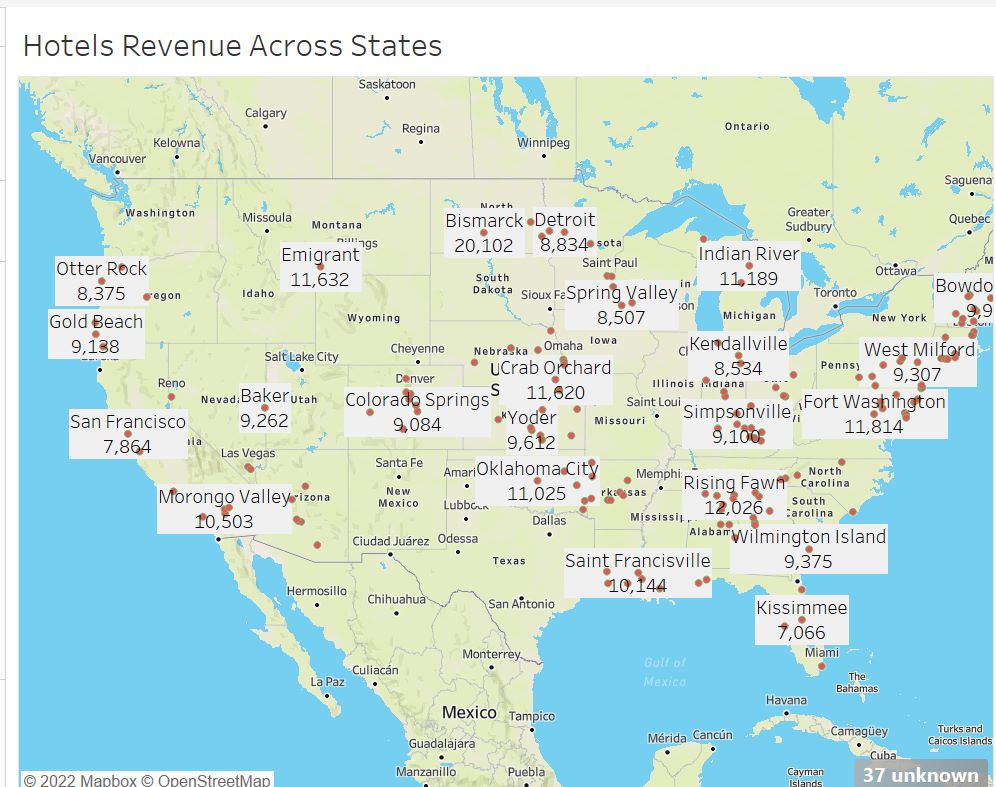
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1. List of Top 5 customers based on total amount spent on hotels.

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**Data Visualization:**

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**Chart

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