



Travel & Tourism Management System

Oracle SQL Database Project

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CSE 3110: Database Systems Laboratory

Introduction

Project Overview

The Travel and Tourism Management System (TTMS) is designed to streamline the process of planning and managing travel experiences for customers. It facilitates the booking of travel packages, accommodations, and tourism services through Oracle SQL database, ensuring a seamless user experience from planning to execution.

Importance of the Database in the Travel and Tourism Industry

A well-structured database is essential in the travel and tourism industry for maintaining an efficient operation. It helps in managing customer information, tracking bookings, and organizing package details which ultimately enhances the customer experience and optimizes operational efficiency. A powerful database like TTMS's allows for real-time data updates and supports a variety of analytical tasks crucial for travel planning and management.

Project Objectives

The TTMS database project aims to achieve several key objectives essential for the efficient management and utilization of travel-related data. These objectives include:

- **To Design a Relational Database Schema for Managing Travel-Related Data:** Design a comprehensive relational database schema that effectively organizes and stores extensive travel-related data. This includes customer details, booking information, packages, accommodations, and agency data.
- **To Implement SQL Queries for Efficient Data Retrieval and Management:** Implement a range of SQL queries that enable the manipulation and retrieval of data. These functionalities are vital for maintaining an up-to-date and comprehensive database that meets the dynamic needs of travel planning and customer management.

Database Design

Overview of the Database Schema

The TTMS database is structured around key tables designed to include all necessary travel-related data. The primary tables include:

- ❖ **Customer:** Stores detailed information about customers, including name, national ID, passport number, address, phone, and email.
- ❖ **Booking:** Records details about customer bookings, including date, customer details, and payment information.
- ❖ **Package:** Contains information on travel packages, including tour time, locations, capacity, and pricing.
- ❖ **Hotel:** Details accommodations linked to specific travel packages.
- ❖ **Agency:** Manages data regarding travel agencies involved in offering various packages.

Rationale Behind the Design Decisions

The database schema is crafted to ensure efficient access to all necessary data for travel and booking management. Each table serves a specific segment of travel data, facilitating diverse queries—from customer management to package details and bookings.

Table Relationships

Foreign keys and relational connections are used extensively to ensure data integrity and facilitate complex queries. For example,

```
SQL> -- Creating the Customer table
SQL> CREATE TABLE Customer (
  2     customerID NUMBER PRIMARY KEY,
  3     customer_name VARCHAR2(100),
  4     customer_NID VARCHAR2(50),
  5     passport VARCHAR2(50),
  6     address VARCHAR2(200),
  7     phone VARCHAR2(20),
  8     email VARCHAR2(100)
  9 );
```

```
SQL> -- Creating the Booking table
SQL> CREATE TABLE Booking (
  2     bookingID NUMBER PRIMARY KEY,
  3     customerID NUMBER,
  4     date DATE,
  5     customer_name VARCHAR2(100),
  6     package_cost NUMBER,
  7     add_pay NUMBER,
  8     FOREIGN KEY (customerID) REFERENCES Customer(customerID)
  9 );
```

```
SQL> -- Create Package table
SQL> CREATE TABLE Package (
  2     packageID NUMBER PRIMARY KEY,
  3     bookingID NUMBER,
  4     Tourtime VARCHAR2(50),
  5     location VARCHAR2(100),
  6     start_location VARCHAR2(100),
  7     end_location VARCHAR2(100),
  8     capacity NUMBER,
  9     remain_capacity NUMBER,
  10    duration NUMBER,
  11    food_type VARCHAR2(50),
  12    price NUMBER,
  13    FOREIGN KEY (bookingID) REFERENCES Booking(bookingID)
  14 );
```

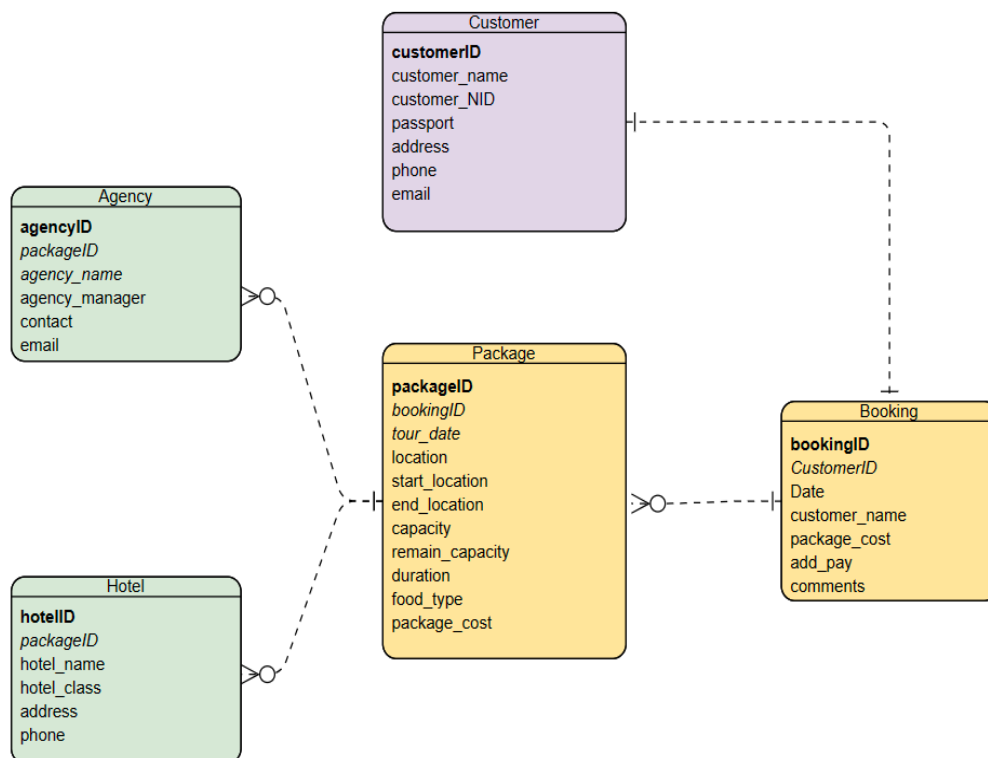
```
SQL> -- Creating the Hotel table
SQL> CREATE TABLE Hotel (
  2     hotelID NUMBER PRIMARY KEY,
  3     packageID NUMBER,
  4     hotel_name VARCHAR2(100),
  5     hotel_class VARCHAR2(50),
  6     address VARCHAR2(200),
  7     phone VARCHAR2(20),
  8     FOREIGN KEY (packageID) REFERENCES Package(packageID)
  9 );
```

```

SQL> -- Creating the Agency table
SQL> CREATE TABLE Agency (
2     AgencyID NUMBER PRIMARY KEY,
3     packageID NUMBER,
4     agency_name VARCHAR2(100),
5     agency_manager VARCHAR2(100),
6     contact VARCHAR2(20),
7     email VARCHAR2(100),
8     FOREIGN KEY (packageID) REFERENCES Package(packageID)
9 );

```

Entity-Relationship Diagram (ERD)



SQL Queries and Functionality

Examples of SQL Queries

Here are examples illustrating common queries used in the TTMS:

- **Retrieve Package Details:**

```
SELECT * FROM Package WHERE location = 'Destination';
```

- **Customer Booking Information:**

```
SELECT customer_name, date, package_cost FROM Booking WHERE customerID = 'XYZ';
```

- **Find all hotels in 'Sundarban':**

```
SELECT hotel_name, address, phone FROM Hotel WHERE address LIKE '%Sundarban%';
```

- **List all bookings scheduled after May 1, 2024:**

```
SELECT * FROM Booking WHERE date > TO_DATE('2024-05-01', 'YYYY-MM-DD');
```

Queries for Common Operations

The database supports various operations essential for managing travel data:

- **Search for Hotel by Name:**

```
SELECT * FROM Hotel WHERE hotel_name LIKE '%hotel%';
```

- **List All Packages for a Given Start Location:**

```
SELECT * FROM Package WHERE start_location = 'City Name' ORDER BY Tourtime;
```

- **How can you rename the column 'hotel_class' to 'class' in the Hotel table:**

```
ALTER TABLE Hotel RENAME COLUMN hotel_class TO class;
```

- **What is the average duration of all packages offered:**

```
SELECT AVG (duration) AS Average_Duration FROM Package;
```

Targeted Customers/Users

For your Travel and Tourism Management System (TTMS), identifying and understanding the targeted customers or user groups is crucial for tailoring the system's features and functionalities to meet their needs effectively. Here are some key targeted customer segments for your TTMS:

- ❖ **Individual Travelers:** This segment includes people seeking an easy way to plan and manage trips. The TTMS offers a user-friendly platform for them to browse and book travel packages, accommodations, and activities tailored to individual preferences.
- ❖ **Families and Groups:** Families and group travelers look for packages that accommodate multiple individuals and offer customizable itineraries. The TTMS supports group bookings and provides options for family and group discounts to cater to their diverse needs.
- ❖ **Business Travelers:** Business travelers prioritize convenience, efficiency, and connectivity. The TTMS caters to this segment with travel packages that include business-friendly accommodations and features like streamlined expense reporting and quick booking processes.

- ❖ **Adventure Seekers:** This group is interested in unique experiences and adventure sports like hiking, paragliding, and scuba diving. The TTMS targets adventure seekers by offering specialized packages that focus on adventure activities and include necessary safety measures.
- ❖ **Educational Institutions:** Schools, colleges, and universities organizing trips for educational or recreational purposes can benefit from the TTMS. It provides special educational packages designed to ensure safety and offer educational content.

Conclusion

Reflection on Achievements and Challenges

Throughout the development of TTMS, significant achievements have been realized, such as integrating complex SQL functionalities and advanced database management techniques. Challenges such as ensuring data consistency and system scalability were addressed through rigorous data validation techniques and performance optimization.

Significance of the Database in the Travel and Tourism Industry

TTMS serves as a crucial tool by providing a reliable and comprehensive source of travel data, enhancing the travel planning process and enriching the overall user experience. It supports professionals in managing detailed travel logistics and offers travelers a reliable platform for booking their journeys.

References:

- [Tourism - Wikipedia](#)
- [Tourism Management Research Project Examples - Tourism Teacher](#)
- [MSCSE Project Document\(Md. Nazmul Hasan\).pdf \(uiu.ac.bd\)](#)
- [Online ERD Tool \(visual-paradigm.com\)](#)