Tour Management System with Travel Package Customization and Vendor Integration

1. Introduction

This Document Outlines the database design for a Tour Management System, which aims to provide a holistic solution for managing personalized travel experience. The system empowers users to create customized itineraries by selecting options from a variety of third-party vendors, including accommodations, transportation, meals and activities. Additionally, it supports payment tracking and enhances user satisfaction through robust data management and real-time service integration, ultimately simplifying the planning process for travelers seeking their ideal getaways.

2. Business Problems Addressed

The Tour Management system addresses several key business problems:

- Personalized Travel Experience: The system enables customers to create customized itineraries tailored to their preferences.
- Efficient Booking Management: optimizes booking process, reducing errors and improving reservation handling, which ultimately benefits both customers and travel providers.
- Real-Time Updates and Integration: It facilitates real-time integration with third-party vendors which provide customers with accurate availability and pricing for accommodation, transportation and activities.
- Enhanced Customer Satisfaction and Comprehensive Data Management: The system provides a centralized database to manage customer information, bookings, payment histories. Coupled with user-friendly interface for browsing and selecting services which enhances overall customer experience.

3. Entities Description

3.1 Customer: Represents individuals who books the tour and utilizes the services provided from the vendor.
- **Attributes:** Customer_ID (Primary Key), Name, Email, Phone_Number, Address, Date_of_Birth
- **Relationships:** makes a booking, guided by an employee

3.2 Tour: Represent all the tour packages where customers can choose from the available options.
- **Attributes:** Tour_ID (Primary Key), Tour_Name, Tour_Description, Price,Start_Date, End_Date
- **Relationships:** Curated by employees, booked by customers

3.3 Booking: Represents a customer booking details for a tour, including the date and the total
- **Attributes:** Booking_ID (Primary Key),Booking_Date, Total_Cost
- **Relationships:** Bookings made by customers, bill generated, monitored by employee

3.4 Vendor:Represents local service providers who offer accommodation, transport, meals, and additional activities.
- **Attributes:**Vendor_ID (Primary Key), Vendor_Name, Vendor_Type (Accommodation, Transport, Meals, Activity), Contact_Details
- **Relationships:** vendor provides services, communicates with employees

3.5 Service: Represents services provided by vendors. These services are customizable options for the customers.
- **Attributes:** Service_ID (Primary Key), Service_Name, Service_Type (Hotel, Car Rental, Restaurant, Tour Guide, etc.), Service_Price, Service_Availability
- **Relationships:** services are provided by different vendors, provides accommodation, transport, meals, activity choices to customers

3.6 Billing: Represents payment details for each booking.
- **Attributes:** Payment_ID (Primary Key), Payment_Amount, Payment_Date, Payment_Status (Pending, Completed, Failed)
- **Relationships:** bill generated

3.7 Transportation: Represents transport services, which are customizable and provided by vendors.
- **Attributes:** Transportation_ID (Primary Key), Vehicle_Type (Car, Bus, Van),Capacity, Departure_Time
- **Relationships:** arranged by vendor

3.8 Accommodation: Represents accommodation services offered by vendors, which customers can select based on their preferences.
- **Attributes:** Accommodation_ID (Primary Key), Room_Type (Single, Double, Suite), Check_In_Date, Check_Out_Date
- **Relationships:** set up by vendor

3.9 Meal:Represents meal options provided by restaurants or hotels as part of the tour package.
- **Attributes:** Meal_ID (Primary Key), Meal_Type (Breakfast, Lunch, Dinner), Cuisine_Type (Local, International)
- **Relationships:** served by vendor

3.10 Activity: Represents activities or excursions that customers can include in their tour package.
- **Attributes**:Activity_ID (Primary Key), Activity_Name, Activity_Type (Adventure, Cultural, Sightseeing), Duration
- **Relationships:** planned by vendor

3.11 Booking Service: The Booking-Service relationship connects a customer's tour booking to the specific services they select as part of their package. When a customer makes a booking, they can customize their tour by choosing services such as accommodation, transport, meals, or activities. Each selected service is linked to the booking, allowing the system to track which services have been added to a particular booking. This relationship ensures that every booked tour can include personalized options from different vendors, tailored to the customer's preferences. The Booking entity holds the details of the tour, while the Service entity specifies the additional offerings.
- **Attributes**:Booking_Service_ID (Primary Key)
- **Relationships:** Services are referred by bookings

3.12 Tour Employee: Multiple employees can be assigned to manage or oversee different aspects of multiple tours (such as guiding, coordinating, or managing). Each tour can have multiple employees handling various tasks.
- **Attributes**:Tour_Employee_ID (Primary Key)
- **Relationships:** Tour curated by employees

4. Entity Relationships

4.1 Customer
Booking**:** One-to-Many (A customer may book multiple bookings)
Employee: Many-to-One (Multiple customers are managed by one employee)

4.2 Tour
Booking: One-to-Many (A single tour can have multiple bookings).
Employee: Many-to-Many (Multiple tours can be managed by multiple employees)

4.3 Booking
Customer: Many-to-One (One or more than one bookings can be made by one customer)
Tour: Many-to-One (A tour can have multiple bookings)
Billing: One-to-One (Each booking generates single bill)

4.4 Vendor
Employee: Many-to-One (One Employee can coordinate with multiple Vendors)
Service: One-to-Many (One Vendor can provide different Services)

4.5 Service
Vendor: Many-to-One(Many Services are linked to one vendor)
Meal: One-to-Many (A service can serve multiple meals)
Accommodation: One-to-Many (A service can set up multiple accommodations)
Transportation: One-to-Many (A service can arrange multiple transportations)
Activity: One-to-Many (Multiple activities are planned by a single service)

4.6 Billing
Booking: One-to-One (One bill is generated for a single booking)

4.7 Employee
Customer: One-to-Many (A single employee can manage many customers)
Booking: One-to-Many (Multiple bookings are monitored by single employee)
Tour: Many-to-Many (Multiple tours are curated by multiple employees)
Vendor: One-to-Many (A single employee coordinates with multiple vendors)

4.8 Transportation
Service: Many-to-One (Multiple Transportation is arranged by single service)

4.9 Accommodation
Service: Many-to-One (Multiple accommodations are set up by single service)

4.10 Meal

Service: Many-to-One (Multiple meals are served by single service)

4.11 Activity

Service: Many-to-One (Many activities are planned by single service)

5. Entity Relationship Diagram

Billing
- Billing ID
- Billing Amount
- Billing Date
- Payment Status

generated for

Customer
- Customer ID
- Name
- Phone Number
- Email
- Address
- Date Of Birth

Makes a

Booking
- Booking ID
- Booking Date
- Total Cost

Made for

Monitored by

Referred by

Tour
- Tour ID
- Name
- Tour Description
- Duration
- Price
- Tour Type
- Start Date
- End Date

Tour Employee
- Tour Employee ID

Booking Service
- Booking Service ID

Managed by

Curates

Coordinates with

Employee
- Employee ID
- Employee Name
- Employee Role
- Department
- Email
- Phone
- Hire Date
- Salary

Service
- Service ID
- ServiceName
- Service Type
- Service Price
- Service Availability

Provided by

Vendor
- Vendor ID
- Vendor Name
- Vendor Contact
- Vendor Type

Planned in

Activity
- Activity ID
- Activity Name
- Activity Type
- Activity Duration

Arranged by

Set up

Served by

Meal
- Meal ID
- Meal Type
- Cuisine Type

Accommodation
- Accommodation ID
- Room Type
- Check in date
- Check out Date

Transportation
- Transportation ID
- Vehicle Model
- Vehicle Capacity
- Departure Time