TRAVEL PLANNER MANAGEMENT SYSTEM

ABSTRACT

Travelling is used in day-to-day life, either it's for business or leisure purpose. The proposed system helps in management of the travel plans so that it's easy for the customer who is visiting the place(country) for the first time. The system is useful for corporate clients too, as they don't have to worry about travel arrangements when they are going for the corporate meeting or conference. Travel planning can be hectic sometimes as each country has different visa policies and regulations, so too ease the process travel planner are important medium and one-stop destination for the travelers.

Since it is a very complex system, we would be modelling a small portion of it. Hence, we have applied some constraints to the system.

1. We assume that airline flight has one Departure and Arrival without any hops(stop) or layovers. (Direct Flights to and from destination)
2. Each Reservation has a PNR (Passenger Name Record) and number of passengers travelling with the reservation holder.
3. We are constraining to 2 different Airline service providers. Ex: Qatar Airways, Lufthansa.
4. Each Airline service provider has 3 different seat selection. Ex: Economy, Business, First class.
5. There are 2 different hotels. Ex: Taj, Hampton.
6. Each Hotel has different room tariff and category. Ex: King, Studio, Master Suite.
7. There are 5 different location for leisure holidays and 3 different locations for corporate clients.
8. Car has 3 different types. Ex: hatchback, Sedan, SUV.
9. "Trip Registry" database is populated with plenty of data containing past travel logs from both leisure and corporate clients.

DATA DESCRIPTION

The following are the data being used the proposed system.

TRIP REGISTRY ?

- This database would work as the master database of the project and will contain all the information regarding the trip that customer plans on taking or has already taken in the past.
- Data items would consist of PNR, Trip name, Travel dates, customer ID, employee ID, Flight Number, Hotel ID, VIN, Global services opted, itinerary ID, Total cost, Date, Advance payment, due payment, due date.

EMPLOYEE

- The Database would capture many basic aspects of employees such as their Employee ID, Name, Date of Birth, Rating, Salary and Gender.
- Each Employee will be linked with multiple customers as their trip planner.

CUSTOMER

- Each Customers have Customer ID, Name, Email ID, Phone No, DOB and Address.
- Each Customer is linked to single trip planner (Employee).
- There are two types of customers:
    1) Leisure Customers.
    2) Corporate Customers.

AIRLINE   routes:

- Each airline has Flight Number, Departure city, Departure time, Arrival city and Arrival time.
- Each Flight has direct flight from departure city to arrival city.
- Each airline has 3 different seat selection to choose from, Economy and First class are mainly used by leisure clients and Business class is used by corporate clients.

HOTEL

- Each Hotel has Hotel ID, Name, city, Room type, Tariff and commission.
- Each Hotel has 3 different room types to choose from, King are generally used by corporate clients and Studio as well as Master Suite is used by leisure clients.

CAR

- Each Car has VIN, Brand, Model, Car type and ActiveINS date.
- Car has 3 different types namely, Hatchback, sedan and SUV.

Customers take trips, stay in hotels, may be rent cars. All that is missing from ur description

FUNCTIONALITIES

Financial Query

1. What component(car/flight/hotel/visa) of our services has made the most quarterly profit?
2. Overall quarterly profit made by the company. (keeping all incoming money [from trip planner/visa services/commission] and outgoing payments [to hotels/salary/maintenance] in mind)
3. Average amount spent by any customer on an individual trip. (will help us set our package caps)
4. Highest profit made by destination in a quarter.
5. What will it cost more to send customers by flight than by a car.
6. What category of hotels bring in more profit. (considering hotel rent and commission)

Employee

7. Which employee has the highest number of returning clients?
8. Highest sales by an employee in any given quarter.
9. Who is the employee with best corporate client ratings?
10. Who is the employee with best family client ratings?
11. Find top 5 employee with quarterly best performance and sales.

Customer

12. What category of customer is preferring what kind of holidays?
13. What ratio of customer choose to travel by air rather than car.
14. Most common location that corporate clients prefer.
15. Most common location that family clients prefer.
16. Average days spent on a trip by customer type. (so that by learning that we can know what category of customers would like what kind of packages from us).

Trip

17. What kind of trip is opted by corporate clients?
18. What kind of trip is preferred by family clients?
19. What component(car/flight/hotels/visa) of our services are more relied upon in any given trips.
20. What holiday destination is preferred in common by both corporate and family clients? (will help us manage more rooms at that destination)

Flights

21. Which is the most preferred flight by customer?
22. On what category of flight would corporate clients like to fly?
23. On what category of flight would family clients like to fly?

Cars

24. What type of car is preferred by both the category of customers.
25. Find out total amount spent as car rental charge for a trip by customer. (will help us understand cost cutting more accurately)

Hotels

26. What type of hotel is more preferred by both the category of customers.
27. Which chain of hotels help us with more commission?
28. Average commission charges earned on any trip by customer. (will help us understand cost cutting more accurately)

Visa Services

29. What % of customer who travels with our company opts for visa services.
30. Visa acceptance ratio; country wise.

Data description incomplete. does not give the feeling you understand this enterprise.

big goals, though. long, do not make sense a cannot be computed using the data description.

Needs thorough revision on both side before you can proceed.

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Since it is a very complex system, we would be modelling a small portion of it. Hence, we have applied some constraints to the system.

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3. We are constraining to 2 different Airline service providers. Ex: Qatar Airways, Lufthansa.
4. Each Airline service provider has 3 different seat selection. Ex: Economy, Business, First class.
5. There are 2 different hotels. Ex: Taj, Hampton.
6. Each Hotel has different room tariff and category. Ex: King, Studio, Master Suite.
7. There are 5 different location for leisure holidays and 3 different locations for corporate clients.
8. Car has 3 different types. Ex: hatchback, Sedan, SUV.
9. Monthly maintenance cost for running the office is assumed to be at $400.
10. "Trip Details" database is populated with plenty of data containing past travel logs from both leisure and corporate clients.

DATA DESCRIPTION

The following are the data and data mapping that will be used for the proposed system.

TRIP DETAILS

- This database would work as the master database of the project and will contain all the information regarding the trip that customer plans on taking or has already taken in the past.
- Data items would consist of PNR, Trip Name, Travel Dates, Customer ID, Employee ID, Flight Number, Hotel ID, VIN, Global Services Opted, Itinerary ID, AirlineCost, HotelCost, CarCost, Total Cost, Invoice Date, Advance Payment, Due Payment, Due Date.
- Trip Details will be linked to all other entities i.e. Employee, Customer, Airline, Hotel, Car to map all the values required to fill in the details.
- Total cost of flight will be calculated as,
$$TotalCost(Flight) = (Distance \times FuelCharges) + ConvenienceFee$$
- Total cost of hotel stay will be calculated as,
$$TotalCost(Hotel) = (Tariff \times No.of\ Days)$$
- Total cost of car rent will be calculated as,
$$TotalCost(Car) = (PerMile\ Cost \times No.of\ Miles) + BasePrice$$
- Total Cost here for the trip in TRIP DETAILS will be computed as,
$$Total\ Cost = [(AirlineCost + HotelCost + CarCost) \times 0.2] \times 0.08$$
Here, 0.2 is the 20% agent convenience charges and 0.08 is 8% tax levied from the customer.
- Due Date will be set for all customers after 15 days from the Invoice Date. Due Payment will be auto adjusted from total cost – advance payment made by the customer.

EMPLOYEE

- The Database would capture many basic aspects of employees such as their Employee ID, Name, Date of Birth, Gender, Salary and Commission.
- Each Employee will be handling multiple customer as their trip planner.
- Employee will be working on fixed salary plus they will be given 2% commission per every customer they handle.

CUSTOMER

- Each Customers have Customer ID, Name, Email ID, Phone No, DOB, Gender, Address, Customer Type.
- Each Customer will be assigned an Employee as their trip planner and manager.
- There are two types of customers:
    1) Leisure Customers.
    2) Corporate Customers.

- Customer here is allowed to manage their booking with linked trip planner to book their flights, hotels for their holidays. Customer may also rent car at the destination or opt for global services.

AIRLINE

- Each airline has a designated route and they contain; Flight Number, Departure City, Departure Time, Arrival City, Arrival Time, Distance, Fuel Charges, Convenience Fee.
- Each Flight has direct flight from departure city to arrival city.
- Each airline has 3 different seat selection to choose from, Economy and First class are mainly used by leisure clients and Business class is used by corporate clients.
- Customer selects flight to reach their destination city for holidays. That entry is made to Trip Details for all customers.

HOTEL

- Each Hotel has Hotel ID, Name, City, Room Type, Tariff and Commission.
- Each Hotel has 3 different room types to choose from, King are generally used by corporate clients and Studio as well as Master Suite is used by leisure clients.
- Customer stays in hotel for their holidays at destination city. That entry is made to Trip Details for any customer.
- Tariff here is fixed based on room type and hotel location. Commission might vary but here we have assumed that the commission from hotels will be paid to us and not directly to the customers.

CAR

- Each Car entity will have details such as VIN, Brand, Model, Car type, ActiveINS Date, PerMile Cost, Base Price.
- Car has 3 different types namely, Hatchback, sedan and SUV.
- Customer may opt for rent a car service to move and explore places at the destination of their holidays. This is optional as not all the customer would like to rent a car. That entry is made to Trip Details for any customer.

FUNCTIONALITIES

Financial Query

1. What component(car/flight/hotel) of our services has made the most quarterly profit?
2. Overall quarterly profit made by the company. (Profit formula discussed in *Note)
3. Average amount spent by any customer on an individual trip. (will help us set our package caps)
4. Highest profit made by destination in a quarter.
5. What category of hotels bring in more profit. (considering hotel tariff and commission)
6. Compare sales from different quarters for both type of customers. (to know the overall progress of the company on quarterly basis)

*Note: we can easily find quarter by the date of invoice captured in trip details.

Total profit per quarter will be computed as;

$$TotalProfit = Total\ Cost(Trip) - (TotalSalary + 2\%\ Commission + Bonuses + Maintainance)$$

Here,   *Bonuses = 5% of total sales by top 5 employee in a quarter.*

Maintenance is $400 per month i.e. $1200 per quarter.

Employee

7. Highest sales by an employee in any given month.
8. Find top 5 employee with highest quarterly sales. (so that they can be considered for quarterly bonus of 5% of their total sales)

Customer

9. What category of customer is preferring what kind of holiday destination? (will help us know the customer trend and manage more rooms at that destination)
10. What ratio of customer choose to travel by air rather than car.
11. Average days spent on a trip by customer type. (so that by learning that we can know what category of customers would like what kind of packages from us).
12. Month with highest amount of family clients and corporate clients opting to go to holidays.

Trip

13. What kind of trip is opted or preferred by both types of clients?
14. What component(car/flight/hotels) of our services are more used by clients on trips?

Flights

15. Which is the most preferred flight company by customers?
16. On what category of flight would both type of clients would like to fly?

Cars

17. What type of car is preferred by both the category of customers.
18. Find out total amount spent as car rental charge for a trip by customer. (will help us understand cost cutting more accurately)

Hotels

19. What type of hotel is more preferred by both the category of customers.
20. Which chain of hotels help us with more commission?
21. Average commission charges earned on any trip by customer. (will help us understand cost cutting more accurately)

Visa Services

22. What % of customer who travels with our company opts for visa services.   *data?*

• *Connect each entities appropriately.*
• *Data model, Requirements seems good. !*