**CASE STUDY: TRAVEL ARRANGEMENTS**

**1. Objectives**

a) To prepare Conceptual Design using ER Diagram

b) Prepare the relations

c) Normalize the relations up to 3NF

**2. Pre-requisites**

a) ER Diagram Concepts

b) Normal forms up to 3NF

c) Relational database concepts

**3. Skills/concepts**

ER Diagrams, Normalization

**4. Duration in hours**

5 hours

**5. Scenario set up**

General Description

Customers come to a travel agency to arrange a variety of trips. A sales consultant deals with each customer for a particular trip. At the initial interview the sales consultant records all the customer’s requirements.

The sales consultant will then advise the customer on trip alternatives and make any bookings on the customer’s behalf. To do this , the sales consultant may refer to a variety of time tables, hotel locations or tour brochures.

If the travel arrangements cannot be completed at the first visit the sales consultant will follow up with further bookings on the customers behalf and confirm these either with a phone call or during a subsequent visit.

Once an itinerary is completed, an itinerary schedule is prepared and sent to the customer. As soon as the itinerary is agreed, the invoicing can begin. The method of invoicing is explained below.

Invoicing

A copy of the invoice sent to customers is illustrated in Case2 Table1. It contains the REF-NO of each and details of any bookings made on the trip. The invoice is a multi-purpose one in which invoice line is applicable to all kinds of bookings made by the agency. For this reason the DESCRIPTION field is used to store some of the details associated with each booking. If only a deposit is required, then the amount of the deposit is included on the invoice.

Case2 Table 1 Invoices

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name:D.Nageshwar Rao INVOICE NO:369  Address: Date-Sent:20 JULY 83 | | | | | |
| REF-NO | HOTEL/AIRLINE/TOUR  AGENCY | HELD-UNTIL | DESCRIPTION | AMOUNT | DEPOSIT |
| 3 | TAA | 3 AUG | FLIGHT TO LAS VEGAS | 100000 | 50000 |
| 4 | TRAVELS | 5 JUN | HONG KONG | 50000 | 10000 |
| Total 150000 60000 | | | | | |

Once a customer returns the invoice with the payment the accounts clerk reconciles the payment with the invoice. First the TOTAL-PAYMENT-AMOUNT and DATE-RECEIVED of the payment are recorded and a receipt prepared for the customer. Then each line of the invoice is checked against the payment. If some invoice lines are not paid for, the payment is called a part-payment; otherwise, the payment is in full. If payment is in full then all bookings are confirmed and are recorded as paid for. If a part payment is made then those bookings that are fully paid for, or for which a deposit has been paid, are confirmed and the amount of payment (BOOKING PAYMENT) is recorded against each booking.

Another action also takes place when a payment is required, recorded and a receipt prepared for the customer, the accounts clerk prepares a payment advice (identified by PAYMENT-NO), together with a check (if necessary)to the hotel, airline or tour agency. This payment advice includes the commission .Sometimes early payments are held over a few days and combined with those received from other customers to be sent to the same provider. The payment advice is shown in Case2 Table2.

Any confirmations received from providers following a payment are sent on to the customer. A record of the confirmation is also made at the travel agency including any relevant provider reference (PROVIDER-REF).

Cancellations of bookings and packaged trips can be made. Unconfirmed and unpaid bookings are deleted .Where some payment has already been made to the provider, the refund is determined. If a refund applies then the booking clerk advises the provider of the cancellation and forwards a cancellation advice. This together with any travel agency commission is returned to the customer. Each cancellation is for one booking only, or one packaged trip only.

TO: TAA PAYMENT-NO

ADDRESS DATE-SENT:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| OUR REF-NO | DESCRIPTION | AMOUNT | COMMISSION | ENCLOSED |
| 3 | 4 night stay Amit from 6 AUG(deposit only, balance to be paid by customer) | 40 | 13.50 | 26.50 |
| 21 | night stay for Linda from 11 sep | 90 | 9.00 | 81.00 |
|  |  | 130 | 22.50 | 107.50 |

Case 2 table2 Payments

Data used to make a travel arrangement

1) A travel agency keeps a record of each customer. CUSTOMER-NAME is a unique identifier. Each customer has a CUSTOMER-ADDRESS and PHONE-CONTACT-NO.

2) Each trip is identified by a unique REF-NO. Each trip identified by a unique REF-NO. Each customer can make any number of trips. But each trip is for one customer only. DATE-ARRANGED and COST is stored for each trip.

3) Trips may either be PACKAGED-TRIPS or SPECIALLY-ARRANGED TRIPS.

4) A packaged trip is for one of the packaged tours that are regularly organized by tour agencies. The travel agency maintains the following information about each packaged tour

ORGANIZATION NAME of tour Agency, TOUR-NAME, START-DATE, BASIC-COST.TOUR-NAME is the unique identifier of the packaged tour within an ORGANIZATION-NAME and the same packaged tour may be available more than once.(There may be a Hong Kong tour organized by both Agency A and Agency B. The Hong Kong tour by Agency A may in fact place twice with one tour starting on 6 December 1986 and other on 9 January 1987.)

Each packaged trip is for one packaged tour. A field called EXTRAS is provided for each packaged trip to keep any special needs of the CUSTOMER. There may be any number of packaged trips taking the same packaged tour.

6) A specially-arranged trip is one where the travel agency keeps a list of hotels. Each hotel is identified by unique HOTEL-NAME and has an ADDRESS and TELEX-NO. Each hotel booking is made with one hotel. The data stored with a hotel booking includes FIRST-DAY, LAST-DAY, ROOM-TYPE and DAILY-RATE.

7) An airline booking is made with one airline. The travel agency keeps a list of airlines. Each airline is identified by a unique AIRLINE-NAME and has a PHONE-CONTACT-NO. Each airline reservation includes the STARTING-AIRPORT and DEPARTURE-TIME. The reservation also includes the STARTING-AIRPORT and DEPARTURE-TIME. The reservation also includes details of all the stopovers in the reservation. Each stopover includes the ARRIVAL-TIME, DEPARTURE-TIME and the STOPOVER-AIRPORT.

**6. Deliverables**

1) ER-diagram

2) Normalized tables UPTO 3NF.

**7. References**

http://hstslc007/eltplearning/RDBMSConcepts /index.html

Fundamentals of database systems by Elmasri & Navathe

An introduction to DBMS by C.J.Date

Database management systems by Korth