MYSQL Airlines

Group 5 - Alyssa, Emmanuel, Linor, Michael, Raj and Viral

Introduction

- Database systems are very important to businesses as they communicate information related to your sales transactions, product inventory, customer profiles and marketing activities.
- Databases are a collection of organized information that can easily be accessed, managed and updated.
- The main objectives of database management system are **data availability, data integrity, data security, and data independence**.
  Database management system will facilitate the creation of data structures
- Every industry has different needs and wants, and not just any database system would adequately serve everyone, especially for a new company that is getting itself situated in this industry

MySQL Airlines™

- MySQL Airlines™ is a new and upcoming airline company that wants to dominate the industry in the near future and take care of its customers by providing safe and affordable flights
- For a new airline company this database system will include maintaining and operating the airline's vital reservation system and passenger name records.
- The system holds customer’s name and personal information and it's where their flight reservations are kept.
- This database system will enable us to track and strengthen customer value after the point of purchase.
- This database system that we have created for MySQL Airlines™ will help us to operate at its optimal level

Objectives for MySQL

- Creating a detailed database of our customers will help us to improve brand credibility
- Will help to increase our customer lifetime value
- Retain existing customers
- Make travels safe during covid
- Make our airline more profitable by marketing to target customer groups by offering them loyalty programs.

Loyalty Reward Programs

- Loyalty programs have proven themselves as one of the most effective tactics for increasing revenue and inspiring customer loyalty.

- An airline's loyalty program can help in reaching new audiences and converting them into potential long term customers.

- The airline bills it has the fastest way to earn rewards and status. Passengers can then use those points to redeem for flights. The first tier membership is the Bronze status. The second tier upon the membership is the Silver status, and the highest tier is the Gold status.

Referential Integrity Constraints
Module 1 and Module 2

- Customer_id in CUSTOMER_PROFILE must exist in Customer_id in CUSTOMER
- Flight_id in CUSTOMER must exist in Flight_id in FLIGHT
- Booking_id in CUSTOMER must exist in Booking_id in BOOKING
- Customer_fname in CUSTOMER must exist in Customer_fname in CUSTOMER_PROFILE
- Rewards_id in CUSTOMER must exist in Rewards_id in REWARDS
- Rewards_id in BOOKING must exist in Rewards_id in REWARDS
- RewardsCategory_id in REWARDS must exist in RewardsCategory_id in REWARDS_CATEGORY
- CustomerID in CUSTOMER_PROFILE must exist in CustomerID in TRAVEL
- FlightID in FLIGHT must exist in FlightID in TRAVEL
- BookingID in BOOKING must exist in TRAVEL
- RewardsID in REWARDS must exist in BOOKINGID
- Rewardscategoryid in REWARDSCATEGORYID must exist in REWARDS

Relationship Between Tables Module 1 and Module 2

a. Entity CUSTOMER has a one to many relationship with entity FLIGHT and BOOKING as one CUSTOMER can have many flights scheduled and multiple bookings for the same

b. Entity CUSTOMER_PROFILE will have a one to one relationship with the CUSTOMER entity defining the details of the customer

c. Entity BOOKING will have a many to one relationship with the CUSTOMER AND FLIGHT entities as there will be multiple bookings of flights made by multiple customers

d. Entity REWARDS will have a one to one relationship with CUSTOMER entity giving details about the customers progress in the airlines rewards program

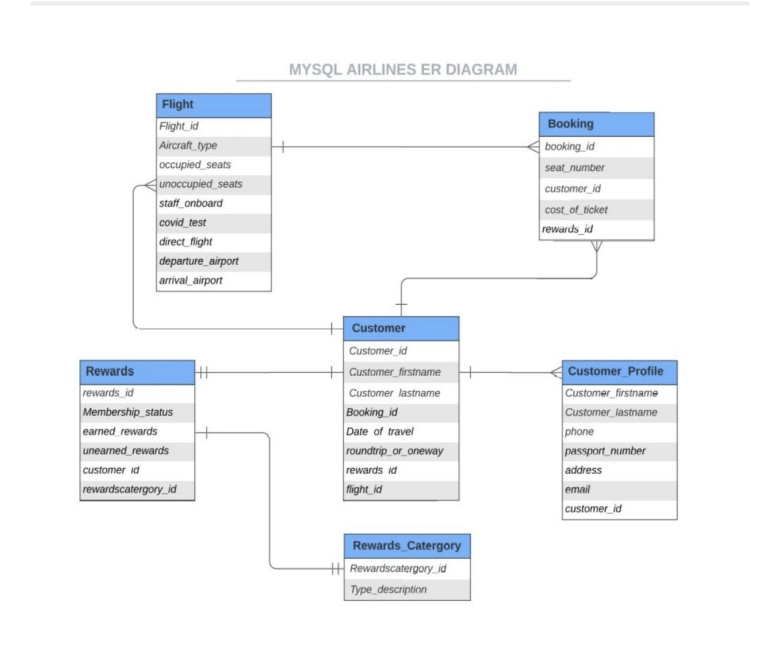
e. Entity REWARDS_CATEGORY will have a one to one relationship with entity REWARDS as it will define a single category of rewards level achieved by the customer

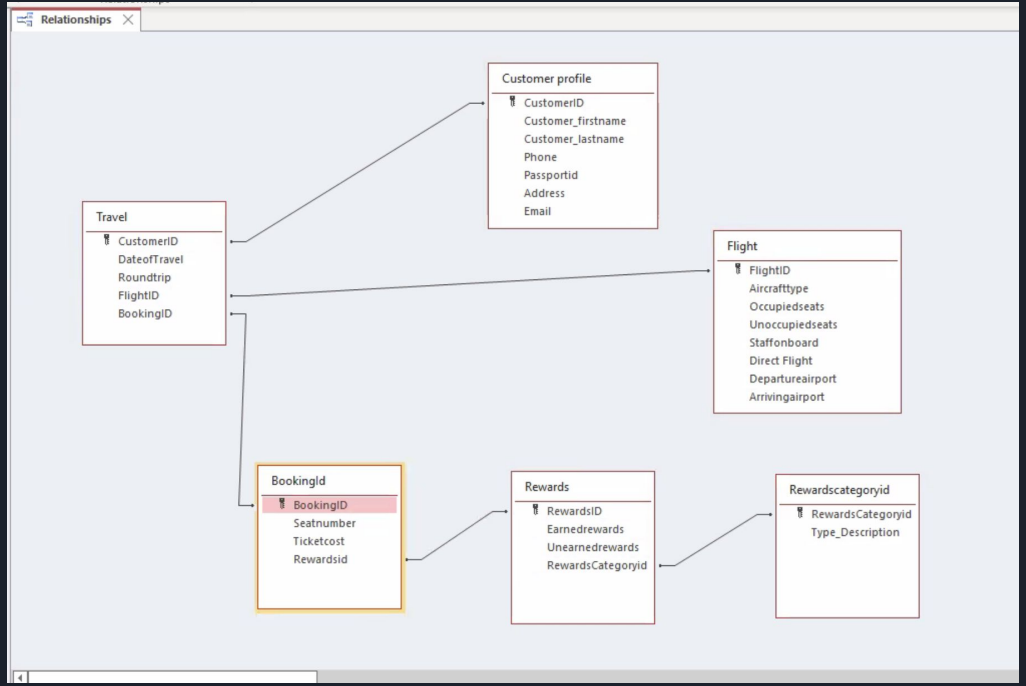
a. Entity TRAVEL has a one to many relationship with entity CUSTOMERPROFILE, FLIGHT, and BOOKINGID, will have a relationship with all three tables as it connects to all three tables through CUSTOMERID, BOOKINGID, and FLIGHTID.

b. Entity BOOKINGID will have a one to one relationship with the REWARDSID because BOOKINGID is the reference for the REWARDS TABLE

c. Entity REWARDS will have a one to one relationship with REWARDS_CATEGORY giving details about rewards in the airlines rewards program

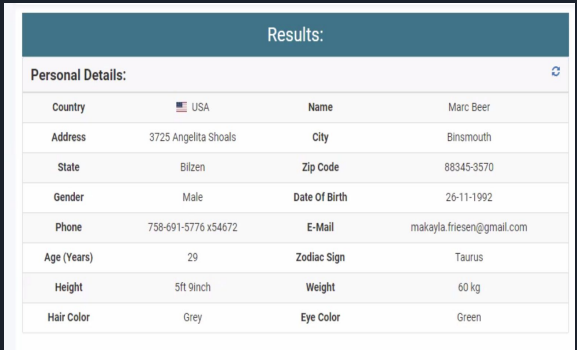
Changing our Project Layout

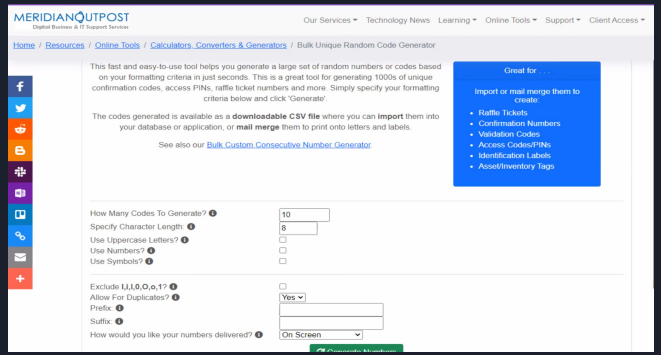


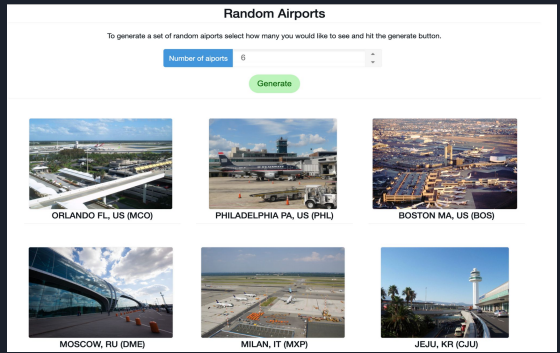


Module 2: Implementing and Creating the info.

- We used several generators to give us information to put into our tables.
- We used number generators to come up information such as RewardsID, FlightID, BookingID, and CustomerID.
- Name generators/Address generators were used to create real customers.
- Used airport generators to come up with the flights. Used Google to come up with airplane size to estimate the amount of people on board each flight.







Normalizing the Data/Third Normal Form

Normalization is the process of minimizing redundancy.

First normal form. Cannot have any multi valued attribute or number.

Second normal form. Must be in First normal form. And cannot have a partial dependency.

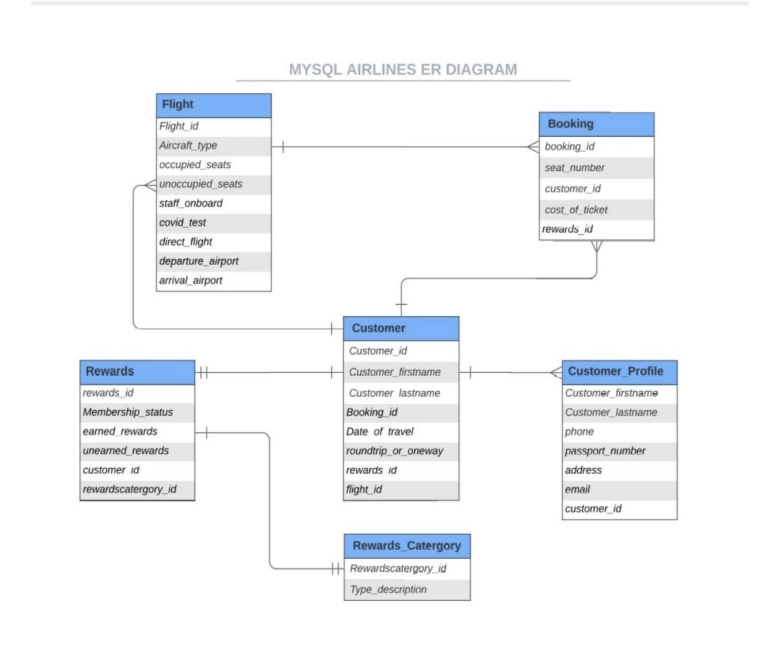
Advantage everything flows better and no repetitive data.

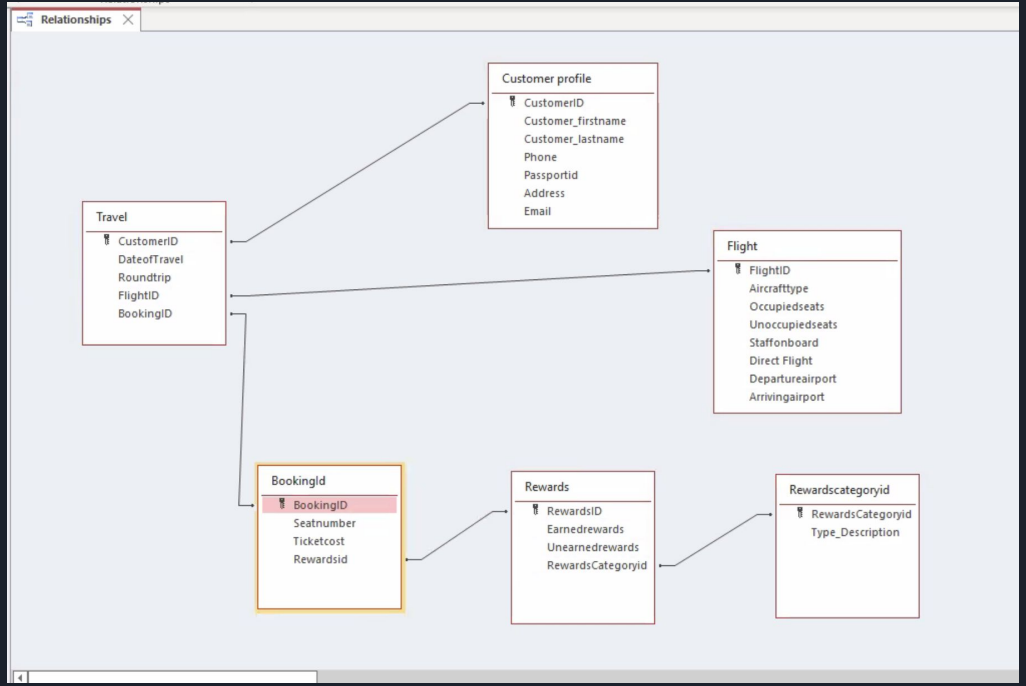
Third normal form. Must be in second normal form. Doesn't have a transitive dependency.

The advantage of removing transitive dependencies are,

- The Amount of data duplication is reduced.
- Data integrity achieved.

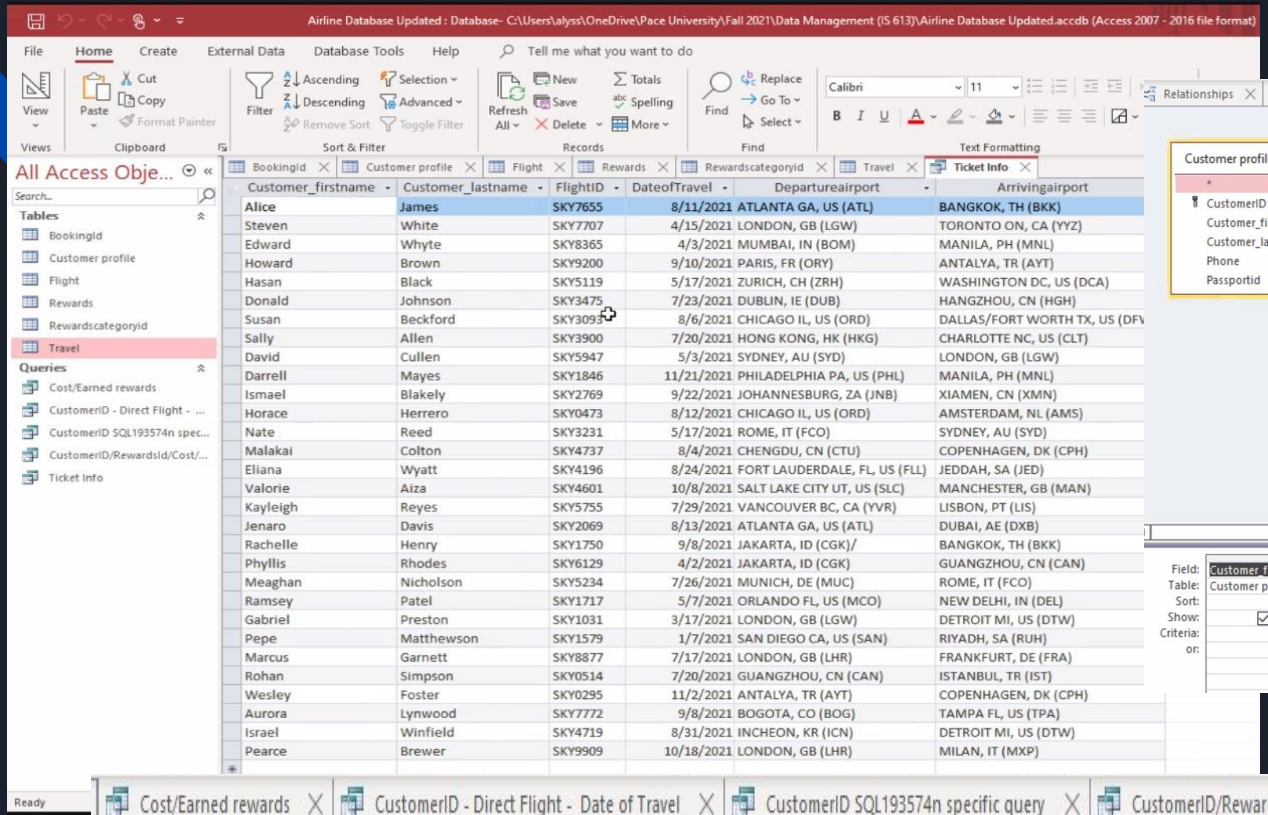
Changing our Project Layout

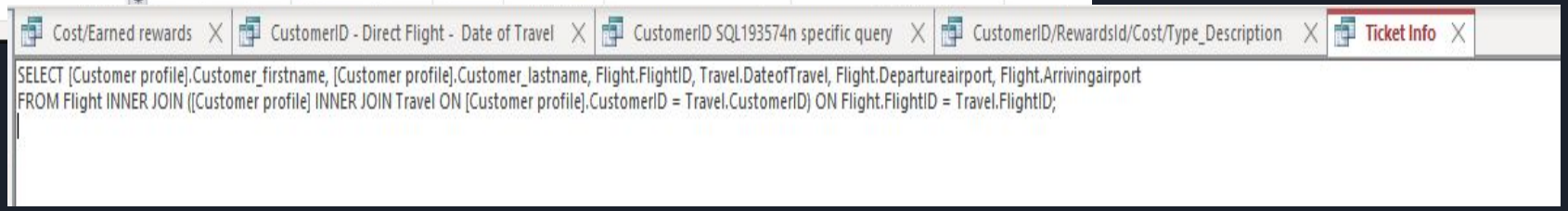


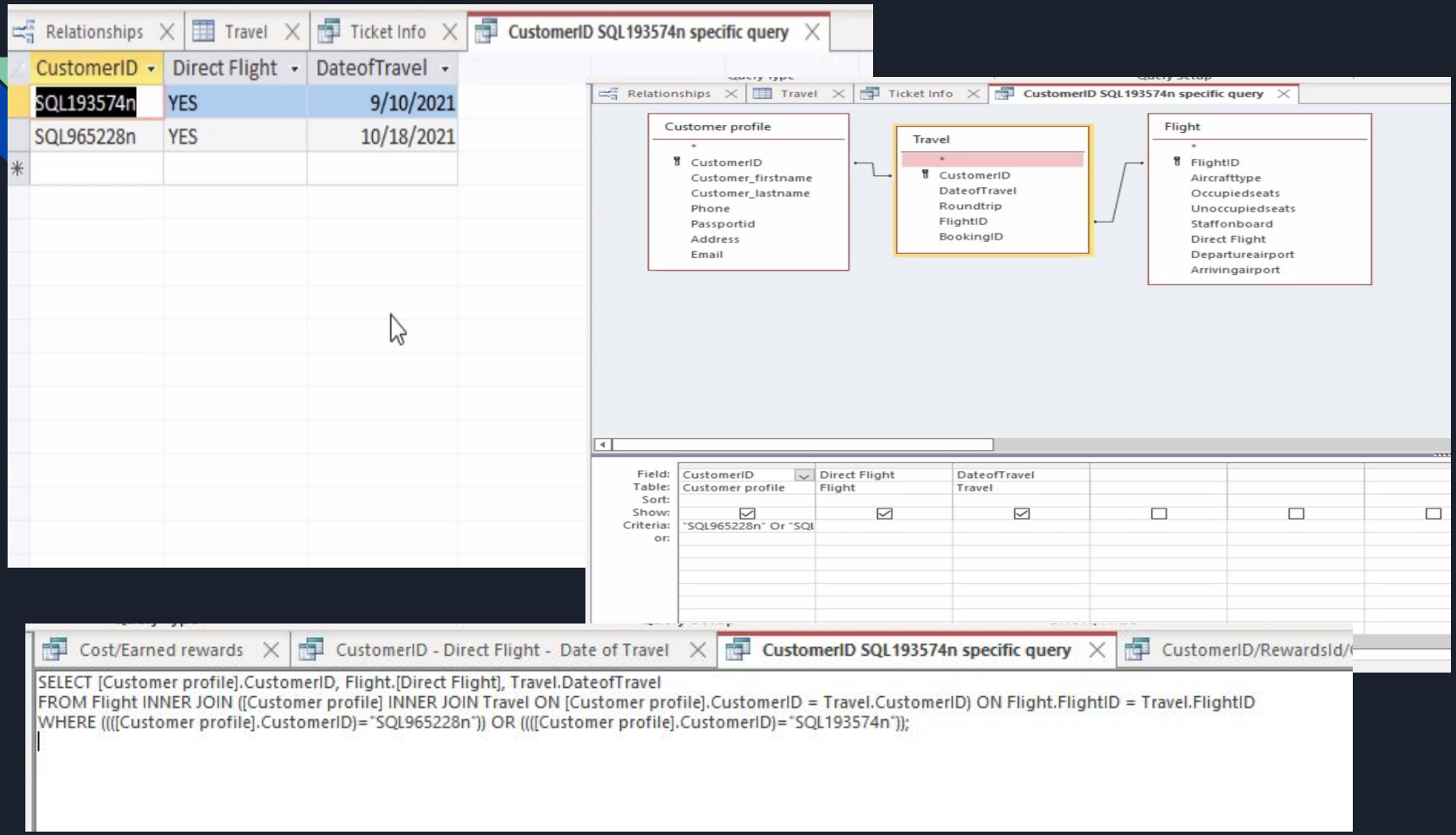


Changing Table Names + Creating Queries

- Originally our Travel table was named Customer table, but with the input of the professor and for the consideration of the group we changed the name
    - It also makes it easier to read and distinguish
- We created Queries to test out our database.
    - We created a query researching ticket information for example, which showed the customer information, flight id, date of travel, destination+arrival airports.
    - We also created several other queries to test specific information using CustomerID


Airline Database Updated : Database- C:\Users\alyss\OneDrive\Pace University\Fall 2021\Data Management (IS 613)\Airline Database Updated.accdb (Access 2007 - 2016 file format)
File
Home
Create
External Data
Database Tools
Help
Tell me what you want to do
All Access Obje...
Tables
BookingId
Customer profile
Flight
Rewards
Rewardscategoryid
Travel
Queries
Cost/Earned rewards
CustomerID - Direct Flight - ...
CustomerID SQL193574n spec...
CustomerID/RewardsId/Cost/...
Ticket Info
Customer_firstname
Customer_lastname
FlightID
DateofTravel
Departureairport
Arrivingairport
Alice James SKY7655 8/11/2021 ATLANTA GA, US (ATL) BANGKOK, TH (BKK)
Steven White SKY7707 4/15/2021 LONDON, GB (LGW) TORONTO ON, CA (YYZ)
Edward Whyte SKY8365 4/3/2021 MUMBAI, IN (BOM) MANILA, PH (MNL)
Howard Brown SKY9200 9/10/2021 PARIS, FR (ORY) ANTALYA, TR (AYT)
Hasan Black SKY5119 5/17/2021 ZURICH, CH (ZRH) WASHINGTON DC, US (DCA)
Donald Johnson SKY3475 7/23/2021 DUBLIN, IE (DUB) HANGZHOU, CN (HGH)
Susan Beckford SKY3095 8/6/2021 CHICAGO IL, US (ORD) DALLAS/FORT WORTH TX, US (DFW
Sally Allen SKY3900 7/20/2021 HONG KONG, HK (HKG) CHARLOTTE NC, US (CLT)
David Cullen SKY5947 5/3/2021 SYDNEY, AU (SYD) LONDON, GB (LGW)
Darrell Mayes SKY1846 11/21/2021 PHILADELPHIA PA, US (PHL) MANILA, PH (MNL)
Ismael Blakely SKY2769 9/22/2021 JOHANNESBURG, ZA (JNB) XIAMEN, CN (XMN)
Horace Herrero SKY0473 8/12/2021 CHICAGO IL, US (ORD) AMSTERDAM, NL (AMS)
Nate Reed SKY3231 5/17/2021 ROME, IT (FCO) SYDNEY, AU (SYD)
Malakai Colton SKY4737 8/4/2021 CHENGDU, CN (CTU) COPENHAGEN, DK (CPH)
Eliana Wyatt SKY4196 8/24/2021 FORT LAUDERDALE, FL, US (FLL) JEDDAH, SA (JED)
Valorie Aiza SKY4601 10/8/2021 SALT LAKE CITY UT, US (SLC) MANCHESTER, GB (MAN)
Kayleigh Reyes SKY5755 7/29/2021 VANCOUVER BC, CA (YVR) LISBON, PT (LIS)
Jenaro Davis SKY2069 8/13/2021 ATLANTA GA, US (ATL) DUBAI, AE (DXB)
Rachelle Henry SKY1750 9/8/2021 JAKARTA, ID (CGK)/ BANGKOK, TH (BKK)
Phyllis Rhodes SKY6129 4/2/2021 JAKARTA, ID (CGK) GUANGZHOU, CN (CAN)
Meaghan Nicholson SKY5234 7/26/2021 MUNICH, DE (MUC) ROME, IT (FCO)
Ramsey Patel SKY1717 5/7/2021 ORLANDO FL, US (MCO) NEW DELHI, IN (DEL)
Gabriel Preston SKY1031 3/17/2021 LONDON, GB (LGW) DETROIT MI, US (DTW)
Pepe Matthewson SKY1579 1/7/2021 SAN DIEGO CA, US (SAN) RIYADH, SA (RUH)
Marcus Garnett SKY8877 7/17/2021 LONDON, GB (LHR) FRANKFURT, DE (FRA)
Rohan Simpson SKY0514 7/20/2021 GUANGZHOU, CN (CAN) ISTANBUL, TR (IST)
Wesley Foster SKY0295 11/2/2021 ANTALYA, TR (AYT) COPENHAGEN, DK (CPH)
Aurora Lynwood SKY7772 9/8/2021 BOGOTA, CO (BOG) TAMPA FL, US (TPA)
Israel Winfield SKY4719 8/31/2021 INCHEON, KR (ICN) DETROIT MI, US (DTW)
Pearce Brewer SKY9909 10/18/2021 LONDON, GB (LHR) MILAN, IT (MXP)
Relationships
Travel
Ticket Info
CustomerID SQL193574n specific query
Customer profile
CustomerID
Customer_firstna
Customer_lastna
Phone
Passportid
Travel
CustomerID
DateofTravel
Roundtrip
FlightID
BookingID
Flight
FlightID
Aircrafttype
Occupiedseats
Unoccupiedseats
Staffonboard
Direct Flight
Departureairport
Arrivingairport
Field: Customer_firstnam | Customer_lastname | FlightID | DateofTravel | Departureairport | Arrivingairport
Table: Customer profile | Customer profile | Flight | Travel | Flight | Flight
Sort:
Show:
Criteria:
or:
Ready


Cost/Earned rewards
CustomerID - Direct Flight - Date of Travel
CustomerID SQL193574n specific query
CustomerID/RewardsId/Cost/Type_Description
Ticket Info
SELECT [Customer profile].Customer_firstname, [Customer profile].Customer_lastname, Flight.FlightID, Travel.DateofTravel, Flight.Departureairport, Flight.Arrivingairport
FROM Flight INNER JOIN ([Customer profile] INNER JOIN Travel ON [Customer profile].CustomerID = Travel.CustomerID) ON Flight.FlightID = Travel.FlightID;


Relationships
Travel
Ticket Info
CustomerID SQL193574n specific query
CustomerID
Direct Flight
DateofTravel
SQL193574n
YES
9/10/2021
SQL965228n
YES
10/18/2021
Customer profile
CustomerID
Customer_firstname
Customer_lastname
Phone
Passportid
Address
Email
Travel
CustomerID
DateofTravel
Roundtrip
FlightID
BookingID
Flight
FlightID
Aircrafttype
Occupiedseats
Unoccupiedseats
Staffonboard
Direct Flight
Departureairport
Arrivingairport
Field:
Table:
Sort:
Show:
Criteria:
or:
CustomerID
Customer profile
Direct Flight
Flight
DateofTravel
Travel
"SQL965228n" Or "SQL
Cost/Earned rewards
CustomerID - Direct Flight - Date of Travel
CustomerID SQL193574n specific query
SELECT [Customer profile].CustomerID, Flight.[Direct Flight], Travel.DateofTravel
FROM Flight INNER JOIN ([Customer profile] INNER JOIN Travel ON [Customer profile].CustomerID = Travel.CustomerID) ON Flight.FlightID = Travel.FlightID
WHERE ((([Customer profile].CustomerID)="SQL965228n")) OR ((([Customer profile].CustomerID)="SQL193574n"));

Thank you Professor Lewis and fellow classmates!!!
Happy Holidays everyone and Safe Travels
😎✈️🛬

It’s either us or Spirit Airlines™