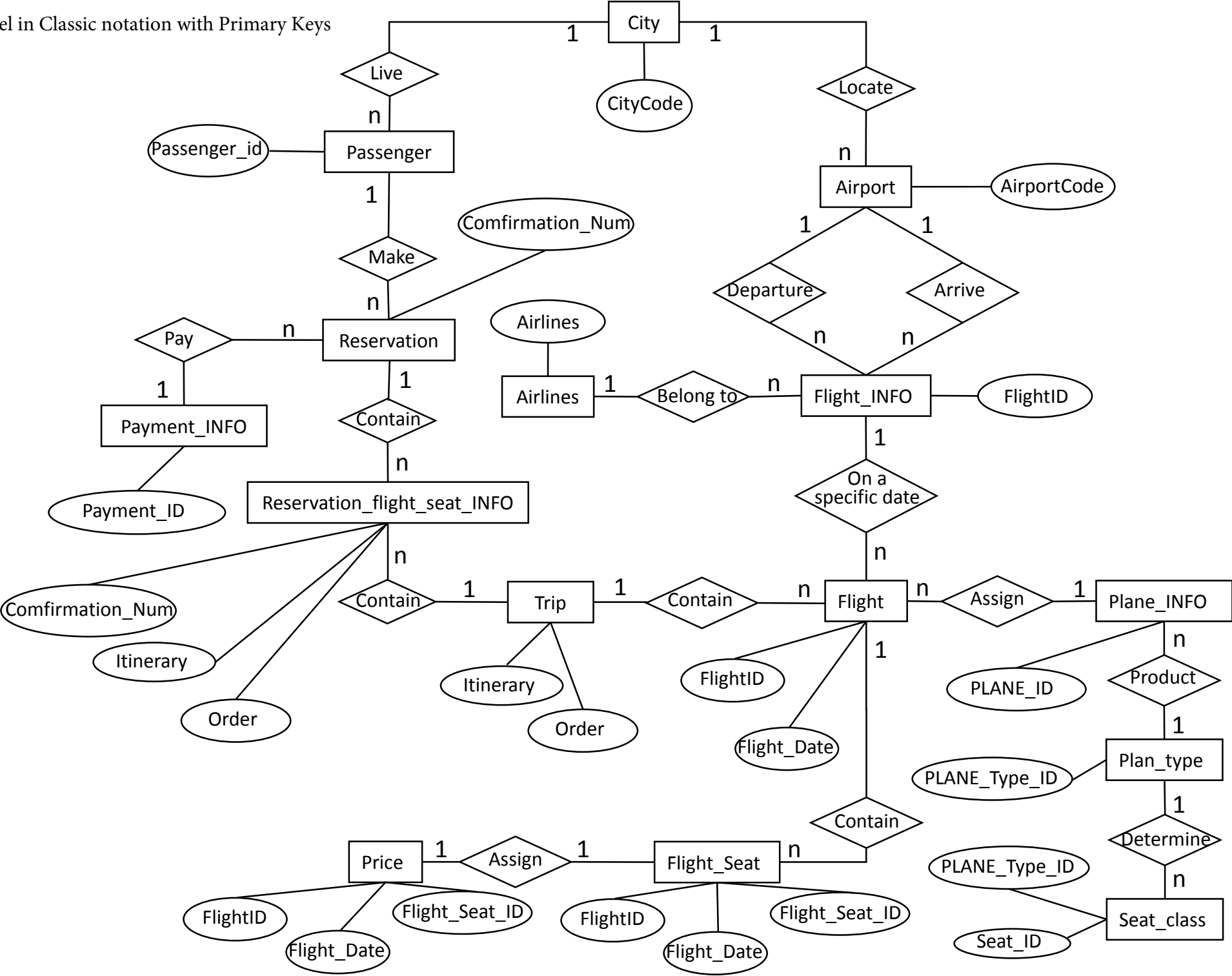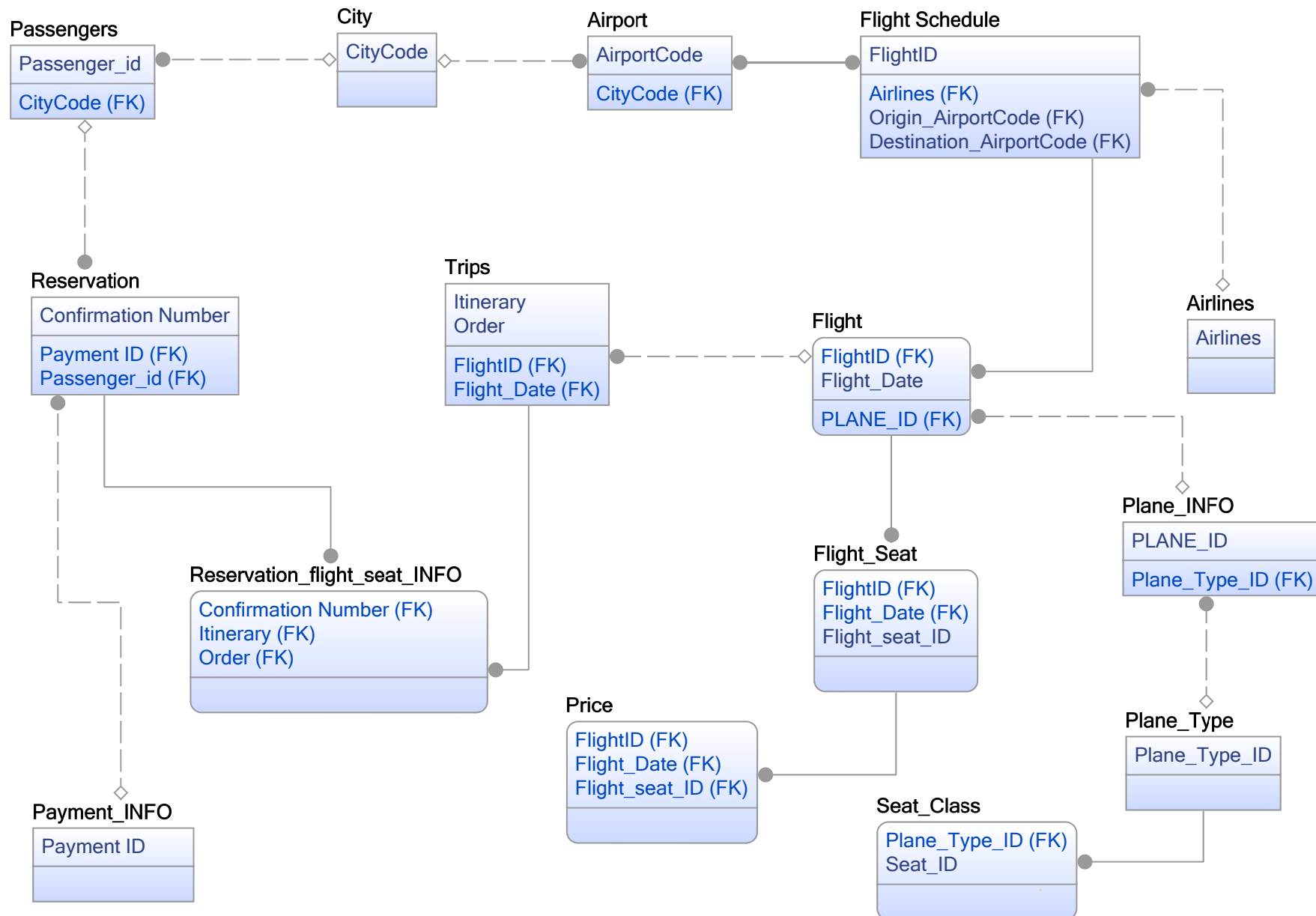ER model in Classic notation with Primary Keys
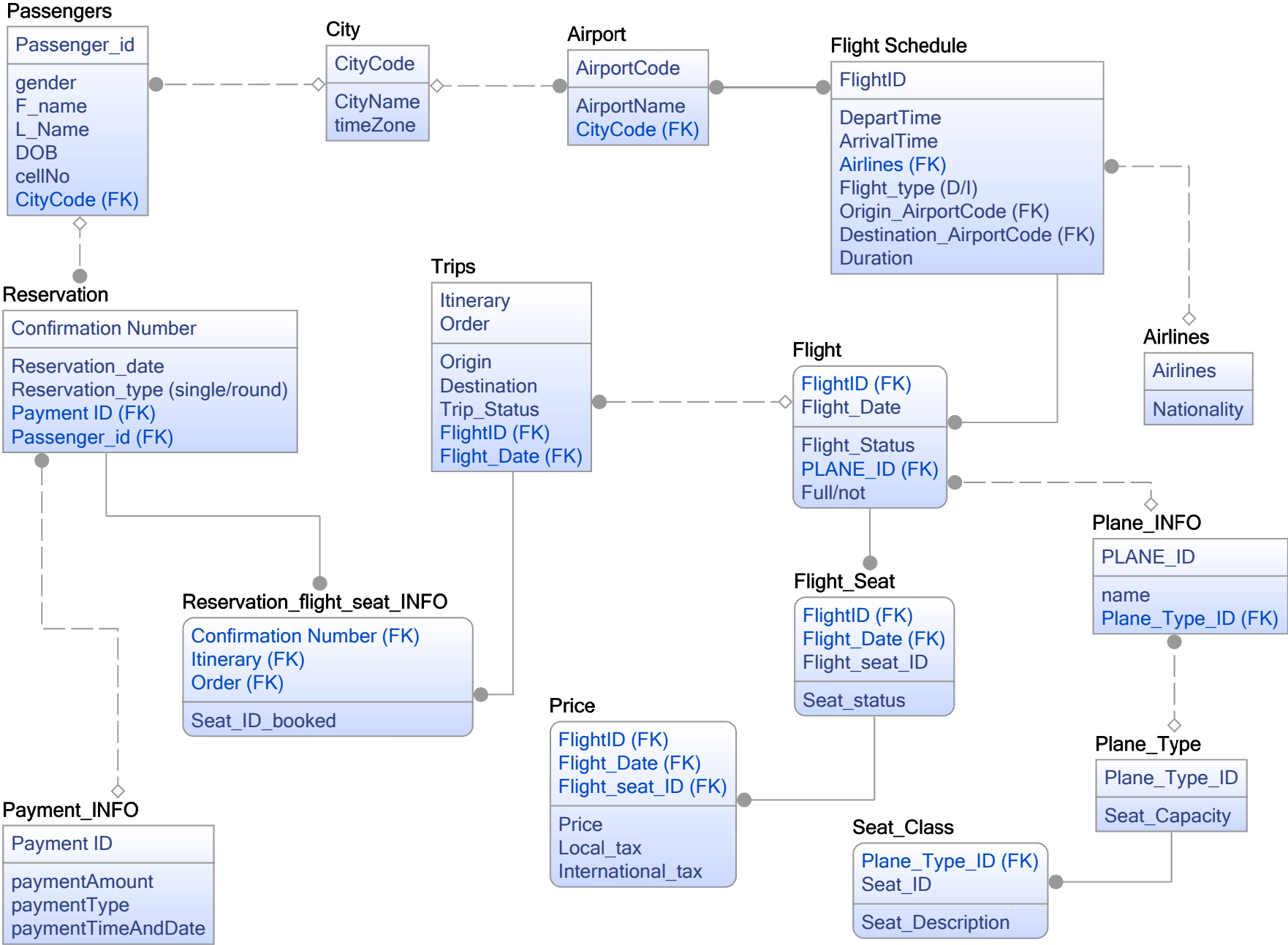
ER model in UML notation with keys (PK and FK)
Diagram generated using ERwin

Passengers

Passenger_id
CityCode (FK)

City

CityCode

Airport

AirportCode
CityCode (FK)

Flight Schedule

FlightID
Airlines (FK)
Origin_AirportCode (FK)
Destination_AirportCode (FK)

Airlines

Airlines

Reservation

Confirmation Number
Payment ID (FK)
Passenger_id (FK)

Trips

| Itinerary |
Order
FlightID (FK)
Flight_Date (FK)

Flight

| FlightID (FK) |
Flight_Date
PLANE_ID (FK)

Plane_INFO

PLANE_ID
Plane_Type_ID (FK)

Reservation_flight_seat_INFO

| Confirmation Number (FK) |
| Itinerary (FK) |
Order (FK)

Flight_Seat

| FlightID (FK) |
| Flight_Date (FK) |
Flight_seat_ID

Price

| FlightID (FK) |
| Flight_Date (FK) |
Flight_seat_ID (FK)

Seat_Class

| Plane_Type_ID (FK) |
Seat_ID

Plane_Type

Plane_Type_ID

Payment_INFO

Payment ID

ER model in UML notation with full attributes

Passengers
Passenger_id
gender
F_name
L_Name
DOB
cellNo
CityCode (FK)

City
CityCode
CityName
timeZone

Airport
AirportCode
AirportName
CityCode (FK)

Flight Schedule
FlightID
DepartTime
ArrivalTime
Airlines (FK)
Flight_type (D/I)
Origin_AirportCode (FK)
Destination_AirportCode (FK)
Duration

Reservation
Confirmation Number
Reservation_date
Reservation_type (single/round)
Payment ID (FK)
Passenger_id (FK)

Trips
Itinerary
Order
Origin
Destination
Trip_Status
FlightID (FK)
Flight_Date (FK)

Flight
FlightID (FK)
Flight_Date
Flight_Status
PLANE_ID (FK)
Full/not

Airlines
Airlines
Nationality

Reservation_flight_seat_INFO
Confirmation Number (FK)
Itinerary (FK)
Order (FK)
Seat_ID_booked

Flight_Seat
FlightID (FK)
Flight_Date (FK)
Flight_seat_ID
Seat_status

Plane_INFO
PLANE_ID
name
Plane_Type_ID (FK)

Price
FlightID (FK)
Flight_Date (FK)
Flight_seat_ID (FK)
Price
Local_tax
International_tax

Plane_Type
Plane_Type_ID
Seat_Capacity

Payment_INFO
Payment ID
paymentAmount
paymentType
paymentTimeAndDate

Seat_Class
Plane_Type_ID (FK)
Seat_ID
Seat_Description

Descriptions

Entity1 : City

PK:

CityCode: an unique id assigned to each city

None key attributes:

CityName: the name of a city

TimeZone: the time zone a city lies

Entity2: Passengers

PK:

Passenger_id: an unique id assigned to each passenger

FK:

CityCode (from city) : the city code for the city where the passenger lives

None key attributes:

Gender

F_name: first name

L_name: last name

DOB: date of birth

CellNo: cellphone numbers

Entity3: Airport

Assumption: Each city may have multiple airport

PK:

AirportCode: a unique id assigned to each airport

FK:

CityCode (from City): the CityCode for the city where the airport lies

None key attributes:

AirportName

Entity 4: Airlines

PK:

Airlines: the unique name of an airline

None key attributes:

Nationality: the nationality of the airline company

Entity 5: Plane_Type

PK:

Plane_Type_ID: an unique id assigned to each airplane model

None key attributes:

Seat_Capacity: the total number of seats in an airplane model

Entity 6: Seat_Class

Assumption: The seat class is associated with the airplane model and seat position in that model. The distribution is the same for same model

PK:

Plane_Type_ID (from plane type)

Seat_ID: a unique id assigned to each seat in a particular airplane model

None Key Attributes:

Seat_Description: business class or economy class

Entity 7: Plane_INFO:

PK:

PLANE_ID: a unique id assigned to each airplane

FK:

Plane_Type_ID (from Plane_Type)

Entity 8: Flight Schedule

Assumption: A flight ID identify a flight from a city to another city without stop. In flight schedule, the information only determined by flight id is stored.

PK:

FlightID: the unique id assigned to each flight

FK:

Airlines (from Airlines): which airline a flight belongs to

Origin_AirportCode (from Airport) : the code for departure airport

Destination_AirportCode (from Airport): the code for arrival airport

None key attributes:

DepartTime: local time of departure

ArrivalTime: local time of arrival

Duration: total time of flight scheduled

Entity 9: Flight

Assumption: The same flight may happened every day. The FlightID and flight date should identify a specific flight on a specific date.

PK:

FlightID (from Flight Schedule)

Flight_Date

FK:

PLANE_ID (from Plane_INFO)

None key attributes

Flight_Status: On-time or Delay

Full/not: whether all the seats in this flight is booked or not

Entity 10: Flight_Seat

PK:

FlightID (from Flight)

Flight_Date (from Flight)

Flight_Seat_ID: seat id for every seat of a specific flight

None key attributes:

Seat_status: booked or not

Entity 11: Price

PK:

FlightID (from Flight)

Flight_Date (from Flight)

Flight_Seat_ID: seat id for every seat of a specific flight

None key attributes:

Price

Local_tax

International_tax

Entity 12: Trips

Assumption: A trip is a routine from a city to another with a certain number of stops

PK:

Itinerary: a unique id assigned to each trip

Order: Since a trip may contain multiple flights, it is the index for the order of a particular flight in a particular trip.

FK:

FlightID (from Flight)

Flight_Date (from Flight)

None key attributes:

Origin: Airport of departure

Destination: Airport of final destination

Entity 13: Payment_INFO

PK:

Payment ID: an unique id assigned to each payment

None key attributes:

PaymentAmount:

PaymentType: cash/card

PaymentTimeAndDate

Entity 14: Reservation

PK:

Confirmation Number: a unique id assigned to each reservation

FK:

Payment ID (from Payment_INFO)

Passenger_id (from Passenger)

Entity 15: Reservation_flight_seat_INFO

PK

Confirmation Number (from reservation)

Itinerary (from trip)

Order (from trip)

None key attributes:

Seat_ID_booked: the seat booked in a trip for a flight