-- STRONG ENTITIES

create table AIRPORT (

    Airport\_code int PRIMARY KEY,

    City varchar(20),

    State VARCHAR(20),

    Name VARCHAR(20)

);

create table AIRPLANE\_TYPE (

    Type\_name VARCHAR(20) PRIMARY KEY,

    Max\_seats int,

    Company VARCHAR(20)

);

create table AIRPLANE (

  Airplane\_id int PRIMARY KEY,

  Total\_no\_of\_seats int

);

create table FLIGHT (

    Flight\_Number int PRIMARY KEY,

    Airline VARCHAR(20),

    Weekdays VARCHAR(20)

);

-- WEAK ENTITIES

-- easiest is fare

create table FARE (

    Code int,

    Amount int,

    Flight\_Number int,

    FOREIGN KEY(Flight\_Number) REFERENCES FLIGHT(Flight\_Number),

    PRIMARY KEY (Code, Flight\_Number)

);

-- flight leg,

create  table FLIGHT\_LEG(

    Leg\_no int,

    Flight\_Number int,

    FOREIGN KEY (Flight\_Number) REFERENCES FLIGHT(Flight\_Number),

    PRIMARY KEY (Leg\_no, Flight\_Number)

);

--leg instance

create table LEG\_INSTANCE(

    Date\_created DATE,

    No\_of\_avail\_seats int,

    Leg\_no int,

    Flight\_Number int,

    FOREIGN KEY (Flight\_Number) REFERENCES FLIGHT(Flight\_Number),

    FOREIGN KEY (leg\_no, Flight\_Number) REFERENCES FLIGHT\_LEG(leg\_no, Flight\_Number),

    PRIMARY KEY (Date\_created, leg\_no, Flight\_Number)

);

-- seat

create table SEAT (

    Seat\_no int,

    Date\_created DATE,

    Leg\_no int,

    Flight\_Number int,

    FOREIGN KEY(Date\_created, Leg\_no, Flight\_Number) REFERENCES LEG\_INSTANCE(Date\_created, Leg\_no, Flight\_Number),

    FOREIGN KEY (Leg\_no, Flight\_Number) REFERENCES FLIGHT\_LEG(leg\_no, Flight\_Number),

    FOREIGN KEY (Flight\_Number) REFERENCES FLIGHT(Flight\_Number),

    PRIMARY KEY(Seat\_no, Date\_created, Leg\_no, Flight\_Number)

);

-- 1:n relationship between airport and flight\_leg

ALTER TABLE FLIGHT\_LEG

ADD(

    Departure\_Airport\_Code int,

    Arrival\_Airport\_Code  int,

    Scheduled\_dep\_time TIMESTAMP,

    Scheduled\_arr\_time TIMESTAMP

);

-- foreign key constraints

ALTER TABLE FLIGHT\_LEG

ADD CONSTRAINT fk\_departure\_airport\_code

FOREIGN KEY(Departure\_Airport\_Code) REFERENCES AIRPORT(Airport\_code);

ALTER TABLE FLIGHT\_LEG

ADD CONSTRAINT fk\_arrival\_airport\_code

FOREIGN KEY(Arrival\_Airport\_Code) REFERENCES AIRPORT(Airport\_Code);

--m : n relation ship

create table CAN\_LAND(

    Airport\_Code int,

    Type\_name VARCHAR(20),

    FOREIGN KEY(Airport\_Code) REFERENCES AIRPORT(Airport\_Code),

    FOREIGN KEY(Type\_name) REFERENCES AIRPLANE\_TYPE(Type\_name),

    PRIMARY KEY (Airport\_Code, Type\_name)

);

-- TYPE RELATION (1:n) between AIRPLANE\_TYPE and AIRPLANE

ALTER TABLE AIRPLANE

ADD (

    Type\_name VARCHAR(20)

);

ALTER TABLE AIRPLANE

ADD CONSTRAINT fk\_type\_name

FOREIGN KEY(Type\_name) REFERENCES AIRPLANE\_TYPE(Type\_name);

-- ASSIGNED RELATION (1:n) between AIRPLANE AND LEG\_INSTANCE

ALTER TABLE LEG\_INSTANCE

ADD (

    Airplane\_id int

);

ALTER TABLE LEG\_INSTANCE

ADD CONSTRAINT fk\_Airplane\_id

FOREIGN KEY(Airplane\_id) REFERENCES AIRPLANE(Airplane\_id);

-- relation reservation between LEG\_INSTANCE and SEAT

ALTER table SEAT

Add(

    Customer\_name VARCHAR(20),

    Customer\_phone VARCHAR(20)

);

Alter table SEAT

Add CONSTRAINT fk\_leg\_instance

FOREIGN KEY (Date\_created, Leg\_no, Flight\_Number) REFERENCES LEG\_INSTANCE(Date\_created, Leg\_no, Flight\_Number);

-- --arrival relation (1:n) between airport and each leg\_instance

-- ALTER TABLE LEG\_INSTANCE

-- ADD CONSTRAINT fk\_arrival\_airport\_code

-- FOREIGN KEY(Arrival\_Airport\_Code) REFERENCES AIRPORT(Airport\_Code);

-- --departure relation (1:n) between airport and each leg\_instance

-- ALTER TABLE LEG\_INSTANCE

-- ADD CONSTRAINT fk\_departure\_airport\_code

-- FOREIGN KEY(Departure\_Airport\_Code) REFERENCES AIRPORT(Airport\_Code);

-- Insert into AIRPORT

INSERT INTO AIRPORT(Airport\_code, City, State, Name)

VALUES (1, 'New York', 'NY', 'JFK');

-- Insert into AIRPLANE\_TYPE

INSERT INTO AIRPLANE\_TYPE(Type\_name, Max\_seats, Company)

VALUES ('Boeing 747', 416, 'Boeing');

SELECT \* FROM AIRPLANE\_TYPE;

-- Insert into AIRPLANE

INSERT INTO AIRPLANE(Airplane\_id, Total\_no\_of\_seats, Type\_name)

VALUES (1, 416, 'Boeing 747');

SELECT \* FROM AIRPLANE;

-- Insert into FLIGHT

INSERT INTO FLIGHT(Flight\_Number, Airline, Weekdays)

VALUES (1, 'Delta', 'Mon, Wed, Fri');

SELECT \* FROM FLIGHT;

-- Insert into FARE

INSERT INTO FARE(Code, Amount, Flight\_Number)

VALUES (1, 200, 1);

-- Insert into FLIGHT\_LEG

INSERT INTO FLIGHT\_LEG(Leg\_no, Flight\_Number, Departure\_Airport\_Code, Arrival\_Airport\_Code, Scheduled\_dep\_time, Scheduled\_arr\_time)

VALUES (1, 1, 1, 1, TO\_TIMESTAMP('2022-01-01 10:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO\_TIMESTAMP('2022-01-01 14:00:00', 'YYYY-MM-DD HH24:MI:SS'));

-- Insert into LEG\_INSTANCE

INSERT INTO LEG\_INSTANCE(Date\_created, No\_of\_avail\_seats, Leg\_no, Flight\_Number, Airplane\_id)

VALUES (TO\_DATE('2022-01-01', 'YYYY-MM-DD'), 416, 1, 1, 1);

-- Insert into SEAT

INSERT INTO SEAT(Seat\_no, Date\_created, Leg\_no, Flight\_Number, Customer\_name, Customer\_phone)

VALUES (1, TO\_DATE('2022-01-01', 'YYYY-MM-DD'), 1, 1, 'Venusai', '8897628405');

-- Insert into CAN\_LAND

INSERT INTO CAN\_LAND(Airport\_Code, Type\_name)

VALUES (1, 'Boeing 747');

SELECT \* FROM CAN\_LAND;

-- Repeat for the second set of data

INSERT INTO AIRPORT(Airport\_code, City, State, Name)

VALUES (2, 'Los Angeles', 'CA', 'LAX');

INSERT INTO AIRPLANE\_TYPE(Type\_name, Max\_seats, Company)

VALUES ('Airbus A380', 853, 'Airbus');

INSERT INTO AIRPLANE(Airplane\_id, Total\_no\_of\_seats, Type\_name)

VALUES (2, 853, 'Airbus A380');

INSERT INTO FLIGHT(Flight\_Number, Airline, Weekdays)

VALUES (2, 'American Airlines', 'Tue, Thu, Sat');

INSERT INTO FARE(Code, Amount, Flight\_Number)

VALUES (2, 300, 2);

INSERT INTO FLIGHT\_LEG(Leg\_no, Flight\_Number, Departure\_Airport\_Code, Arrival\_Airport\_Code, Scheduled\_dep\_time, Scheduled\_arr\_time)

VALUES (2, 2, 2, 2, TO\_TIMESTAMP('2022-01-02 10:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO\_TIMESTAMP('2022-01-02 14:00:00', 'YYYY-MM-DD HH24:MI:SS'));

INSERT INTO LEG\_INSTANCE(Date\_created, No\_of\_avail\_seats, Leg\_no, Flight\_Number, Airplane\_id)

VALUES (TO\_DATE('2022-01-02', 'YYYY-MM-DD'), 853, 2, 2, 2);

INSERT INTO SEAT(Seat\_no, Date\_created, Leg\_no, Flight\_Number, Customer\_name, Customer\_phone)

VALUES (2, TO\_DATE('2022-01-02', 'YYYY-MM-DD'), 2, 2, 'Meghana', '0987654321');

INSERT INTO CAN\_LAND(Airport\_Code, Type\_name)

VALUES (2, 'Airbus A380');

-----

INSERT INTO AIRPORT(Airport\_code, City, State, Name)

VALUES (3, 'Hyderabad', 'TG', 'IND');

INSERT INTO AIRPLANE\_TYPE(Type\_name, Max\_seats, Company)

VALUES ('Airbus123', 853, 'Airbus');

INSERT INTO AIRPLANE(Airplane\_id, Total\_no\_of\_seats, Type\_name)

VALUES (3, 853, 'Airbus123');

INSERT INTO FLIGHT(Flight\_Number, Airline, Weekdays)

VALUES (3, 'Hyderabad Airlines', 'Tue, Thu, Sat, Sun');

INSERT INTO FARE(Code, Amount, Flight\_Number)

VALUES (3, 3000, 3);

INSERT INTO FLIGHT\_LEG(Leg\_no, Flight\_Number, Departure\_Airport\_Code, Arrival\_Airport\_Code, Scheduled\_dep\_time, Scheduled\_arr\_time)

VALUES (3, 3, 3, 3, TO\_TIMESTAMP('2024-01-02 10:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO\_TIMESTAMP('2024-01-02 14:00:00', 'YYYY-MM-DD HH24:MI:SS'));

INSERT INTO LEG\_INSTANCE(Date\_created, No\_of\_avail\_seats, Leg\_no, Flight\_Number, Airplane\_id)

VALUES (TO\_DATE('2024-01-02', 'YYYY-MM-DD'), 800, 3, 3, 3);

INSERT INTO SEAT(Seat\_no, Date\_created, Leg\_no, Flight\_Number, Customer\_name, Customer\_phone)

VALUES (3, TO\_DATE('2024-01-02', 'YYYY-MM-DD'), 3, 3, 'Venusai', '8897628405');

INSERT INTO CAN\_LAND(Airport\_Code, Type\_name)

VALUES (3, 'Airbus123');

SELECT \* from SEAT;

--i

SELECT Customer\_name, COUNT(\*) as Seat\_Count

FROM SEAT

GROUP BY Customer\_name

ORDER BY Seat\_Count DESC

FETCH FIRST 1 ROWS ONLY;

-- vi

select \* from AIRPLANE where TOTAL\_NO\_OF\_SEATS > 200;

--ix

SELECT Company

FROM AIRPLANE\_TYPE

WHERE Type\_name = 'Airbus123';

--x

SELECT SUM(

  EXTRACT(HOUR FROM (Scheduled\_arr\_time - Scheduled\_dep\_time))

) as Total\_Hours

FROM FLIGHT\_LEG

WHERE Flight\_Number  = 3; -- not perefect i shouldn't be entering the flight number manually