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1. DATABASE DESCRIPTION, REQUIREMENTS & DATA ITEMS

1.1. Description

This database is about an Airline Company. That airline company founded in 1933. Airline company has more than 80,000 hours of *flights*. The company has announced that over 75.2 *million* passengers carried on 2018 and flies to 306 destinations in 124 countries with its fleet of 336 aircrafts including passenger and cargo planes.

This Airline highly dedicated in customer services. This Airline has many branches around the world but mostly its branches are in Turkey. Employees determines to prove high quality of services for their customers. This Airline is well known for low price of tickets in both domestic and international flights. This Airline company has several discount schemes for children and people that they have need. They give particular importance to customer satisfaction, so their ticket transactions are much higher than the other companies. Importance of the Airway just as food and water are important to the growth and development of our children, so is being able to supply their cells with oxygen. This means we need a clear and wide air pipe to allow the maximum amount of oxygen to enter the lungs.

1.2. Requirements

This part of our project deals with requirements of Airline Company database system, which specifies that what an airline database system should do .We need to store all infomations and datas which required for our database system. It helps us to see how the system fits into the existing scheme of things. What the system will do by itself and what it expects other entities to do is clearly delineated.

There are currently 15 Country and we need to store each countries Ct_ID and Ct_Name,so as we known ever Countr has a State in which we have 15 State in our database and we are going to store its State_ID, State_Name and Country. There are 25 Contact Details, for existing 15 State and Also passengers which should be stored; Street, Phone, State, Cn_ID and E_mail in Contact Details, and at the same time. Passengers of our airlines and each Passenger's personal informations should be recorded. Every passenger has Name, Surname, Nationality, Born_Date, Nationality, SSN and Contacts. Passengers can buy many tickets but each ticket belongs to one passenger, in order to record tickets we need to store PNR No, Price, Route and Discounts of ticket entity.

There currently are 9 types of discounts in our Discount entity for our tickets which we need to store them. On the other hand, we are about to specify our manufacturer and aircraft in which aircrafts made by those manufacturers and we are going to store aircrafts to determine its Ac_ID,Name,Capacity and Mfd_By which manufacture and also to record Manufacturer's Mf_ID ,Mf_Date,Name.

Every single ticket belongs to a Flight Schedule in order to follow your flight and we are going to store Flight_Date,Arrival,Departure,Flight_ID and Aircraft.However,every flight has its own team and there are currently 15 Teams and each of them has Emp_ID and T_ID and each team consists of an employee and each employees personal informations should be stored and these employees works on 11 different departments which belongs to an Airport,and we are going to store each airports ICAO and Name.

2. ENTITIES ATTRIBUTES & RESTRICTIONS

2.1 Entity List

- 1. State
- 2. Country
- 3. Contact_Details
- 4. Passengers
- 5. Ticket
- 6. Discounts
- 7. Flight_Schedule
- 8. Airport
- 9. Aircrafts
- 10. Manufacturer
- 11. Team
- 12. Employee
- 13. Departments

2.2 Entity structures with relevant attributes and data types

State

Field	Data Type	Description	Constraints
State_ID	INT	Unique row id	Primary Key
State_Name	VARCHAR(32)	State name will take place here	NOT NULL
Country	INT	Primary Key From Country Table	Foreign Key

Country

Field	Data Type	Description	Constraints
Ct_ID	INT	Unique row id	Primary Key
Ct_Name	VARCHAR(32)	Country name will take place here	NOT NULL

Contact_Details

Field	Data Type	Description	Constraints
Cn_ID	INT	Unique row id	Primary key
E_mail	VARCHAR(32)	Passengers's contact email	NOT NULL
Phone	INT(16)	Passengers's contact telephone number	NOT NULL
Street	VARCHAR(64)	Street adress of the passengers	NOT NULL
State	INT	Primary key from State table	Foreign key

Passengers

Field	Data Type	Description	Constraints
SSN	INT	Unique Social Security Number	Primary Key
Name	VARCHAR(32)	Passengers's Name	NOT NULL
Surname	VARCHAR(32)	Passengers's Surname	NOT NULL
Nationality	VARCHAR(32)	Passengers's Nationality	NOT NULL
Born_Date	DATE	Passengers's birthday	NOT NULL
Contacts	INT	Primary Key from Contacts table	Foreign key

Ticket

Field	Data Type	Description	Constraints
PNR_No	VARCHAR(6)	Unique Pnr no	Primary Key
Route	INT	Primary key from Flight_Schedule table	Foreign Key
Discounts	INT	Primary key from Discounts table	Foreign Key
Price	Currency	Ticket Price	NOT NULL

Discounts

Field	Data Type	Description	Constraints
Price_ID	INT	Unique row id	Primary Key
Title	VARCHAR(32)	Label to know discount	NOT NULL
Amount	INT	Discount amount in %	NOT NULL
Description	Varchar(255)	Describe cause of discount	NOT NULL

Flight_Schedule

Field	Data Type	Description	Constraints
Ft_ID	VARCHAR(11)	Unique row id	Primary Key
Flight_Date	DATE	Date of Flight	NOT NULL
Arrival	INT	Primary key from Airports table	Foreign Key
Departure	INT	Primary key from Airports table	Foreign Key
Aircraft	INT	Primary key from Aircrafts table	Foreign Key

Airport

Field	Data Type	Description	Constraints
ICAO	VARCHAR(11)	Unique ICAO code of airport	Primary Key
NAME	VARCHAR(32)	Name of airport	NOT NULL

Aircrafts

Field	Data Type	Description	Constraints
Ac_ID	INT	Unique row id	Primary Key
Name	VARCHAR(32)	Aircraft name	NOT NULL
Capacity	INT	Aircraft capacity	NOT NULL
Mfd_By	INT	Primary key from Manufacturer table	Foreign key

Manufacturer

Field	Data Type	Description	Constraints
Mf_ID	INT	Unique row id	Primary Key
Name	VARCHAR(32)	Manufacturer name	NOT NULL
Mf_Date	DATE	Manufactured date	NOT NULL

Team

Field	Data Type	Description	Constraints
T_ID	INT	Unique row id	Primary Key
Emp_ID	INT	Primary Key from employee table	Foreign Key

Employee

Field	Data Type	Description	Constraints
SSN	INT	Unique SSN number	Primary Key
Name	VARCHAR(32)	Employee's name	NOT NULL
Surname	VARCHAR(32)	Employee's surname	NOT NULL
Sex	VARCHAR(6)	Employee's sex	NOT NULL
Age	INT	Employee's age	NOT NULL
Dept_ID	INT	Primary key from Departments table	Foreign key

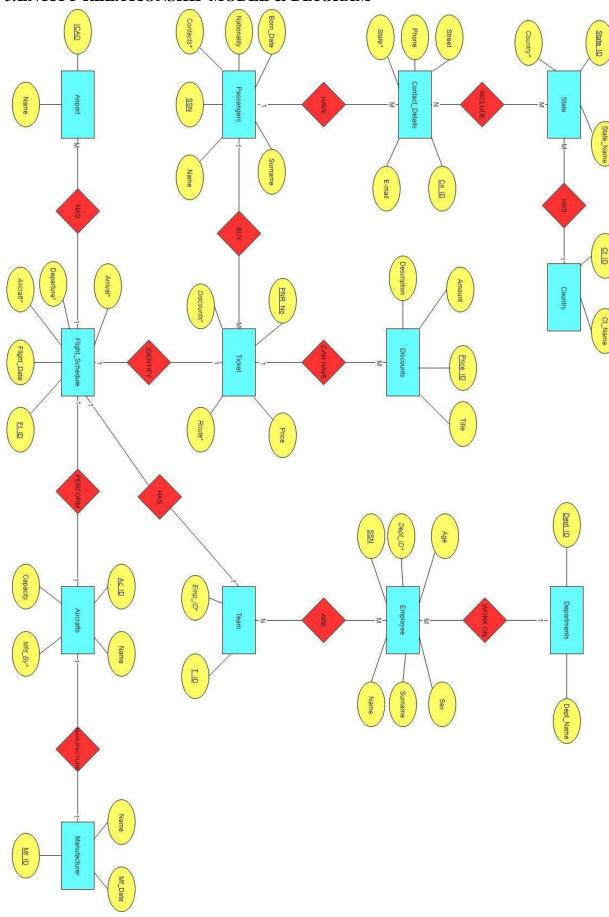
Departments

Field	Data Type	Description	Constraints
Dept_ID	INT	Unique row id	Primary Key
Dept_Name	VARCHAR(32)	Department's name	NOT NULL

2.3 Primary keys and foreign keys

SN	Table	Primary Key	Foreign keys		
			Column	References	
1	State	State_ID	Country	Country.Ct_ID	
2	Country	Ct_ID	-	•	
3	Contact_Details	Cn_ID	State	State.State_ID	
4	Passengers	SSN	Contacts	Contacts.Cn_ID	
5	Ticket	PNR_No	Route	Flight_Schedule.Ft_ID	
			Discounts	Discounts.Ch_ID	
6	Discounts	Price_ID	-	•	
7	Flight_Schedule	Ft_ID	Arrival	Airports.ICAO	
			Departure	Airports.ICAO	
			Aircraft	Aircrafts.Ac_ID	
8	Airport	ICAO	-	•	
9	Aircrafts	Ac_ID	Mfd_By	Manufacturer.Mf_ID	
10	Manufacturer	Mf_ID	-	•	
11	Team	T_ID	Emp_ID	Employee.SSN	
12	Employee	SSN	Dept_ID	Departments.Dept_ID	
13	Departments	Dept_ID	-	-	

3.ENTITY RELATIONSHIP MODEL & DIAGRAM



From top to bottom;

A)

- -Many states can match with one country. A country consists of many states. (M-1)
- -And also many states may include many contact details.(M-M)
- -Many contact details must be match with only one passenger.(M-1)

From this point to the left;

B)

-A passenger can buy many tickets.On the other hand,a particular ticket must be sold to a particular passenger.(1-M)

From this point to up and down;

C)

- -Also a ticket can have many discounts.(1-M)
- -A ticket can be identified by only one flight Schedule.(1-1)

From "Flight_Schedule" entity to its left and right directions;

D)

- -Flight schedules can have many airport .So, a planned flight can be landed to airport whatever that wanted .This entity relation desribes this situation.(1-M)
- -Flights performed by aircrafts. We considered that an aircraft can show us only one flight schedule.(1-1)
- -Flight Schedule must have a team that will make the flight. (1-1)
- -Finally, an aircraft manufactured by one manufacturer firm.(1-1)

From bottom to top;

A)

- -A team consists of employees. So, we can say that many employees forms different teams. (N-M)
- -Many employees can work on only certain, particular department. (1-M)

4. DATABASE

4.1. Creating the Database

CREATE DATABASE airline_dbms;

CREATE DATABASE AIRLINE

4.2. Creating the Tables

We need 13 tables for this database: Aircrafts, Airports, Contact_Details , Country , Department , Discounts , Employee , Flight_Schedule , Manufacturer , Passengers , State , Team , Ticket

4.2.1. Creating the Table AIRCRAFTS

```
CREATE TABLE `aircrafts ` (
 `Ac_ID` int(11) NOT NULL,
 `Name ` varchar(32) NOT NULL
 `Capacity` int(11) NOT NULL,
 `Mfd_By` int(100) NOT NULL,
)
```



4.2.2. Creating the Table AIRPORT

```
CREATE TABLE `airport` (
`ICAO ` varchar(11) NOT NULL
`Name ` varchar(32) NOT NULL
)
```



4.2.3. Creating the Table CONTACT DETAILS

```
CREATE TABLE `contact_details` (
`Street ` varchar(32) NOT NULL

`Phone ` int(32) NOT NULL,

`Cn_ID ` int(32) NOT NULL,

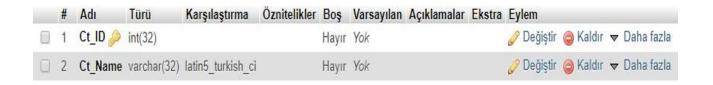
`E_mail ` varchar(32) NOT NULL

`State ` int(11) NOT NULL,

)
```



4.2.4. Creating the Table COUNTRY



4.2.5. Creating the Table DEPARTMENT

```
CREATE TABLE `department` (

`Dept_ID ` int(32) NOT NULL,

`Dept_Name ` varchar(32) NOT NULL
)
```



4.2.6. Creating the Table DISCOUNTS

```
CREATE TABLE `discounts` (
    `Price_ID` int(32) NOT NULL,
    `Amount` int(32) NOT NULL,
    `Description` varchar(32) NOT NULL
    `Title` varchar(32) NOT NULL
)
```



4.2.7. Creating the Table EMPLOYEE

```
CREATE TABLE `employee` (
`SSN` int(11) NOT NULL,
`Age` int(11) NOT NULL,
`Sex` varchar(11) NOT NULL
`Name` varchar(11) NOT NULL
`Surname` varchar(11) NOT NULL
`Dept_ID` int(11) NOT NULL,
)
```



4.2.8. Creating the Table FLIGHT SCHEDULE

```
CREATE TABLE `flight_schedule` (
`Arrival` varchar(32) NOT NULL
`Departure` varchar(32) NOT NULL
`Flight_Date` date NOT NULL
`Ft_ID` varchar(11) NOT NULL
`Aircraft` int(11) NOT NULL,
```

)



4.2.9. Creating the Table MANUFACTURER

```
CREATE TABLE `manufacturer` (
`Name ` varchar(32) NOT NULL,
`Mf_Date ` int(11) NOT NULL,
`Mf_ID ` int(11) NOT NULL,
)
```



4.2.10. Creating the Table PASSENGERS

```
CREATE TABLE `passengers` (
```

```
`Born_Date` int(11) NOT NULL,

`Nationality` varchar(32) NOT NULL,

`SSN` int(11) NOT NULL,

`Name` varchar(32) NOT NULL,

`Surname` varchar(32) NOT NULL,

`Contacts` int(11) NOT NULL,

)
```



4.2.11. Creating the Table TEAM

CREATE TABLE 'team' (

`T_ID` int(32) NOT NULL,

`Emp_ID` int(11) NOT NULL,



4.2.12. Creating the Table TICKET

CREATE TABLE `ticket` (

`PNR No `varchar(32) NOT NULL,

`Price` int(11) NOT NULL,

`Route` varchar(11) NOT NULL,

`Discounts` int(11) NOT NULL,



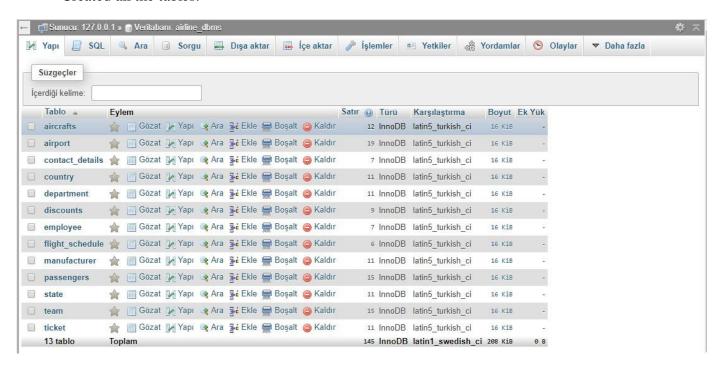
4.2.13. Creating the Table STATE

```
CREATE TABLE `state` (
 `State_ID` int(32) NOT NULL,
 `State_Name ` varchar(32) NOT NULL,
 `Country` int(11) NOT NULL,
)
                         Karşılaştırma Öznitelikler Boş Varsayılan Açıklamalar Ekstra Eylem
# Adı
               Türü
   State_ID / int(32)
                                                  Hayır Yok
                                                                                    Ø Değiştir <a> Kaldır</a> <a> Daha fazla</a>
2 State Name varchar(32) latin5 turkish ci
                                                  Hayır Yok
                                                                                    Ø Değiştir 

Kaldır 

Daha fazla
                                                                                    Ø Değiştir <a> Kaldır</a> <a> Daha fazla</a>
3
   Country
               int(11)
                                                  Hayır Yok
```

Created all the tables:



4.3. Adjusting Necessary Relationships, Primary Keys, and Foreign Keys;

- **4.3.1** Primary Keys, and Foreign Keys for the Aircrafts;
- -Ac_ID is the primary key in the Aircrafts table.

ALTER TABLE `aircrafts`

ADD PRIMARY KEY (`Ac_ID`);

-Mf_ID is the foreign key in the Aircrafts table.

ALTER TABLE 'aircrafts'

ADD CONSTRAINT `aircrafts_rel`

FOREIGN KEY(`Mfd_By`) REFERENCES `manufacturer` (`Mf_ID`)



- **4.3.2** Primary Keys, and Foreign Keys in the Airport Table
- -ICAO is the Primary key in the Airport Table.

ALTER TABLE 'airport'

ADD PRIMARY KEY ('ICAO');

- -This table do not have Foreign Key.
- **4.3.3** Primary Keys, and Foreign Keys in the Contact_Details
 - -Cn_ID is the Primary Key in the Contact_Details.

ALTER TABLE `contact_details`

ADD PRIMARY KEY (`Cn_ID`);

-State is Foreign Key that refers to State_ID from State table in the Contact_Details.

ALTER TABLE `contact_details`

ADD CONSTRAINT `contact_details_rel_`

FOREIGN KEY(`State`) REFERENCES `state` (`State_ID`);



- 4.3.4 Primary Key, and Foreign Key in the Country Table
- -Ct_ID is the Primary Key in the Country Table.

ALTER TABLE `country`

ADD PRIMARY KEY (`Ct_ID`);

- -This table do not have foreign key.
- **4.3.5** Primary Key, and Foreign Key in the Discounts;
- -Price_ID is the Primary Key in the Discounts table.

ALTER TABLE 'discounts'

ADD PRIMARY KEY (`Price_ID`);

- -This table do not have Foreign Key.
- **4.3.6** Primary Key, and Foreign Key in the Department;
- -Dept_ID is the Primary Key in the Department Table.

ALTER TABLE `department`

ADD PRIMARY KEY (`Dept_ID`);

-This table do not have Foreign Key.

4.3.7 Primary Key, and Foreign Key in the Employee;

-SSN is the Primary Key in the Employee.

ALTER TABLE 'employee'

ADD PRIMARY KEY (`SSN`);

-Dept_ID is the Foreign Key in the Employee Table.

ALTER TABLE `employee`

ADD CONSTRAINT `employee_rel`

FOREIGN KEY('Dept_ID') REFERENCES 'department' ('Dept_ID');

4.3.8 Primary Key, and Foreign Key in the Team;

-T_ID is the Primary Key in the Team Table.

ALTER TABLE `team`

ADD PRIMARY KEY (`T_ID`);

-Emp_ID is the Foreign Key in the Team Table.

ALTER TABLE 'team'

ADD CONSTRAINT 'team rel'

FOREIGN KEY(`Emp_ID`) REFERENCES `employee` (`Emp_ID`);



4.3.9 Primary Key, and Foreign Key in the Flight_Schedule

-Ft_ID is the Primary Key in the Flight_Schedule.

ALTER TABLE `flight_schedule`

ADD PRIMARY KEY (`Ft_ID`);

- Arrival and Departure is the Foreign Key that refer to ICAO from Airport Table in the Flight_Schedule Table.

-Aircraft is the Foreign Key in the Flight_Schedule. ALTER TABLE `flight_schedule`

ADD CONSTRAINT `fight_schedule_rel_1`

FOREIGN KEY(`Arrival`) REFERENCES `airport` (`ICAO`),

ADD CONSTRAINT `fight_schedule_rel_2`

FOREIGN KEY('Departure') REFERENCES 'airport' ('ICAO'),

ADD CONSTRAINT `fight_schedule_rel_3`

FOREIGN KEY('Aircraft') REFERENCES 'aircrafts' ('Ac_ID');



4.3.10 Primary Key, and Foreign Key in the Ticket;

-PNR_No is the Primary Key in the Ticket Table.

ALTER TABLE 'ticket'

ADD PRIMARY KEY (`PNR_No`);

-Discounts and Route are the Foreign Keys in the Ticket.

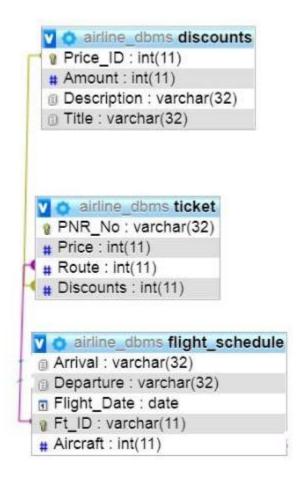
ALTER TABLE `ticket`

ADD CONSTRAINT `ticket_rel_1`

FOREIGN KEY(`Discounts`) REFERENCES `discounts` (`Price_ID`),

ADD CONSTRAINT `ticket_rel_2`

FOREIGN KEY(`Route`) REFERENCES `flight_schedule` (`Ft_ID`);



4.3.11 Primary Key, and Foreign Key in the State;

-State_ID is the Primary Key in the State table.

ALTER TABLE `state`

ADD PRIMARY KEY (`State_ID`);

-Country is the Foreign Key in the State Table.

ALTER TABLE `state`

ADD CONSTRAINT `state_rel`

FOREIGN KEY(`Country`) REFERENCES `country` (`Ct_ID`);



4.3.12 Primary Key, and Foreign Key in the Manufacturer;

-Mf_ID is the Primary Key.

ALTER TABLE `manufacturer`

ADD PRIMARY KEY (`Mf_ID`);

-This table do not have Foreign Key.

4.3.13 Primary Key, and Foreign Key in the Passenger;

-SSN is the Primary Key in the Passenger Table.

ALTER TABLE `passenger`

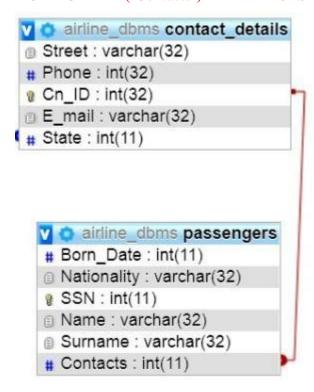
ADD PRIMARY KEY (`SSN`);

-Contacts is the Foreign Key in the Passenger Table.

ALTER TABLE `passenger`

ADD CONSTRAINT `passenger_rel`

FOREIGN KEY('Contacts') REFERENCES 'contact_details' ('Cn_ID');



4.4. Populating the Tables

4.4.1. Populating the Table AIRCRAFTS

INSERT INTO 'aircrafts ' ('Ac_ID', 'Name', 'Capacity', 'Mfd_By')

- (0, 'A340-300', '350', '2'),
- (1, 'A330-300', '300', '37'),
- (2, 'A330-200', '250', '18'),
- (3, 'A321-200', '180', '68'),
- (4, 'A320-200', '159', '18'),
- (5, 'A319-132/100', '132', '6'),
- (6, 'B777-300 ER', '400', '33'),
- (7, 'B737-800', '165', '99'),
- (8, 'B737-700', '124', '1'),
- (9, 'B737-900 ER', '169', '15'),
- (10, 'A321 NEO', '182', '4'),
- (11, 'B737-8 MAX', '151', '12'),



4.4.2. Populating the Table AIRPORT

INSERT INTO `airport` (`ICAO`, `name`)

VALUES

(EDDF, 'Frankfurt Airport'),

(EGLL, 'London Heathrow Airport'),

(KVJI, 'Virginia Highlands'),

(LEBL, 'Barcelona El Prat Airport'),

(LEVD, 'Spain-Valladolid'),

(LFPG, 'Pris-Charles de Gaulle'),

(LMML, 'Malta International'),

(LTAC, 'Ankara-Esenboga'),

(LTAG, 'Adana-Incırlık'),

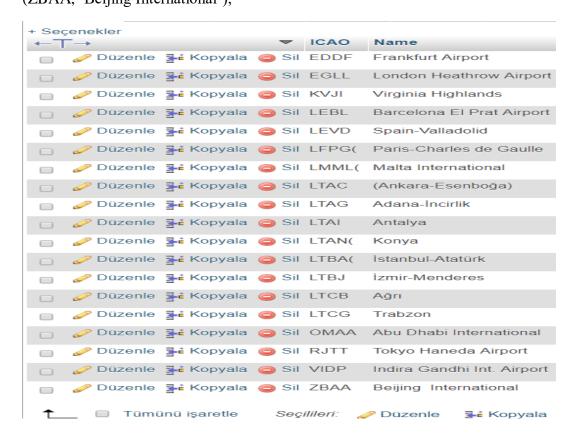
(LTAI, 'Antalya'),

(LTAN, 'Konya'),

(LTBA, 'Istanbul-Ataturk'),

(LTBJ, 'Izmir-Menderes'),

```
(LTCB, 'Agrı'),
(LTCG, 'Trabzon'),
(OMAA, 'Abu Dhabi International'),
(RJTT, 'Tonyo Haneda Airport'),
(VIDP, 'Indira Ghandi Int. Airport'),
(ZBAA, 'Beijing International'),
```



4.4.3. Populating the Table CONTACT DETAILS

INSERT INTO `contact_details` (`Street`, `Phone`, 'Cn_ID', 'E-mail', 'State')

VALUES

('Kuyuyazısı Street', '1543261745', '1121458981',' <u>alternativered@gmail.com</u>'),

('Greenwich Street',' 478547854',' 1121458982', 'sbcgreenwichman@gmail.com'),

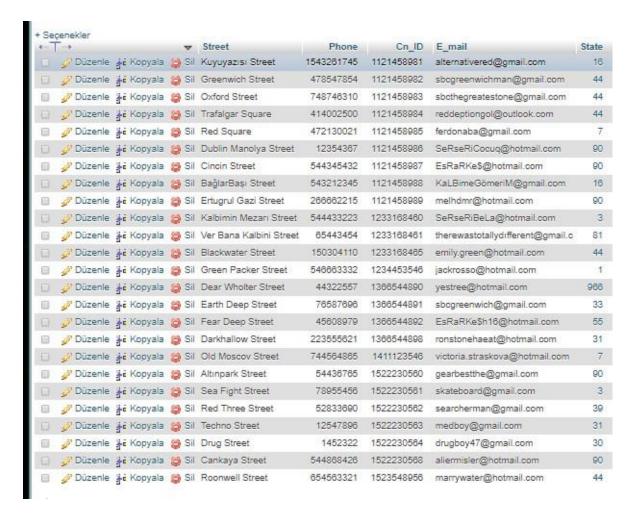
('Oxford Street',' 748746310',' 1121458983',' sbcthegreatestone@gmail.com'),

('Trafalgar Square', '414002500', '1121458984', 'reddeptiongol@outlook.com'),

('Red Square', '472130021', '1121458985', 'ferdonaba@gmail.com'),

('Dublin Manolya Street', '12354367', '1121458986', 'SeRseRiCocuq@hotmail.com'),

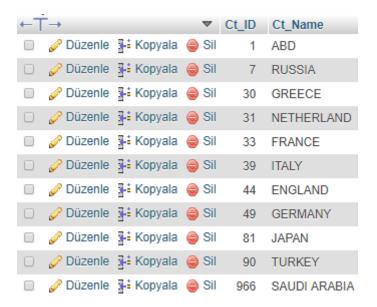
```
('Cincin Street',' 544345432',' 1121458987',' EsRaRKe$@hotmail.com'),
 ('BağlarBaşı Street', '543212345', '1121458988', 'KaLBimeGömeriM@gmail.com'),
 ('Ertugrul Gazi Street', '266662215', '1121458989', 'melhdmr@hotmail.com'),
 ('Kalbimin Mezarı Street',' 544433223',' 1233168460',' SeRseRiBeLa@hotmail.com'),
('Ver Bana Kalbini Street',' 65443454',' 1233168461',' therewastotallydifferent@gmail.com'),
('Blackwater Street',' 150304110', 1233168465',' emily.green@hotmail.com'),
('Green Packer Street', '546663332', '1234453546', 'jackrosso@hotmail.com'),
('Dear Wholter Street',' 44322557',' 1366544890',' yestree@hotmail.com'),
('Earth Deep Street',' 76587696',' 1366544891',' sbcgreenwich@gmail.com'),
('Fear Deep Street',' 45608979',' 1366544892',' EsRaRKe$h16@hotmail.com'),
('Darkhallow Street', '223555621', '1366544898', 'ronstonehaeat@hotmail.com'),
('Old Moscov Street', '744564865', '1411123546', 'victoria.straskova@hotmail.com'),
('Altınpark Street',' 54436765',' 1522230560',' gearbestthe@gmail.com'),
('Sea Fight Street',' 78955456',' 1522230561',' skateboard@gmail.com'),
('Red Three Street',' 52833690',' 1522230562',' searcherman@gmail.com'),
('Techno Street',' 12547896',' 1522230563',' medboy@gmail.com'),
('Drug Street',' 1452322',' 1522230564',' drugboy47@gmail.com'),
('Cankaya Street',' 544868426',' 1522230568',' <u>aliermisler@hotmail.com</u>'),
('Roonwell Street', '654563321', '1523548956', 'marrywater@hotmail.com');
```



4.4.4. Populating the Table COUNTRY

INSERT INTO 'country' ('Ct ID', 'CountryName', 'Cn ID')

- (1, 'ABD'),
- (7, 'RUSSIA')
- (30, 'GREECE'),
- (31, 'NETHERLAND'),
- (33, 'FRANCE'),
- (39, 'ITALY'),
- (44, 'ENGLAND'),
- (49, 'GERMANY'),
- (81, 'JAPAN'),
- (90, 'TURKEY'),
- (966, 'SAUDI ARABIA'),



4.4.5. Populating the Table DEPARTMENT

INSERT INTO `department` (`Department_ID`, `Dept_Name`)

- (5035, 'Head of Special Bureau'),
- (5036, 'Chairmain of the Funds'),
- (5037, 'Head of Gen. Air and Airc. Dep.'),
- (5135, 'Head of Inspection Board'),
- (5235, 'Quality Assurance Office'),
- (5236, 'Corporate Safety Committee'),
- (5237, 'Scurity Chief'),
- (5238, 'Press Office'),
- (5239, 'Legal Consultancy'),
- (5240, 'Head of Flight Training'),
- (5241, 'Technical Manager'),



4.4.6. Populating the Table DISCOUNTS

INSERT INTO 'discounts' ('Price ID', 'Amount', 'Description', 'Title')

- (1, '12', 'Valentine's Day Super Discount', 'Valentine's Day'),
- (2, '14', 'Teachers' Day Super Discount', 'Teachers' Day'),
- (3, '10', 'New Airport Discount', 'New Airport'),
- (4, '8', 'Soldier Super Discoun', 'Soldier'),
- (5, '7', 'New University Students Discount', 'Students'),
- (6, '5', 'Black Friday Super Discount', 'Black Friday'),
- (7, '6', 'Ramadan Special Discount', 'Ramadan'),
- (8, '15', 'July Special Event', 'July Discount'),
- (9, '17', 'Fifty Percent Super Discount', 'Fifty Percent'),



4.4.7. Populating the Table EMPLOYEE

INSERT INTO 'employee' ('SSN', 'Age', 'Sex', 'Name', 'Surname', 'Dept.ID')

VALUES

(1000030040, 31, 'Man', 'Cuneyt', 'MAKINE', 5236),

(1021024789, 31, 'Man', 'Berker', 'DENIZ', 5035),

(1025478520, 35, 'Man', 'Recep Tayyi', 'ERDOGAN', 5135),

(1042365789, 25, 'Woman', 'Nebile', 'KURTULUS', 5235),

(1047852145, 40, 'Woman', 'Büşra', 'SIBIC', 5037),

(1054782100, 54, 'Man', 'Onuriko', 'KOSOVA', 5135),

(1078965421, 32, 'Man', 'Alijon', 'FELLA', 5235),

(1104520300, 31, 'Man', 'Muhammed', 'KOCABAS', 5236),

(1203021450, 32, 'Man', 'Asad', 'MUHAMMAD', 5036),

(1234651321, 45, 'Man', 'Ahmet', 'ALTAN', 5036),

(1245456413, 25, 'Woman', 'Ece', 'AKDERE', 5236),

(1245648945, 35, 'Man', 'Selim', 'GOK', 5235),

(1445646861, 25, 'Woman', 'Kerime', 'INCESU', 5235),

(1445665862, 27, 'Woman', 'Selin', 'KULAHLI', 5240),

(1452146320, 36, 'Man', 'Ihsan', 'ELIBOL', 5235),

(1478521452, 42, 'Woman', 'Sabaniye', 'SERSERIKOV', 5235),

(1478523210, 54, 'Man', 'Ahmet', 'HAKAN', 5035),

(1478523214, 22, 'Man', 'Ghafar', 'ABDUL', 5036),

```
(1515451416, 24, 'Woman', 'Merve', 'SEZER', 5037),
```

(1521145632, 42, 'Woman', 'Derya', 'OSMANOGLU', 5035),

(1545452154, 28, 'Woman', 'Ilayda', 'DAGDELEN', 5241),

(1789632145, 21, 'Woman', 'Jülide', 'DEMİRKOL', 5036),

(2014785201, 31, 'Woman', 'Kemaliye', 'VURUR', 5135),

(2023021452, 31, 'Woman', 'Hümeyra', 'YURT', 5037),

(2025201478, 45, 'Man', 'George', 'CERJO', 5037);



4.4.8. Populating the Table FLIGHT_SCHEDULE

INSERT INTO `flight_schedule` (`Arrival`, 'Departure`, 'Flight_Date', 'Ft_ID', 'Aircraft')
VALUES

(A 0137, 'KVJI', 'LTAN', '2019-03-13', '0'),

(A 0148, 'RJTT', 'LTAN', '2019-03-14', '6'),

(A 0157, 'LTAG', 'LTBJ', '2019-03-01', '10'),

(A 0262, 'LEVD', 'LTAG', '2019-03-01', '7'),

(E 0124, 'KVJI', 'LTAG', '2019-02-09', '6'),

(E 0168, 'VIDP', 'EGLL', '2019-02-19', '3'),

+ Seçenekler



4.4.9. Populating the Table MANUFACTURER

INSERT INTO 'manufacturer' ('Name', 'Mf Date', 'Mf ID', 'Ft ID')

VALUES

(21000351, 'A319-132/100', '1987'),

(21600100, 'A320-200', '1987'),

(21600200, 'A321-200', '1988'),

(28000500, 'A340-300', '1993'),

(28600145, 'A330-300', '1993'),

(28600200, 'A330-200', '1992'),

(35000360, 'A321 NEO', '1993'),

(36000108, 'B737-700', '1968'),

(36000109, 'B737-800 ER', '1968'),

(36000110, 'B737-900ER', '1967'),

(48000100, 'B737-8 MAX', '2016'),

+ Seçenekler

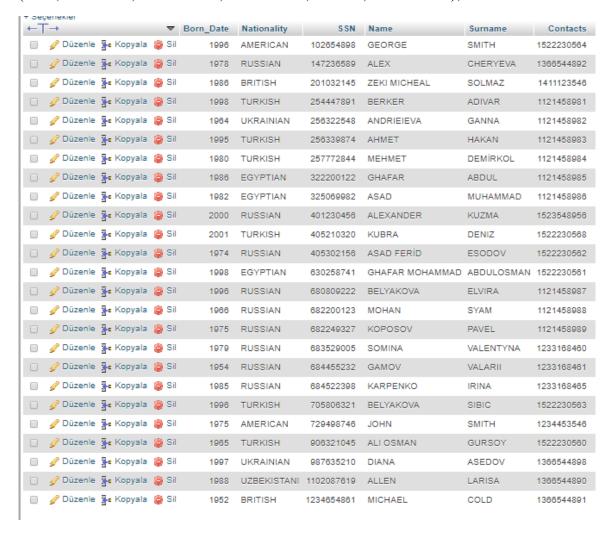
← T→	~	Name	Mf_Date	Mf_ID
☐ Ø Düzenle ♣ Kopyala	Sil	A319-132/100	1987	21000351
□ Ø Düzenle 👫 Kopyala	Sil	A320-200	1987	21600100
☐ Ø Düzenle ♣ Kopyala	Sil	A321-200	1988	21600200
☐ Ø Düzenle ¾ Kopyala	Sil	A340-300	1993	28000500
□	Sil	A330-300	1993	28600145
☐ Ø Düzenle ¾ Kopyala	Sil	A330-200	1992	28600200
☐ Ø Düzenle ♣ Kopyala	Sil	A321 NEO	1993	35000360
☐ Ø Düzenle ¾ Kopyala	Sil	B737-700	1968	36000108
☐ Ø Düzenle ¾ Kopyala	Sil	B737-800 ER	1968	36000109
☐ Ø Düzenle ¾ Kopyala	Sil	B737-900ER	1967	36000110
☐ Ø Düzenle ☐ Kopyala	Sil	B737-8 MAX	2016	48000100
↑ □ Tümünü işaretle	Seçi	ilileri: 🥜 Düze	nle 3-≟ K	opyala 🔘

4.4.10. Populating the Table PASSENGERS

INSERT INTO 'passengers' ('Born_Date', 'Nationalty', 'SSN', 'Name', 'Surname', 'Contact')

- (1996, 'AMERICAN', 102654898, 'GEORGE', 'SMITH', 1522230564),
- (1978, 'RUSSIAN', 147236589, 'ALEX', 'CHERYEVA', 1366544892),
- (1986, 'BRITISH', 201032145, 'ZEKI MICHEAL', 'SOLMAZ', 1411123546),
- (1998, 'TURKISH', 254447891, 'BERKER', 'ADIVAR', 1121458981),
- (1964, 'UKRAINIAN', 256322548, 'ANDRIEIEVA', 'GANNA', 1121458982),
- (1995, 'TURKISH', 256339874, 'AHMET', 'HAKAN', 1121458983),
- (1980, 'TURKISH', 257772844, 'MEHMET', 'DEMİRKOL', 1121458984),
- (1986, 'EGYPTIAN', 322200122, 'GHAFAR', 'ABDUL', 1121458985),
- (1982, 'EGYPTIAN', 325069982, 'ASAD', 'MUHAMMAD', 1121458986),
- (2000, 'RUSSIAN', 401230456, 'ALEXANDER', 'KUZMA', 1523548956),
- (2001, 'TURKISH', 405210320, 'KUBRA', 'DENIZ', 1522230568),
- (1974, 'RUSSIAN', 405302156, 'ASAD FERÎD', 'ESODOV', 1522230562),
- (1998, 'EGYPTIAN', 630258741, 'GHAFAR MOHAMMAD', 'ABDULOSMAN', 1522230561),

- (1996, 'RUSSIAN', 680809222, 'BELYAKOVA', 'ELVIRA', 1121458987),
- (1966, 'RUSSIAN', 682200123, 'MOHAN', 'SYAM', 1121458988),
- (1975, 'RUSSIAN', 682249327, 'KOPOSOV', 'PAVEL', 1121458989),
- (1979, 'RUSSIAN', 683529005, 'SOMINA', 'VALENTYNA', 1233168460),
- (1954, 'RUSSIAN', 684455232, 'GAMOV', 'VALARII', 1233168461),
- (1985, 'RUSSIAN', 684522398, 'KARPENKO', 'IRINA', 1233168465),
- (1996, 'TURKISH', 705806321, 'BELYAKOVA', 'SIBIC', 1522230563),
- (1975, 'AMERICAN', 729498746, 'JOHN', 'SMITH', 1234453546),
- (1965, 'TURKISH', 906321045, 'ALI OSMAN', 'GURSOY', 1522230560),
- (1997, 'UKRAINIAN', 987635210, 'DIANA', 'ASEDOV', 1366544898),
- (1988, 'UZBEKISTANI', 1102087619, 'ALLEN', 'LARISA', 1366544890),
- (1952, 'BRITISH', 1234654861, 'MICHAEL', 'COLD', 1366544891);



4.4.11. Populating the Table STATE

INSERT INTO `state` ('StateID', 'StateName', 'Country')

- (1, 'LOS ANGELES', 1),
- (3, 'CALIFORNIA', 1),
- (4, 'MUNICH', 49),
- (7, 'MOSCOV', 7),
- (16, 'BURSA', 90),
- (30, 'ATINA', 30),
- (31, 'AMSTERDAM', 31),
- (33, 'PARIS', 33),
- (39, 'ROME', 39),
- (44, 'LONDON', 44),
- (49, 'BERLIN', 49),
- (55, 'SAMSUN', 90),
- (81, 'TOKYO', 81),
- (90, 'ANKARA', 90),
- (966, 'RIYADH', 966);



4.4.12. Populating the Table TEAM

INSERT INTO 'team' ('T ID', 'Emp ID')

VALUES

(151060020, '1445665862'),

(151060021, '1545452154'),

(151060022, '1245456413'),

(151060023, '1445665862'),

(151060024, '1234651321'),

(151060025, '1445665862'),

(151060026, '1545452154'),

(151060027, '1515451416'),

(151060028, `1545452154),

(151060029, '1515451416'),

(151060030, '1515451416'),

(151060031, '1234651321'),

(151060032, '1515451416'),

(151060033, '1515451416'),

(151060034, '1245456413'),

+ Seçenekler



4.4.13. Populating the Table TİCKET

INSERT INTO 'ticket' ('PNR_No', 'Price', 'Route', 'Discounts')

VALUES

('GTXMR', 105, 'A 0137', 1),

('HKJMF', 326, 'A 0137', 2),

('JQWTR', 150, 'A 0137', 3),

('KKDCV', 650, 'A 0148', 4),

('KPHNZ', 50, 'A 0148', 5),

('KRMPT', 2560, 'A 0148', 6),

('MJKCK', 65, 'A 0157', 7),

('RTEXV', 357, 'A 0157', 8),

('TQKRP', 75, 'A 0157', 9),

('XFXWM', 3200, 'E 0168', 1),

('XHHBG', 105, 'E 0168', 2);



5. NORMALIZATION 5.1. NORMALIZATION FOR STATE TABLE State (State ID, State_Name, Country) 1NF

- ✓ There are not any columns that can be split into more than one column.
- ✓ Primary Keyexists.
- ✓ There are not any columns that are closely related or repeating the same attribute.
- ✓ There are no redundant columns.

2NF

- ✓ Already in the 1NF.
- ✓ No partial dependency.

3NF

- \checkmark Already in the 2NF.
- ✓ No transitive dependencies since the table does not have any non primary columns.

5.2. NORMALIZATION FOR COUNTRY TABLE

Country (Ct_ID, Ct_Name)

1NF

- ✓ There are not any columns that can be split into more than one column.
- ✓ Primary Key exists.
- ✓ There are not any columns that are closely related or repeating the same attribute.
- ✓ There are no redundant columns.

2NF

 \checkmark Already in the 1NF.

✓ No partial dependency.
3NF
✓ Already in the 2NF.
✓ No transitive dependencies since the table does not have any non primary columns.
5.3. NORMALIZATION FOR CONTACT_DETAILS TABLE Contact_Details (<u>Cn_ID, E_mail, Phone, Street, State</u>)
1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
\checkmark No transitive dependencies since the table does not have any non primary columns.
5.4. NORMALIZATION FOR PASSENGERS TABLE Passengers (SSN, Name, Surname, Nationality, Born Date, Contacts) 1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.

✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
\checkmark No transitive dependencies since the table does not have any non primary columns.
5.5. NORMALIZATION FOR TICKET TABLE Ticket (PNR_NO,Route,Discounts,Price)
1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
\checkmark No transitive dependencies since the table does not have any non primary columns.
5.6. NORMALIZATION FOR DISCOUNTS TABLE Discounts (Price_ID, Title, Amount, Description)
1NF
✓ There are not any columns that can be split into more than one column.

✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
✓ No transitive dependencies since the table does not have any non primary columns.
5.7. NORMALIZATION FOR FLIGHT_SCHEDULE TABLE Flight_Schedule (Ft_ID,Flight_Date,Arrival,Departure,Aircraft)
1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
✓ No transitive dependencies since the table does not have any non primary columns.

5.8. NORMALIZATION FOR AIRPORT TABLE

Airports (ICAO, NAME)
1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
✓ No transitive dependencies since the table does not have any non primary columns.
5.9. NORMALIZATION FOR AIRCRAFTS TABLE Aircrafts (<u>Ac_ID,Name,Capacity,Mfd_By</u>)
1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF

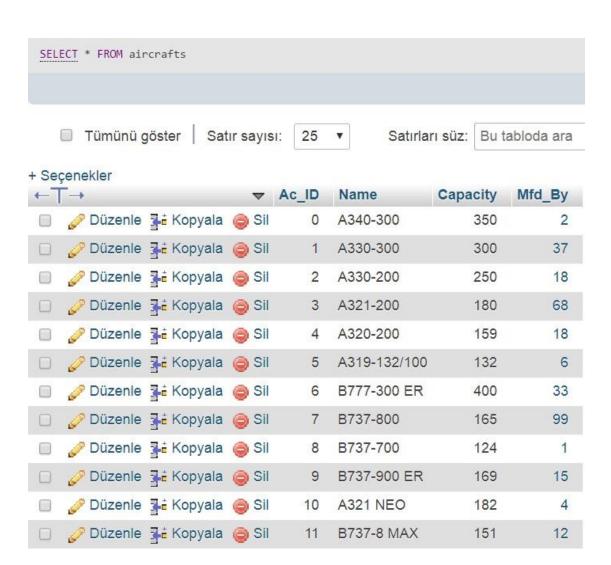
✓ Already in the 2NF.
✓ No transitive dependencies since the table does not have any non primary columns.
5.10. NORMALIZATION FOR MANUFACTURER TABLE Manufacturer (Mf_ID, Name, Mf_Date)
1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
\checkmark No transitive dependencies since the table does not have any non primary columns.
5.11. NORMALIZATION FOR TEAM TABLE Team (<u>T_ID,Emp_ID</u>)
1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF

✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
✓ No transitive dependencies since the table does not have any non primary columns.
5.12. NORMALIZATION FOR EMPLOYEE TABLE Employee (SSN, Name, Surname, Sex, Age, Dept_ID) 1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.
✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
✓ No transitive dependencies since the table does not have any non primary columns.
5.13. NORMALIZATION FOR DEPARTMENTS TABLE Departments (<u>Dept_ID,Dept_Name</u>)
1NF
✓ There are not any columns that can be split into more than one column.
✓ Primary Key exists.

✓ There are not any columns that are closely related or repeating the same attribute.
✓ There are no redundant columns.
2NF
✓ Already in the 1NF.
✓ No partial dependency.
3NF
✓ Already in the 2NF.
\checkmark No transitive dependencies since the table does not have any non primary columns.
6. QUERIES
6.1. SELECT * FROM
This query will show every record in from the selected table. In our case, it will show every

record from the Table aircrafts.

SELECT * FROM aircrafts

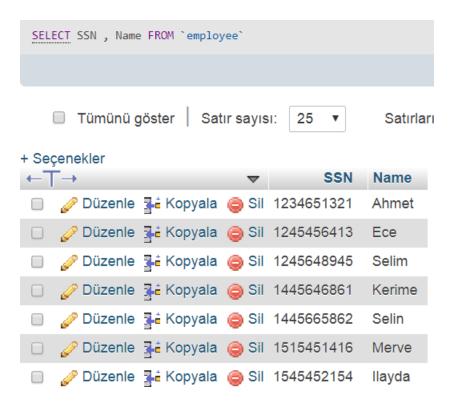


6.2. SELECTING FROM table

This query will show only the indicated fields' records. In our case, it will show only the SSN and Name but not the other fields from the Table employee.

SELECT SSN, Name

FROM employee



6.3. SELECT DISTINCT

This query will show only different values and not the duplicate ones. In our case, it will show distinct values from the Table passengers.

SELECT DISTINCT Nationality FROM Passenger

Result:

Nationality
TURKISH
UKRAINIAN
EGYPTIAN
RUSSIAN
AMERICAN
UZBEKISTANI
BRITISH

6.4. SELECT COUNT (DISTINCT x) FROM y

This query will list the number of different values in a table. In our case, it will show the count of different Name from the Table passengers.

SELECT COUNT (DISTINCT Name) FROM Passenger

Result:

Query shows the count as 15. There are 15 records in passenger Table. So, none of them have the same Name.



6.5. SELECT x FROM y WHERE x ...

This query will filter the records in table according to the condition we indicate. In our case, it will show the employees that less than 30 years old.

SELECT Name, Age

FROM employee

WHERE Age < 30



6.6. SELECT x FROM y WHERE x BETWEEN

This query will filter the records in table according to the condition we indicate. In our case, it will show the employee that between 25 and 35 years old.

SELECT Name, Age

FROM employee

WHERE Age BETWEEN 25 AND 35

Result:

Selim

Selin

llayda

Kerime



6.7. SELECT * FROM x ORDER BY y DESC

This query will sort the selection in descending order. In our case, it will sort the results of aircrafts in descending order by capacity.

SELECT * FROM aircrafts

35

25

27

28

ORDER BY Capacity DESC



6.8. INSERTING

This query will insert a new row to an existing table with values. In our case, it will insert a new airport into our airport table.

INSERT INTO airport

(ICAO, Name)

VALUES ('ZBAA', 'Beijing International')

🥜 Düzenle	≩- Kopyala	Sil	EDDF	Frankfurt Airport
🥜 Düzenle	≩	Sil	EGLL	London Heathrow Airport
🥜 Düzenle	≩- i Kopyala	Sil	KVJI	Virginia Highlands
🥜 Düzenle	≩ ≟ Kopyala	Sil	LEBL	Barcelona El Prat Airport
🥜 Düzenle	≩ ≟ Kopyala	Sil	LEVD	Spain-Valladolid
🥜 Düzenle	≩ ≟ Kopyala	Sil	LFPG(Paris-Charles de Gaulle
🥜 Düzenle	≩ ≟ Kopyala	Sil	LMML(Malta International
🥜 Düzenle	≩ ≟ Kopyala	Sil	LTAC	(Ankara-Esenboğa)
🥜 Düzenle	≩ ≟ Kopyala	Sil	LTAG	Adana-İncirlik
🥜 Düzenle	∄ ≟ Kopyala	Sil	LTAI	Antalya
🥜 Düzenle	≩ ≟ Kopyala	Sil	LTAN(Konya
🔗 Düzenle	≩ ≟ Kopyala	Sil	LTBA(İstanbul-Atatürk
🥜 Düzenle	≩ ≟ Kopyala	Sil	LTBJ	İzmir-Menderes
🥜 Düzenle	≩ ≟ Kopyala	Sil	LTCB	Ağrı
🥜 Düzenle	≩ ≟ Kopyala	Sil	LTCG	Trabzon
🥜 Düzenle	≩ ≟ Kopyala	Sil	OMAA	Abu Dhabi International
🥜 Düzenle	≩- i Kopyala	Sil	RJTT	Tokyo Haneda Airport
🥜 Düzenle	≩	Sil	VIDP	Indira Gandhi Int. Airport
🥜 Düzenle	≩ ≟ Kopyala	Sil	ZBAA	Beijing International

6.9. UPDATING

This query will change the existing record in a table. In our case, it will change the Dept_ID we previously inserted into our department Table.

UPDATE department SET Dept_ID = '5241' WHERE Dept_Name = 'Technical Manager'



6.10. DELETING

This query will remove an existing record in a table. In our case, it will remove the aircrafts we previously inserted into our aircrafts Table.

DELETE FROM aircrafts WHERE Ac_ID = '12'

Result: The record with the Ac_ID of 12 is now gone.

8	B737-700	124	1
9	B737-900 ER	169	15
10	A321 NEO	182	4
11	B737-8 MAX	151	12

6.11. EMPTYING A TABLE

This query will delete every single record existing in a table. In our case, it will remove all of the records in our Team Table.

DELETE FROM 'Team'

Result:

All records are gone in our Team Table.



6.12. SELECT * FROM x LIMIT y

This query will show the equivalent example from a table. In our case, this table will be Country.

SELECT * FROM Country LIMIT 4 Results:



6.13. MIN () & MAX ()

This query will use MIN () and MAX () functions to show the smallest and largest values of a column in a table. In our case, MIN () function will show the minimum capacity of our aircrafts, and MAX () function will show the maximum capacity of our aircrafts .

- SELECT MIN (Capacity) AS MinimumCapacity FROM Aircrafts
- SELECT MAX (Capacity) AS MaximumCapacity FROM Aircrafts

Results:

MinimumCapacity	MaximumCapacity
124	400

6.14. LIKE

This query will use LIKE operator to search for an indicated pattern in a column of a table. In our case, it will find the passengers with a name starting with the letter 'a'.

- SELECT Name FROM Passenger WHERE

Name LIKE 'a%'

