USE [Covid Airport Traffic]

GO

--Looking at the RAW imported data

SELECT \* FROM [RAW\_covid\_impact\_on\_airport\_traffic]

--Converting RAW table to WRK table

CREATE TABLE Covid\_impact\_Airport\_Traffic(

[RowNumber] int identity(1,1),

[AggregationMethod] VARCHAR(10) DEFAULT 'Daily',

[Date] DATE,

[Version] INTEGER DEFAULT 1,

[AirportName] VARCHAR(100),

[PercentOfBaseline] INTEGER,

[Centroid] VARCHAR(100),

[City] VARCHAR(100),

[State] VARCHAR(100),

[ISO\_3166\_2] VARCHAR(20),

[Country] VARCHAR(100),

[Geography] VARCHAR(2000)

)

--Dropping Table RAW

DROP TABLE Covid\_impact\_Airport\_Traffic

--Importing Value to WRK table

INSERT INTO [Covid\_impact\_Airport\_Traffic](

[Date] ,

[AirportName] ,

[PercentOfBaseline] ,

[Centroid] ,

[City] ,

[State] ,

[ISO\_3166\_2],

[Country],

[Geography]

)

SELECT

[Date] ,

[AirportName] ,

[PercentOfBaseline] ,

[Centroid] ,

[City] ,

[State] ,

[ISO\_3166\_2],

[Country],

[Geography]

FROM [RAW\_covid\_impact\_on\_airport\_traffic]

--7247 rows affected

--Data in the WRK Table

SELECT \* FROM [Covid\_impact\_Airport\_Traffic]

--1NF Investigation

--Checking Duplicates in the Table

SELECT COUNT(\*) FROM [Covid\_impact\_Airport\_Traffic] --7247 entries

SELECT COUNT(\*) FROM (

SELECT DISTINCT \* FROM [Covid\_impact\_Airport\_Traffic]

) AS tmp\_Covid --7247 entries

--1NF Justified

--2NF Investigation

--Checking Candidate Keys: 1. Row Number & 2. Combination of (Date and Airport Name)

--Investigating the candidate key for (Date and Airport Name)

/\*

SELECT COUNT(\*) FROM (

SELECT AVG([PercentOfBaseline]) AS Average FROM [Covid\_impact\_Airport\_Traffic]

GROUP BY [Date],[AirportName]

) AS tmp\_cand

--7247 entries again

\*/

--Since, Centroid, City, State, ISO\_3166\_2, Country,Geography are all dependent on a partial candidate key (i.e Airport) and not on date, hence mving them to a separate table

SELECT [AirportName],

[Centroid],

[City],

[State],

[ISO\_3166\_2],

[Country],

[Geography]

INTO Tmp\_Airports

FROM [Covid\_impact\_Airport\_Traffic]

--Checking Tmp\_Airports Table with respect to 1NF and 2NF

SELECT COUNT(\*) FROM Tmp\_Airports --7247 entries

SELECT COUNT(\*) FROM (

SELECT DISTINCT \* FROM Tmp\_Airports

) AS temp --28 distinct rows

--Creating new table from the distint values

SELECT DISTINCT \*

INTO Airports

FROM Tmp\_Airports

--28 rows affected

SELECT \* FROM Airports

--Dropping the temporary table

DROP TABLE Tmp\_Airports

--Dropping the columns from the main table

ALTER TABLE [Covid\_impact\_Airport\_Traffic]

DROP COLUMN [Centroid],

[City],

[State],

[ISO\_3166\_2],

[Country],

[Geography]

SELECT \* FROM [Covid\_impact\_Airport\_Traffic]

--2NF Justified

--3NF Investigation

SELECT [City],

[State],

[ISO\_3166\_2],

[Country]

INTO tmp\_City

FROM Airports

--Checking the normalised forms for Tmp\_City

SELECT \* FROM tmp\_City

SELECT COUNT(\*) FROM tmp\_City --28 entries

SELECT COUNT(\*) FROM (

SELECT DISTINCT \* FROM tmp\_City

) AS tmp --27 entries

--Transferring Distinct data into City

SELECT DISTINCT \*

INTO Cities

FROM tmp\_City

--27 rows affected

--Dropping tmp\_City and columns from Airports

DROP TABLE tmp\_City

ALTER TABLE Airports

DROP COLUMN [State],

[ISO\_3166\_2],

[Country]

--Now checking the two new tables created for their normalised forms

SELECT \* FROM Airports

SELECT \* FROM Cities

--In the table Cities, columns, 1SO\_3166\_2 and Country are dependent on State, whcih is a non-prime attribute, So converting this into 3NF

SELECT [State],

[ISO\_3166\_2],

[Country]

INTO tmp\_State

FROM Cities

--Checking duplicates in tmp\_State

SELECT COUNT(\*) FROM tmp\_State --27 rows

SELECT COUNT(\*) FROM (

SELECT DISTINCT \* FROM tmp\_State

) AS tmp --23 rows

SELECT DISTINCT \*

INTO States

FROM tmp\_State

--23 rows affected

--Dropping tmp\_State and columns from the table Cities

DROP TABLE tmp\_State

ALTER TABLE Cities

DROP COLUMN [ISO\_3166\_2],

[Country]

--Nw, checking the new tables to be nomalised

SELECT \* FROM Cities

SELECT \* FROM States

--3NF Justified

--So the tables created are

/\*

Table Name: [Covid\_impact\_Airport\_Traffic]

Primary Key: RowNumber

Foreign Key: AirportName

\*/

SELECT \* FROM [Covid\_impact\_Airport\_Traffic]

/\*

Table Name: [Airports]

Primary Key: AirportName

Foreign Key: City

\*/

SELECT \* FROM [Airports]

/\*

Table Name: [Cities]

Primary Key/ Candidate Key: City + State

Foreign Key: State

\*/

SELECT \* FROM [Cities]

/\*

Table Name: [States]

Primary Key: State + Country

\*/

SELECT \* FROM [States]