--Creating a Temporary table

CREATE TABLE tmp\_Covid\_impact\_Airport\_Traffic (

AggregationMethod VARCHAR(10),

Date DATE,

Version FLOAT,

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)

)

--Copying the data from the local directory into the temporary table

COPY tmp\_Covid\_impact\_Airport\_Traffic FROM 'C:\Users\Harsh Jindal\Desktop\Databases\Covid Airport Traffic\covid\_impact\_on\_airport\_traffic.csv' DELIMITER ',' CSV HEADER

--7247 entries inserted

--Copying the data from temporary table into actual working table

CREATE TABLE Covid\_impact\_Airport\_Traffic (

RowNumber SERIAL,

AggregationMethod VARCHAR(10) DEFAULT 'Daily',

Date DATE,

Version FLOAT 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)

)

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 tmp\_Covid\_impact\_Airport\_Traffic

--7247 rows entered

--Viewing all the rows from Working Table

SELECT \* FROM Covid\_impact\_Airport\_Traffic

--1NF Investigation

--The table has atomic values hence checking the duplicacy of the tuples in the dataset

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

SELECT COUNT(\*) FROM (

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

) AS tmp --7247 entries

--1NF Justified

--2NF Investigation

--Candidate keys to be considered: RowNumber & Combination of Data and AirportName

/\*

Checking the combination of data and airportname to be a candidae key

SELECT COUNT(\*) FROM(

SELECT AVG(percentofbaseline) FROM Covid\_impact\_Airport\_Traffic

GROUP BY date, airportname

)AS tmp

--7247 entries making the combination a candidate key

\*/

--1. The columns centroid, city, state, iso\_31662, country are dependent on the prtial candidte key i.e just the arport name

--Hence, creating a new temporry table with just these columns

CREATE TABLE tmp\_Airports AS

SELECT airportname,

centroid,

city,

state,

iso\_3166\_2,

country,

geography

FROM Covid\_impact\_Airport\_Traffic

--7247 rows returned

--Checking the normalisation equality in the new tables craeted

SELECT \* FROM tmp\_Airports

--Checking the normalised form of this table

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

SELECT COUNT(\*) FROM(

SELECT DISTINCT \* FROM tmp\_Airports

) AS tmp --28 distinct entries

--Transferring the distinct values into the main Airports Table

CREATE TABLE Airports AS

SELECT DISTINCT \* FROM tmp\_Airports

--28 rows affected

--Dropping the temp table and the columns from the main table

DROP TABLE tmp\_Airports

ALTER TABLE Covid\_impact\_Airport\_Traffic

DROP COLUMN city,

DROP COLUMN centroid,

DROP COLUMN state,

DROP COLUMN iso\_3166\_2,

DROP COLUMN country,

DROP COLUMN geography

SELECT \* FROM Covid\_impact\_Airport\_Traffic

SELECT \* FROM Airports

--3NF Investigation

--Here state, iso\_3166\_2 are dependent on the non-prime attribute city

CREATE TABLE tmp\_Cities AS

SELECT city,

state,

iso\_3166\_2,

country

FROM Airports

--28 rows returned

--Checking the normalised forms for the tables

SELECT \* FROM tmp\_Cities

SELECT COUNT(\*) FROM tmp\_Cities --28 ENTRIES

SELECT COUNT(\*) FROM (

SELECT DISTINCT \* FROM tmp\_Cities

)AS tmp --27 entries

CREATE TABLE Cities AS

SELECT DISTINCT \* FROM tmp\_Cities

--27 entries returned

--DROPPING THE temporary table and the previous main table

DROP TABLE tmp\_Cities

ALTER TABLE Airports

DROP COLUMN state,

DROP COLUMN iso\_3166\_2,

DROP COLUMN country

SELECT \* FROM Airports

SELECT \* FROM Cities

--Checking the normalised forms for the new tables

CREATE TABLE tmp\_States AS

SELECT state,

iso\_3166\_2,

country

FROM Cities

--27 entries returned

--Checking the duplicate values in temp\_States table

SELECT COUNT(\*) FROM tmp\_States --27 entries

SELECT COUNT(\*) FROM (

SELECT DISTINCT \* FROM tmp\_States

) AS tmp --23 entries

CREATE TABLE States AS

SELECT DISTINCT \* FROM tmp\_States

--23 entries

--Dropping the temporary table and columns in the previous table

DROP TABLE tmp\_States

ALTER TABLE Cities

DROP COLUMN iso\_3166\_2,

DROP COLUMN country

SELECT \* FROM States

SELECT \* FROM Cities

--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