**US Accident - Data Visualization**

Team Members

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**A Countrywide Traffic Accident Dataset (2016 - 2019)**

This is a countrywide traffic accident dataset, which covers 49 states of the United States. The data is collected from February 2016 to December 2019, using several data providers, including two APIs which provide streaming traffic event data. These APIs broadcast traffic events captured by a variety of entities, such as the US and state departments of transportation, law enforcement agencies, traffic cameras, and traffic sensors within the road-networks. Currently, there are about 3.0 million accident records in this dataset.

Since the dataset contains 3.0 million records, it’s difficult for a user to bring out the useful insights.

Specific questions like the Total number of accidents per city or state can be calculated using statistics, but more details related to the individual factors affecting the result can be sought by visualization.  Having a multiple column helps in finding the relation between several factors responsible for the accidents can be explored and explained through visualization.

Create\_Table.sh used by us:

#!/bin/bash

# To run mysqlimport and mysql, authorize CloudShell

bash authorize\_cloudshell.sh

# Connect to MySQL using its IP address and do the import

MYSQLIP=$(gcloud sql instances describe usaccidents --format="value(ipAddresses.ipAddress)")

mysql --host=$MYSQLIP --user=root --password --verbose < create\_table.sql

Create\_Table.sql used by us:

create database if not exists usaccidentdb;

use usaccidentdb;

DROP TABLE IF EXISTS us\_accidents\_dec19;

CREATE TABLE IF NOT EXISTS us\_accidents\_dec19 (

  `ID` varchar(30),

  `Source` varchar(30),

  `TMC` double,

  `Severity` int(11),

  `Start\_Time` varchar(30),

  `End\_Time` varchar(30),

  `Start\_Lat` double,

  `Start\_Lng` double,

  `End\_Lat` varchar(30),

  `End\_Lng` varchar(30),

  `Distance(mi)` double,

  `Description` varchar(30),

  `Number` varchar(30),

  `Street` varchar(30),

  `Side` varchar(30),

  `City` varchar(30),

  `County` varchar(30),

  `State` varchar(30),

  `Zipcode` varchar(30),

  `Country` varchar(30),

  `Timezone` varchar(30),

  `Airport\_Code` varchar(30),

  `Weather\_Timestamp` varchar(30),

  `Temperature(F)` double,

  `Wind\_Chill(F)` varchar(30),

  `Humidity(%)` double,

  `Pressure(in)` double,

  `Visibility(mi)` double,

  `Wind\_Direction` varchar(30),

  `Wind\_Speed(mph)` varchar(30),

  `Precipitation(in)` varchar(30),

  `Weather\_Condition` varchar(30),

  `Amenity` varchar(30),

  `Bump` varchar(30),

  `Crossing` varchar(30),

  `Give\_Way` varchar(30),

  `Junction` varchar(30),

  `No\_Exit` varchar(30),

  `Railway` varchar(30),

  `Roundabout` varchar(30),

  `Station` varchar(30),

  `Stop` varchar(30),

  `Traffic\_Calming` varchar(30),

  `Traffic\_Signal` varchar(30),

  `Turning\_Loop` varchar(30),

  `Sunrise\_Sunset` varchar(30),

  `Civil\_Twilight` varchar(30),

  `Nautical\_Twilight` varchar(30),

  `Astronomical\_Twilight` varchar(30)

);

COMMIT;

Populate\_table.sh used by us :

#!/bin/bash

if [ "$#" -ne 1 ]; then

    echo "Usage: ./populate\_table.sh  bucket-name"

    exit

fi

echo "Populating Cloud SQL instance flights from gs://usaccident/us\_accidents\_dec19.csv/"

# To run mysqlimport and mysql, authorize CloudShell

bash authorize\_cloudshell.sh

gsutil cp gs://usaccident/us\_accidents\_dec19.csv us\_accidents\_dec19.csv

# import csv files

MYSQLIP=$(gcloud sql instances describe flights --format="value(ipAddresses.ipAddress)")

my

Steps followed in cloud Shell:

benellitnt600iabs@cloudshell:**~/data-science-on-gcp/03\_sqlstudio (kbs-2020)**$ echo $MYSQLIP34.69.35.237benellitnt600iabs@cloudshell:**~/data-science-on-gcp/03\_sqlstudio (kbs-2020)**$ mysqlimport --local --host=$MYSQLIP --user=root --ignore-lines=1 --fields-terminated-by=',' --password usaccidentdb us\_accidents\_dec19.csvEnter password:mysqlimport: Error: 2, File 'us\_accidents\_dec19.csv' not found (Errcode: 2 - No such file or directory), when using table: us\_accidents\_dec19benellitnt600iabs@cloudshell:**~/data-science-on-gcp/03\_sqlstudio (kbs-2020)**$ mysqlimport --local --host=$MYSQLIP --user=root --ignore-lines=1 --fields-terminated-by=',' --password usaccidentdb us\_accidents\_dec19.csvgsutil cp gs://usaccident/us\_accidents\_dec19.csv us\_accidents\_dec19.csv^Cbenellitnt600iabs@cloudshell:**~/data-science-on-gcp/03\_sqlstudio (kbs-2020)**$ gsutil cp gs://usaccident/us\_accidents\_dec19.csv us\_accidents\_dec19.csvCopying gs://usaccident/us\_accidents\_dec19.csv...| [1 files][ 1.1 GiB/ 1.1 GiB] 16.7 MiB/sOperation completed over 1 objects/1.1 GiB.benellitnt600iabs@cloudshell:**~/data-science-on-gcp/03\_sqlstudio (kbs-2020)**$ mysqlimport --local --host=$MYSQLIP --user=root --ignore-lines=1 --fields-terminated-by=',' --password usaccidentdb us\_accidents\_dec19.csvEnter password:usaccidentdb.us\_accidents\_dec19: Records: 2974335 Deleted: 0 Skipped: 0 Warnings: 3713431