GOVT670 Project Plan

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1 Short Summary of Project Plan

We are planning to combine multiple dataset to see if there are any factor causes the car crash in the DC areas. We will include, road condition, traffic lights, speed camera, income, etc in to our data set.

2 Research Questions:

1. Do DC Red light cameras reduce accidents? Based on a report from 2005 they didn't.
2. What is the most significant factor in car crashes around DC?

3 Datasets

```
library(tidyverse)
```

- Street Light
- Car Crash
- Crashes in DC
- Some Info by DC Ward
- Wards from 2022
- Economic ACS Characteristics 2011-2015
- Traffic Camera in DC
- Moving Violations Issued in May 2018
- pavement marking
- Traffic Pole
- Traffic Signal Cabinets
- Traffic Monitoring Stations

We downloaded the data and stored it on Github so we can save our local device storage.

```
urlRemote  <- "https://media.githubusercontent.com/media/"
pathGithub <- "yjchen9596/data/main/GOVT670/"
```

```
economic_dc_ward <-
  paste0(urlRemote,
         pathGithub,
         "ACS_Economic_Characteristics_DC_Ward.csv?token=AV2SENGE2ICD5C3XQY66Q4LDJ5LUK") |>
    read_csv()
```

```
## Rows: 8 Columns: 149
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr   (3): SLDUST, NAMELSAD, NAME
```

```
## dbl (146): OBJECTID, STATEFP, GEOID, ALAND, AWATER, INTPTLAT, INTPTLON, DP03...
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
car_crash_details <-  paste0(urlRemote,
                             pathGithub,
                             "Crash_Details_Table.csv?token=AV2SENAFX26OBEA4Z42OO5TDJ5LW4") |>
    read_csv()
```

```
## Rows: 721264 Columns: 15
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr (11): CCN, PERSONTYPE, FATAL, MAJORINJURY, MINORINJURY, VEHICLEID, INVEH...
## dbl  (4): OBJECTID, CRIMEID, PERSONID, AGE
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
car_crash <- paste0(urlRemote,
                    pathGithub,
                    "Crashes_in_DC.csv?token=AV2SENGUZGF5DNDBNBVRHBTDJ5LYY") |>
    read_csv()
```

```
## Rows: 273498 Columns: 58
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr (13): CCN, REPORTDATE, ROUTEID, FROMDATE, ADDRESS, WARD, EVENTID, MAR_AD...
## dbl (44): X, Y, OBJECTID, CRIMEID, MEASURE, OFFSET, STREETSEGID, ROADWAYSEGI...
## lgl  (1): TODATE
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
pavement_making <- paste0(urlRemote,
                    pathGithub,
                    "Pavement_Marking.csv?token=AV2SENB7KYFRFUG7XVJA6S3DJ5L2O") |>
    read_csv()
```

```
## Rows: 60094 Columns: 18
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr  (3): COMMENTS, GIS_ID, GLOBALID
## dbl (10): X, Y, STREETJUNCTIONID, STREETSEGID, FACILITYID, MARKINGID, MARKIN...
## lgl  (5): SE_ANNO_CAD_DATA, CREATOR, CREATED, EDITOR, EDITED
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
street_lights <- paste0(urlRemote,
                    pathGithub,
                    "Street_Lights.csv?token=AV2SENFNUD4NP2L7HWQFLBTDJ5L4MY") |>
    read_csv()
```

```
## Rows: 71720 Columns: 61
## -- Column specification --------------------------------------------------------
## Delimiter: ","
```

```
## chr (45): ADDEDBY, ADDTOGIS, ARMLENGTH1_DESC, ARMLENGTH2_DESC, ARMSTYLE_DESC...
## dbl (10): X, Y, ASSETTYPE, NUMBERLIGHTS, STREETSEGMID, WARD, WATTAGE1, XCOOR...
## lgl  (6): GLOBALID, GIS_ID, CREATOR, CREATED, EDITOR, EDITED
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
traffic_camera <- paste0(urlRemote,
                    pathGithub,
                    "Traffic_Camera.csv?token=AV2SENBNCJP2SJEMOPRAAILDJ5L5W") |>
    read_csv()
```

```
## Rows: 314 Columns: 17
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr (5): CAMERATYPE, GIS_ID, GLOBALID, EDITOR, EDITED
## dbl (9): X, Y, STREETJUNCTIONID, STREETSEGID, FACILITYID, CAMERAID, POLEID, ...
## lgl (3): SE_ANNO_CAD_DATA, CREATOR, CREATED
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
traffic_monitor_location <- paste0(urlRemote,
                    pathGithub,
                    "Traffic_Monitoring_Stations.csv?token=AV2SENBCOCRH2KGTFSBH373DJ5L7O") |>
    read_csv()
```

```
## Rows: 55 Columns: 25
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr (8): FACILITYID, STATIONID, STATIONABBR, STATIONTYPE, TECHNOLOGY, ADDRES...
## dbl (9): X, Y, STREETSEGID, SISID, MEASURE, MAPINSET, XCOORD, YCOORD, OBJECTID
## lgl (8): CONDITION, CONDITIONDATE, INSTALLDATE, SE_ANNO_CAD_DATA, CREATOR, C...
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
traffic_signal_cabinet <- paste0(urlRemote,
                    pathGithub,
                    "Traffic_Signal_Cabinets.csv?token=AV2SENFJ7LBWXCUNM3WYZ53DJ5MA6") |>
    read_csv()
```

```
## Rows: 1412 Columns: 17
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr  (2): GIS_ID, GLOBALID
## dbl (10): X, Y, STREETJUNCTIONID, STREETSEGID, FACILITYID, CABINETID, CABINE...
## lgl  (5): SE_ANNO_CAD_DATA, CREATOR, CREATED, EDITOR, EDITED
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

4 Points From Meeting with Professor

- Particular cars
- Zip code level -80 level for income

- Censes block level - 400 level for income
- Infrustracure data, plan structures
- Plan road closure - what road is close or going to close. Doc dc transportation
- Traffic violation - tickets, flags whether is the police or automated intervention (camera)
- RA funded through de doc - she can find info or data for us - LAB
- MAR Geocoder - jut for DC - provide different type of the location - it will tell you the location info you need - its an software

5 References

Barba, Carolina Tripp, Miguel Angel Mateos, Pablo Reganas Soto, Ahmad Mohamad Mezher, and Mónica Aguilar Igartua. 2012. "Smart City for VANETs Using Warning Messages, Traffic Statistics and Intelligent Traffic Lights." In *2012 IEEE Intelligent Vehicles Symposium*, 902–7. IEEE.

Hayakawa, Hiroshi, Paul S. Fischbeck, and Baruch Fischhoff. 2000. "Traffic Accident Statistics and Risk Perceptions in Japan and the United States." *Accident Analysis & Prevention* 32 (6): 827–35.

Keep, Matthew, and Tom Rutherford. 2013. "Reported Road Accident Statistics." *Commons Library Standard Note, SN/SG/2198*.

Kingham, Simon, Clive E Sabel, and Phil Bartie. 2011. "The Impact of the 'School Run'on Road Traffic Accidents: A Spatio-Temporal Analysis." *Journal of Transport Geography* 19 (4): 705–11.

Marzoug, R, N Lakouari, O Oubram, H Ez-Zahraouy, A Khallouk, M Limón-Mendoza, and JG Vera-Dimas. 2018. "Impact of Traffic Lights on Car Accidents at Intersections." *International Journal of Modern Physics C* 29 (12): 1850121.

Renouf, MA. 1991. "A Car Accident Injury Database: Overview and Analyses of Entrapment and Ejection."

Stonex, KA. 1965. "The Single-Car Accident Problem." *SAE Transactions*, 220–54.