# Predicting Road Accidents in Seattle

ILAN GIL

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# 1. Problem Description

- Road accidents are a major cause of death globally
- These accidents involve dramatic consequences
- This project will focus on accidents taking place in the Seattle Area
- In particular, the project's objective will be to shine light on some factors that might indicate a higher likelihood that an accident will take place
- This information could prove useful to a number of federal bodies (e.g., hospitals, police departments, governing authorities, etc.)

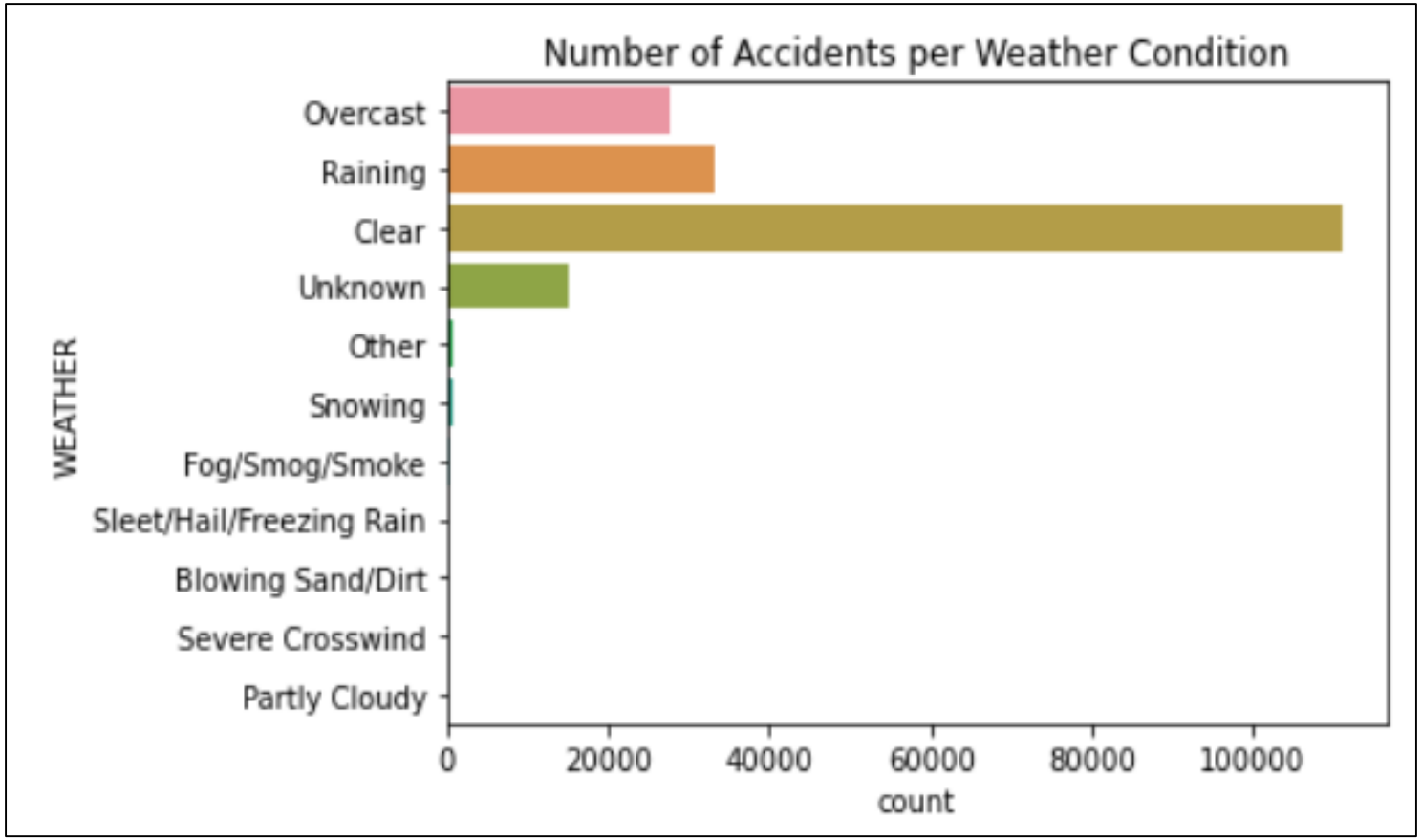
# 2. Data

- The analysis will rely on an extensive dataset from the Seattle Police Department
- This dataset includes a number of factors that could help us determine the likelihood of a road accident occurring, e.g.:
    a) Weather conditions
    b) Light conditions
    c) Road conditions
    d) Etc.

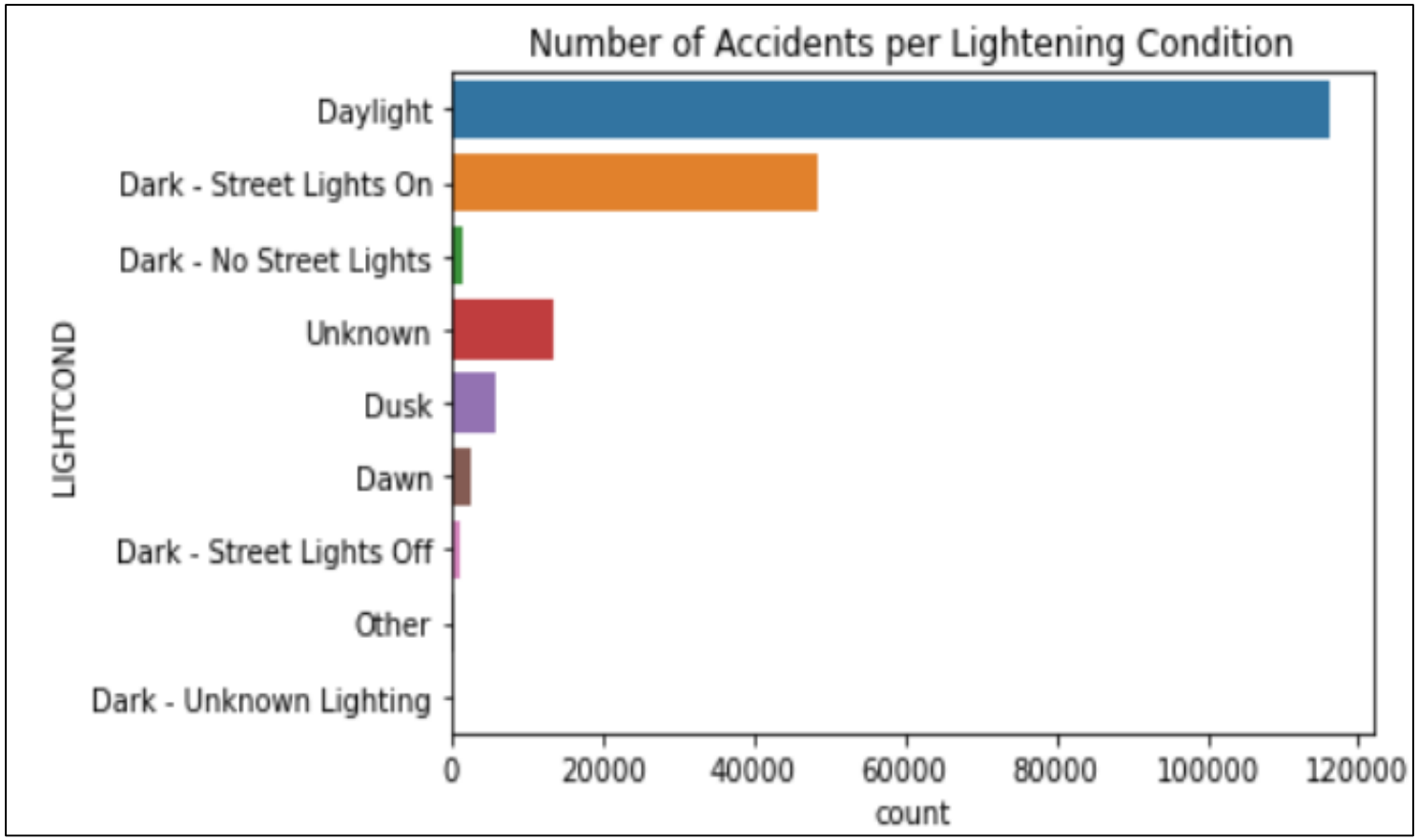
# 3. Methodology

- The analysis will conducted via Jupyter Notebook
- The following packages are required
    a) Pandas
    b) Numpy
    c) Matplotlib
    d) Seaborn

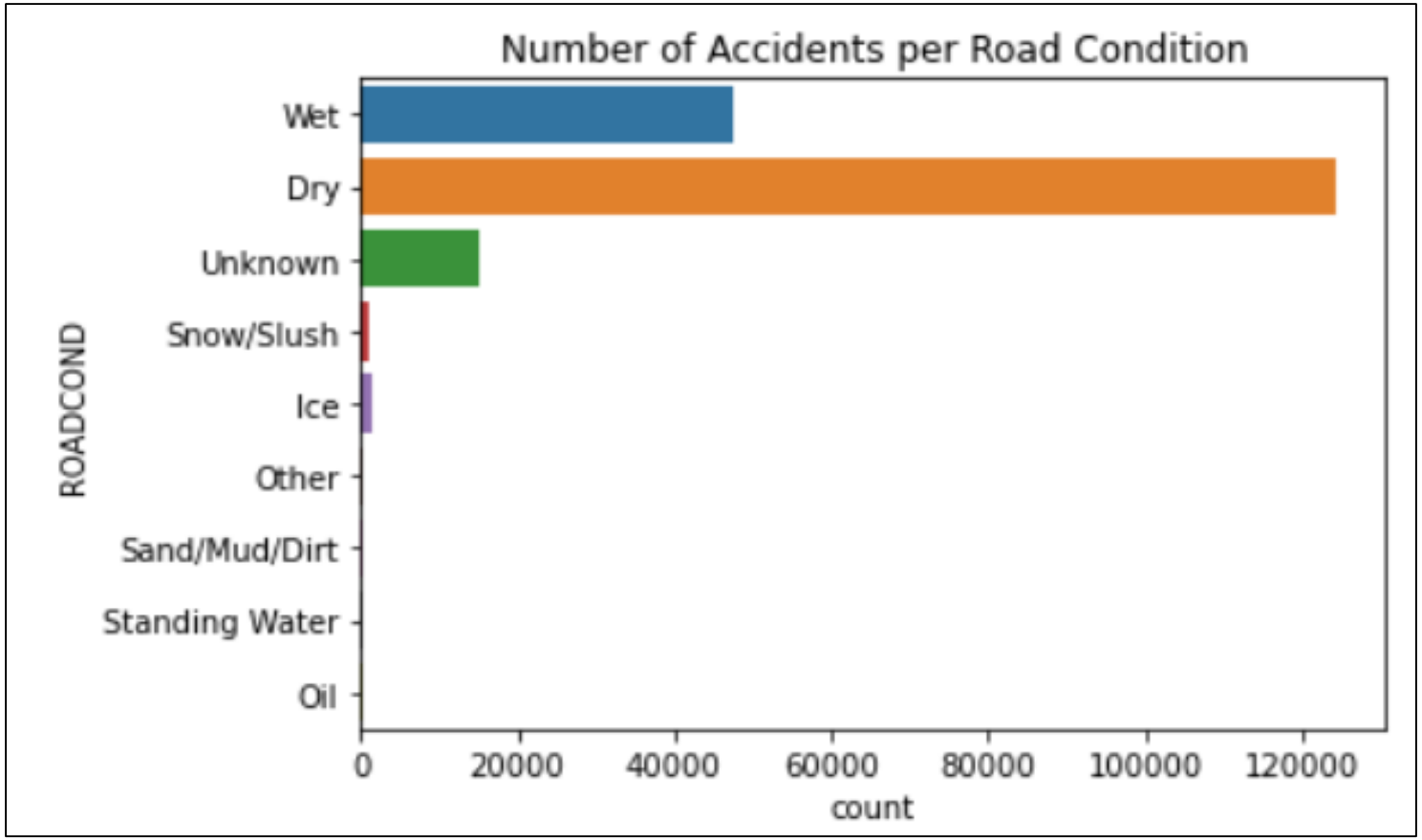
# 4. Results


Number of Accidents per Weather Condition
WEATHER
Overcast
Raining
Clear
Unknown
Other
Snowing
Fog/Smog/Smoke
Sleet/Hail/Freezing Rain
Blowing Sand/Dirt
Severe Crosswind
Partly Cloudy
0
20000
40000
60000
80000
100000
count

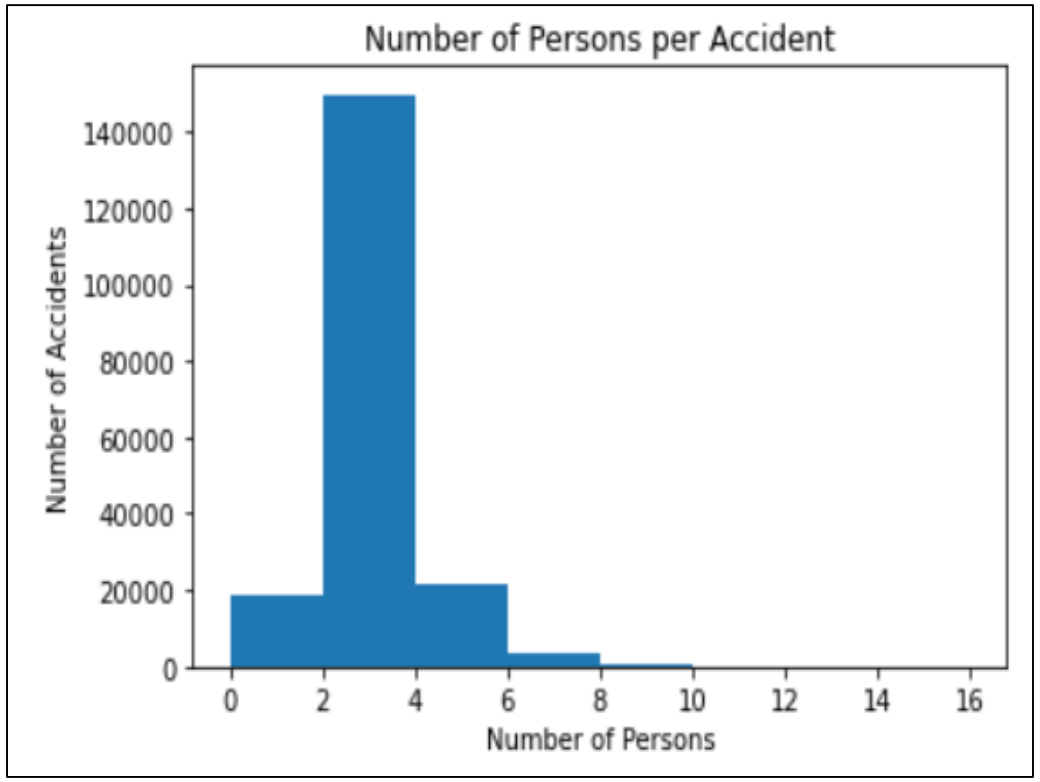
# 4. Results

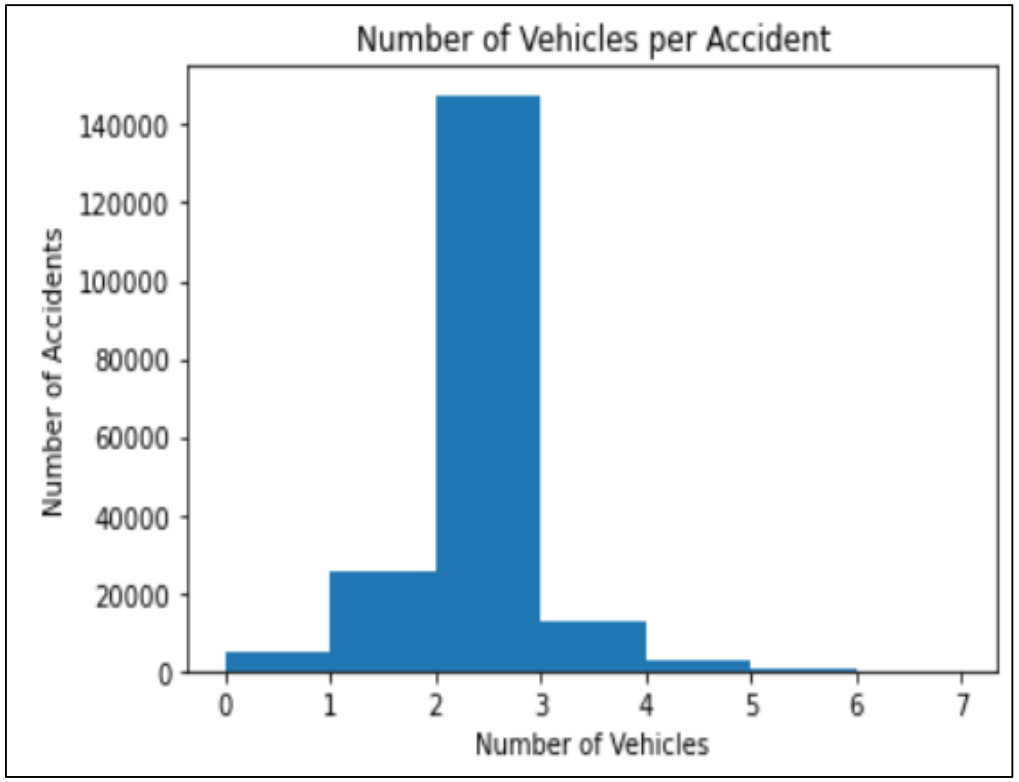

Number of Accidents per Lightening Condition
LIGHTCOND
Daylight
Dark - Street Lights On
Dark - No Street Lights
Unknown
Dusk
Dawn
Dark - Street Lights Off
Other
Dark - Unknown Lighting
0
20000
40000
60000
80000
100000
120000
count

# 4. Results


Number of Accidents per Road Condition
ROADCOND
Wet
Dry
Unknown
Snow/Slush
Ice
Other
Sand/Mud/Dirt
Standing Water
Oil
0
20000
40000
60000
80000
100000
120000
count

# 4. Results


Number of Persons per Accident
Number of Accidents
140000
120000
100000
80000
60000
40000
20000
0
0
2
4
6
8
10
12
14
16
Number of Persons


Number of Vehicles per Accident
Number of Accidents
140000
120000
100000
80000
60000
40000
20000
0
0
1
2
3
4
5
6
7
Number of Vehicles

# 5. Discussion

- Most accidents involve solo drivers on relatively normal weather, lightening, and road conditions
- This information could be useful for the policy department (e.g. installing stop signs in road frequently used by solo drivers)

# 6. Conclusion

- Further analysis would need to undertaken (e.g. model to predict expected number of accidents based on a number of factors)
- Nonetheless, some conclusions can already be drawn
- In particular, the fact that most accidents involve solo drivers on good weather, lightening, and road conditions points to the idea that the human element – rather than environmental factors – stands at the core of most road accidents