Satej Soman
CAPP30254: Machine Learning for Public Policy
Spring 2019

HW 1
DIAGNOSTIC ASSIGNMENT

1 Data Acquisition & Analysis

1.1 Chicago Open Data Portal

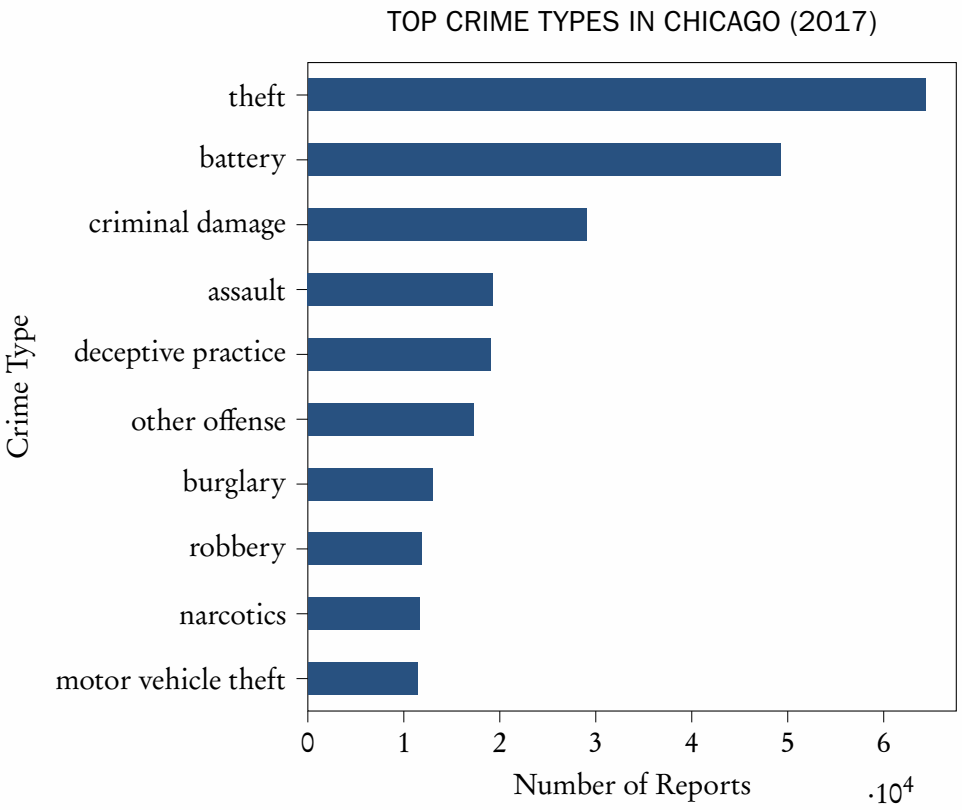
Chicago crime data is available, filtered by year, from the Chicago Data Portal (`https://data.cityofchicago.org/browse?category=Public%20Safety`). We can download this data and load it into a Pandas `DataFrame`:

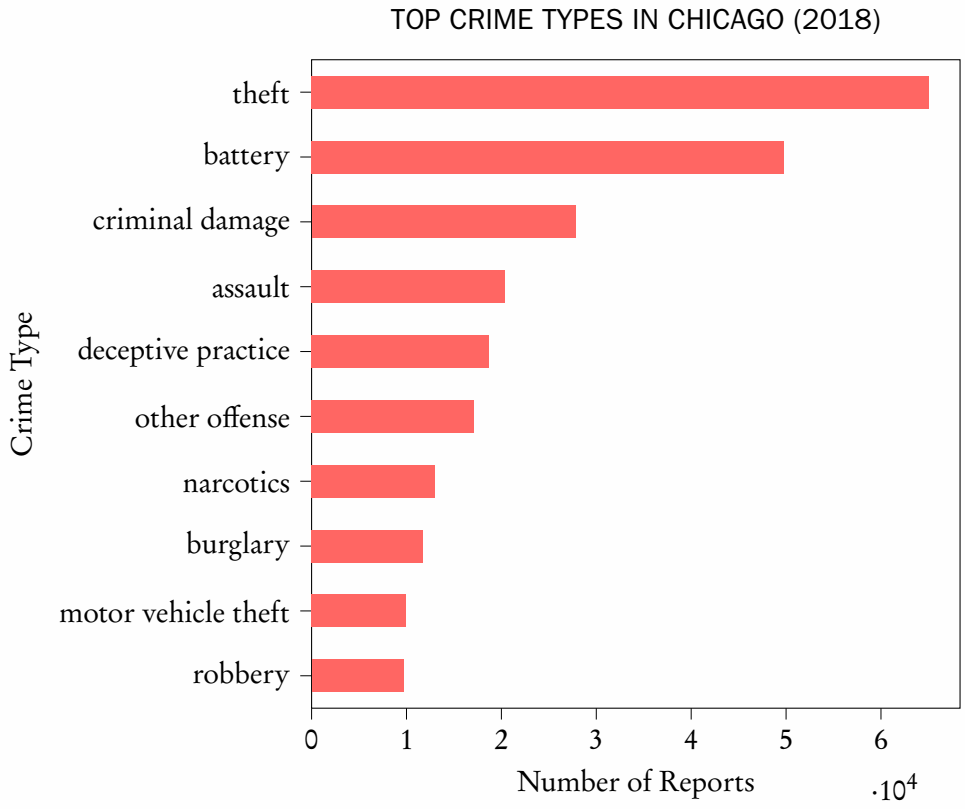
```
from pathlib import Path

import pandas as pd
import requests

# download crime data if we don't have it locally
base_url = "https://data.cityofchicago.org/api/views/{}/rows.csv?accessType=DOWNLOAD"
crime_resources = {
    2017: (Path("./crime_data_2017.csv"), "3i3m-jwuy"),
    2018: (Path("./crime_data_2018.csv"), "d62x-nvdr"),
}

for (year, (path, identifier)) in crime_resources.items():
    if not path.exists():
        url = base_url.format(identifier)
        print("{} data not found locally, downloading from {}".format(year, url))
        response = requests.get(url)
        with path.open("wb") as f:
            f.write(response.content)

crime = pd.concat([
    pd.read_csv(crime_resources[2017][0]),
    pd.read_csv(crime_resources[2018][0])
])
```

1.2 Summary Statistics for Crime Report Data, 2017-2018

year	2017	2018	AVG
number of reported crimes	268094	266246	267170

year	2017	2018	OVERALL
crimes involving an arrest	19.53%	19.75%	19.64%
crimes considered domestic	15.90%	16.39%	16.14%


TOP CRIME TYPES IN CHICAGO (2017)
theft
battery
criminal damage
assault
deceptive practice
other offense
burglary
robbery
narcotics
motor vehicle theft
Crime Type
0
1
2
3
4
5
6
Number of Reports
·10^4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