

average-distance-from-a-camera-to-violent-a-crime-in-the-FQ

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```
[1]: import pandas as pd
from sklearn.neighbors import BallTree
import numpy as np

def calculate_distance_in_yards():
    dfa = pd.read_csv("calls_for_service_2022_9_14_2022.csv")

    # filter calls for service data for violent crimes
    dfa = dfa[
        (
            dfa.TypeText.isin(
                [
                    "AGGRAVATED ASSAULT",
                    "CARJACKING",
                    "AGGRAVATED ASSAULT DOMESTIC",
                    "ARMED ROBBERY WITH GUN",
                    "AGGRAVATED BATTERY BY SHOOTING",
                    "AGGRAVATED BATTERY DOMESTIC",
                    "AGGRAVATED BURGLARY",
                    "AGGRAVATED BATTERY BY CUTTING",
                    "AGGRAVATED RAPE",
                    "ARMED ROBBERY",
                    "SIMPLE RAPE",
                    "HOMICIDE BY SHOOTING",
                    "ARMED ROBBERY WITH KNIFE",
                    "AGGRAVATED KIDNAPPING",
                    "SIMPLE ASSAULT DOMESTIC",
                    "AGGRAVATED RAPE UNFOUNDED BY SPECIAL VICTIMS OR CHILD_
↪ABUSE",
                    "AGGRAVATED BURGLARY DOMESTIC",
                    "AGGRAVATED RAPE MALE VICTIM",
                    "HOMICIDE",
                    "HOMICIDE BY CUTTING",
                    "ILLEGAL CARRYING OF WEAPON- KNIFE",
                    "SIMPLE RAPE MALE VICTIM",
                    "AGGRAVATED ARSON",
```

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        "SIMPLE RAPE UNFOUNDED BY SPECIAL VICTIMS OR CHILD ABUSE",
    ]
    )
    )
]

dfa.loc[:, "TypeText"] = dfa.TypeText.fillna("")
dfa = dfa[~(dfa.TypeText == "")]

locations = (
    dfa.Location.str.lower()
    .str.strip()
    .str.extract(r"point \((-.\+\.+\) (.\+\.+\)\)")
)

dfa.loc[:, "latitude"] = locations[1].fillna("")
dfa = dfa[~((dfa.latitude == ""))]
dfa.loc[:, "latitude"] = dfa.latitude.astype(float)

dfa.loc[:, "longitude"] = locations[0].fillna("")
dfa = dfa[~((dfa.longitude == ""))]
dfa.loc[:, "longitude"] = dfa.longitude.astype(float)

dfb = pd.read_csv("new_orleans_cameras_3_11_2022_french_quarter_filtered.
↪csv")

bt = BallTree(np.deg2rad(dfa[["latitude", "longitude"]].values),
↪metric="haversine")
distances, indices = bt.query(np.deg2rad(np.c_[dfb["latitude"],
↪dfb["longitude"]]))

l = []
for d in distances:
    miles = d * 3958.8
    yards = miles * 1760
    l.append(yards)
    df = pd.DataFrame(l, columns=["distances"])
return df

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[2]: data = calculate_distance_in_yards()
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[3]: """
      Number of cameras in the French Quarter
      """
data.nunique()
```

```
[3]: distances    34  
     dtype: int64
```

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[4]: """  
     Average distance in yards from a camera to a violent crime 1/1/2022 - 9/13/2022  
     """  
     data.sum()/len(data)
```

```
[4]: distances    27.840212  
     dtype: float64
```