Crime Investigation in Fairfax County, Virginia, United States

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Introduction

Fairfax County is a county located in the Commonwealth of Virginia in the United States. Part of Northern Virginia, Fairfax County borders both the City of Alexandria and Arlington County and forms part of the suburban ring of Washington, D.C. The county is thus predominantly suburban in character, with some urban and rural pockets.

As of 2018, the population was 1,150,795, and the growth rate has increased every year since 1840 (https://worldpopulationreview.com/us-counties/va/fairfax-county-population/). The county is the most populous jurisdiction in the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area, with around 20% of the MSA population, as well as the larger Washington-Baltimore-Arlington, DC-MD-VA-WV-PA Combined Statistical Area, with around 13% of the CSA population.

In 2019, Amazon announced the second headquarters (HQ2) development in Arlington, Virginia, which will take over 6 million square feet of office space and bring at least 25,000 new jobs to the region by the mid-2030s. In the same year, Virginia Tech announced that it would be building a new 1-million-square foot innovation campus in Alexandria, Virginia, positioning the area to better reap the rewards of the forthcoming Amazon HQ2. Being adjacent to Arlington and Alexandria, Fairfax county is home to the headquarters of intelligence agencies such as the Central Intelligence Agency, National Geospatial-Intelligence Agency, and National Reconnaissance Office, as well as the National Counterterrorism Center and Office of the Director of National Intelligence.

With the increase of population in North Virginia, crime information is one of the main considerations when potential residents determine the neighborhood which they want to live when they move to this area. This project investigates the crime information of the neighborhoods in Fairfax County. In addition, the surroundings of one neighborhood, Alexandria, are also investigated using the Foursquare location data. The results of this project not only benefit both current and potential residents in Fairfax County to find their next home in a safer neighborhood but also provide venue information of the neighborhood they are interested in.

Data Description

The crime reports can be obtained from the Fairfax County website (https://www.fairfaxcounty. gov/police/downloadcenter). This project uses the weekly crime data from April 22nd to April 28th, 2020.

After dropping incidents with missing information and selecting five fields used in this project, there are 1083 cases in the data, as shown in Table 1.

Table1. First five rows from the original data

Crime	Date	City	State	Zip_code
SUSPICIOUS - EVENT	2020-04-22	MCLEAN	VA	22101
SUSPICIOUS - EVENT	2020-04-22	FAIRFAX	VA	22032
FRAUD - IMPERSONATION	2020-04-23	FAIRFAX	VA	22030
LARCENY - CHECKS; CREDIT CARDS; BANK NOTES; ETC.	2020-04-23	ALEXANDRIA	VA	22315
FRAUD - IMPERSONATION	2020-04-23	ALEXANDRIA	VA	22315

In addition, the population of each city in Virginia was also included in this study. The population information was obtained from World Population Review (https://worldpopulationreview.com/zips/virginia/), as shown in Table 2. Only cities in Fairfax County were merged into the data.

Table 2. First five rows of the population data

City	Population	Zip_code
Virginia Beach	62321	23464
Woodbridge	60216	22193
Chesapeake	51229	23322
Virginia Beach	50900	23454
Virginia Beach	49874	23452

Methodology

Results

Discussion

Conclusion