Customer Service Requests Analysis

Report: Analysis of Complaints Received by New York City Police Department in 2015

Introduction:

This report presents an analysis of the complaints received by the New York City Police Department in the year 2015. The dataset used for this analysis is the "New_York_City_Police_Department_Complaints_Year_2015_Project.csv" provided by Simplilearn. The purpose of analyzing this data is to gain helpful insights on complaints throughout the year 2015, by bifurcating it according to factors like city, time, and complaint types, and by performing statistical analysis.

Data Cleaning:

The dataset was cleaned by selecting only the necessary features for analysis and removing rows with empty cells and some rows with unnecessary data.

Key Findings:

Complaint Concentration by City:

- Brooklyn received the highest number of complaints, totaling to 118,849.
- New York ranked second with approximately 78,000 complaints.
- Bronx stood at the third place with around 50,000 complaints.

Complaint Trend over Time:

- The histogram analysis of complaint dates showed a gradual increase in the number of complaints from January 2015 to end of April 2015.
- The complaint count spiked to nearly 35,000 in the months of May, June, and September 2015.
- The number of complaints slowly decreased to around 30,000 by the end of the year.

Complaints by Time of Day:

- Complaints received between 2 AM and 7 AM were relatively lower compared to other times of the day, and that remained consistent throughout the year.
- The highest number of complaints were registered between 8 PM and 1 AM.
- Moderate numbers of complaints were received between 7 AM and 2 PM.
- Notably, a very high number of complaints were registered between mid-April 2015 and the end of September 2015, specifically between 8 PM and midnight.
- Histogram on map showed the complaint concentration was higher in the north and northwest regions of Brooklyn compared to the south and east regions.

Top Complaint Types:

- The top complaint types were "Blocked Driveway" with 100,538 complaints and "Illegal Parking" with approximately 91,404 complaints.
- Other significant complaint types included noise complaints from street/sidewalk with 51,040 complaints and noise complaints from commercial spaces with 43,672 complaints.

- Some specific complaint types had a very low occurrence, such as "Squeegee" with only 4 complaints and "Animal in the park" with just one complaint.

Top Complaint Types by City:

- For most cities, the top four complaint types were "Blocked Driveway," "Illegal Parking," "Noise complaints from street/sidewalk," and "Noise complaints from commercial spaces."
- Some cities had additional complaint types in their top four, such as "Derelict Vehicle," "Noise from vehicle," "Traffic," and "Animal Abuse."

Statistical Analysis (ANOVA):

- Upon performing ANOVA test on variables “Complaint Type” and “Response Time”, it was discovered that the average response time for each type of complaint is not the same.

Response Time of New York City Police Department:

- The response time for a complaint about "Animal in the park" was the longest, taking a total of 14 days to respond.
- The second longest response time was for "Derelict Vehicle" complaints, averaging 7 hours.
- The fastest response time was observed for "Advertisement Posting" complaints, with an average response time of 2 hours.
- Most complaint types had an average response time of around 3 to 4 hours.

Statistical Analysis (Chi2):

- The Chi2 test of independence is performed on the top 4 types of complaints, coming from the top 5 complaint generating cities.
- The test result does not show any relationship between city and complaint type.

Conclusion:

This analysis of the complaints received by the New York City Police Department in 2015 provides valuable insights into complaint concentration, complaint trends over time, complaint distribution.