Study on Factors Affecting Strip Searches & Arrests

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1. Introduction

1.1 Background

Canada is a diverse country made up of people from many racial, ethnic, cultural, and religious groups. Much of Canada's racial diversity is a product of recent immigration policies, and if current immigration trends continue, Canada's minority population is expected to continue to grow even faster than the white population (e.g., Asians and Blacks) (Wortly & Owusu-Bempah, 2012, p. 11). However, they also mentioned that perceptions of racial bias are pervasive in Canada's criminal justice system (2012, p. 22). Newburn, Shiner & Hayman (2004) cited the serious psychological and emotional harm that strip-searching suspects in custody can cause to those being searched. They also point out that strip searches are often conducted in a discriminatory manner. For people of color and people from marginalized communities, strip searches are disproportionate to other races (pp. 677-694). In exploring what factors influence the occurrence of strip searches and changes in crime rates, Block's study showed that seasonal patterns of criminal activity do exist and that changes in the environment can have an impact on police enforcement strategies (1984). In addition, Castle & Kovacs (2021) researched the crime reports from a small city in northern Canada and confirmed the existence of seasonal spatial patterns of crime in the city, i.e., the distribution of criminal activity is different in the summer and winter months. Because of the impact of multiple potential factors on crime rates, arrests, and the number of strip checks, we will examine the relationship between different factors and the number of strip checks conducted by Toronto police officers, and whether the crime in Toronto has a seasonal cycle. Our project is aimed to help police officers plan law enforcement strategies as well as explore how data can be used to predict areas where criminal activity is occurring and to reduce crime rates.

1.2 Literature Review

According to Teresa (2013), people of color are more likely to be asked to strip check during the judicial process, a process that includes arrests, before court appearances, and after court appearances. In addition, ethnicity tends to be a first impression, like a label, when police officers make decisions about whether or not to strip-search an arrested person. The context of this study is in the United States, and we explored whether the same situation occurs in Canada in our data set. Ellis' (1979) study demonstrates women who are victimized by strip checks. The decision to strip check often carries with it the subjective judgment of the police officer, and in extreme cases, the police officer will do something out of the ordinary during the strip check, and these are based on gender. The victims in this study originate from different cities, and based on our dataset, we delved into the implications of the different arrest locations on the judgment of whether to perform a strip search.

The research on crime and arrests in the community and on campus found that crime and arrests are influenced by time and geographic space (Nobles et al., 2012). The study found that elevated crime rates on campus are influenced by crime spillover from surrounding communities, i.e., it is not a coincidence that adjacent geographic locations experience a simultaneous increase in crime, and that geographic locations influence each other. In our study, we explored the relationship between arrest locations and arrest cases, where police can judge the arrests in adjacent locations by the increase and decrease of arrests in a particular location to better allocate police resources. The study by Nobles et al. (2012) found that police can be more likely to arrest specific groups of people at certain times of the day. In our study, based on the database we extend the specific time period to four quarters of the year as a way to explore the association between quarters and arrest cases on another time scale.

1.3 Research Objective and Questions

Our study examined the correlation between arrest location, race, and the number of strip searches conducted, as well as the relationship between the time and arrest location and the overall number of arrests. Based on our exploratory data analysis, we developed the following questions:

- **Research Question 1:** Does the arrestee's race and arrest location affect the rate of strip searches (dependent variable) taken by police officers during the arrest? How does race and arrest location interact with each other?
- **Research Question 2:** How will the arrest time (quarters form two years) and arrest location affect the number of arrests (dependent variable)? How does time and arrest location interact with each other?

These two research questions help police adjust their deployment based on time and arrest location, and also help improve the fairness of police handling of cases. The research questions include race, time and location, and are intended to explore the impact of these variables on police operations and outcomes.

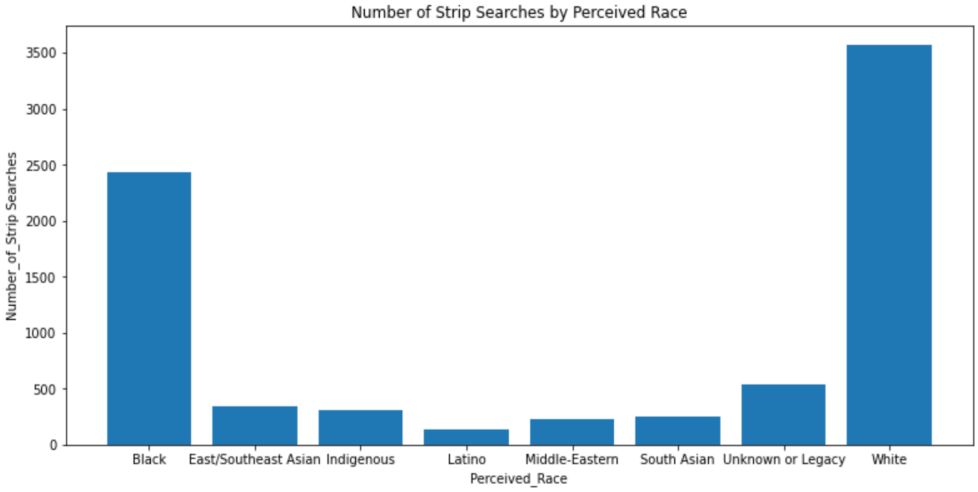
2. Exploratory Data Analysis

2.1 Descriptive Statistics

The dataset RBDC-ARR-TBL-001 on the Toronto Police Service Public Safety Data Portal provides arrest-related data for 2020 and 2021, including basic information about the arrestee such as race, gender, age, and status at the time of arrest, as well as police records of actions and reasons for searches.

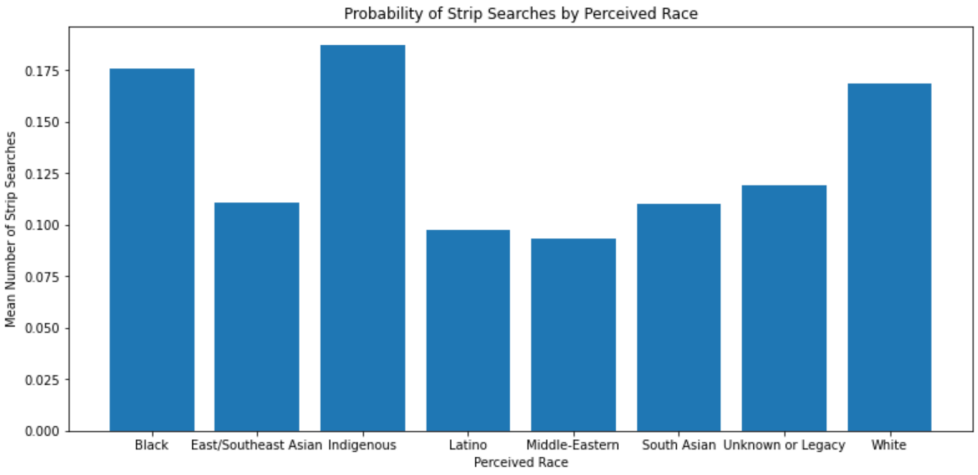
First, to derive a priori a relationship between race and strip search, we produced Figure 1: Number of Strip Searches by Perceived Race. This bar chart shows the total number of times

each race was strip-searched over a two-year period. The graph clearly shows that white and black were searched the most and greatly outweighed the number of times other races were searched. With the exception of the unknown race groups, East/Southeast Asian, Indigenous, Middle-Eastern and South Asian had similar totals of strip searches, and Latino had the lowest total of strip searches.



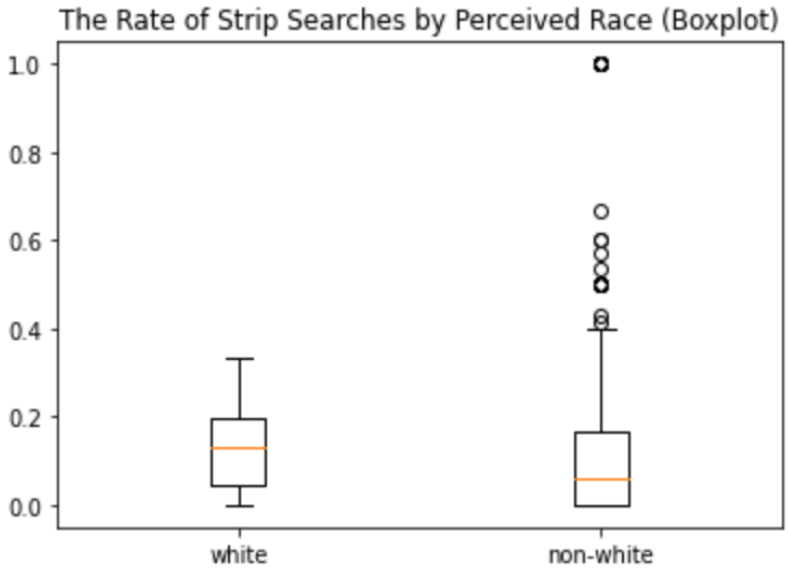
(Figure. 1)

There are two races in Figure 1 that show large differences from the other races in the total number of strip searches, which may be the result of differences in the total number of races in the database. To explore the relationship between race and strip-search more clearly, we produced Figure 2: Probability of Strip Searches by Perceived Race. Figure 2 shows that police strip-searched Indigenous, Blacks, and Whites the most, with other races similarly searched, with Middle-Eastern and Latino the least likely to be strip-searched.



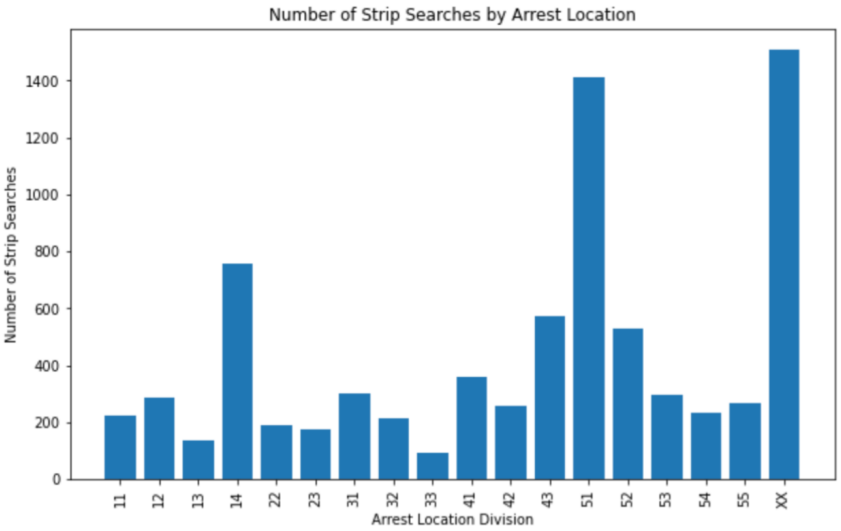
(Figure. 2)

To explore if race affects police strip searches, we split the database into White and people of color (Non-White) and produced a boxplot with the probability of being strip-searched for each recorded in Figure 3: The Rate of Strip Searches by Perceived Race. The boxplot shows that whites (with a higher median probability) are more likely to be strip-searched than people of color, which is due to the fact that people other than blacks and Indigenous are generally less likely to be strip-searched. However, the boxplot shows that people of color have a longer upper whisker and many outliers for the probability of being strip-searched, which means that many people of color are more likely to be strip-searched than whites, even though the median probability of being strip-searched is lower for people of color and more concentrated in lower probability areas.

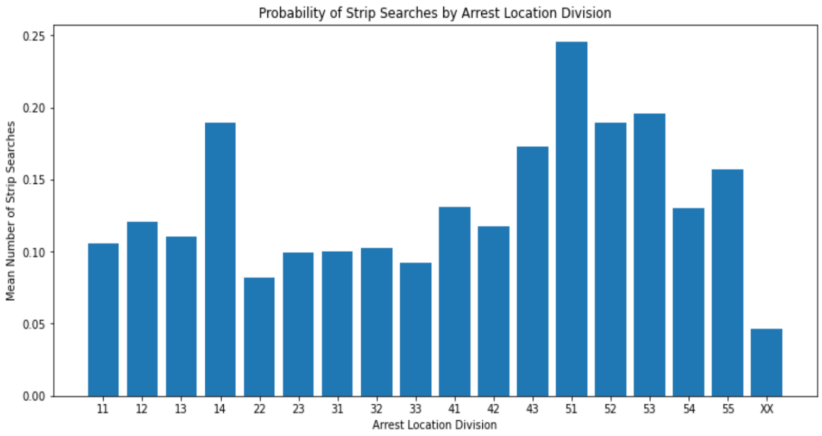


(Figure. 3)

To examine whether the location of the arrest affects the police's judgment in making a strip search, we produced Figure 4: Number of Strip Searches by Arrest Location. The bar chart shows that the non-Toronto area and area 14 and area 51 had the highest total number of strip searches of arrestees, while area 33 had the lowest total number of strip searches. To remove differences in the total number of arrests by district, we produced Figure 5: Probability of Strip Searches by Arrest Location. Combining Figure 4 and 5, we can observe that not only do areas 14 and 51 have the highest total number of strip searches, the arrestees in areas 14 and 51 are also the most likely to have strip searches performed. The non-Toronto areas had the highest total number of strip searches, but the arrested persons were the least likely to have their strip searches executed.

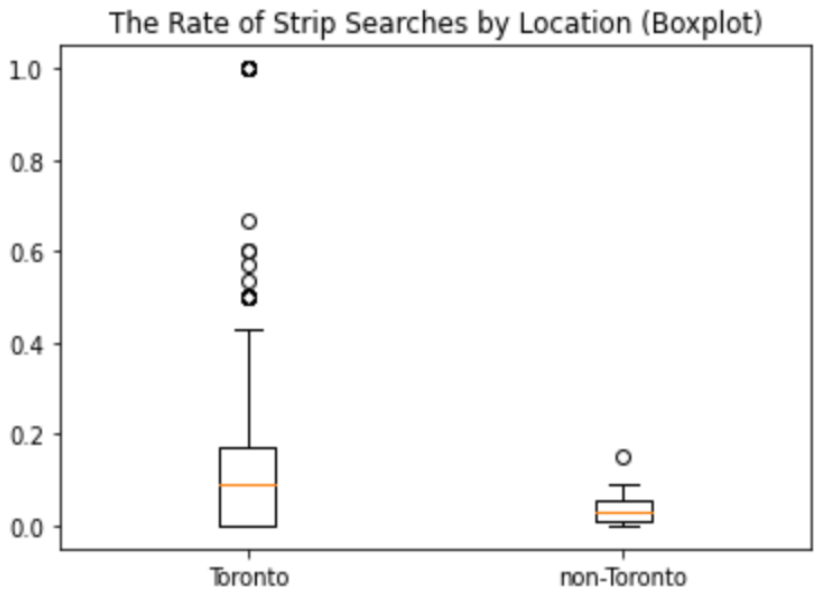


(Figure. 4)



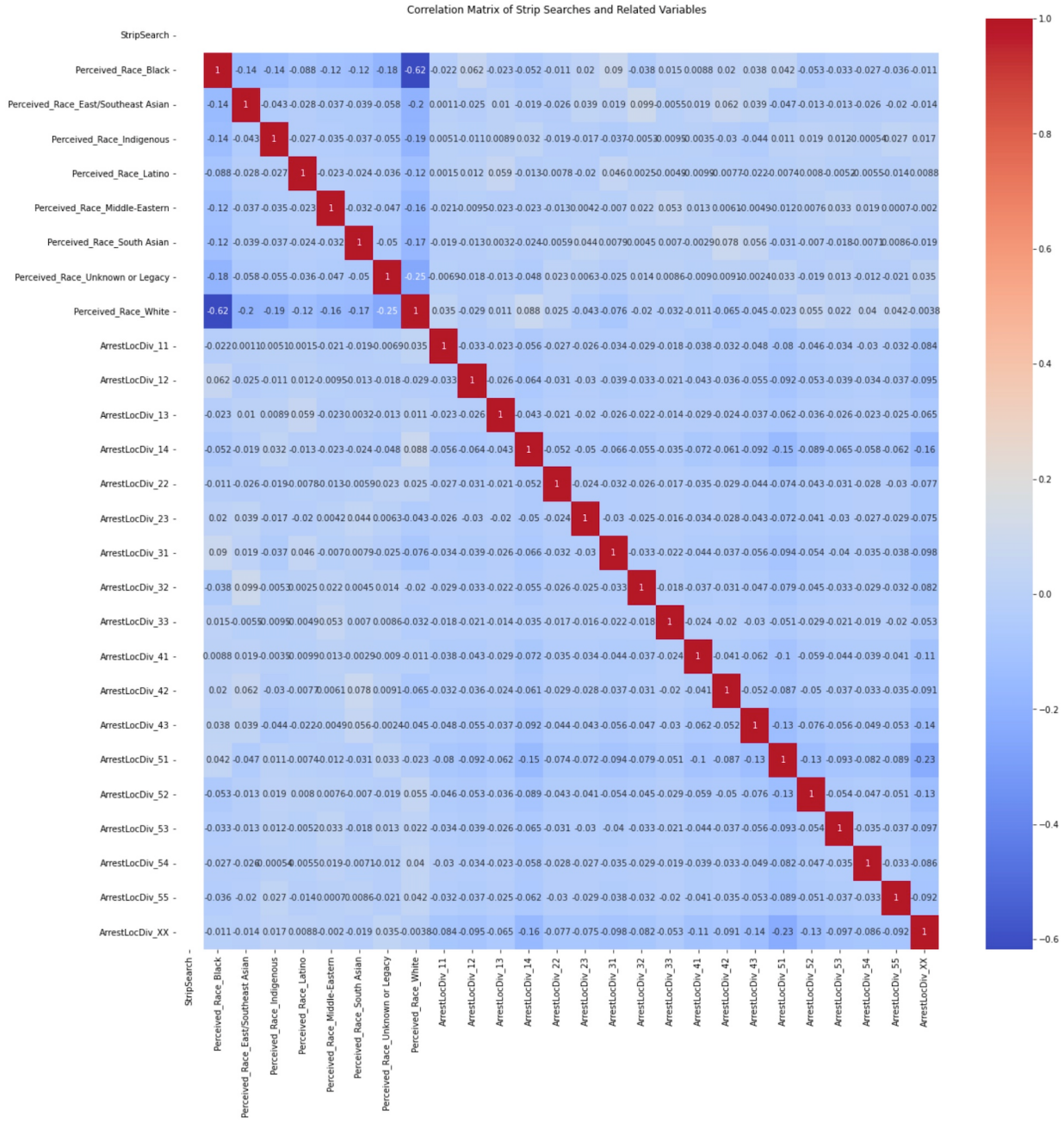
(Figure. 5)

To more clearly compare the probability of being strip searched between the Toronto area and the non-Toronto areas (XX), we split the data into the Toronto area and the non-Toronto area and produced the boxplot Figure 6: The Rate of Strip Searches by Location. The boxplot shows that arrested people in the Toronto area (with a higher median probability) are more likely to be strip-searched than people arrested in non-Toronto areas. Additionally, the boxplot shows that people arrested in the Toronto area have a longer upper whisker and many outliers for the probability of being strip-searched, which is also a piece of evidence that shows arrested people in the Toronto area are more likely to be strip-searched than people arrested in non-Toronto areas generally.



(Figure. 6)

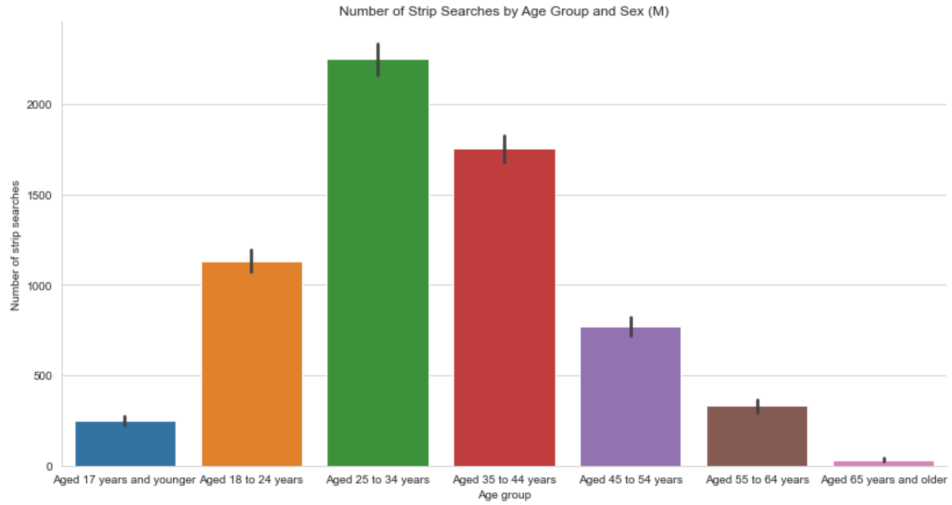
In order to observe the correlation between each race, location of arrest and strip search, we created Figure 7: Correlation Matrix of Strip Searches and Related Variables. From the correlations in the figure we can see that the strongest correlation between Latino and strip search is -0.088, the weakest correlation between white and strip search is -0.62; the strongest correlation between those arrested in area 31 and strip search correlation was 0.09, and the weakest correlation between those arrested in area 14 and strip search was -0.052; the strongest correlation between white race arrested in area 14 and strip search was 0.088, and the weakest correlation between white race arrested in area 31 and strip search was -0.076.



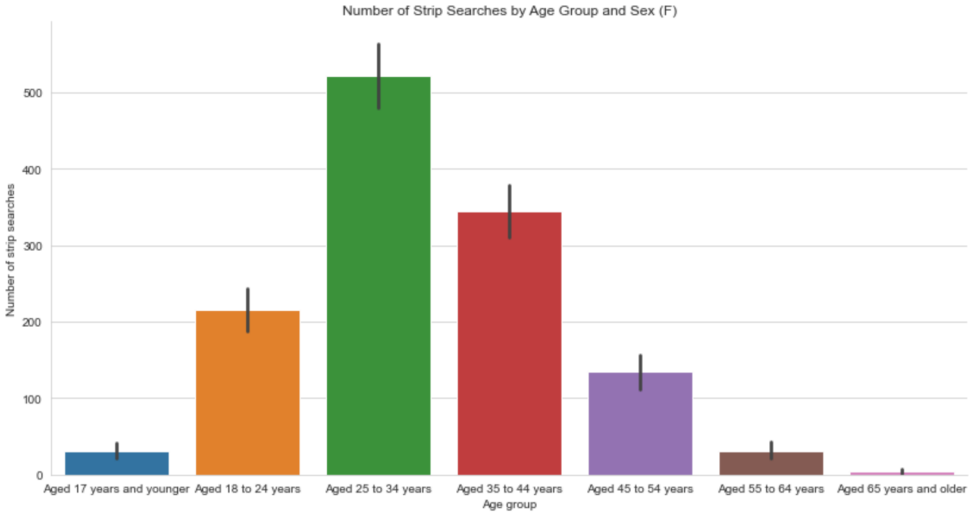
(Figure. 7)

To explore whether age and gender influence the police officers' judgments in making strip searches, we divided the database into two groups based on gender (we removed the data with gender 'U' because this data volume was too small and no one in this group was strip-searched) and produced Figure 8: Number of Strip Searches by Age Group and Sex (M) and Figure 9: Number of Strip Searches by Age Group and Sex (F). Comparing these two charts we can easily conclude that, regardless of gender, the group aged 25 to 34 years has the highest total number of

people being strip-searched, and as the age increases, the total number of people being strip-searched decreases. This difference may be influenced by the number of each age group.

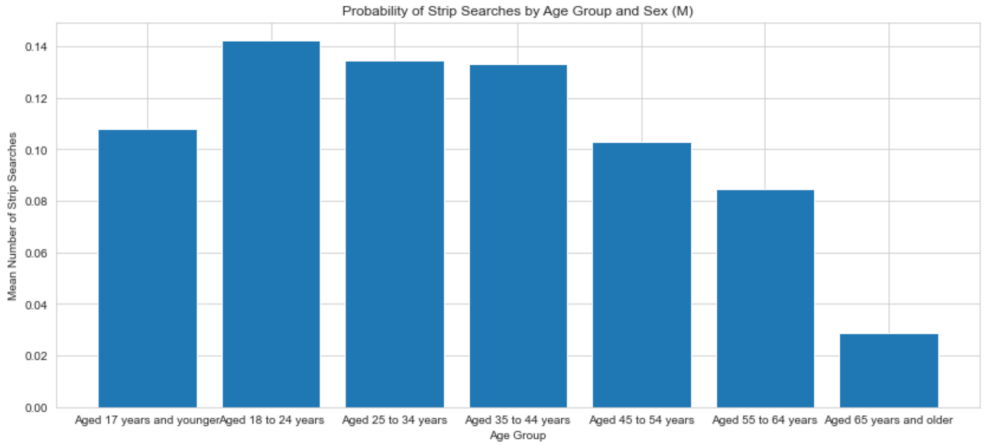


(Figure. 8)

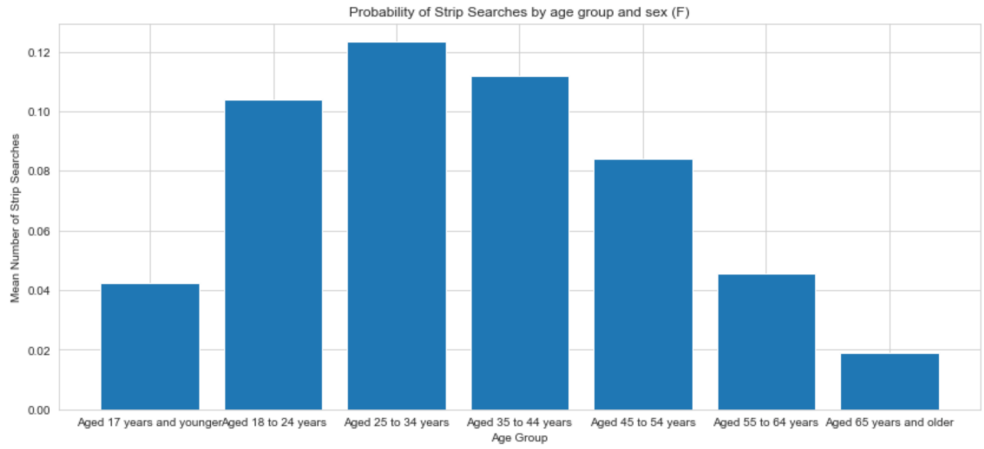


(Figure. 9)

To eliminate differences in the total number of arrests by region, we produced Figures 10: Probability of Strip Searches by age group and sex (M) and Figure 11: Probability of Strip Searches by age group and sex (F). Comparing the two figures, we can observe that men are more likely to be strip searched overall than women. Men and women are more likely to be strip searched in the 18 to 44 age range than in other age groups, but men are significantly more likely to be strip searched in the 17-age group and younger group and in the 55 to 64 age group than women.



(Figure. 10)



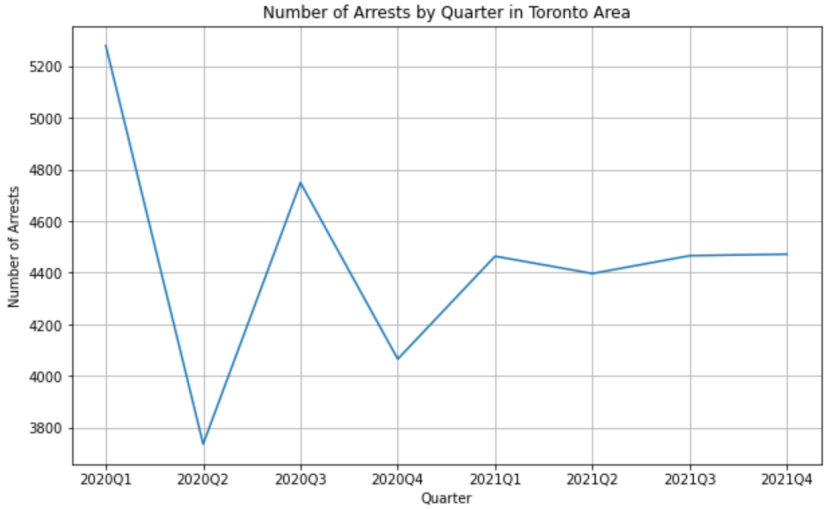
(Figure. 11)

We were also interested in the variables affecting the number of police arrests, for which we counted the total number of arrests in all locations based on quarter changes against trends to produce Figure 12. These line graphs show the fluctuations in the trend of the number of arrests for each location. The areas with the largest differences in arrests between the first quarter of 2020 and the last quarter of 2021 are area 32, area 43, area 51, and area 52. The areas with overall decreasing arrest trends are area 32, area 43, and area 52, with area 43 showing the most significant increase. The overall trend in the number of arrests is up in area 13, area 42, and area 53, with area 53 showing the most significant increase. In terms of overall trends, area 51 has been at high arrest totals, with arrests above 500 each quarter and exceeding 700 arrests totals in the third quarter of 2020; area 33 has been at lowest arrest totals, the highest arrest totals for area 33 are in the fourth quarter of 2020 and the second quarter of 2021, and both are around 130.

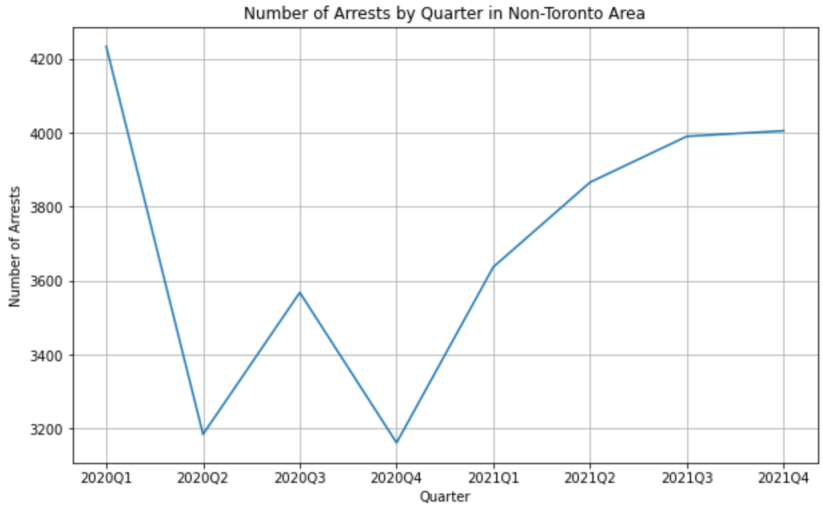

Arrests by Quarter for 11
Arrests by Quarter for 12
Arrests by Quarter for 13
Arrests by Quarter for 14
Arrests by Quarter for 22
Arrests by Quarter for 23
Arrests by Quarter for 31
Arrests by Quarter for 32
Arrests by Quarter for 33
Arrests by Quarter for 41
Arrests by Quarter for 42
Arrests by Quarter for 43
Arrests by Quarter for 51
Arrests by Quarter for 52
Arrests by Quarter for 53
Arrests by Quarter for 54
Arrests by Quarter for 55
Arrests by Quarter for XX
Number of Arrests
Quarter
2020Q1 2020Q2 2020Q3 2020Q4 2021Q1 2021Q2 2021Q3 2021Q4

(Figure. 12)

A very large number of cases in the non-Toronto area can be observed in Figure 8. In order to compare the trend change in the total number of arrests in the Toronto area with the non-Toronto area, we divided the database into the Toronto area and non-Toronto (XX) area by location and produced Figure 13: Number of Arrests by Quarter in Toronto Area and Figure 14: Number of Arrests by Quarter in Non-Toronto Area. From these two charts, we observed a substantial change in 2020 for both the Toronto area and the non-Toronto area, but in 2021 after the fluctuations, the Toronto area as a whole is on a flat trend, but the non-Toronto area has a slow upward trend.



(Figure. 13)



(Figure. 14)

2.2 T-test

Since the sample size in each group is not equal, we ran four groups of Welch's t-test with categorical attributes. We checked these assumptions before running the t-test:

1. **Nominal two level explanatory variable:** a categorical variable with two levels or categories that do not have any inherent numerical meaning.
2. **Quantitative Outcome Variable:** a quantitative outcome variable refers to a variable that is measured on a continuous scale and used as the dependent variable in the statistical analysis.
3. **Independence:** the data in each group must be independent of each other. The observations in one group should not be related or dependent on the observations in the other group.
4. **Normality:** the data in each group must be normally distributed. The data follows a bell-shaped curve, where the majority of the data points are near the mean, and the distribution is symmetric.

Assumptions 1, 2, and 3 are fulfilled. The data in each group are not normally distributed. However, the sample size is large enough, the t-test can still be robust to violations of the normality assumption and variance assumption. Therefore, we still ran Welch's t-test.

Perceived Race and Strip Search

We conducted Welch's t-test with the following hypothesis to find out whether there is a significant difference of strip search rate between arrestees whose race is white or non-white.

H_0 (Null Hypothesis): The mean rate of strip search for the two independent groups (white and non-white) are equal.

H_1 (Alternate Hypothesis): The mean rate of strip search for the two independent groups (white and non-white) are not equal.

The results indicate that the t-statistic value of 0.849 indicates that the difference between the two groups (white and non-white) being compared is relatively small. The p-value of 0.396 suggests that there is no significant difference between arrestees whose race is white or non-white. We fail to reject the null hypothesis.

Arrest Location and Strip Search

We conducted Welch's t-test with the following hypothesis to find out whether there is a significant difference of strip search rate between arrests that happened inside the City of Toronto (Toronto) or outside of Toronto (non-Toronto). We treated the numerical location code as the inside of Toronto (Toronto), and the XX as the outside of Toronto.

H_0 (Null Hypothesis): The mean rate of strip search for the two independent groups (Toronto and non-Toronto) are equal.

H_1 (Alternate Hypothesis): The mean rate of strip search for the two independent groups (Toronto and non-Toronto) are not equal.

The results indicate that t-statistic is 4.189, which suggests that there is a significant difference between the two groups being compared. The p-value is a measure of the strength of evidence against the null hypothesis. The p-value here equals 3.028e-05, which is less than 0.05, the standard threshold for statistical significance. Therefore, we can conclude that there is strong evidence to reject the null hypothesis and conclude that there is a significant difference between the two groups being compared.

Arrest Time and the Number of Arrest

We combine two categorical attributes (arrest month and arrest year) into one categorical attribute (quarter) to show the more specific time of arrests. We conducted Welch's t-test with the following hypothesis to find out whether there is a significant difference of the number of arrests that happened between the first half of the year (quarter 1 and quarter 2) and second half of the year (quarter 3 and quarter 4). The first half of the year includes quarter 1 and quarter 2 from both 2020 and 2021. The second half of the year includes quarter 3 and quarter 4 from both 2020 and 2021.

H_0 (Null Hypothesis): The mean number of arrests for the two independent groups (Toronto and non-Toronto) are equal.

H_1 (Alternate Hypothesis): The mean number of arrests for the two independent groups (Toronto and non-Toronto) are not equal.

The results indicate that A t-statistic of 0.0871937 indicates that the difference between the means of the two samples being compared is very small. The p-value of 0.930548 suggests that this difference is not statistically significant, meaning we cannot reject the null hypothesis that the means of the two groups are equal.

Arrest Location and the Number of Arrest

We conducted Welch's t-test with the following hypothesis to find out whether there is a significant difference of the number of arrests that happened inside the City of Toronto (Toronto) or outside of Toronto (non-Toronto).

H_0 (Null Hypothesis): The mean number of arrests for the two independent groups (Toronto and non-Toronto) are equal.

H_1 (Alternate Hypothesis): The mean number of arrests for the two independent groups (Toronto and non-Toronto) are not equal.

The results indicate the p-value is significantly smaller than 0.05, suggesting that this difference is statistically significant, meaning we reject the null hypothesis that the means of the two samples are equal, the mean of the number of arrests inside Toronto and outside Toronto are statistically different.

3. Method

3.1 Dataset Description

The dataset we will use in this project is called RBDC-ARR-TBL-001, which was published by Toronto Police Service Public Safety Data Portal on November 10th, 2022. It refers to the information about arrests and strip searches in a particular jurisdiction from 2021 to 2022, and demographic information of the arrestee. The attributes of arrests and strip searches in the dataset include the arrestee's age, gender, race, event ID, person ID, arrest ID, occurrence category, time and location of the arrest, actions at the arrest, reason for the arrest, reason for the strip search, and whether any contraband or illegal items were found during the search. The dataset contains 65277 times of arrests and strip searches happened in the City of Toronto, some of them outside of City of Toronto boundaries in other jurisdictions. The data is provided in binary format (0 or 1), string format, and categorical format. The dataset is available on Toronto Police Service website(https://data.torontopolice.on.ca/datasets/TorontoPS::arrests-and-strip-searches-rbdc-arr-tbl-001/about).

3.2 Independent Variable

The independent variable used in our project contains three independent variables. According to the content of attributes shown on Toronto Police Service website, the detailed information is listed as follows.

Perceived Race (Perceived_Race). The dataset records each arrestee's race as: "'White", "Unknown or Legacy", "Black", "South Asian", "Indigenous", "Middle-Eastern", "Latino", "East/Southeast Asian", "nan". We removed the data in this column that contains nan. Its level of measurement is nominal.

Arrest Location (ArrestLocDiv). It refers to where the arrest took place within Division boundaries. There are 15 location codes, one of them is letters (XX), the others are numbers. XX means the location could not be geo-coded or the arrest took place outside of City of Toronto boundaries in other jurisdictions. Its level of measurement is nominal.

Arrest Time (Arrest_Year, Arrest_Month). The dataset records the arrest year as: "2020", "2021", and records the arrest month as: "Jan-Mar", "Apr-June", "July-Sept", "Oct-Dec". While we were cleaning the dataset, we kept the arrest year and changed the month to quarter as: Q1(Jan-Mar), Q2 (Apr-June), Q3 (July-Sept), Q4(Oct-Dec). Then we combined these two attributes together as: 2020Q1, 2020Q2,2020Q3, 2020Q4, 2021Q1, 2021Q2, 2021Q3, 2021Q4.Its level of measurement is ordinal.

3.3 Dependent Variable

We used two dependent variables in this project. We list the detailed information as follows.

The rate of strip search over different ages (StripSearch). It refers to the percentage of strip search during arrest for different ages of suspects. It should be a number between 0 to 1. It is the mean value of strip searches grouped by perceived race, location and age. We use the groupby() function and it automatically removes all NA.

The number of arrests (counts). It refers to the number of arrests for different locations, time, race and gender. It is an integer greater or equal to 0. It is derived from counting the number of arrest events grouped by location, time, race and gender. We use the groupby() function and it automatically removes all NA.

For Research Question 1, we construct a new dataframe copied from the original data set but only with columns ('Perceived_Race', 'ArrestLocDiv', 'StripSearch', 'Age_group__at_arrest_'). And for Research Question 2, we did a similar thing and the new data frame only has columns ('Arrest_Year', 'Arrest_Month','Perceived_Race', 'Sex','ArrestLocDiv').

3.4 ANOVA test

After conducting Exploratory Data Analysis and Welch's t-test, we designed more statistical tests to explore our two research questions.

Research Question 1: Does the arrestee's race and arrest location affect the rate of strip searches taken by police officers during the arrest? We conducted Welch's t-test with two attributes. The t-test result shows there is no significant difference of strip search rate between arrestees whose race is white or non-white. There is a significant difference in strip search rate between arrests that happened inside the City of Toronto or outside of Toronto. Since we have additional groups within these two attributes we decided to conduct a two-way ANOVA test which allows us to compare the means of three or more groups to determine whether there is a significant difference between them.

Research question 2: How will the arrest time and arrest location affect the number of arrests? The Welch's t-test result indicates that the mean number of arrests inside Toronto and outside Toronto are statistically different, and the difference between the number of arrests that happened in the first half of the year (quarter 1 and quarter 2) or the second half of the year (quarter 3 and quarter 4) is not statistically significant. However, similar as Research Question 1, there are more groups in these two attributes. Thus, we also conducted a two-way ANOVA test for Research Question 2.

Before the two-way ANOVA test, we checked these assumptions:

1. **Normality:** the distribution of the dependent variable is approximately normal within each combination of the levels of the two independent variables.
2. **Equal variance:** the variances of the dependent variable are equal across all combinations of the levels of the two independent variables.
3. **Independent errors apply:** violate the assumption that the observations are independent within each group. The values of the dependent variable observed in one group are not influenced by the values of the dependent variable observed in any other group.

Assumption 3 is fulfilled by two both research questions. The dependent variables are not normally distributed, and the variances are not equal. However, since our sample size is large enough, which may be able to compensate for violations of the normality and equal variance assumptions, the two-way ANOVA test can still be robust. Hence, we finally ran the two-way ANOVA test.

3.5 Post-hoc test

After performing an ANOVA test to determine whether there is a statistically significant effect of an independent variable on a dependent variable, a post-hoc test may be conducted if the ANOVA test results show that there is a significant effect of the independent variable. The purpose of the post-hoc test is to determine which specific groups or levels of the independent variable are significantly different from each other. By identifying which groups are significantly different from each other, researchers can gain a more detailed understanding of the effects of the independent variable on the dependent variable.

However, it is important to note that if the ANOVA test results show that there is no significant effect of the independent variable, then conducting a post-hoc test would not yield meaningful results. This is because the post-hoc test is designed to explore the differences between groups or levels of the independent variable, and if there is no significant effect, there are no meaningful differences to explore.

Here we have chosen to use Tukey's HSD with a Family-Wise Error Rate (FWER) of 0.05 as our post-hoc test due to its affordability and ease of interpretation, even when dealing with large datasets.

4. Results/Findings

4.1 Research Question 1 Hypothesis

We conducted a two-way ANOVA test with the following hypothesis for Research Question 1 to find out whether there is a significant difference among different races' strip search rate and different arrest locations' strip search rates. Whether there is correlation between the perceived race and arrest location.

Perceived Race Hypothesis:

- H_0 :There is no difference in average of the number of strip-searches for any race.
- H_1: There is a difference in average of the number of strip-searches for any race.

Arrest Location Hypothesis:

- H_0: There is no difference in average of the number of strip-searches for any location of the arrest.
- H_1: There is a difference in average of the number of strip-searches for any location of the arrest.

Perceived Race & Arrest Location Hypothesis:

- H_0: There is no interaction effect between the race and location on the average number of strip-searches.
- H_1: There is an interaction effect between the race and location on the average number of strip-searches.

4.2 Research Question 1 ANOVA test result:

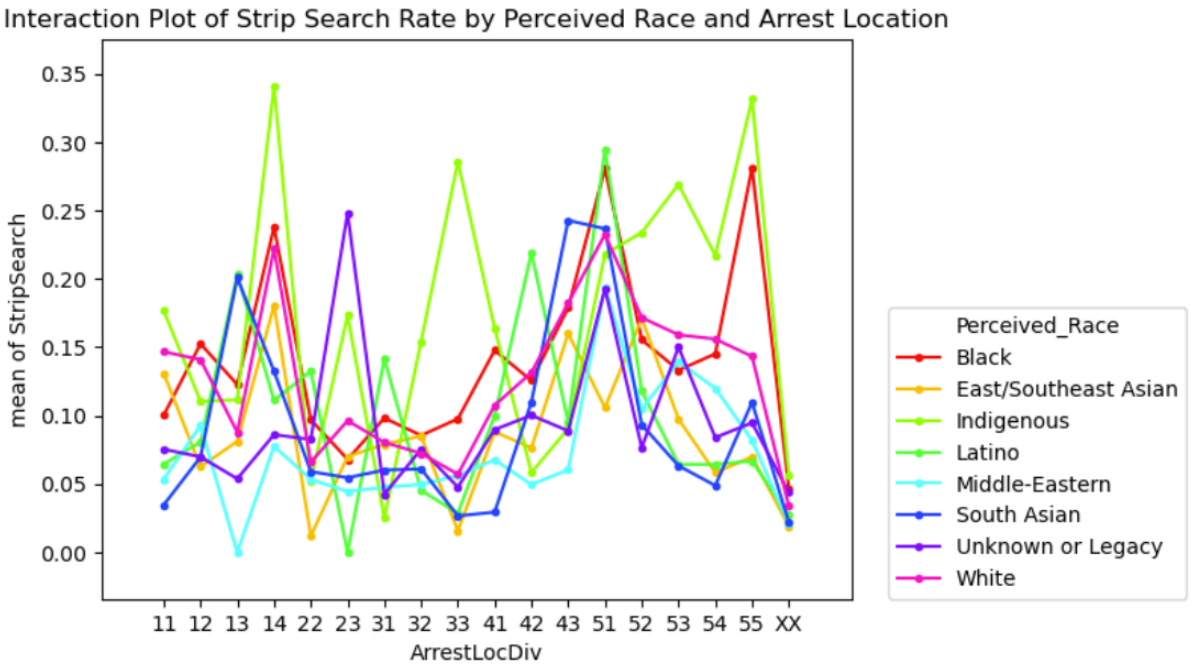
The result of the two-way ANOVA test (See Table 1) suggests that there are significant differences in the mean StripSearch values between the different Perceived_Race groups (1.534500e-06). There are significant differences in the mean StripSearch values between the different ArrestLocDiv groups (7.506392e-12). The effect of Perceived_Race on StripSearch does not depend on the ArrestLocDiv, and vice versa.(7.898139e-01)

Table 1: Two-way ANOVA Test of Perceived Race and Arrest Location

	sum_sq	df	F	PR(>F)
C(Perceived_Race)	0.879786	7.0	6.958495	4.358166e-08
C(ArrestLocDiv)	1.851854	17.0	6.031067	2.242328e-13
C(Perceived_Race):C(ArrestLocDiv)	2.206947	119.0	1.026789	4.101716e-01
Residual	16.002854	886.0	NaN	NaN

Source: Arrests and Strip Searches (RBDC-ARR-TBL-001)

We plotted the interaction plot to show the Mean Strip Search by Perceived Race and Arrest Location (See Figure. 15).



(Figure. 15)

Based on our analysis, in the interaction plot for StripSearch ~ Perceived_Race + ArrestLocDiv, where the location was used as the x-axis value, the rate of strip search as the y-axis value, and race was used as the trace value. After examining the plot, we did not find a clear and significant relationship between race and the rate of strip search, location and the rate of strip search, or the interaction between race and location on the rate of strip search. These results suggest that the effect of race and location on the rate of strip search may not be dependent on each other or may not be present in our data.

4.3 Research Question 1 Tukey HSD test result:

According to the result of the anova test, we perform Tukey HSD test on both "Perceived_Race" and "ArrestLocDiv". Based on the results of the Tukey HSD test for "Perceived_Race"(See Table 2), there is a statistically significant difference between races with higher rates of strip search (such as Indigenous and Black) and races with lower rates of strip search (such as Middle-Eastern and East/Southeast Asian), as depicted in Figure 2. As for the results of the Tukey HSD test for "ArrestLocDiv" (The full information of result table has been attached in Appendix), we can conclude that location code "51", which has the highest strip search rate according to Fig.5, is significantly different from all other locations. Additionally, location code "14", which has the second highest strip search rate, is also significantly different from locations with lower rates of strip search, such as codes "22", "31", and "32".

Table 2: Multiple Comparison of Means - Tukey HSD, FWER = 0.05 (Race for Strip Searches)

group 1	group 2	meandiff	p-adj	lower	upper	reject
Black	East/Southeast Asian	-0.0562	0.019	-0.1071	-0.0052	TRUE
Black	Indigenous	0.0331	0.6203	-0.0228	0.089	FALSE
Black	Latino	-0.0375	0.3895	-0.0907	0.0157	FALSE
Black	Middle-Eastern	-0.0687	0.0019	-0.1212	-0.0162	TRUE
Black	South Asian	-0.0509	0.0583	-0.1027	0.0009	FALSE
Black	Unknown or Legacy	-0.0457	0.1215	-0.0969	0.0056	FALSE
Black	White	-0.0145	0.9886	-0.065	0.036	FALSE
East/Southeast Asian	Indigenous	0.0893	0	0.0333	0.1453	TRUE
East/Southeast Asian	Latino	0.0187	0.9634	-0.0346	0.072	FALSE
East/Southeast Asian	Middle-Eastern	-0.0125	0.9963	-0.0651	0.0401	FALSE
East/Southeast Asian	South Asian	0.0053	1	-0.0466	0.0572	FALSE
East/Southeast Asian	Unknown or Legacy	0.0105	0.9986	-0.0408	0.0618	FALSE
East/Southeast Asian	White	0.0417	0.1943	-0.0089	0.0923	FALSE
Indigenous	Latino	-0.0706	0.0056	-0.1286	-0.0126	TRUE
Indigenous	Middle-Eastern	-0.1018	0	-0.1592	-0.0445	TRUE
Indigenous	South Asian	-0.084	0.0002	-0.1408	-0.0273	TRUE
Indigenous	Unknown or Legacy	-0.0788	0.0006	-0.135	-0.0226	TRUE
Indigenous	White	-0.0476	0.1567	-0.1031	0.008	FALSE
Latino	Middle-Eastern	-0.0312	0.666	-0.0859	0.0235	FALSE
Latino	South Asian	-0.0134	0.9952	-0.0675	0.0407	FALSE
Latino	Unknown or Legacy	-0.0082	0.9998	-0.0617	0.0453	FALSE
Latino	White	0.023	0.8902	-0.0298	0.0759	FALSE
Middle-Eastern	South Asian	0.0178	0.9729	-0.0356	0.0712	FALSE
Middle-Eastern	Unknown or Legacy	0.023	0.89	-0.0298	0.0759	FALSE
Middle-Eastern	White	0.0542	0.0347	0.0021	0.1064	TRUE
South Asian	Unknown or Legacy	0.0052	1	-0.0469	0.0574	FALSE
South Asian	White	0.0365	0.383	-0.015	0.0879	FALSE
Unknown or Legacy	White	0.0312	0.577	-0.0197	0.0821	FALSE

Source: Arrests and Strip Searches (RBDC-ARR-TBL-001)

Table 3: Multiple Comparison of Means - Tukey HSD, FWER=0.05 (Location for Strip Searches)
* See Appendix

4.4 Research Question 2 Hypothesis

For Research Question 2, the two-way ANOVA test examined the following hypothesis to find out whether there is a significant difference between the number of arrests happening in different arrest times and the number of arrests happening in different arrest locations. Whether there is correlation between the arrest time and arrest location.

Arrest Time Hypothesis:

- H_0:There is no difference in the average number of arrests for different arrest times (quarter).
- H_1:There is a difference in the average number of arrests for different arrest times (quarter).

Arrest Location Hypothesis:

- H_0: There is no difference in the average number of arrests for any location of the arrest.
- H_1: There is a difference in the average number of arrests for any location of the arrest.

Arrest Time & Arrest Location Hypothesis:

- H_0: There is no interaction effect between the arrest time and arrest location on average number of arrests.
- H_1: There is an interaction effect between the arrest time and arrest location on average number of arrests.

4.5 Research Question 2 ANOVA test result:

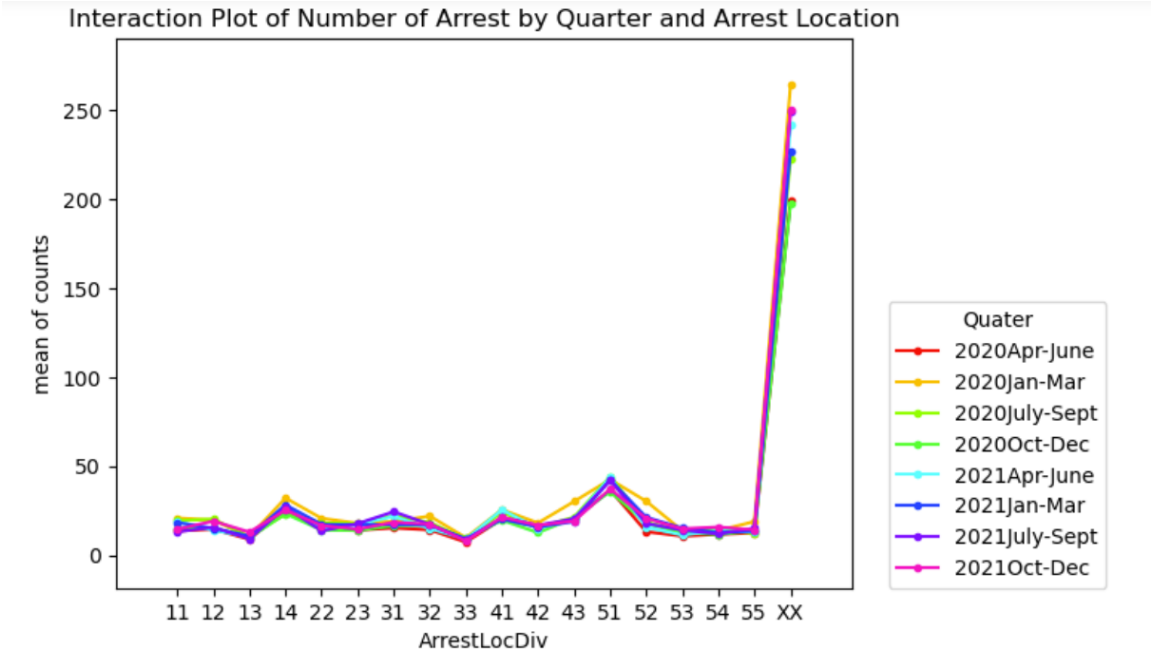
The result (See Table 4) shows that there is no significant difference in the mean arrest number across quarters. There is a significant difference in the mean arrest number across arrest location divisions. However, there is no significant interaction effect between quarter and arrest location division on the mean StripSearch.

Table 4: Two-way ANOVA Test of Arrest Time and Arrest Location

	sum_sq	df	F	PR(>F)
C(Quater)	1.571995e+04	7.0	0.298041	9.548175e-01
C(ArrestLocDiv)	5.559841e+06	17.0	43.404709	2.602070e-122
C(Quater):C(ArrestLocDiv)	6.309686e+04	119.0	0.070369	1.000000e+00
Residual	1.451972e+07	1927.0	NaN	NaN

Source: Arrests and Strip Searches (RBDC-ARR-TBL-001)

After conducting our analysis, we created an interaction plot for Counts (the number of arrests) ~ Quarter (time) + ArrestLocDiv (location), see Figure 16. In this plot, we used location as the x-axis value, the number of arrests as the y-axis value, and time as the trace value. Our examination of the plot led us to conclude that there is a clear pattern between location and the number of arrests, with the number of arrests being similar for each location over time. Additionally, we found no significant relationship between time and the number of arrests, as the number of arrests remained consistent regardless of the time period. These results suggest that the location of the arrest may be a more important factor in determining the number of arrests than the specific time period in which the arrest took place.



(Figure. 16)

4.6 Research Question 2 Tukey HSD test result:

After conducting an ANOVA test, we found that only the location ("ArrestLocDiv") has a statistically significant impact on the number of arrests ("counts"). Consequently, we conducted the Tukey HSD test only on "ArrestLocDiv". See the Table 5. The results of the Tukey HSD test indicate that only the location with the code "XX" has a significant difference compared to the other locations. This result is consistent with the findings presented in Fig.16.

Table 5: Multiple Comparison of Means - Tukey HSD, FWER=0.05 (Location for Arrests)
* See Appendix

5. Discussion and Conclusion

Our two research questions explore how the rate of strip searches is affected by the different race and different arrest location and how the number of arrests affected by the arrest time and arrest location. Based on our results, we found some of these factors do affect the rate of searches or the number of arrests happening from 2020 to 2021.

The results of the ANOVA test for Research Question 1 suggest that there is a statistically significant relationship between the independent variables of location and race and the dependent variable of the rate of strip searches. However, the relationship between the two independent variables is not clear. One possible explanation for this finding is that different locations may have varying policies and procedures regarding strip searches, which may contribute to differences in the rate of strip searches. Additionally, different racial groups may be subject to varying levels of scrutiny or suspicion from law enforcement officers, which could also impact the rate of strip searches. Nonetheless, the limitations of the experiment and data collection must be taken into consideration when interpreting these results.

Regarding Research Question 2, the ANOVA test indicates a significant relationship between location and arrest number, while no significant relationship was found between quarter and arrest number or quarter and location. This significant relationship may be attributed to variations in the level of crime or police activity across different locations. Certain areas may have higher crime rates or experience more frequent police patrols, which could lead to a greater number of arrests in those locations. Additionally, different locations may have distinct policing strategies or priorities that may impact arrest rates. However, the lack of significant relationships between quarter and arrest number or quarter and location could be due to the study's limited time period, which may not have allowed for the detection of meaningful changes in arrest patterns over time or across different locations.

It is crucial to exercise caution when interpreting the results of this study, as there were limitations to the experiment and data collection. These limitations may include issues related to

sample size, measurement accuracy, and potential confounding variables that were not accounted for in the study design.

In the dataset, there are some biases in the recording of the data itself, for example, some arrests happened in places that could not be geo-coded and the arrests that took place outside of the City of Toronto boundaries in other jurisdictions are all indicated by XX. However, the place that could not be geo-coded may belong to the City of Toronto. The data recorded in this way will have errors, further leading to bias in the results of the data analysis done with that data. Besides, all independent variables and dependent variables we used in this project are not normally distributed. The reason we insist on doing the test is because the sample size is large enough to remain robust to assumption violations. Therefore, our results of Welch's t-test and two-way ANOVA are potentially affected, which means the bias may exist.

Based on the limitations and potential biases of the current study, there are several areas of improvement for future research. First, efforts should be made to increase the accuracy and completeness of the data collection process. This could involve refining the methods for geo-coding and ensuring that all relevant variables are recorded consistently and accurately. Additionally, researchers should strive to address potential confounding variables that may impact the relationship between independent and dependent variables. This could involve collecting additional data or using more sophisticated statistical techniques to control for extraneous factors. It would also be beneficial to conduct similar studies in other geographic locations or time periods to assess the generalizability of the findings. Finally, researchers should strive to improve the distributional properties of the variables used in the analysis to ensure the robustness of statistical tests. By addressing these issues, future research can provide more reliable and valid insights into the factors that impact strip searches and arrests.

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Appendix

Table 3: Multiple Comparison of Means - Tukey HSD, FWER=0.05 (Location for Strip Searches)

Group1	Group2	meandiff	p-adj	lower	upper	reject
11	12	0.0025	1	-0.0867	0.0918	FALSE
11	13	0.0118	1	-0.0798	0.1035	FALSE
11	14	0.0803	0.1343	-0.0086	0.1692	FALSE
11	22	-0.0246	1	-0.1154	0.0662	FALSE
11	23	-0.0028	1	-0.092	0.0864	FALSE
11	31	-0.0208	1	-0.1108	0.0692	FALSE
11	32	-0.0198	1	-0.1114	0.0719	FALSE
11	33	-0.0305	0.9995	-0.1209	0.0599	FALSE
11	41	0.0016	1	-0.088	0.0912	FALSE
11	42	0.0139	1	-0.0749	0.1028	FALSE
11	43	0.0462	0.9409	-0.043	0.1354	FALSE
11	51	0.1217	0.0003	0.0329	0.2106	TRUE
11	52	0.0438	0.9691	-0.047	0.1346	FALSE
11	53	0.0334	0.9985	-0.0579	0.1246	FALSE
11	54	0.0147	1	-0.0749	0.1043	FALSE
11	55	0.052	0.8758	-0.0396	0.1437	FALSE
11	XX	-0.062	0.5488	-0.1494	0.0255	FALSE
12	13	0.0093	1	-0.0816	0.1002	FALSE
12	14	0.0778	0.1625	-0.0103	0.1658	FALSE
12	22	-0.0272	0.9999	-0.1172	0.0629	FALSE
12	23	-0.0053	1	-0.0938	0.0831	FALSE
12	31	-0.0233	1	-0.1126	0.0659	FALSE
12	32	-0.0223	1	-0.1132	0.0686	FALSE
12	33	-0.033	0.9984	-0.1226	0.0566	FALSE
12	41	-0.0009	1	-0.0898	0.0879	FALSE
12	42	0.0114	1	-0.0767	0.0995	FALSE
12	43	0.0436	0.9615	-0.0448	0.1321	FALSE
12	51	0.1192	0.0004	0.0311	0.2073	TRUE
12	52	0.0412	0.9813	-0.0488	0.1313	FALSE
12	53	0.0308	0.9994	-0.0597	0.1213	FALSE
12	54	0.0122	1	-0.0766	0.101	FALSE
12	55	0.0495	0.91	-0.0414	0.1404	FALSE
12	XX	-0.0645	0.4532	-0.1512	0.0222	FALSE
13	14	0.0685	0.4217	-0.0221	0.159	FALSE
13	22	-0.0365	0.9963	-0.1289	0.056	FALSE

13	23	-0.0146	1	-0.1055	0.0763	FALSE
13	31	-0.0326	0.9989	-0.1243	0.059	FALSE
13	32	-0.0316	0.9994	-0.1249	0.0617	FALSE
13	33	-0.0423	0.9805	-0.1344	0.0497	FALSE
13	41	-0.0102	1	-0.1015	0.0811	FALSE
13	42	0.0021	1	-0.0885	0.0926	FALSE
13	43	0.0343	0.9978	-0.0566	0.1253	FALSE
13	51	0.1099	0.0032	0.0193	0.2005	TRUE
13	52	0.0319	0.9993	-0.0606	0.1244	FALSE
13	53	0.0215	1	-0.0714	0.1144	FALSE
13	54	0.0029	1	-0.0884	0.0942	FALSE
13	55	0.0402	0.9901	-0.0531	0.1335	FALSE
13	XX	-0.0738	0.2582	-0.163	0.0154	FALSE
14	22	-0.1049	0.0059	-0.1946	-0.0152	TRUE
14	23	-0.0831	0.0915	-0.1712	0.005	FALSE
14	31	-0.1011	0.0091	-0.19	-0.0123	TRUE
14	32	-0.1001	0.0141	-0.1906	-0.0095	TRUE
14	33	-0.1108	0.0021	-0.2	-0.0215	TRUE
14	41	-0.0787	0.153	-0.1672	0.0098	FALSE
14	42	-0.0664	0.4191	-0.1541	0.0213	FALSE
14	43	-0.0341	0.997	-0.1222	0.054	FALSE
14	51	0.0414	0.9745	-0.0463	0.1291	FALSE
14	52	-0.0365	0.9947	-0.1262	0.0531	FALSE
14	53	-0.0469	0.9374	-0.1371	0.0432	FALSE
14	54	-0.0656	0.46	-0.154	0.0229	FALSE
14	55	-0.0283	0.9998	-0.1188	0.0623	FALSE
14	XX	-0.1423	0	-0.2286	-0.0559	TRUE
22	23	0.0218	1	-0.0682	0.1119	FALSE
22	31	0.0038	1	-0.087	0.0946	FALSE
22	32	0.0049	1	-0.0876	0.0973	FALSE
22	33	-0.0059	1	-0.0971	0.0853	FALSE
22	41	0.0262	0.9999	-0.0642	0.1166	FALSE
22	42	0.0385	0.9904	-0.0512	0.1282	FALSE
22	43	0.0708	0.3472	-0.0193	0.1608	FALSE
22	51	0.1464	0	0.0567	0.236	TRUE
22	52	0.0684	0.4465	-0.0232	0.16	FALSE
22	53	0.058	0.7512	-0.0341	0.15	FALSE
22	54	0.0393	0.989	-0.0511	0.1298	FALSE
22	55	0.0767	0.2546	-0.0158	0.1691	FALSE
22	XX	-0.0373	0.992	-0.1257	0.051	FALSE
23	31	-0.018	1	-0.1073	0.0712	FALSE
23	32	-0.017	1	-0.1079	0.0739	FALSE
23	33	-0.0277	0.9998	-0.1173	0.0619	FALSE

23	41	0.0044	1	-0.0844	0.0932	FALSE
23	42	0.0167	1	-0.0714	0.1048	FALSE
23	43	0.049	0.8975	-0.0395	0.1374	FALSE
23	51	0.1245	0.0001	0.0364	0.2126	TRUE
23	52	0.0465	0.9416	-0.0435	0.1366	FALSE
23	53	0.0361	0.9958	-0.0543	0.1266	FALSE
23	54	0.0175	1	-0.0713	0.1063	FALSE
23	55	0.0548	0.8109	-0.0361	0.1457	FALSE
23	XX	-0.0592	0.6178	-0.1459	0.0275	FALSE
31	32	0.001	1	-0.0906	0.0927	FALSE
31	33	-0.0097	1	-0.1001	0.0807	FALSE
31	41	0.0224	1	-0.0672	0.112	FALSE
31	42	0.0347	0.9967	-0.0541	0.1236	FALSE
31	43	0.067	0.4352	-0.0222	0.1562	FALSE
31	51	0.1425	0	0.0537	0.2314	TRUE
31	52	0.0646	0.5408	-0.0262	0.1554	FALSE
31	53	0.0542	0.8293	-0.0371	0.1454	FALSE
31	54	0.0355	0.9961	-0.0541	0.1251	FALSE
31	55	0.0728	0.3278	-0.0188	0.1645	FALSE
31	XX	-0.0411	0.9756	-0.1286	0.0463	FALSE
32	33	-0.0107	1	-0.1028	0.0813	FALSE
32	41	0.0214	1	-0.0699	0.1127	FALSE
32	42	0.0337	0.9982	-0.0569	0.1242	FALSE
32	43	0.0659	0.5024	-0.025	0.1569	FALSE
32	51	0.1415	0	0.0509	0.2321	TRUE
32	52	0.0635	0.6059	-0.0289	0.156	FALSE
32	53	0.0531	0.8688	-0.0398	0.146	FALSE
32	54	0.0345	0.9978	-0.0568	0.1258	FALSE
32	55	0.0718	0.3879	-0.0215	0.1651	FALSE
32	XX	-0.0422	0.9743	-0.1314	0.047	FALSE
33	41	0.0321	0.9989	-0.0579	0.1221	FALSE
33	42	0.0444	0.9585	-0.0449	0.1337	FALSE
33	43	0.0767	0.206	-0.013	0.1663	FALSE
33	51	0.1522	0	0.063	0.2415	TRUE
33	52	0.0742	0.285	-0.017	0.1654	FALSE
33	53	0.0638	0.5795	-0.0278	0.1555	FALSE
33	54	0.0452	0.9546	-0.0448	0.1352	FALSE
33	55	0.0825	0.1439	-0.0095	0.1746	FALSE
33	XX	-0.0315	0.9989	-0.1194	0.0564	FALSE
41	42	0.0123	1	-0.0762	0.1008	FALSE
41	43	0.0446	0.9551	-0.0443	0.1334	FALSE
41	51	0.1201	0.0003	0.0317	0.2086	TRUE
41	52	0.0422	0.9776	-0.0483	0.1326	FALSE

41	53	0.0318	0.9992	-0.0591	0.1226	FALSE
41	54	0.0131	1	-0.0761	0.1023	FALSE
41	55	0.0504	0.899	-0.0409	0.1417	FALSE
41	XX	-0.0636	0.4903	-0.1507	0.0235	FALSE
42	43	0.0323	0.9985	-0.0558	0.1203	FALSE
42	51	0.1078	0.0025	0.0201	0.1955	TRUE
42	52	0.0298	0.9996	-0.0598	0.1195	FALSE
42	53	0.0194	1	-0.0707	0.1096	FALSE
42	54	0.0008	1	-0.0876	0.0893	FALSE
42	55	0.0381	0.9923	-0.0524	0.1287	FALSE
42	XX	-0.0759	0.1685	-0.1622	0.0105	FALSE
43	51	0.0756	0.2016	-0.0125	0.1636	FALSE
43	52	-0.0024	1	-0.0925	0.0876	FALSE
43	53	-0.0128	1	-0.1033	0.0777	FALSE
43	54	-0.0314	0.999	-0.1203	0.0574	FALSE
43	55	0.0059	1	-0.0851	0.0968	FALSE
43	XX	-0.1081	0.0019	-0.1948	-0.0214	TRUE
51	52	-0.078	0.1826	-0.1677	0.0117	FALSE
51	53	-0.0884	0.0617	-0.1785	0.0017	FALSE
51	54	-0.107	0.0033	-0.1955	-0.0185	TRUE
51	55	-0.0697	0.3871	-0.1603	0.0209	FALSE
51	XX	-0.1837	0	-0.27	-0.0974	TRUE
52	53	-0.0104	1	-0.1024	0.0816	FALSE
52	54	-0.029	0.9997	-0.1194	0.0614	FALSE
52	55	0.0083	1	-0.0842	0.1007	FALSE
52	XX	-0.1057	0.004	-0.194	-0.0174	TRUE
53	54	-0.0186	1	-0.1095	0.0722	FALSE
53	55	0.0187	1	-0.0742	0.1116	FALSE
53	XX	-0.0953	0.0209	-0.1841	-0.0065	TRUE
54	55	0.0373	0.9945	-0.054	0.1286	FALSE
54	XX	-0.0767	0.1659	-0.1638	0.0104	FALSE
55	XX	-0.114	0.0012	-0.2032	-0.0248	TRUE

Source: Arrests and Strip Searches (RBDC-ARR-TBL-001)

Table 5: Multiple Comparison of Means - Tukey HSD, FWER=0.05 (Location for Arrests)

group1	group2	meandiff	p-adj	lower	upper	reject
11	12	0.1194	1	-39.435	39.6739	FALSE
11	13	-6.2751	1	-46.454	33.9039	FALSE
11	14	9.8504	1	-29.377	49.0774	FALSE
11	22	-0.3543	1	-39.909	39.2002	FALSE
11	23	-0.3218	1	-40.501	39.8571	FALSE
11	31	2.6386	1	-36.588	41.8655	FALSE
11	32	0.6914	1	-38.303	39.6853	FALSE
11	33	-7.883	1	-47.786	32.0198	FALSE
11	41	5.6201	1	-33.528	44.7682	FALSE
11	42	-0.787	1	-40.094	38.52	FALSE
11	43	4.804	1	-34.114	43.7225	FALSE
11	51	23.9432	0.7816	-14.828	62.714	FALSE
11	52	2.774	1	-36.22	41.7679	FALSE
11	53	-3.334	1	-43.803	37.135	FALSE
11	54	-3.3813	1	-43.375	36.6121	FALSE
11	55	-2.4557	1	-42.359	37.4471	FALSE
11	XX	214.9821	0	176.494	253.4698	TRUE
12	13	-6.3945	1	-46.044	33.2548	FALSE
12	14	9.731	1	-28.953	48.4153	FALSE
12	22	-0.4737	1	-39.49	38.5426	FALSE
12	23	-0.4412	1	-40.091	39.208	FALSE
12	31	2.5192	1	-36.165	41.2034	FALSE
12	32	0.572	1	-37.876	39.0198	FALSE
12	33	-8.0024	1	-47.372	31.367	FALSE
12	41	5.5007	1	-33.104	44.1049	FALSE
12	42	-0.9064	1	-39.672	37.8589	FALSE
12	43	4.6846	1	-33.687	43.056	FALSE
12	51	23.8239	0.7687	-14.398	62.0454	FALSE
12	52	2.6546	1	-35.793	41.1025	FALSE
12	53	-3.4534	1	-43.397	36.4897	FALSE
12	54	-3.5007	1	-42.962	35.9605	FALSE
12	55	-2.5751	1	-41.945	36.7943	FALSE
12	XX	214.8627	0	176.928	252.7971	TRUE
13	14	16.1255	0.9944	-23.197	55.4481	FALSE
13	22	5.9208	1	-33.729	45.5701	FALSE
13	23	5.9533	1	-34.319	46.2256	FALSE
13	31	8.9137	1	-30.409	48.2362	FALSE
13	32	6.9665	1	-32.124	46.0565	FALSE
13	33	-1.6079	1	-41.605	38.3889	FALSE

13	41	11.8952	0.9999	-27.349	51.1391	FALSE
13	42	5.4881	1	-33.914	44.8904	FALSE
13	43	11.0791	0.9999	-27.936	50.0939	FALSE
13	51	30.2183	0.3698	-8.6492	69.0858	FALSE
13	52	9.0491	1	-30.041	48.1392	FALSE
13	53	2.941	1	-37.621	43.5027	FALSE
13	54	2.8938	1	-37.193	42.9809	FALSE
13	55	3.8194	1	-36.177	43.8161	FALSE
13	XX	221.2572	0	182.672	259.8423	TRUE
14	22	-10.2047	1	-48.889	28.4795	FALSE
14	23	-10.1723	1	-49.495	29.1503	FALSE
14	31	-7.2119	1	-45.561	31.1374	FALSE
14	32	-9.1591	1	-47.27	28.9518	FALSE
14	33	-17.7334	0.9832	-56.774	21.3069	FALSE
14	41	-4.2304	1	-42.499	34.0383	FALSE
14	42	-10.6375	1	-49.069	27.7937	FALSE
14	43	-5.0464	1	-43.08	32.9873	FALSE
14	51	14.0928	0.9982	-23.79	51.9754	FALSE
14	52	-7.0764	1	-45.187	31.0344	FALSE
14	53	-13.1845	0.9996	-52.803	26.4344	FALSE
14	54	-13.2318	0.9995	-52.365	25.9011	FALSE
14	55	-12.3062	0.9998	-51.347	26.7342	FALSE
14	XX	205.1316	0	167.539	242.7244	TRUE
22	23	0.0325	1	-39.617	39.6817	FALSE
22	31	2.9929	1	-35.691	41.6771	FALSE
22	32	1.0457	1	-37.402	39.4935	FALSE
22	33	-7.5287	1	-46.898	31.8407	FALSE
22	41	5.9743	1	-32.63	44.5786	FALSE
22	42	-0.4327	1	-39.198	38.3326	FALSE
22	43	5.1583	1	-33.213	43.5297	FALSE
22	51	24.2975	0.7398	-13.924	62.5191	FALSE
22	52	3.1283	1	-35.32	41.5762	FALSE
22	53	-2.9798	1	-42.923	36.9634	FALSE
22	54	-3.027	1	-42.488	36.4341	FALSE
22	55	-2.1014	1	-41.471	37.2679	FALSE
22	XX	215.3363	0	177.402	253.2708	TRUE
23	31	2.9604	1	-36.362	42.283	FALSE
23	32	1.0132	1	-38.077	40.1033	FALSE
23	33	-7.5612	1	-47.558	32.4356	FALSE
23	41	5.9419	1	-33.302	45.1858	FALSE
23	42	-0.4652	1	-39.868	38.9372	FALSE
23	43	5.1259	1	-33.889	44.1407	FALSE
23	51	24.2651	0.7664	-14.602	63.1326	FALSE

23	52	3.0959	1	-35.994	42.1859	FALSE
23	53	-3.0122	1	-43.574	37.5495	FALSE
23	54	-3.0595	1	-43.147	37.0276	FALSE
23	55	-2.1339	1	-42.131	37.8629	FALSE
23	XX	215.3039	0	176.719	253.8891	TRUE
31	32	-1.9472	1	-40.058	36.1637	FALSE
31	33	-10.5216	1	-49.562	28.5188	FALSE
31	41	2.9815	1	-35.287	41.2501	FALSE
31	42	-3.4256	1	-41.857	35.0055	FALSE
31	43	2.1655	1	-35.868	40.1991	FALSE
31	51	21.3047	0.8857	-16.578	59.1872	FALSE
31	52	0.1355	1	-37.975	38.2463	FALSE
31	53	-5.9726	1	-45.592	33.6463	FALSE
31	54	-6.0199	1	-45.153	33.113	FALSE
31	55	-5.0943	1	-44.135	33.946	FALSE
31	XX	212.3435	0	174.751	249.9363	TRUE
32	33	-8.5744	1	-47.381	30.2317	FALSE
32	41	4.9287	1	-33.101	42.9584	FALSE
32	42	-1.4784	1	-39.672	36.7148	FALSE
32	43	4.1127	1	-33.681	41.9059	FALSE
32	51	23.2519	0.7812	-14.389	60.893	FALSE
32	52	2.0826	1	-35.788	39.9535	FALSE
32	53	-4.0254	1	-43.414	35.3627	FALSE
32	54	-4.0727	1	-42.972	34.8265	FALSE
32	55	-3.1471	1	-41.953	35.659	FALSE
32	XX	214.2907	0	176.941	251.6402	TRUE
33	41	13.5031	0.9993	-25.458	52.4642	FALSE
33	42	7.096	1	-32.025	46.2167	FALSE
33	43	12.687	0.9996	-26.043	51.4174	FALSE
33	51	31.8262	0.2638	-6.7557	70.4082	FALSE
33	52	10.657	1	-28.149	49.4632	FALSE
33	53	4.549	1	-35.739	44.8371	FALSE
33	54	4.5017	1	-35.309	44.312	FALSE
33	55	5.4273	1	-34.292	45.1466	FALSE
33	XX	222.8651	0	184.568	261.1626	TRUE
41	42	-6.4071	1	-44.758	31.9436	FALSE
41	43	-0.816	1	-38.768	37.1363	FALSE
41	51	18.3232	0.968	-19.478	56.1241	FALSE
41	52	-2.846	1	-40.876	35.1837	FALSE
41	53	-8.9541	1	-48.495	30.5867	FALSE
41	54	-9.0014	1	-48.055	30.0525	FALSE
41	55	-8.0758	1	-47.037	30.8853	FALSE
41	XX	209.362	0	171.852	246.8725	TRUE

42	43	5.5911	1	-32.525	43.7073	FALSE
42	51	24.7303	0.7013	-13.235	62.6957	FALSE
42	52	3.5611	1	-34.632	41.7543	FALSE
42	53	-2.547	1	-42.245	37.1511	FALSE
42	54	-2.5943	1	-41.807	36.6188	FALSE
42	55	-1.6687	1	-40.789	37.452	FALSE
42	XX	215.7691	0	178.093	253.4454	TRUE
43	51	19.1392	0.9493	-18.424	56.7022	FALSE
43	52	-2.03	1	-39.823	35.7632	FALSE
43	53	-8.1381	1	-47.452	31.1754	FALSE
43	54	-8.1854	1	-47.009	30.6383	FALSE
43	55	-7.2598	1	-45.99	31.4706	FALSE
43	XX	210.178	0	172.907	247.4488	TRUE
51	52	-21.1692	0.8857	-58.81	16.4719	FALSE
51	53	-27.2773	0.5827	-66.445	11.89	FALSE
51	54	-27.3246	0.5554	-66	11.351	FALSE
51	55	-26.399	0.6156	-64.981	12.183	FALSE
51	XX	191.0388	0	153.922	228.1554	TRUE
52	53	-6.1081	1	-45.496	33.28	FALSE
52	54	-6.1554	1	-45.055	32.7439	FALSE
52	55	-5.2298	1	-44.036	33.5764	FALSE
52	XX	212.208	0	174.859	249.5576	TRUE
53	54	-0.0473	1	-40.425	40.3306	FALSE
53	55	0.8783	1	-39.41	41.1665	FALSE
53	XX	218.3161	0	179.429	257.2032	TRUE
54	55	0.9256	1	-38.885	40.7359	FALSE
54	XX	218.3634	0	179.972	256.7553	TRUE
55	XX	217.4378	0	179.14	255.7353	TRUE

Source: Arrests and Strip Searches (RBDC-ARR-TBL-001)