Visualization of Seattle Crime Data

**Conclusion**

- Be cautious while driving in Seattle, especially!
- Be careful while going out for lunch and dinner dates!
- Visualization using bar graph is easier for comparing the crimes that are taken care of and the ones that are neglected.
- Maps visualization allows the SPD authorities to see which areas have lesser attention or which ones have higher crime rates.

**The Story...**

Implication: Seattle Police Department and authorities would find it useful to analyze data and pass the results on to analysts to reduce the crime rate.

**Hmmm... Let me analyze the data!**

Comparison of data over the past 5 years is easier with graphs.

Property missing and found and property damage are the crimes that are minimal in all months and all years.

April and August did not see any Narcotics complaints in any year from 2010-2015.
The Story...

Exploration: Seattle Police department and authorities would find this useful to analyze data and plan for faster response to incidents to reduce the crime rate!

Dataset used: Seattle Crime Dataset with more than 1 million entries.
Used By: SPD (Seattle Police Department)
Crime Occurrence Range: 2010 - 2015

SPD in Action!
Going further deep...

Who is the user?
• Seattle police department or related authorities

How did we do this?
• Tableau, High Charts, Infogram, MapReduce (to clean & process the data as well as auto generating the site)

The Killer Dashboard!
• Visualization that is effective will catch the attention of the chief and shall give SPD a better insight.
• With such an interactive design, the crimes that are evident can be quickly attended to.
Hmmm... Let me analyze the data!

Comparison of data over the past 5 years is easier with graphs.

Property- missing and found and property damage are the crimes that are minimal in all months and all years.

April and August did not see any Narcotics complaints in any year (from 2010-2015).
Dive down into the depths!

Still, why visualization? Why not just raw data?

Chief can devise strategies to reduce crimes based on the visual representation of data he sees.
Hmmm... Let me analyze the data!

Comparison of data over the past 5 years is easier with graphs.

Property- missing and found and property damage are the crimes that are minimal in all months and all years.

April and August did not see any Narcotics complaints in any year (from 2010-2015).
"Traffic-related calls" and "suspicious circumstances" have been topping up the charts in the list of the city's reported crimes.
Analyze - Record type Vs Number of Crimes

Ranking graph with bar chart

Record Type Vs Number of Crimes - with very little or no processing time!
Traffic related calls are higher

Analyze - Record type Vs Number of Crimes
Ranking graph with bar chart
Record Type Vs Number of Crimes - with very little or no processing time!

Similarly, Suspicious Person, Traffic Violations and Accidents play a major role.
Record Type Vs Number of Crimes - with very little or no processing time!
But wait!! Let's not jump into conclusions!

- This city really cares about Homicides!

- These kind of crimes have quicker process times.

- But the number of reported incidents are less - an irony?

- No such homicide crimes occurring often? Or is it because of the impact it makes on people?

- Homicides gain faster attention than the rest.

- False alarms are the least ones attended to.

- Vessel Recovery at the harbor and Narcotics are the other important crimes with faster attention rate.

Crimes that are high this year
But wait!! Let's not jump into conclusions!

- This city really cares about Homicides!
- These kind of crimes have quicker process times.
- But the number of reported incidents are less - an irony?
- No such homicide crimes occurring often? Or is it because of the impact it makes on people?
Processing Times - Which one is Faster?

- Homicides gain faster attention than the rest.
- False alarms are the least ones attended to.
- Vessel Recovery at the harbor and Narcotics are the other important crimes with faster attention rate.
Comparison of Average processing times and number of records

Traffic violations seem to be the highest occurring crimes

- **95494**
  - Number of Traffic Violation crimes - Red alert!!!

- **24**
  - (Number of) Stay out of prostitution order violation - is a reduced number!

False residential alarms have the lowest processing time

- **224**
  - Average processing time for harbor boat accident is the highest

- **42**
  - Average processing time for false alarms in residential burglary is the lowest
Risky Hours

Be careful when going out at 12 noon and at 8 PM

Safest to go out between 3 to 5 AM!
Crimes that are high this year (2015)...
The same as previous years?!
Let's Help SPD

- Apparently SPD really needs help in finding problems.
- With few simple graphs we find some issues.
- Let's give them a powerful tool for analyzing their data.
UI Design Patterns

Organization

- Dashboard

Settings editor - options to customize the map

Toggle Heatmap  Change gradient  Change radius  Change opacity
UI Design Pattern

Organization

- Multiply workspace
# UI Design Patterns

## Layout
- Visual framework
- Tiled section
- Collapsible panel
- Self-adjusting layout

## Navigation
- Hub & spoke
- Sequential
- Pyramid
UI design Patterns

Action

• Button groups

• Hover tools
UI design Patterns

Choice control

- Slider
- Dropdown list
- Checkbox list
Visualization Design Pattern

Overview plus details
Visualization Design Pattern

Data spotlight
Visualization Design Pattern

Dynamic query
Visualization Design Pattern

Local zooming
Visualization Design Pattern

Sortable data

[Images of bar charts showing event clearance groups and types of incidents]
Visualization Design Pattern

Multi-Y Graph
Visualization Elements

Geo map

Heatmap
Visualization Elements

Bar graphs

Compare number of incidents

Real-time data with history of 6 months for better comparison
Conclusion

- Be cautious while driving, in Seattle, especially!

- Be careful while going out for lunch and dinner dates!

- Visualization using bar graph is easier for comparing the crimes that are taken care of and the ones that are neglected.

- Maps visualization allows the SPD authorities to see which areas have lesser attention or which ones have higher crime rates.
Visualization of Seattle Crime Data

Conclusion

- Be cautious while driving in Seattle, especially.
- Be careful while going out for lunch and dinner dates!
- Visualization using bar graph is easier for comparing the crimes that are taken care of and the ones that are neglected.
- Maps visualization allows the SPD authorities to see which areas have lesser attention or which ones have higher crime rates.

Dive down into the depths!

Still, why visualization? Why not just raw data?

Chief can devise strategies to reduce crimes based on the visual representation of data he sees.

Hmmm... Let me analyze the data!

Comparison of data over the past 8 years is easier with graphs.

Property missing and found and property damage are the crimes that are minimal in all months and all years.

April and August did not see any Narcotics complaints in any year (from 2010-2015).

The Story...

Implications: Seattle Police Department and authorities would find this useful to analyze data and plan for faster response to incidents to reduce the crime factor.

Date: Seattle Crime Rate (with Crime Data) and Crime Rate (by Date) - 2010-2015

Analysis: Seattle Crime Rate and Crime Rate (by Date) - 2010-2015

Note: Seattle Crime Rate (with Crime Data) and Crime Rate (by Date) - 2010-2015

Analysis: Seattle Crime Rate (with Crime Data) and Crime Rate (by Date) - 2010-2015