

Analysis of Public safety data of San Francisco



Introduction

Conclusion

Methodology



Problem Statement

- This project is aimed at performing an analysis of the data in various fields for the past 10 years in the city of San Francisco.
- Our main goal is to mine the underlying hidden patterns, similarities and find the relationships among the data and showcase it to new minds entering SF.

Executive summary



Executive summary

Problem /
Opportunity

New person
migrating to SF.

Solution

Outcome from our
visualizations



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Methodology

It involves three steps

Data
Collection

Data
Processing

Data
Visualization

Data Collection

- Data is collected from US gov official website : DataSF
- This website allows you export the data and also to visualize the data online
- We collected multiple data sets having crime, fire incidents and school information



Incident ID	Date	Time	Day	Month	Year	Report ID	Row ID	Incident Type	CAD ID	Response Time
2021/01/01...	2021/01/30	09:43	Saturday	January	2021	10006970...	1000697	210038063		VS
2021/01/01...	2021/01/29	11:20	Sunday	January	2021	1001180...	1001180	210611027		II
2021/01/01...	2021/01/17	11:59	Sunday	January	2021	10018912...	1001891	210612075		II
2021/02/01...	2021/02/03	05:31	Wednesday	February	2021	10019721...	1001972	210075554	210340313	II



Methodology

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Visualization

Data Cleaning and Pre-processing

- Data set consisted to Null, duplicate and unwanted values
 - Data cleaning was done in Jupyter Notebook

- Dropna()
- Replace()
- fillna()

```
In [11]: df.isna().sum()

Out[11]: Incident Number          0
          Address                 313
          Incident Date           0
          Call Number              0
          Alarm Dtm                0
          Arrival Dtm              47
          Close Dtm                3
          City                     1707
          zipcode                  165
          Battalion                 0
          Station Area              824
          Suppression Units          0
          Suppression Personnel      0
          EMS Units                 0
          EMS Personnel              0
          Other Units                 0
          Other Personnel              0
          First Unit On Scene        257730
          Estimated Property Loss     456216
          Estimated Contents Loss      449273
          Fire Fatalities             0
          Fire Injuries                 0
          Civilian Fatalities            0
          Civilian Injuries               0
          Number of Alarms              9
          Primary Situation             9
          Mutual Aid                   9
          Action Taken Primary          10
          Action Taken Secondary        233537
          Action Taken Other             249540
          Detector Alerted Occupants      242328
          Property Type                 1086
          Area of Fire Origin           553515
          Ignition Cause                 553518
          Ignition Factor Primary        553521
          Ignition Factor Secondary       563355
```

Incident Data						
	Incident Number	Address	Incident Date	Call Number	Alarm ID	DTM
32	8028224	5030 Mission St.	2008-04-01T00:00:00	80920156	2008-04-01T11:41:01	
75	3007720	1978 30th Av.	2003-01-27T00:00:00	30270278	2003-01-27T15:28:38	
78	3007724	1635 Mason St.	2003-01-27T00:00:00	30270283	2003-01-27T15:54:39	
127	3001340	201 Harrison St.	2003-01-04T00:00:00	30040349	2003-01-04T22:55:13	
199	3006228	1831 31st Av.	2003-01-22T00:00:00	30220127	2003-01-22T10:03:04	
...
334730	14012910	5214 MISSION ST	2014-02-07T00:00:00	140380285	2014-02-07T17:24:52	
335322	14016121	1 CHURCH ST	2014-02-16T00:00:00	140470306	2014-02-16T19:28:54	
335401	14015569	2325 PINE ST	2014-02-16T00:00:00	140460072	2014-02-16T06:52:55	

```
335558 14017937 125 2014-02- 140530179 2014-02- 2014-02-
BEMIS ST 22T00:00:00          22T12:40:20 22T12:44:58

178 2014-03- 140740082 2014-03- 2014-03-
337256 14024936 BLUXOME ST 15T00:00:00          15T07:01:04 15T07:03:46

4893 rows x 51 columns
```

```
: df.shape
(587550, 51)

: df = df.fillna(df.mean())                                     # Mean imputation
df

: df.isna().sum()
Incident Number                      0
Address                            313
Incident Date                       0
Call Number                         0
Alarm Dtm                           0
Actual Dtm                          47
Close Dtm                           3
City                                1707
zipcode                            165
Battalion                           0
Station Area                        824
Suppression Units                   0
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EMS Units                           0
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Other Units                          0
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Data
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Data Visualization

- The visualizations are done in Tableau
- We created Three Dashboards For three data sets.

Story behind Crime Data

What does School Data tell?

Fire and traffic news



SF Crime Data

https://public.tableau.com/app/profile/siddharth.magidewar/viz/SanFranciscoCrimeAnalysis_16511263187880/SFCrimeDashboard?publish=yes



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SF school data

<https://public.tableau.com/app/profile/enabothula.jashwanth.kumar/viz/SFSchoolsDashboard/PerformanceAnalysisofSchoolsinSF?publish=yes>



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Story behind Crime Data

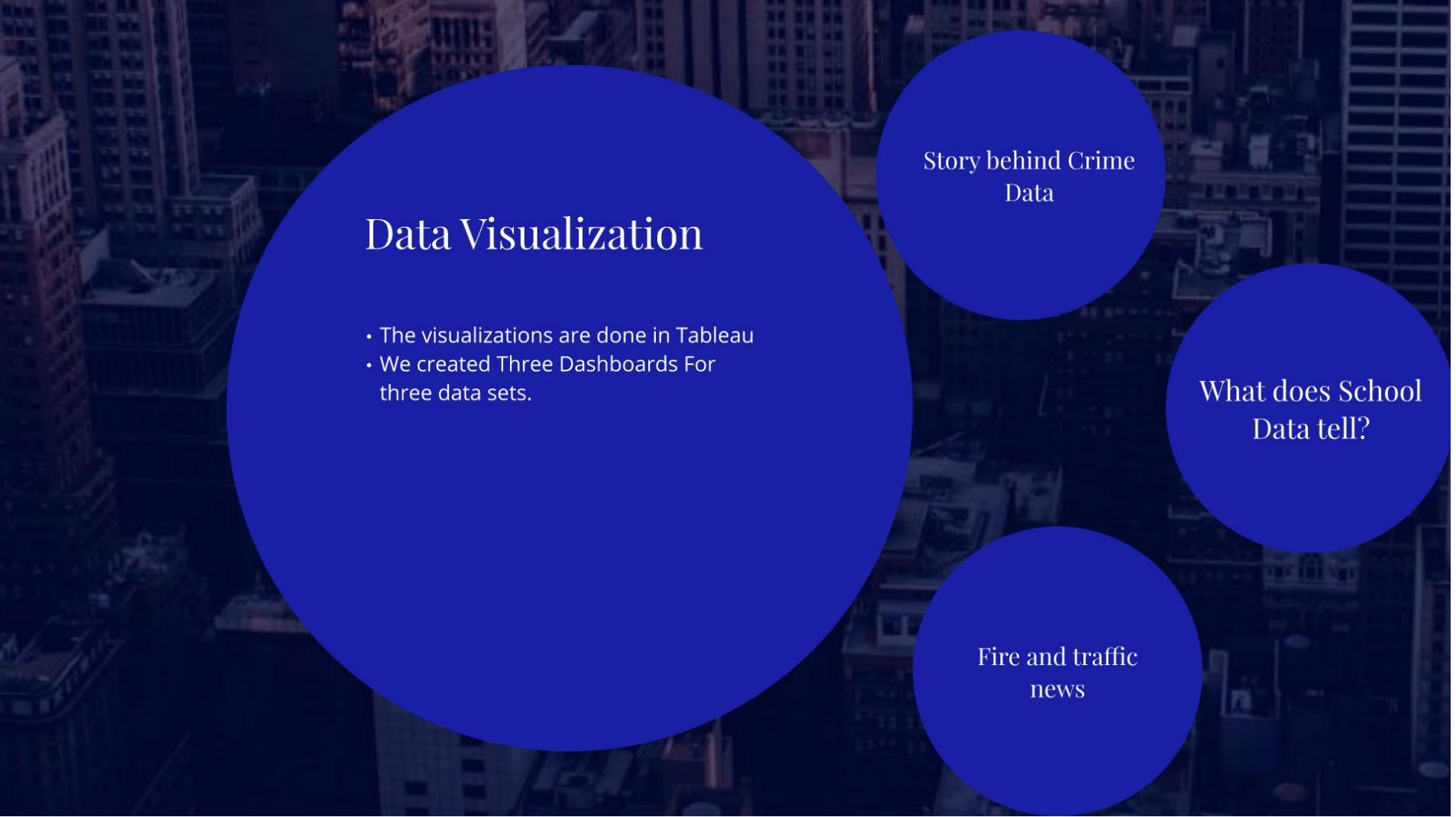
What does School Data tell?

Fire and traffic news



SF Fire and Traffic

<https://public.tableau.com/app/profile/enabothula.jashwanth.kumar/viz/analysisoftrafficandfireaccidentsinSF/VisualAnalysisofTrafficandFireIncidentsinSF?publish=yes>



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Conclusion

- We have used various graphs available in Tableau for analyzing and deriving outcomes.
- As an individual, when migrating we look for safety, education, food and transport.
- We have designed multiple dashboards using multiple data sets which can be used by individual migrating to SF.



Thank you

Queries





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