Vancouver Crime Data Analysis and Visualization

In [2]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

Vancouver Crime Data

In [3]:
```
cd = pd.read_csv('crimedata_csv_AllNeighbourhoods_2023.csv')
cd
```

Out[3]:

	TYPE	YEAR	MONTH	DAY	HOUR	MINUTE	HUNDRED_BLOCK	NEIGHBOURHOOD	X	Y
0	Break and Enter Commercial	2023	4	1	4	7	10XX BEACH AVE	West End	490197.8719	5.458239e+06
1	Break and Enter Commercial	2023	4	3	0	50	10XX BEACH AVE	Central Business District	490249.2307	5.458167e+06
2	Break and Enter Commercial	2023	5	11	18	0	10XX BEACH AVE	Central Business District	490249.2307	5.458167e+06
3	Break and Enter Commercial	2023	8	9	4	31	10XX BEACH AVE	Central Business District	490268.4320	5.458143e+06
4	Break and Enter Commercial	2023	9	2	4	24	10XX BIDWELL ST	West End	489996.5444	5.459475e+06
...	...	...	...	...	...	...	...	...	...	...
26538	Vehicle Collision or Pedestrian Struck (with I...	2023	5	4	16	0	X BLOCK W 49TH AVE	Oakridge	492266.0000	5.452558e+06
26539	Vehicle Collision or Pedestrian Struck (with I...	2023	5	11	16	19	YORK AVE / ARBUTUS ST	Kitsilano	488896.0000	5.457665e+06
26540	Vehicle Collision or Pedestrian Struck (with I...	2023	9	18	8	16	YORK AVE / YEW ST	Kitsilano	488723.0000	5.457670e+06

	TYPE	YEAR	MONTH	DAY	HOUR	MINUTE	HUNDRED_BLOCK	NEIGHBOURHOOD	X	Y
26541	Vehicle Collision or Pedestrian Struck (with I...	2023	6	15	11	35	YUKON ST / W 8TH AVE	Mount Pleasant	491787.0000	5.456800e+06
26542	Vehicle Collision or Pedestrian Struck (with I...	2023	2	22	12	12	YUKON ST / W BROADWAY AVE	Mount Pleasant	491786.0000	5.456719e+06

26543 rows × 10 columns

This data describes all the crimes that were reported to the Vancouver Police Department in 2023. Each row is a crime reported and contains the time, location and type of crime which means that there were 26,543 crimes documented in the above data frame.

Crimes on January 25th 2023

In [4]:
```
j25cd = cd.query('YEAR == 2023 & MONTH == 1 & DAY == 25')
j25cd
```

Out[4]:

	TYPE	YEAR	MONTH	DAY	HOUR	MINUTE	HUNDRED_BLOCK	NEIGHBOURHOOD	X	Y
76	Break and Enter Commercial	2023	1	25	3	45	11XX COMMERCIAL DR	Grandview-Woodland	494945.3438	5.457962e+06
142	Break and Enter Commercial	2023	1	25	3	30	12XX BUTE ST	West End	490291.7177	5.458789e+06
152	Break and Enter Commercial	2023	1	25	4	49	12XX GRANVILLE ST	Central Business District	490711.4545	5.458168e+06
806	Break and Enter Commercial	2023	1	25	10	42	3XX SW MARINE DR	Marpole	491652.5825	5.450915e+06
828	Break and Enter Commercial	2023	1	25	0	15	3XX WATER ST	Central Business District	492018.5925	5.459083e+06
...	...	...	...	...	...	...	...	...	...	...
24727	Theft of Bicycle	2023	1	25	5	0	25XX E 27TH AVE	Renfrew-Collingwood	496059.2338	5.454838e+06
25188	Theft of Bicycle	2023	1	25	22	30	SEYMOUR ST / W CORDOVA ST	Central Business District	491865.6971	5.459181e+06
25632	Theft of Vehicle	2023	1	25	22	0	64XX BUTLER ST	Killarney	497549.2137	5.452528e+06
25681	Theft of Vehicle	2023	1	25	4	39	7XX E 14TH AVE	Mount Pleasant	493510.2494	5.456130e+06
26278	Vehicle Collision or Pedestrian Struck (with l...	2023	1	25	9	19	MAIN ST / E 17TH AVE	Riley Park	492630.0000	5.455884e+06

90 rows × 10 columns

There were 90 crimes reported to the VPD on my birthday on January 25th, 2023. I can tell because I used the filter() function to only view observations if the year equaled 2023, month equaled 1, and day equaled 25. And the resulting data frame returned 90 rows with each row being a reported crime.

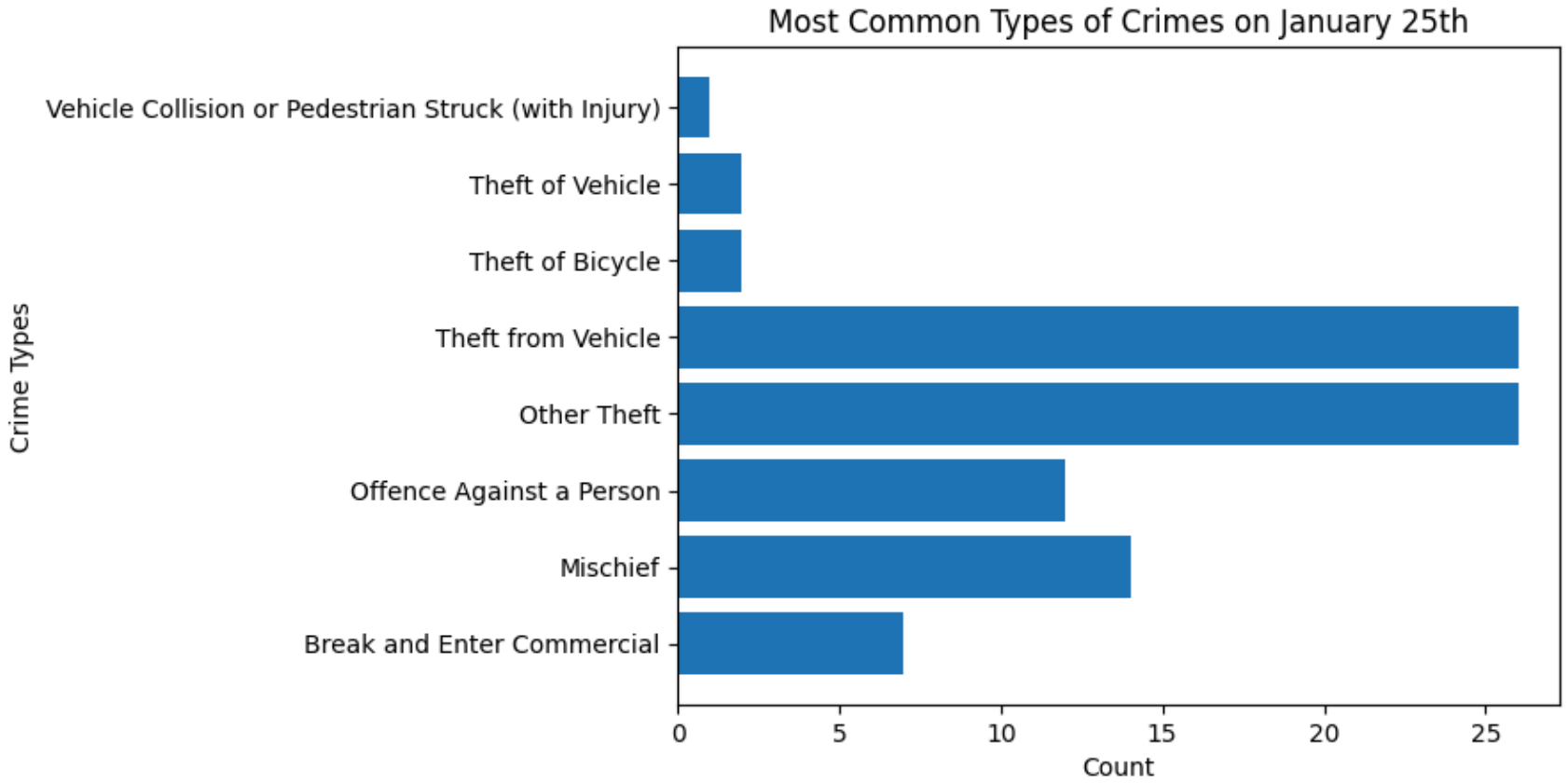
FIGURE:

In [5]:
```
j25cdtypes = j25cd.groupby('TYPE').size().reset_index(name='COUNT')
j25cdtypes
```

Out[5]:

	TYPE	COUNT
0	Break and Enter Commercial	7
1	Mischief	14
2	Offence Against a Person	12
3	Other Theft	26
4	Theft from Vehicle	26
5	Theft of Bicycle	2
6	Theft of Vehicle	2
7	Vehicle Collision or Pedestrian Struck (with I...	1

In [6]:
```
fig, ax = plt.subplots()
ax.barh(j25cdtypes['TYPE'], j25cdtypes['COUNT'])
ax.set_title('Most Common Types of Crimes on January 25th')
ax.set_xlabel('Count')
ax.set_ylabel('Crime Types')
plt.show()
```



The most common crime reported on my birthday was "Theft from Vehicle" and "Other Theft". The least common was "Vehicle Collision or Pedestrian Struck (with injury)". Theft could be most common due to it being comparatively low risk without much punishment if caught and low probability of being caught. And vehicle collision being the least common could be because people are generally good drivers.