

```
In [3]: import pandas as pd

toronto_DF = pd.read_csv('toronto_DF.csv', index_col = 0)
toronto_DF
```

Out[3]:

	Borough	Postalcode	Neighbourhood	Latitude	Longitude
0	Central Toronto	M4N	Lawrence Park	43.728020	-79.388790
1	Central Toronto	M4P	Davisville North	43.712751	-79.390197
2	Central Toronto	M4R	North Toronto West	43.715383	-79.405678
3	Central Toronto	M4S	Davisville	43.704324	-79.388790
4	Central Toronto	M4T	Moore Park, Summerhill East	43.689574	-79.383160
...	...	...	...	...	...
98	York	M6C	Humewood-Cedarvale	43.693781	-79.428191
99	York	M6E	Caledonia-Fairbanks	43.689026	-79.453512
100	York	M6M	Del Ray, Mount Dennis, Keelsdale and Silverthorn	43.691116	-79.476013
101	York	M6N	Runnymede, The Junction North	43.673185	-79.487262
102	York	M9N	Weston	43.706876	-79.518188

103 rows × 5 columns

```
In [5]: df = pd.read_csv('data.csv', index_col = 0)
df
```

Out[5]:

	postal_code	count_children	rate_children	median_income	count_employed	un
0	M4N	4765.0	31.5	54400.0	6820.0	
1	M4P	4505.0	18.1	42400.0	14115.0	
2	M4R	3365.0	28.3	49600.0	6190.0	
3	M4S	6360.0	21.1	47600.0	17140.0	
4	M4T	2370.0	23.3	56400.0	4935.0	
5	M4V	3635.0	19.2	52800.0	10320.0	
6	M5N	5350.0	33.6	44400.0	7705.0	
7	M5P	4715.0	24.0	48800.0	10280.0	
8	M5R	3865.0	15.6	46400.0	13835.0	



```
In [14]: toronto_venues = pd.read_csv('toronto_venues.csv', index_col=0)
toronto_venues
```

Out[14]:

	Neighbourhood	Postalcode	Neighbourhood Latitude	Neighbourhood Longitude	Venue	
0	Lawrence Park	M4N	43.728020	-79.388790	Mastermind Toys	4
1	Lawrence Park	M4N	43.728020	-79.388790	401 Games	
2	Lawrence Park	M4N	43.728020	-79.388790	Toys Toys Toys	4
3	Lawrence Park	M4N	43.728020	-79.388790	Game Trek Inc	4
5	Lawrence Park	M4N	43.728020	-79.388790	Mind Games	5
...	...	...	...	...	...	...
755	Caledonia-Fairbanks	M6E	43.689026	-79.453512	Playful Minds	4
756	Runnymede, The Junction North	M6N	43.673185	-79.487262	Little Lola	4
757	Runnymede, The Junction North	M6N	43.673185	-79.487262	GameStop	
758	Weston	M9N	43.706876	-79.518188	Syndrome Gaming	1
759	Weston	M9N	43.706876	-79.518188	Toys & Gifts	5

685 rows × 9 columns



```
In [18]: df_competitors = toronto_venues.groupby('Postalcode')['Venue'].count()
df = df.merge(df_competitors, 'left', left_on='postal_code', right_on='Postalcode')
df
```

Out[18]:

	postal_code	count_children	rate_children	median_income	count_employed	un
0	M4N	4765.0	31.5	54400.0	6820.0	
1	M4P	4505.0	18.1	42400.0	14115.0	
2	M4R	3365.0	28.3	49600.0	6190.0	
3	M4S	6360.0	21.1	47600.0	17140.0	
4	M4T	2370.0	23.3	56400.0	4935.0	
5	M4V	3635.0	19.2	52800.0	10320.0	
6	M5N	5350.0	33.6	44400.0	7705.0	
7	M5P	4715.0	24.0	48800.0	10280.0	
8	M5R	3865.0	15.6	46400.0	13835.0	



```
In [26]: import matplotlib.pyplot as plt

subtitles = ['The Number of Children', 'The Rate of Children', 'The Median Income',
             'The Number of Employed Individuals', 'The Unemployment Rate',
             'The Number of Competitors']

top_n = 2

plt.figure(figsize=(8, 10))

for i, column in enumerate(df.columns[1:]):
    plt.subplot(3, 2, i + 1)
    data_to_draw = df[column]

    if i < 4:
        top3 = data_to_draw.nlargest(top_n).index
    else:
        top3 = data_to_draw.nsmallest(top_n).index

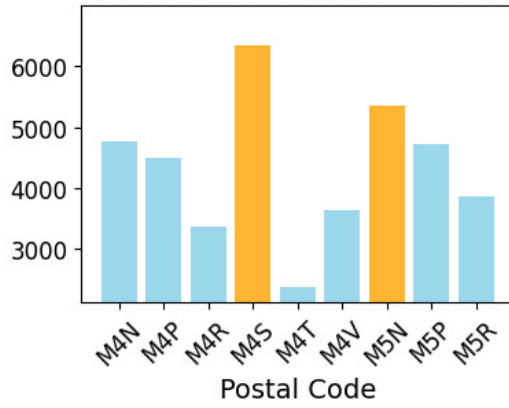
    colors = ['skyblue'] * len(data_to_draw)
    for idx in top3:
        colors[idx] = 'orange'

    plt.bar(df["postal_code"], df[column], color=colors, alpha=0.8)

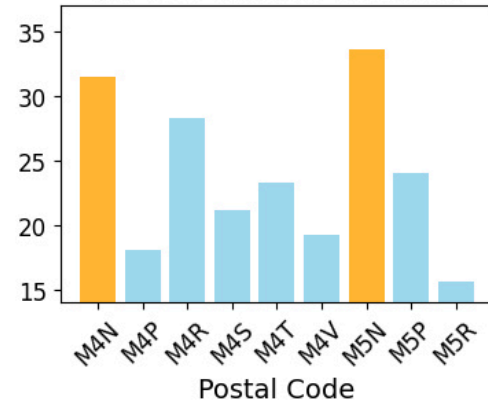
    plt.title('(' + chr(ord('a') + i) + ') ' + subtitles[i], fontsize = 16)
    plt.xlabel("Postal Code", fontsize = 14)
    # plt.ylabel(subtitles[i], fontsize = 14)
    plt.ylim(min(data_to_draw) * 0.9, max(data_to_draw) * 1.1)
    plt.xticks(rotation=45, fontsize = 12)
    plt.yticks(fontsize = 12)

plt.tight_layout()
plt.show()
```

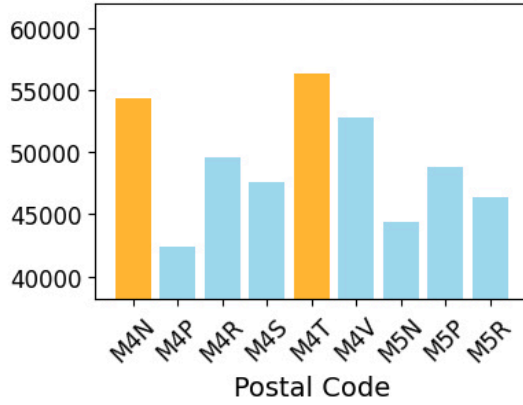
(a) The Number of Children



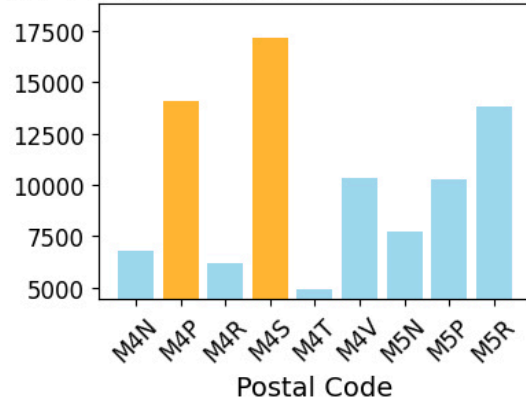
(b) The Rate of Children



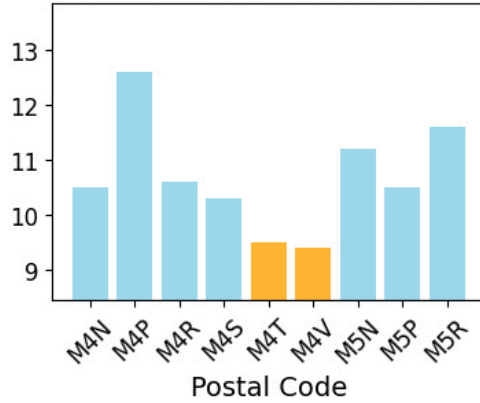
(c) The Median Income



(d) The Number of Employed Individuals



(e) The Unemployment Rate



(f) The Number of Competitors

