Data science report

The best neighborhoods in Toronto for a middle class family with underage children.

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Abstract

Toronto is the city in Canada that receives more immigrants daily from all over the world since it is the economic epicentre of the country and is a very pleasant city to live in. With this in mind, this research is intended to provide a list of recommended neighbourhoods for a middle-class immigrant family with children to settle in the city permanently. To do this, we will explore the services offered by each neighborhood, the security of the neighborhood, and the price of the homes through the use of open data and geolocation services.

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1. Introduction

Toronto, a city in southeast Canada, capital of the province of Ontario, located in the southern part of the province, on the shores of Lake Ontario and at the mouth of the Humber and Don rivers.
The city is the economic, commercial, industrial and cultural centre of the country and the largest metropolitan area in Canada. Toronto is the largest city in Ontario and the second most populous in Canada. Today, it is a cosmopolitan city that is home to many different cultures and ethnicities. [1]

According to immigration data in Canada, for 2010, Ontario received 41% of all immigrants to that country from countries such as the Philippines, India, China, United Kingdom, among others, being this the province with the largest number of immigrants in the country. [2]

The causes of migration can be various: the search for a better quality of life and work opportunities, or simply a labour obligation.

Given the high level of immigration, this research aims to help families with children who arrive in Toronto to be able to locate themselves permanently with ease in the neighbourhoods that best suit their needs and where the price of the houses is acceptable to their socio-economic status.

2. Data

In order to solve the problem posed, the following data will be taken into account in the investigation:

Open data:

- We will extract the neighborhoods in Toronto from the Wikipedia table provided in the article: List of city-designated neighbourhoods in Toronto.[3]
- We will examine crime in Toronto in the period 2014-2019 based on official reports from the city police in order to place the family in a safe and healthy environment.[4]
- We will look at the average value of absorbed and unabsorbed housing in each neighbourhood in Toronto so that families can more easily find housing according to their socio-economic status, thanks to the data provided by CMHC. [5]
- We will review the number of schools near each neighbourhood using data provided by the City of Toronto to ensure that children have access to different educational opportunities. [6]

Foursquare:

We will examine if the necessary services exist for each neighborhood for the family as:

- Health:
    - Hospitals.
    - Doctor's offices.

- Transportation:
    - Metro stations.
    - Streetcar stations.

- Food and shopping:
    - Malls.

- Recreation and sport:
    - Parks.
    - Playgrounds.

3. Methodology

1. Selection and data collection

1. We will extract the list of neighborhoods from the Wikipedia article mentioned in the "Data" section and only keep the "ID", "Neighborhoods" and "Municipality" columns. This will be our basis for building the main table.
2. For crime data, since each row means a crime report, we will count how many times the names of the neighborhoods are repeated and sort that list by the neighborhood ID.
3. Although the CMHC site presents the average value of homes per neighborhood annually, they are not always able to collect information from all neighborhoods. Therefore, we will combine the data presented in the period 2014-2019 and save that information in a CSV document in the cloud.
4. We will find out the geographic location of each neighborhood as follows:
    - We'll use the GeoPy library to find the geographic location of each neighborhood and store those values in the "Latitude" and "Longitude" columns.
    - Since the GeoPy service has not found the geographic location of a few neighborhoods, we will use the geographic information provided by the crime data table, since we have a record of the location of each crime by neighborhood. To improve geographic accuracy, we will find the average between the coordinates for each neighborhood and add that information to the remaining spaces in the main table.
5. We will now locate the sites that provide the services of interest mentioned in the "Data" section:
    - Using the Geodesic function of GeoPy we will find out how many schools there are per neighbourhood within a radius of 1200m by comparing the geographical coordinates of the neighbourhoods and the schools which are registered in their respective table. The information obtained will be stored in a CSV file in the cloud.
    - Using the FourSquare API we will perform the following searches and save the results in an Excel book in the cloud:
        - The existence of a hospital within a radius of 2500m.
        - The existence of doctor´s offices within a radius of 700m (3 is a very acceptable number).
        - The existence of metro and streetcar stations within a radius of 600 (5 is a very acceptable number).
        - The existence of a mall within a radius of 1000m.
        - The existence of parks and playgrounds within a radius of 400m (2 is a very acceptable number).

2. Data processing and transformation

Once we have obtained the necessary information, we must put together the data collected in a single table to facilitate our work.

2.1 Formatting the data

The presentation of the table of household prices is not in the same format as the rest of the information, since in the column containing the names of the neighbourhoods, some cells group together more than one name. To correct this, the grouped neighbourhoods were separated into separate cells.

Reviewing the table that provides information about the schools in Toronto, some elements of the "Municipality" column referred to the municipality of "Old city of Toronto" with the text "former of Toronto", so that text string was replaced with the actual name of the mentioned municipality.

Now that all the tables share a similar format in the column of the districts, an OUTER JOIN operation is performed, that is, we insert the values of the districts that share the tables with the main table. Then we combine the columns for metro and tram stations, as well as parks and playgrounds.
Finally, we eliminated the remaining columns, reorganized the table and changed the values from type "float" to type "int".

2.2 Dealing with missing data

After the previous operation, we realize that we have missing data spaces for the column of house prices. Since that data is very important information within our investigation, we cannot afford to simply ignore those rows, so we completed those fields by predicting through a simple linear regression, the possible price of the houses based on a variable that has a potential correlation, and in this case, the independent variable chosen was the number of crimes per neighborhood.

2.3 Data storage and mining

It is pertinent to remember that the data obtained from FourSquare was stored in an Excel book in the cloud so as not to depend on the maximum number of queries that can be made daily. Similarly, the data obtained from the distance between the neighbourhood and the schools was stored in a CSV file in the cloud.

Once the previous steps have been completed, we now have an organized, descriptive and readable table.

	ID	Neighbourhood	House prices	Total major crimes	Latitude	Longitude	Municipality	Schools	Hospitals	Doctor's office	Metro/Streetcar stations	Malls	Parks
0	1	West Humber-Clairville	685365.0	5702	43.721487	-79.597169	Etobicoke	2	1	3	0	1	0
1	2	Mount Olive-Silverstone-Jamestown	1523838.0	2591	43.745418	-79.587672	Etobicoke	13	1	1	0	1	1
2	3	Thistletown-Beaumond Heights	2035655.0	692	43.738422	-79.566848	Etobicoke	5	1	1	0	1	0
3	4	Rexdale-Kipling	2003851.0	810	43.722114	-79.572292	Etobicoke	7	1	1	0	1	0
4	5	Elms-Old Rexdale	2062337.0	593	43.720345	-79.557102	Etobicoke	13	0	0	0	1	0
5	6	Kingsview Village-The Westway	1883915.0	1255	43.696826	-79.551188	Etobicoke	10	0	3	0	1	0
6	7	Willowridge-Martingrove-Richview	1884724.0	1252	43.682717	-79.556812	Etobicoke	11	0	3	0	1	0
7	8	Humber Heights-Westmount	2084976.0	509	43.688470	-79.506390	Etobicoke	2	1	0	0	0	1
8	9	Edenbridge-Humber Valley	2622444.0	634	43.672223	-79.514685	Etobicoke	2	1	0	0	1	3
9	10	Princess-Rosethorn	1395455.0	563	43.668996	-79.546663	Etobicoke	5	1	0	0	0	0
10	11	Eringate-Centennial-West Deane	2010050.0	787	43.656810	-79.577366	Etobicoke	9	0	0	0	1	0
11	12	Markland Wood	2110850.0	413	43.631239	-79.585434	Etobicoke	3	1	1	0	1	0
12	13	Etobicoke West Mall	1950000.0	515	43.643549	-79.565325	Etobicoke	9	1	2	0	1	3
13	14	Islington-City Centre West	1336253.0	3287	43.648795	-79.549000	Etobicoke	6	1	0	0	1	1
14	15	Kingsway South	2475000.0	496	43.647381	-79.511333	Etobicoke	5	1	2	2	1	0
15	16	Stonegate-Queensway	1795000.0	1148	43.621950	-79.523499	Etobicoke	1	1	1	0	1	2
16	17	Mimico	1546111.0	2568	43.616677	-79.496805	Etobicoke	12	1	2	0	0	3
17	18	New Toronto	1278000.0	996	43.600763	-79.505264	Etobicoke	6	1	1	0	0	4
18	19	Long Branch	1173000.0	725	43.592005	-79.545365	Etobicoke	2	1	1	0	1	4
19	20	Alderwood	1706333.0	545	43.601717	-79.545232	Etobicoke	3	1	2	0	1	4
20	21	Humber Summit	1772065.0	1670	43.760078	-79.571760	North York	3	1	0	0	1	2
21	22	Humbermede	1812223.0	1521	43.745944	-79.543388	North York	7	0	1	0	0	2
22	23	Pelmo Park-Humberlea	1972048.0	928	43.712195	-79.517556	North York	3	1	2	0	1	1
23	24	Black Creek	1275000.0	2069	45.180927	-75.332902	North York	0	0	0	0	0	0
24	25	Glenfield-Jane Heights	1473977.0	2776	43.757253	-79.517697	North York	11	0	2	0	1	0
25	26	Downsview-Roding-CFB	1151094.0	3974	43.727850	-79.498252	North York	7	1	1	0	0	0
26	27	York University Heights	1147051.0	3989	43.758781	-79.519434	North York	12	0	2	0	1	0
27	28	Rustic	2058564.0	607	43.713366	-79.504504	North York	9	1	1	0	1	0
28	29	Maple Leaf	1917400.0	410	43.712277	-79.490198	North York	9	1	2	0	1	1
29	30	Brookhaven-Amesbury	1912500.0	1162	43.700988	-79.488396	North York	9	1	3	0	0	0
30	31	Yorkdale-Glen Park	1966000.0	1998	43.710434	-79.453340	North York	8	1	2	0	1	1
31	32	Englemount-Lawrence	2245000.0	1248	43.714242	-79.437072	North York	21	1	2	1	1	2
32	33	Clanton Park	2225000.0	1117	43.743176	-79.451726	North York	7	1	3	0	1	3
33	34	Bathurst Manor	2026221.0	727	43.763893	-79.456367	North York	8	1	0	0	0	3
34	35	Westminster-Branson	1893888.0	1218	43.781040	-79.449163	North York	9	1	1	0	1	1
35	36	Newtonbrook West	2373500.0	1693	43.793886	-79.425679	North York	14	1	2	0	1	0
36	37	Willowdale West	2373500.0	1035	43.761510	-79.410923	North York	27	1	3	2	1	1
37	38	Lansing-Westgate	2534000.0	929	43.758950	-79.422556	North York	15	1	3	0	1	1
38	39	Bedford Park-Nortown	2534211.0	1240	43.729362	-79.422124	North York	15	1	1	0	0	3
39	40	St. Andrew-Windfields	3574167.0	987	43.755109	-79.382166	North York	8	1	3	0	1	0
40	41	Bridle Path-Sunnybrook-York Mills	2071231.0	560	43.731373	-79.384281	North York	4	1	0	0	0	0
41	42	Banbury-Don Mills	2111632.0	1205	43.734804	-79.357243	North York	7	1	0	0	1	3
42	43	Victoria Village	1910059.0	1158	43.732658	-79.311189	North York	7	1	3	0	1	1
43	44	Flemingdon Park	1908711.0	1163	43.718432	-79.333204	North York	6	1	3	0	1	3
44	45	Parkwoods-Donalda	1749965.0	1752	43.756496	-79.328377	North York	14	1	1	0	1	1
45	46	Pleasant View	2068536.0	570	43.787048	-79.333714	North York	11	1	0	0	1	1
46	47	Don Valley Village	1819231.0	1495	43.792673	-79.354722	North York	10	0	1	0	1	4
47	48	Hillcrest Village	2087143.0	810	43.799664	-79.365019	North York	9	0	1	0	1	0
48	49	Bayview Woods-Steeles	2087143.0	539	43.798127	-79.382973	North York	8	1	1	0	1	0
49	50	Newtonbrook East	2407167.0	853	43.793886	-79.425679	North York	14	1	2	0	1	0
50	51	Willowdale East	2407167.0	1904	43.761510	-79.410923	North York	27	1	3	2	1	1
51	52	Bayview Village	2324447.0	927	43.769197	-79.376662	North York	8	1	3	1	1	1

52	53	Henry Farm	2010050.0	787	43.769509	-79.354296	North York	12	1	3	0	0	1
53	54	O'Connor-Parkview	1839445.0	1420	43.707842	-79.311074	East York	7	1	3	0	0	1
54	55	Thorncliffe Park	1978786.0	903	43.704553	-79.345407	East York	5	1	2	0	1	1
55	56	Leaside-Bennington	2065302.0	582	43.706588	-79.368463	East York	8	1	2	0	1	3
56	57	Broadview North	2062337.0	593	43.683924	-79.356964	East York	4	1	3	1	1	2
57	58	Old East York	2093062.0	479	43.699971	-79.332520	East York	9	1	0	0	1	3
58	59	Danforth - East York	2042662.0	666	43.686433	-79.300355	East York	3	1	3	1	1	3
59	60	Woodbine-Lumsden	2120553.0	377	43.694349	-79.312804	East York	7	1	1	0	0	3
60	61	Crescent Town	1913023.0	1147	43.695403	-79.293099	East York	4	1	3	1	1	2
61	62	East End-Danforth	1711423.0	1895	43.668440	-79.330670	Old City of Toronto	16	1	1	1	1	3
62	63	The Beaches	1852000.0	1116	43.671024	-79.296712	Old City of Toronto	11	1	2	0	1	6
63	64	Woodbine Corridor	1295000.0	877	43.677091	-79.315792	Old City of Toronto	13	1	2	1	0	3
64	65	Greenwood-Coxwell	1295000.0	1155	43.672558	-79.324289	Old City of Toronto	17	1	2	1	0	2
65	66	Danforth	1995496.0	841	43.686433	-79.300355	Old City of Toronto	10	1	3	1	1	3
66	67	Playter Estates-Danforth	1649500.0	707	43.678728	-79.353711	Old City of Toronto	13	1	3	2	1	3
67	68	North Riverdale	1982829.0	888	39.795937	-84.182260	Old City of Toronto	0	1	1	0	0	0
68	69	Blake-Jones	2039158.0	679	43.677185	-79.338409	Old City of Toronto	17	1	3	1	1	2
69	70	South Riverdale	1487453.0	2726	43.665470	-79.352594	Old City of Toronto	14	1	3	0	1	5
70	71	Cabbagetown-South St. James Town	1892540.0	1223	43.664087	-79.370715	Old City of Toronto	24	1	3	0	1	5
71	72	Regent Park	1938628.0	1052	43.660706	-79.360457	Old City of Toronto	16	1	3	4	0	4
72	73	Moss Park	932245.0	4786	43.654644	-79.369728	Old City of Toronto	20	1	3	1	1	1
73	74	North St. James Town	1758320.0	1721	43.669403	-79.372704	Old City of Toronto	22	1	3	3	1	5
74	75	Church-Yonge Corridor	542520.0	6232	43.662693	-79.386875	Old City of Toronto	26	1	3	5	1	3
75	76	Bay Street Corridor	384852.0	6817	43.664457	-79.387189	Old City of Toronto	26	1	3	7	1	4
76	77	Waterfront Communities-The Island	134199.0	7747	43.645157	-79.387852	Old City of Toronto	12	1	3	3	1	4
78	79	University	1830012.0	1455	48.437712	-89.228022	Old City of Toronto	0	1	2	0	1	3
79	80	Palmerston-Little Italy	1938358.0	1053	43.655527	-79.409985	Old City of Toronto	27	1	3	0	1	1
80	81	Trinity-Bellwoods	1798478.0	1572	43.647565	-79.413881	Old City of Toronto	15	1	3	0	1	5
81	82	Niagara	1557798.0	2465	43.063189	-79.309809	Old City of Toronto	0	0	0	0	0	0
82	83	Dufferin Grove	1939436.0	1049	43.653632	-79.426439	Old City of Toronto	26	1	3	0	1	1
83	84	Little Portugal	1948600.0	1015	43.647413	-79.431116	Old City of Toronto	19	1	3	0	1	2
84	85	Parkdale	1650512.0	2121	43.640495	-79.436897	Old City of Toronto	13	1	3	0	0	6
85	86	Roncesvalles	1915449.0	1138	43.651443	-79.451038	Old City of Toronto	17	1	3	1	1	5
86	87	High Park-Swansea	1889845.0	1233	43.646520	-79.472740	Old City of Toronto	8	1	3	1	0	1
87	88	High Park North	1933776.0	1070	43.657383	-79.470961	Old City of Toronto	14	1	3	2	0	1
88	89	Runnymede-Bloor West Village	2067727.0	573	43.651703	-79.475998	Old City of Toronto	13	1	3	2	0	4
89	90	Junction Area	1920570.0	1119	43.665478	-79.470352	Old City of Toronto	14	0	1	0	1	6
90	91	Weston-Pellam Park	1990914.0	858	43.672641	-79.459155	Old City of Toronto	8	1	1	0	1	3
91	92	Corso Italia-Davenport	1974743.0	918	43.677954	-79.443083	Old City of Toronto	10	1	3	0	0	0

92	93	Dovercourt-Wallace Emerson-Junction	1510901.0	2639	43.664561	-79.438922	Old City of Toronto	13	1	3	5	1	4
93	94	Wychwood	2006277.0	801	43.682094	-79.423855	Old City of Toronto	7	1	3	0	0	2
94	95	Annex	1435975.0	2917	43.670338	-79.407117	Old City of Toronto	21	1	2	5	0	6
95	96	Casa Loma	2092793.0	480	43.678101	-79.409416	Old City of Toronto	14	1	2	1	0	3
96	97	Yonge-St.Clair	2111120.0	412	43.688210	-79.394004	Old City of Toronto	10	1	3	1	1	3
97	98	Rosedale-Moore Park	1878256.0	1276	43.690388	-79.383297	Old City of Toronto	10	1	3	0	1	3
98	99	Mount Pleasant East	1927200.0	509	43.708417	-79.390135	Old City of Toronto	29	1	3	1	1	2
99	100	Yonge and Eglinton	2000348.0	823	43.706748	-79.398327	Old City of Toronto	30	1	3	3	1	0
100	101	Forest Hill South	2833750.0	494	43.693559	-79.413902	Old City of Toronto	7	1	0	0	1	2
101	102	Forest Hill North	1199000.0	565	43.693559	-79.413902	Old City of Toronto	7	1	0	0	1	2
102	103	Lawrence Park South	2053173.0	627	44.244637	-76.617657	Old City of Toronto	0	0	0	0	0	0
103	104	Mount Pleasant West	1873674.0	1293	43.675077	-79.822594	Old City of Toronto	0	1	0	0	1	1
104	105	Lawrence Park North	2098750.0	513	44.244637	-76.617657	Old City of Toronto	0	0	0	0	0	0
105	106	Humewood-Cedarvale	2048322.0	645	43.690499	-79.426139	York	12	1	3	0	0	2
106	107	Oakwood Village	1882298.0	1261	43.682725	-79.438055	York	7	1	3	0	0	1
107	108	Briar Hill-Belgravia	1971509.0	930	43.698867	-79.448731	York	10	1	1	0	1	3
108	109	Caledonia-Fairbank	2039428.0	678	43.686753	-79.459575	York	9	1	2	0	1	1
109	110	Keelesdale-Eglinton West	2010589.0	785	43.690158	-79.474998	York	9	1	1	1	1	0
110	111	Rockcliffe-Smythe	1802251.0	1558	43.675281	-79.489588	York	13	1	3	0	0	3
111	112	Beechborough-Greenbrook	2059103.0	605	43.693035	-79.476548	York	5	1	1	1	1	1
112	113	Weston	1698756.0	1942	43.700161	-79.516247	York	8	1	3	0	0	3
113	114	Lambton Baby Point	2127021.0	353	43.659599	-79.495892	York	8	1	0	0	0	3
114	115	Mount Dennis	1965310.0	953	43.686960	-79.489551	York	10	1	1	0	0	2
115	116	Steeles	2004929.0	806	43.816178	-79.314538	Scarborough	8	1	3	0	1	1
116	117	L'Amoreaux	1719239.0	1866	43.799003	-79.305967	Scarborough	13	1	3	0	1	1
117	118	Tam O'Shanter-Sullivan	1852651.0	1371	43.780344	-79.301964	Scarborough	13	1	3	0	1	2
118	119	Wexford-Maryvale	1816667.0	2419	43.747396	-79.300222	Scarborough	9	1	1	0	1	0
119	120	Clairlea-Birchmount	1353000.0	2711	43.714985	-79.281214	Scarborough	6	1	1	1	0	3
120	121	Oakridge	1449000.0	1660	43.697174	-79.274823	Scarborough	7	1	2	0	0	2
121	122	Birchcliffe-Cliffside	1399063.0	1730	43.697526	-79.261797	Scarborough	5	1	0	0	0	1
122	123	Cliffcrest	1582308.0	1217	43.721939	-79.236232	Scarborough	7	1	1	0	0	0
123	124	Kennedy Park	1299250.0	2043	43.724878	-79.253969	Scarborough	9	1	0	0	1	0
124	125	Ionview	1990645.0	859	43.735990	-79.276515	Scarborough	9	1	1	1	1	1
125	126	Dorset Park	1400000.0	2109	43.752847	-79.282067	Scarborough	7	1	1	0	1	0
126	127	Bendale	1534350.0	2552	43.753520	-79.255336	Scarborough	11	1	3	0	1	0
127	128	Agincourt South-Malvern West	1777456.0	1650	43.803396	-79.257563	Scarborough	6	0	0	0	1	0
128	129	Agincourt North	1910328.0	1157	43.808038	-79.266439	Scarborough	11	0	2	0	1	1
129	130	Milliken	1737297.0	1799	43.823705	-79.307073	Scarborough	5	1	3	0	1	0
130	131	Rouge	1059714.0	2042	43.804930	-79.165837	Scarborough	5	0	0	0	1	1
131	132	Malvern	1514944.0	2624	43.809196	-79.221701	Scarborough	13	1	3	0	1	1
132	133	Centennial Scarborough	2085246.0	508	43.787491	-79.150768	Scarborough	5	1	0	0	0	1
133	134	Highland Creek	2029186.0	716	43.790117	-79.173334	Scarborough	6	1	0	0	0	0
134	135	Morningside	1886611.0	1245	43.782601	-79.204958	Scarborough	7	1	1	0	0	0
135	136	West Hill	1279654.0	3497	43.768914	-79.187291	Scarborough	8	1	3	0	1	2
136	137	Woburn	1198529.0	3798	43.759824	-79.225291	Scarborough	9	1	3	0	1	0
137	138	Eglinton East	1719509.0	1865	43.739465	-79.232100	Scarborough	10	1	1	0	0	0
138	139	Scarborough Village	1810337.0	1528	43.743742	-79.211632	Scarborough	6	1	3	0	1	0
139	140	Guildwood	2111389.0	411	43.755225	-79.198229	Scarborough	10	1	0	0	1	0

Now is the time to look for the best neighborhoods for the family based on their needs and their socioeconomic status. Our priority factors are the search for a neighborhood with a healthy environment, i.e. with below-average crime and housing prices that are equal to or lower than the city average.

4. Results

Taking into account that the potential neighborhoods to be suggested must have a crime rate below the average and the value of the houses must be equal or lower than the average in order to be affordable according to the family's socioeconomic status, we obtained the following list of the 10 neighborhoods that meet these requirements.

	ID	Neighbourhood	House prices	Total major crimes	Latitude	Longitude	Municipality	Schools	Hospitals	Doctor's office	Metro/Streetcar stations	Malls	Parks
0	10	Princess-Rosethorn	1395455.0	563	43.668996	-79.546663	Etobicoke	5	1	0	0	0	0
1	16	Stonegate-Queensway	1795000.0	1148	43.621950	-79.523499	Etobicoke	1	1	1	0	1	2
2	18	New Toronto	1278000.0	996	43.600763	-79.505264	Etobicoke	6	1	1	0	0	4
3	19	Long Branch	1173000.0	725	43.592005	-79.545365	Etobicoke	2	1	1	0	1	4
4	20	Alderwood	1706333.0	545	43.601717	-79.545232	Etobicoke	3	1	2	0	1	4
5	64	Woodbine Corridor	1295000.0	877	43.677091	-79.315792	Old City of Toronto	13	1	2	1	0	3
6	65	Greenwood-Coxwell	1295000.0	1155	43.672558	-79.324289	Old City of Toronto	17	1	2	1	0	2
7	67	Playter Estates-Danforth	1649500.0	707	43.678728	-79.353711	Old City of Toronto	13	1	3	2	1	3
8	102	Forest Hill North	1199000.0	565	43.693559	-79.413902	Old City of Toronto	7	1	0	0	1	2
9	123	Cliffcrest	1582308.0	1217	43.721939	-79.236232	Scarborough	7	1	1	0	0	0

From these data, we can infer that the municipalities of "Old City of Toronto" and "Etobicoke" are good places to live because they have safe neighbourhoods and affordable housing. Let's explore the neighbourhoods and the distribution of the services that each one offers.

Map marker conventions.

Schools

Hospitals

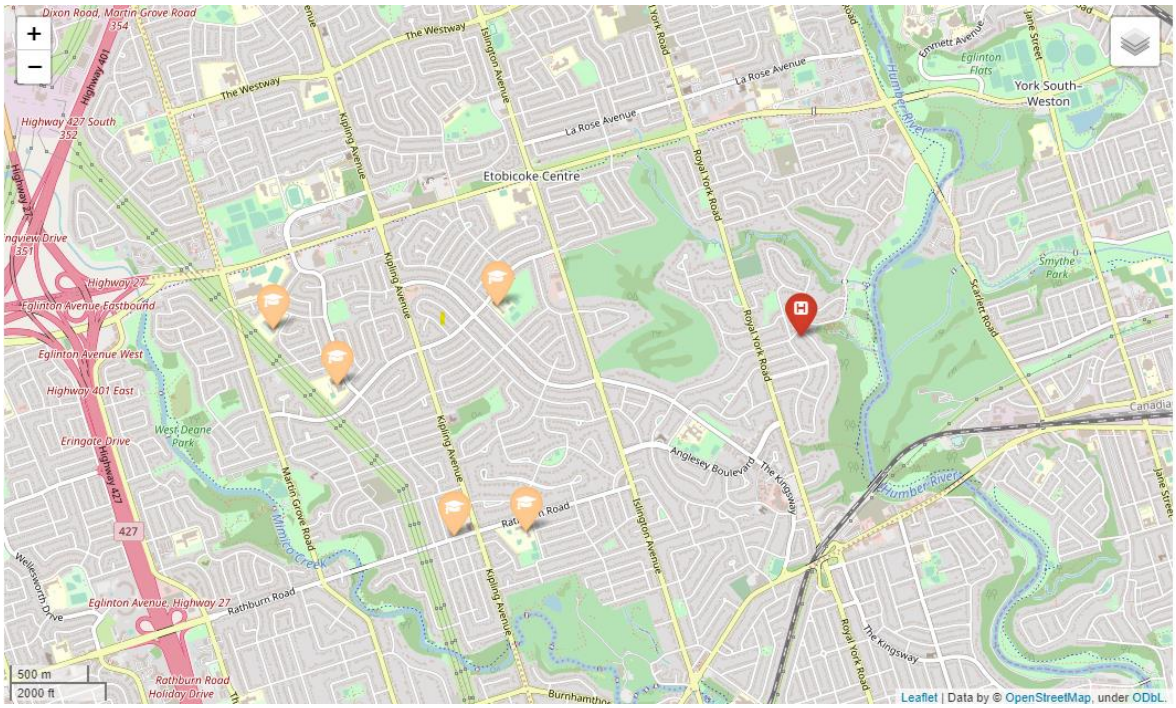
Doctor´s office

Metro/Streetcar stations

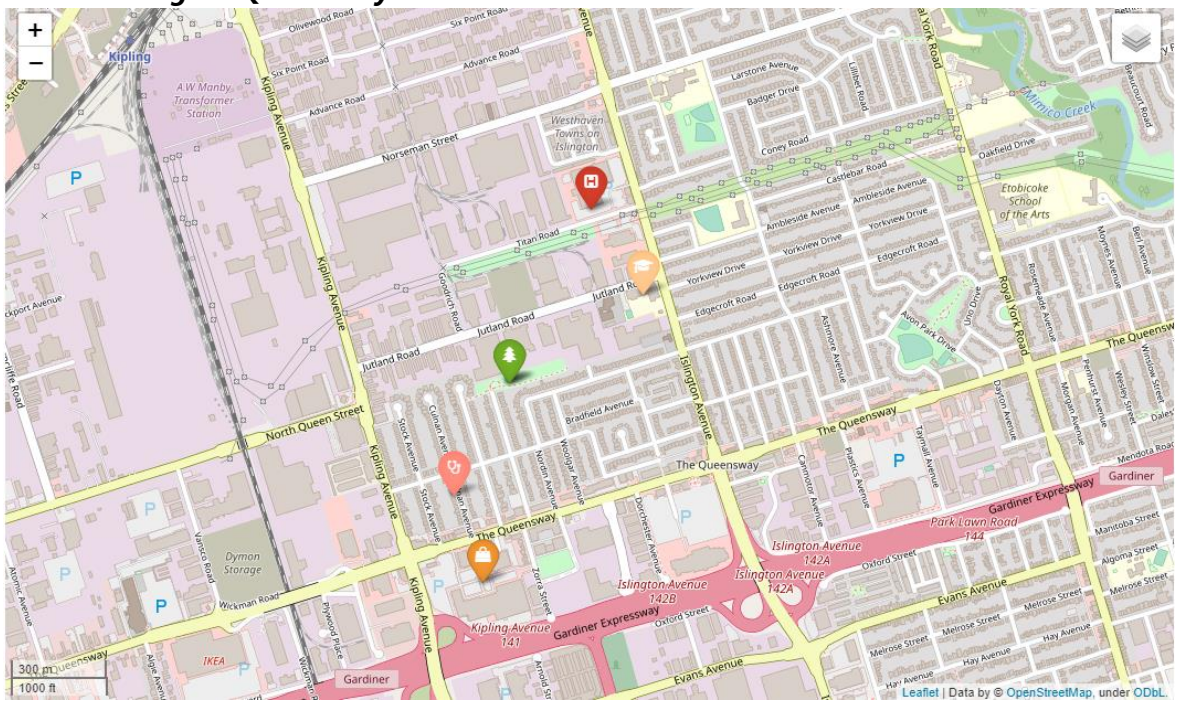
Malls

Parks/playgrounds

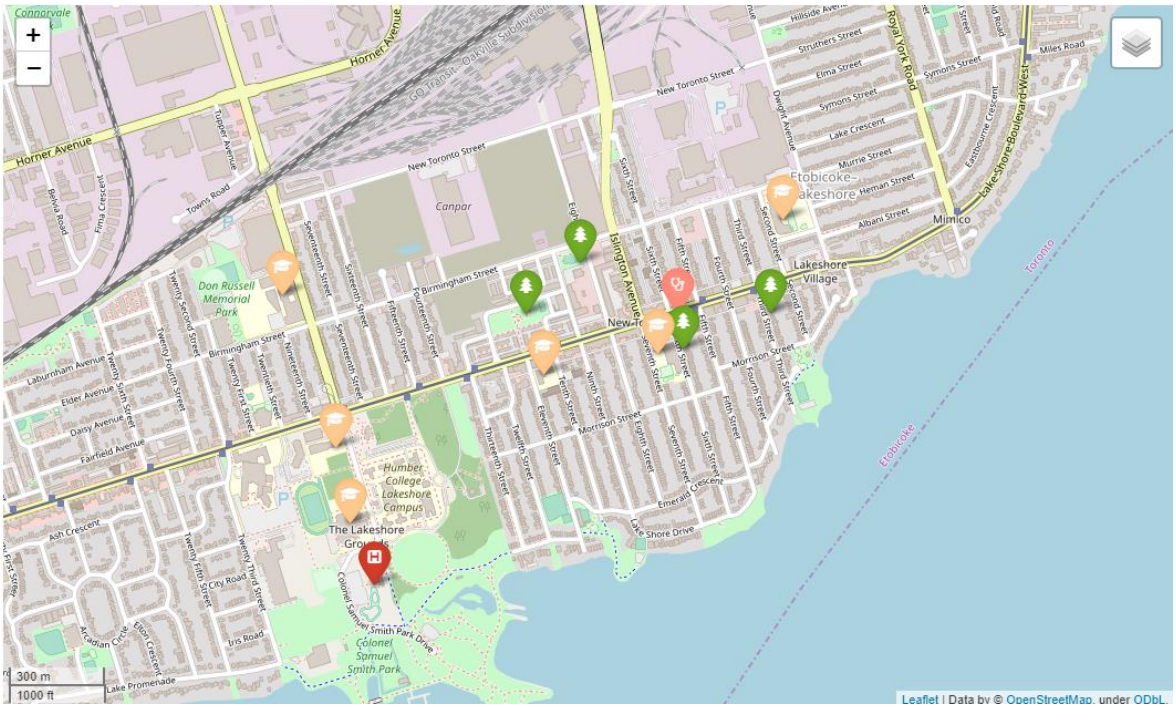
Princess-Rosethorn



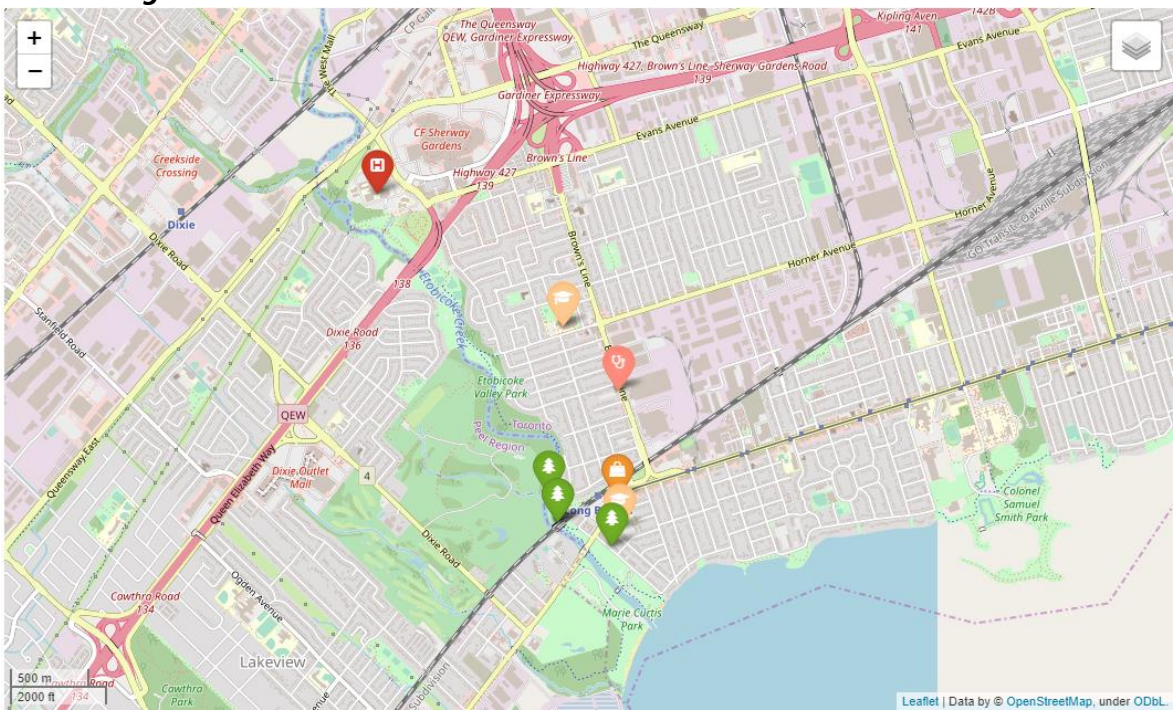
Stonegate-Queensway



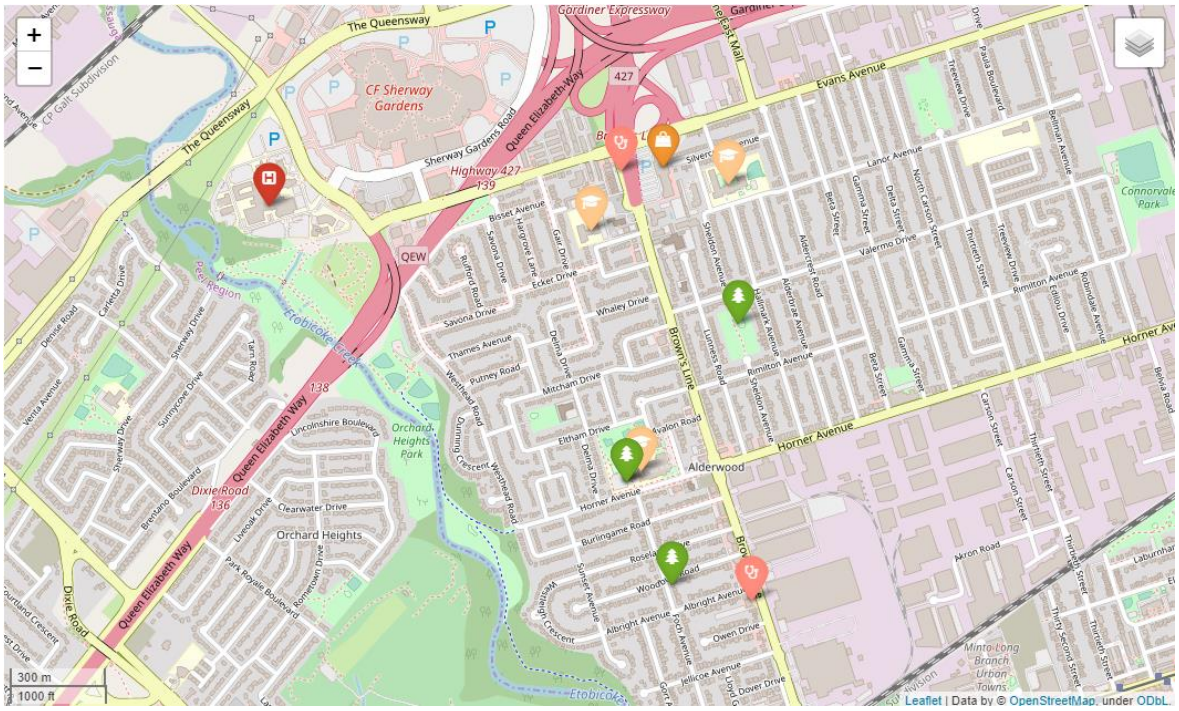
New Toronto



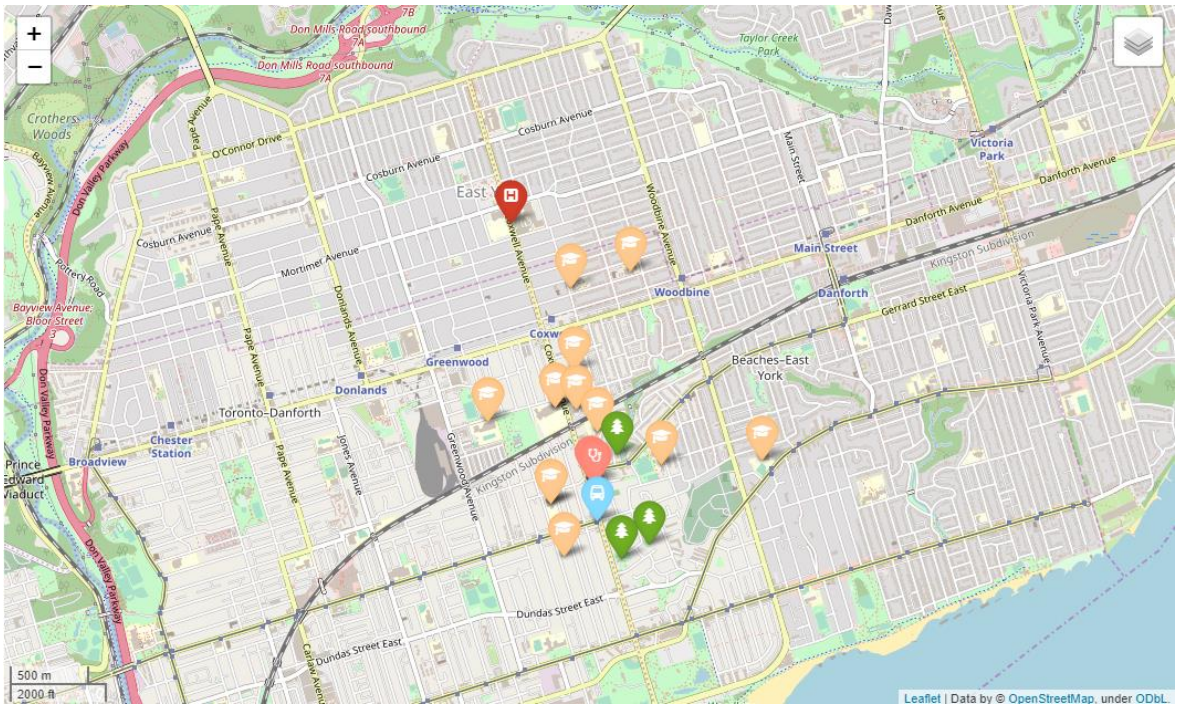
Long Branch



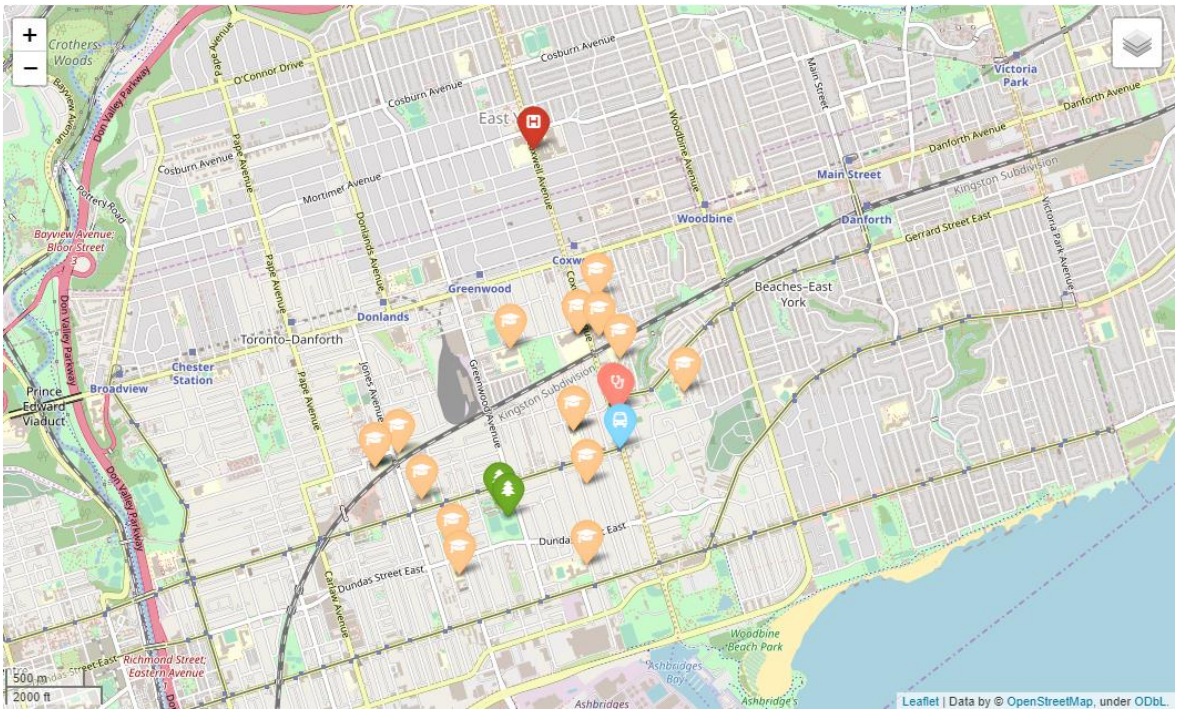
Alderwood



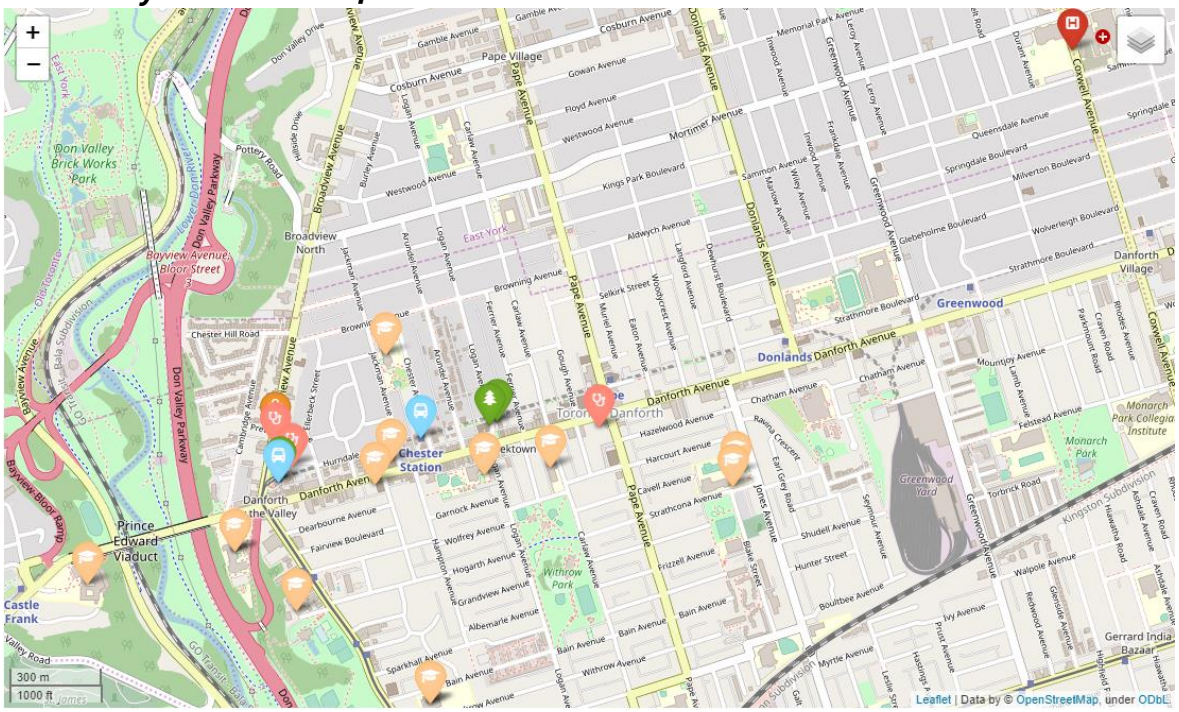
Woodbine Corridor



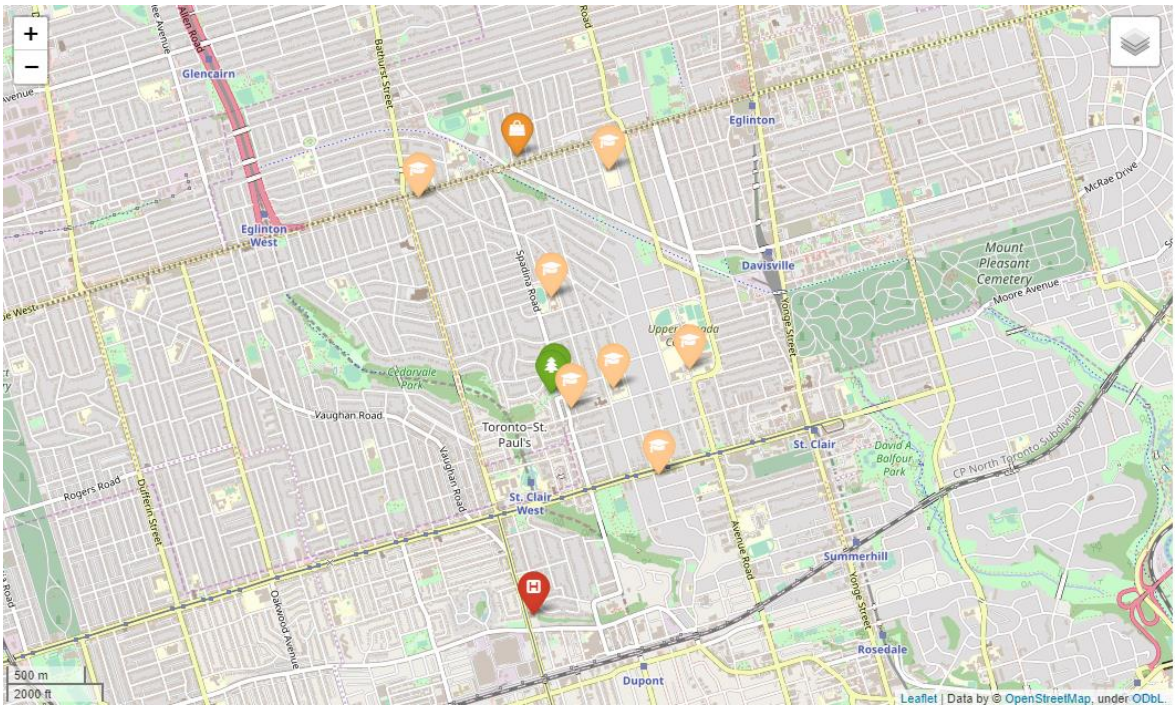
Greenwood-Coxwell



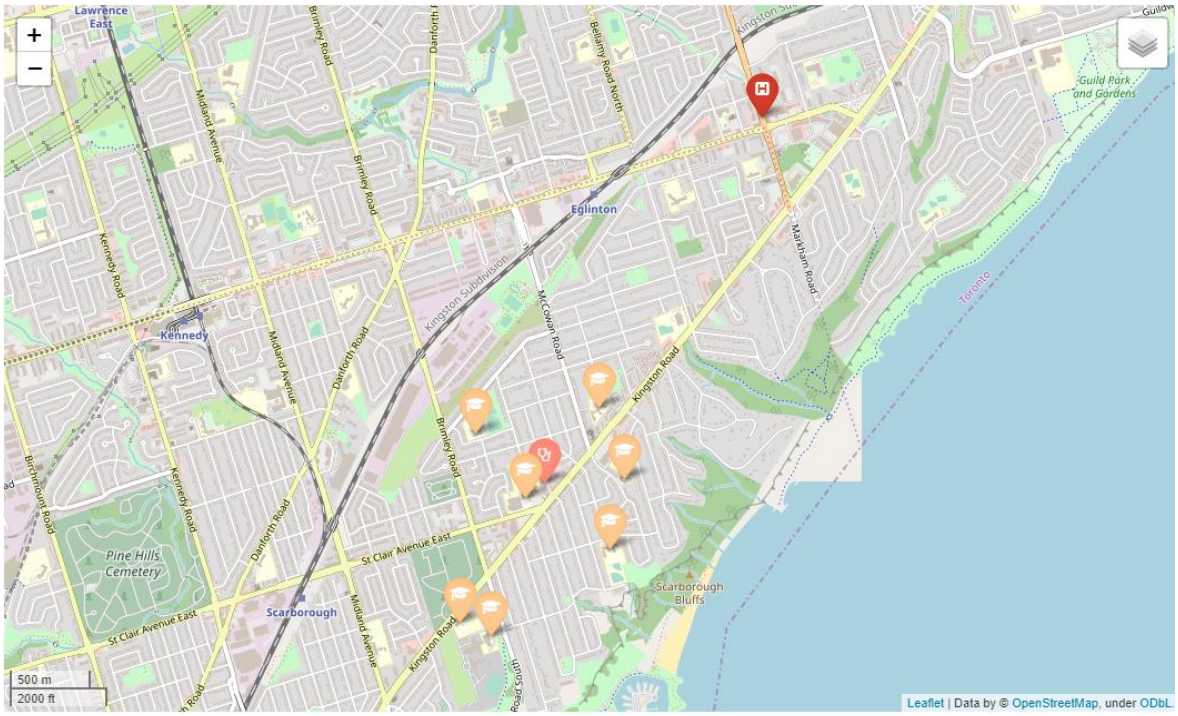
Playter Estates-Danforth



Forest Hill North



Cliffcrest



5. Discussion

Analyzing the data obtained, we observe that in all the neighborhoods we have hospital service, supplying an important need for the family.

However, we can identify a neighborhood that has all the services that may be of interest to the family to supply their primary and secondary needs: **Playter Estates-Danforth**, since it has a wide range of academic institutions (13), it has a shopping center, of the ten neighborhoods it is the one with the most doctors' offices (3), it has a good number of parks (3) and it is close to two mass transport stations (tram/metro) so the distance from home to the workplace will not be a problem in most cases.

Of course, the other options are up to each family interested in moving to Toronto, as each may prioritize services differently according to their convenience.

6. Conclusion

Throughout this research, we have travelled around the city of Toronto in order to generate suggestions for the middle-class immigrant families with children that the city receives every day. Through the study and management of multiple data sources, we generated a list of recommendations that are in line with the family's socio-economic situation and the services that can improve their quality of life.

I sincerely hope that this information has been useful to you and that it has served as a guide for you to be able to move and establish yourself permanently in the city of Toronto.

7. Acknowledgements

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I also thank the entire Foursquare community and its engineers, and the Toronto public officials who created and released these valuable knowledge bases to the public.
To all, thank you very much for your invaluable collaboration.

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