New Kumon learning centre in Toronto

Instruction

Kumon is a popular training organization for children and specialized in teaching math and reading for preschool and high school students.

Currently there are 22 Kumon learning centers in city of Toronto. If its business operator plans to open another one in Toronto, where would be the best place?

In the project, I am going to use the demographic data (student population data) from Statistics Canada and location data from Foursquare to answer the question and find an optimal location to open the new Kumon learning center.

Data Source

In the project, four data sources will be used and listed at below. The new open Kumon location will be determined by the number of children and distance to the existing Kumon centers. The decision criteria are based on the number of student in each neighborhood and the shortest distance to any existing Kumon location. More students and longer distance in one neighborhood indicate that neighborhood needs a new center.

1. Foursquare location data.

Foursquare data is filtered on venue name "Kumon" to obtain the information of current Kumon training centers, such as name, ID and location (latitude & longitude) ...

2. Statistics Canada Data.

Population demographic data is available from Statistics Canada website, which contains rich information on each neighborhood. The number of student data will be one of the primary inputs to determine if that neighborhood needs a learning center.

3. Toronto neighborhood Data.

It contains the Toronto neighborhood name and listed by FSA / Postal code.

4. Geographic location data.

Data file of latitude and the longitude coordinates for Toronto neighborhoods, which will be merged with Toronto neighborhood data and Statistics Canada to obtain the Toronto neighborhood data with information on name, geo location and number of children.

Appendix (Data source reference)

Foursquare data API:

https://api.foursquare.com/v2/venues/search?

Statistics Canada data:

https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page_Download-Telecharger.cfm?Lang=E&Tab=1&Geo1=CMACA&Code1=535&Geo2=PR&Code2=35&Data=Count&SearchText=Caledon%20East&SearchType=Begins&SearchPR=01&B1=Population&TABID=1

Data File Definitions by Forward Sortation Areas (2247)

Member

1. Population, 2016 (1)
2. Population, 2011 (2)
3. Population percentage change, 2011 to 2016
4. Total private dwellings (3)
5. Private dwellings occupied by usual residents (4)
6. Population density per square kilometre
7. Land area in square kilometres
8. Total - Age groups and average age of the population - 100% data (5)
9. 0 to 14 years
10. 0 to 4 years
11. 5 to 9 years
12. 10 to 14 years
13. 15 to 64 years
14. 15 to 19 years
15. 20 to 24 years
16. 25 to 29 years
17. 30 to 34 years
18. 35 to 39 years
19. 40 to 44 years

20. 45 to 49 years
21. 50 to 54 years
22. 55 to 59 years
23. 60 to 64 years
24. 65 years and over
25. 65 to 69 years
26. 70 to 74 years
27. 75 to 79 years
28. 80 to 84 years
29. 85 years and over
30. 85 to 89 years
31. 90 to 94 years
32. 95 to 99 years
33. 100 years and over
34. Total - Distribution (%) of the population by broad age groups - 100% data
35. 0 to 14 years
36. 15 to 64 years
37. 65 years and over
38. 85 years and over
39. Average age of the population
40. Median age of the population (6)
41. Total - Occupied private dwellings by structural type of dwelling - 100% data (7)
42. Single-detached house
43. Apartment in a building that has five or more storeys
44. Other attached dwelling (8)
45. Semi-detached house
46. Row house
47. Apartment or flat in a duplex
48. Apartment in a building that has fewer than five storeys
49. Other single-attached house
50. Movable dwelling (9)
51. Total - Private households by household size - 100% data (10)
52. 1 person
53. 2 persons
54. 3 persons
55. 4 persons
56. 5 or more persons
57. Number of persons in private households
58. Average household size
59. Total - Marital status for the population aged 15 years and over - 100% data (11)
60. Married or living common law
61. Married
62. Living common law
63. Not married and not living common law
64. Never married
65. Separated
66. Divorced
67. Widowed

68. Total - Census families in private households by family size - 100% data (12)
69. 2 persons
70. 3 persons
71. 4 persons
72. 5 or more persons
73. Average size of census families
74. Total number of census families in private households - 100% data
75. Total couple families
76. Married couples
77. Common-law couples
78. Total lone-parent families by sex of parent
79. Female parent
80. Male parent
81. Total - Couple census families in private households - 100% data
82. Couples without children
83. Couples with children
84. 1 child
85. 2 children
86. 3 or more children
87. Total - Lone-parent census families in private households - 100% data
88. 1 child
89. 2 children
90. 3 or more children
91. Total - Persons not in census families in private households - 100% data
92. Total - Private households by household type - 100% data (13)
93. One-census-family households
94. Without children in a census family (14)
95. With children in a census family (15)
96. Multiple-census-family households
97. Non-census-family households
98. One-person households
99. Two-or-more person non-census-family households
100.   Total - Knowledge of official languages for the total population excluding institutional residents - 100% data (16)

Toronto neighborhood data:

https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M

Geographic location data:

http://cocl.us/Geospatial_data