



After School Program in Great Lansing Area

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Introduction

Let's say one of my friends (living in Lansing Capital Area, Michigan State) plans to initialize an after-school program for elementary school students and middle-school students. He came to me and asked me for the suggestion on the location of the after-school program. In order to provide sound advice for him, we should consider the following factors:

- number of schools (public and private) in the neighbourhood.
- population in the neighbourhood.
- number of venues (stores and restaurants) in the neighbourhood.
- distance from the downtown

Introduction

To this end, we should collect the data of public and private schools, as well as the venues in the neighbourhoods. Here are the sources of each type of data:

- US zipcode can be found either from <https://simplemaps.com/data/us-zips> (recommended) or <http://federalgovernmentzipcodes.us>. The population correspondign to each zipcode is also provided in the data.
- Geocodes for public schools are availe from <https://nces.ed.gov/programs/edge/Geographic/>

Data preparation

Public schools in Great Lansing Area:

		Name	City	Zipcode	Lat	Lon
43329		Cole Academy	LANSING	48910	42.711623	43329 -84.578810
43330	El-Hajj Malik El-Shabazz	Academy	LANSING	48910	42.715258	43330 -84.566713
43331	Mid-Michigan Leadership	Academy	LANSING	48906	42.746410	43331 -84.563371
43419	Windemere Park Charter	Academy	LANSING	48917	42.741789	43419 -84.591616
43565	Lansing Charter	Academy	LANSING	48910	42.699119	43565 -84.575243

Private schools in Great Lansing Area:

		Name	City	Zipcode	Lat	Lon
10007	GREATER LANSING ADVENTIST SCHOOL		LANSING	48917	42.726619	-84.624478
10009	OUR SAVIOR LUTHERAN SCHOOL		LANSING	48917	42.725150	-84.684151
10013	ST GERARD ELEMENTARY SCHOOL		LANSING	48917	42.747481	-84.611369
10067	CAPITOL CITY BAPTIST SCHOOL		HOLT	48842	42.653130	-84.550171
10068	MONTESORI CHILDRENS HOUSE		LANSING	48915	42.727000	-84.580061

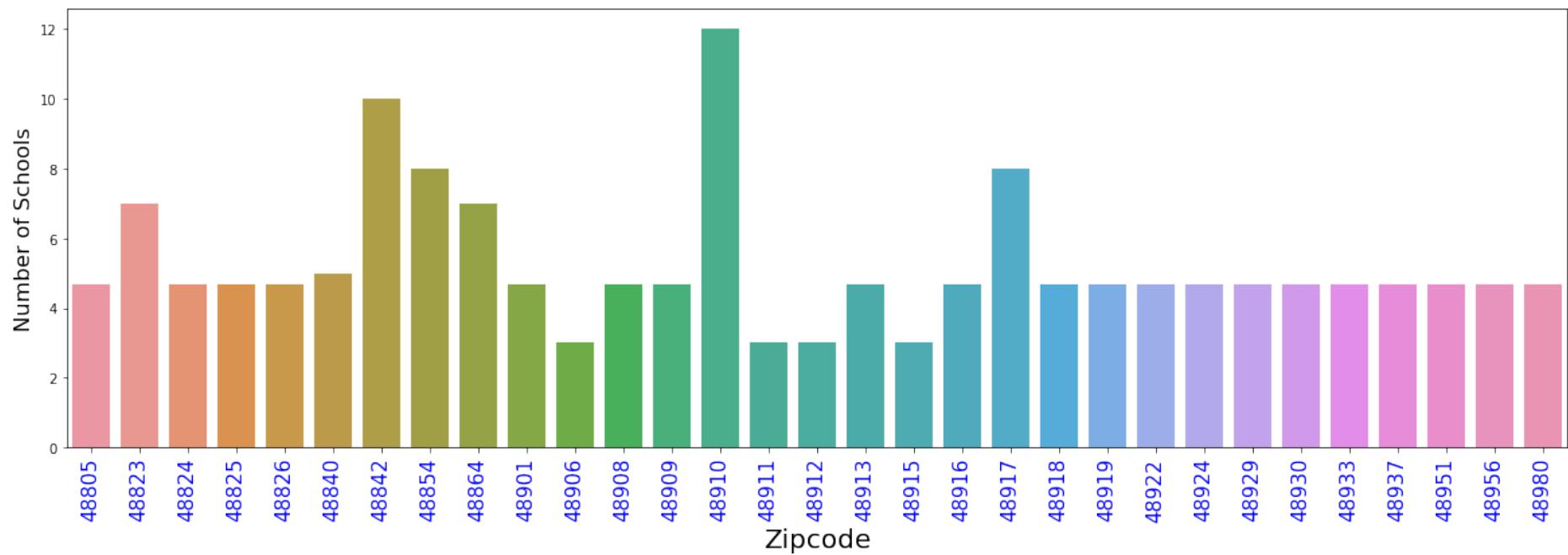
Data preparation

Population in Great Lansing Area:

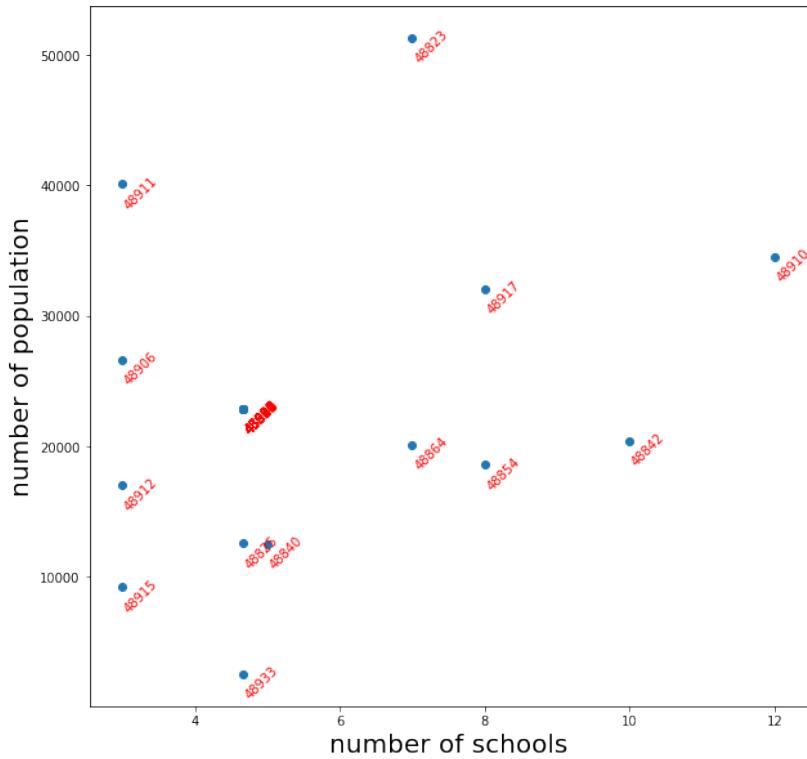
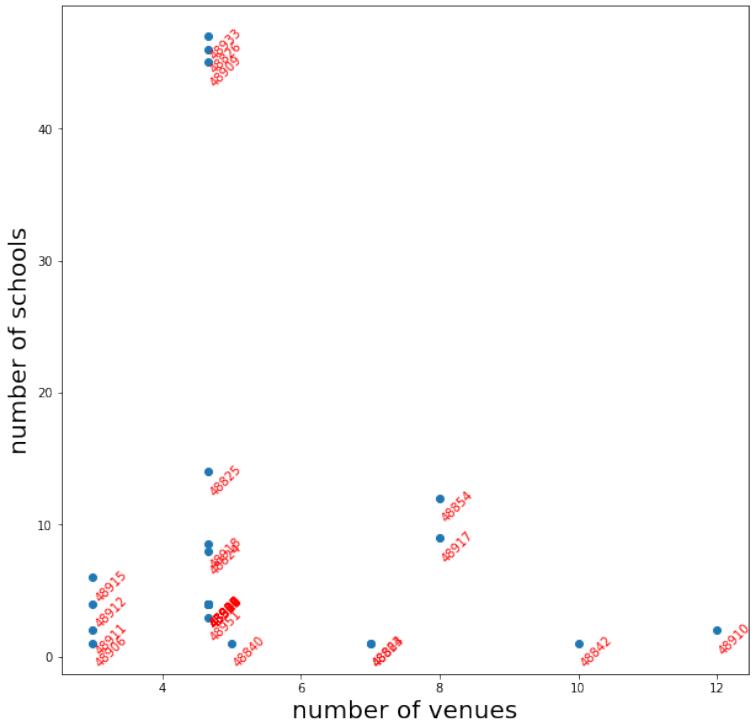
Out [551] :	Zipcode	Lat	Lon	City	Population
20914	48805	42.7082	-84.4144	Okemos	NaN
20930	48823	42.7620	-84.4539	East Lansing	51302.0
20931	48824	42.7229	-84.4751	East Lansing	NaN
20932	48825	42.7270	-84.4809	East Lansing	12596.0
20933	48826	42.7360	-84.4843	East Lansing	NaN

Data visualization

Number of schools in each neighborhood characterized with zipcode

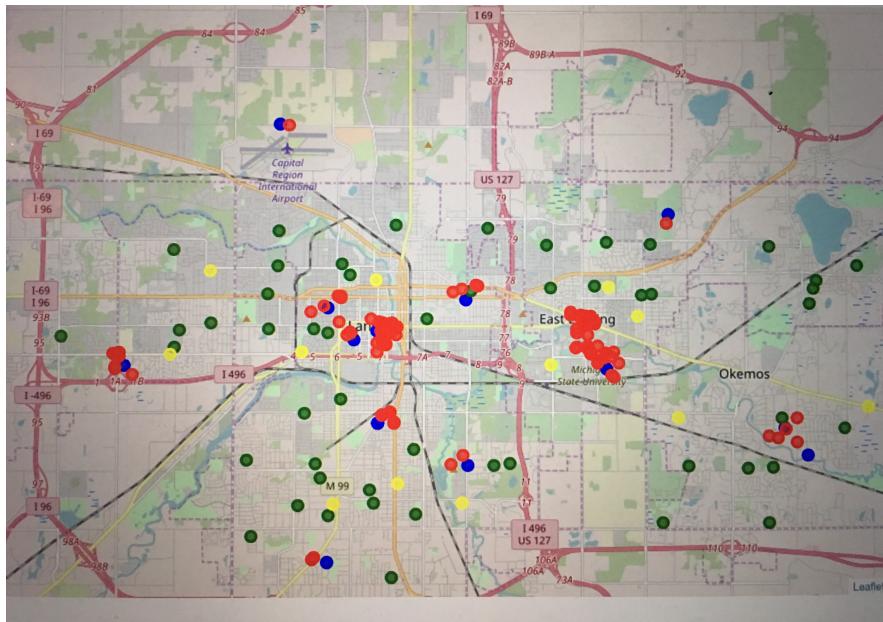


Data visualization

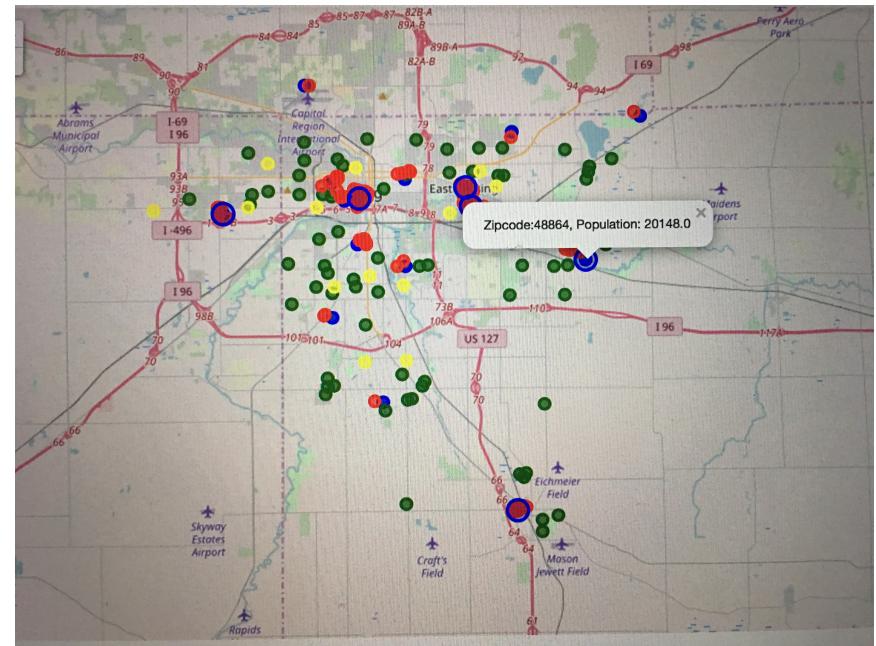


The above analysis indicates that one should choose the location in one of the following neighbourhoods: 48826, 48909, 48917, 48854, 48825, 48864.

Data visualization



The above map shows that the neighbourhoods of 48917 and 48854 are far from the downtown. Even though the number of schools and population are large, I would not recommend these two places considering the travel cost.



** In short, based on all the three factors, I would suggest him to locate the after-school program in the neighbourhood with zipcode 48864 or 48826.**

Acknowledgement

Thank you for your reviewing my work.