

# Capston project Final presentation

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Find the a great location to start a new business in switzerland (bakery)

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# Introduction and Business Problem

- Mario wants to start a new business. He wants to open a bakery. It is important to him to start his business near a large town in Switzerland. He doesn't know how to find the best location.
  - In order to find the best location for Mario we need to get information about the near environment of the largest cities in Switzerland.
  - We need to find a location with not too much competition but with enough customers to run a successful business.
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# Data

- To help Mario to find the perfect location for his bakery we will need to access following data:
- Mario wants to open his bakery in a large city in switzerland. The main cities with the total number of citizens we will get from
- wikipedia: [https://de.wikipedia.org/wiki/Liste\\_der\\_St%C3%A4dte\\_in\\_der\\_Schweiz](https://de.wikipedia.org/wiki/Liste_der_St%C3%A4dte_in_der_Schweiz)
- The coordinates (latitude, longitude) of these Localities we will get from Open Street Map APIs
- From Foursquare we will need following venues data: (exact information can be obtained here: <https://developer.foursquare.com/docs/resources/categories>)

bakery data location data and names

offices / working places location data and names

universities / school location data and names

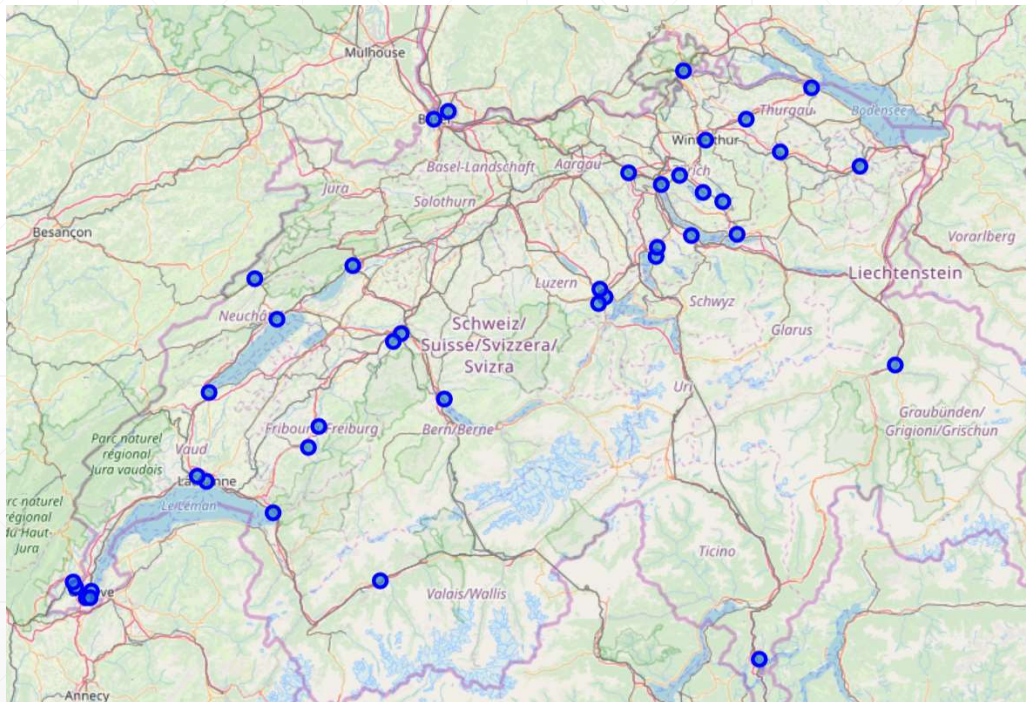
leisure and nature spots data and names

- We will use this data to find out which location is most suitable for marios bakery.
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# Methodology

- The capital locations are dynamically collected from a wikipedia site.
  - For each location the following data was collected from the „Foursquare“ API: Working places, nature/leisure spots, bakery data and universities/ schools.
  - For each capital the sums of the categories are calculated.
  - For each category a weight or penalty score is defined and used to identify the best location:
    - Other bakery shops have been weighted with a negative number, because we want to avoid competition
    - The other categories get weighted according to their positive effect.
  - The weights can be modified according to the importance of each category.
  - At the end a score was computed for each location.
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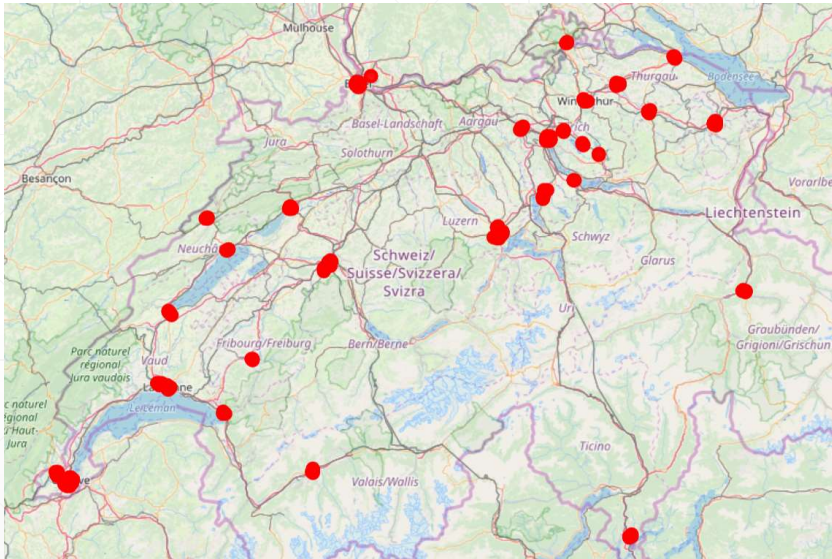
# Capitals, Switzerland



## Example Data

Rank		City	Size
0	1.	Zürich	396'027
1	2.	Genf	194'565
2	3.	Basel	175'131
3	4.	Bern	140'634
4	5.	Lausanne	135'629
5	6.	Winterthur	106'778
6	7.	Luzern	81'284
7	8.	St. Gallen	75'310
8	9.	Lugano	63'668
9	10.	Biel/Bienne	53'667
10	11.	Thun	43'303

# Baker's near the capitals

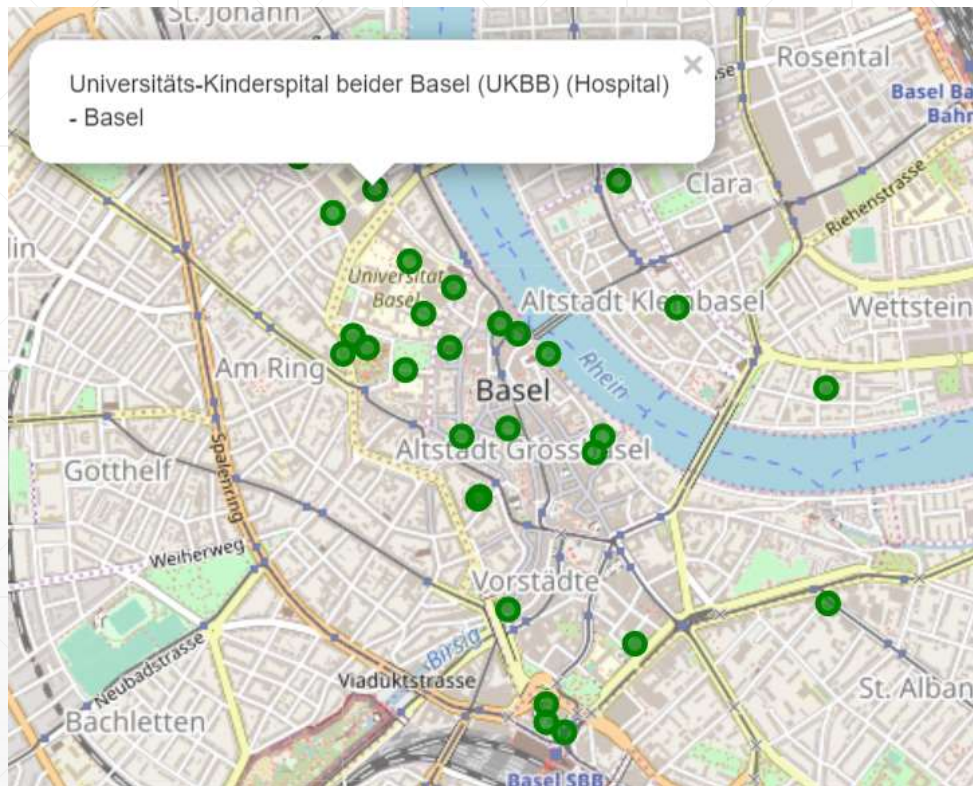


## Example Data

	Location	Location Latitude	Location Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Zürich	47.372394	8.542333	Äss-Bar	47.372561	8.543693	Bakery
1	Zürich	47.372394	8.542333	Confiseur Bachmann AG	47.376582	8.539413	Bakery
2	Zürich	47.372394	8.542333	Sprüngli	47.369398	8.539486	Dessert Shop
3	Zürich	47.372394	8.542333	Sprüngli	47.373842	8.538310	Cupcake Shop
4	Zürich	47.372394	8.542333	Brezelkönig	47.373357	8.538118	Bakery



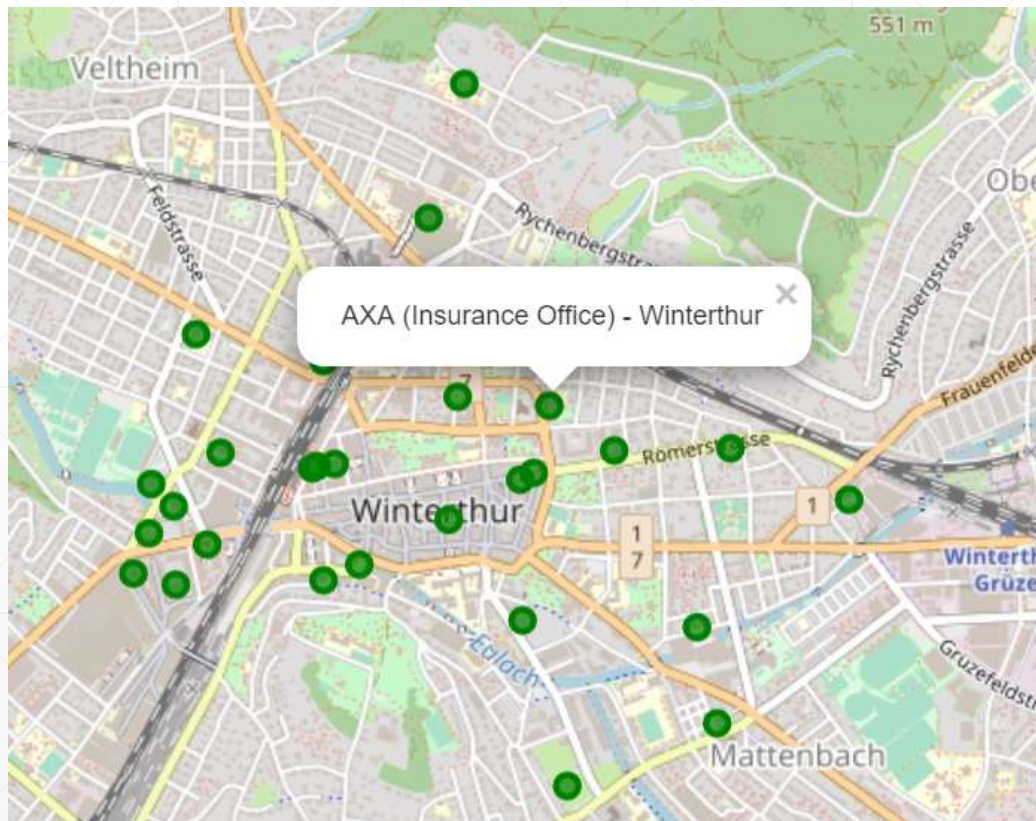
# School's and universities near the capitals



## Example Data

	Location	Location Latitude	Location Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Zürich	47.372394	8.542333	Zentralbibliothek	47.374171	8.545037	College Library
1	Zürich	47.372394	8.542333	Bibliothek des Rechtswissenschaftlichen Institut...	47.373268	8.550828	College Library
2	Zürich	47.372394	8.542333	ETH-Bibliothek	47.376619	8.548579	College Library
3	Zürich	47.372394	8.542333	ETH Polysnack	47.376545	8.548674	College Cafeteria
4	Zürich	47.372394	8.542333	ETH Departement Informatik	47.378292	8.548287	College Engineering Building

# Working places near the capitals

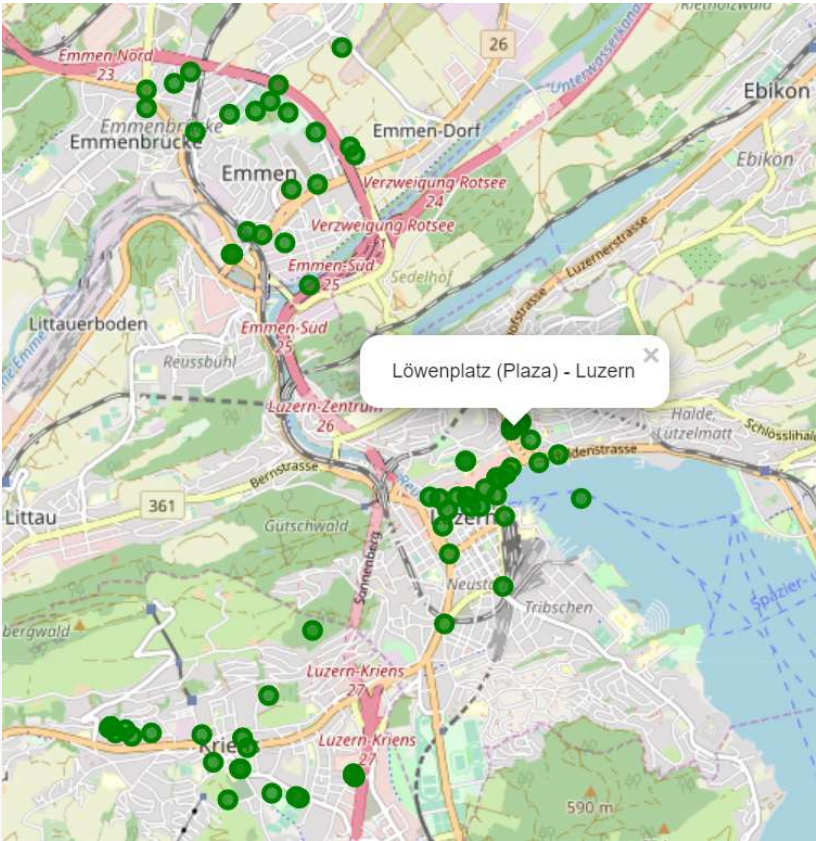


## Example Data

	Location	Location Latitude	Location Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Zürich	47.372394	8.542333	Fraumünster	47.370098	8.541077	Church
1	Zürich	47.372394	8.542333	Literaturhaus	47.371930	8.542780	Event Space
2	Zürich	47.372394	8.542333	Rathaus	47.371483	8.542719	Government Building
3	Zürich	47.372394	8.542333	St. Peter	47.371495	8.540753	Church
4	Zürich	47.372394	8.542333	Grossmünster	47.370142	8.543919	Church



# Leisure and nature spots near the capitals



## Example Data

	Location	Location Latitude	Location Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Zürich	47.372394	8.542333	Fraumünster	47.370098	8.541077	Church
1	Zürich	47.372394	8.542333	Literaturhaus	47.371930	8.542780	Event Space
2	Zürich	47.372394	8.542333	Rathaus	47.371483	8.542719	Government Building
3	Zürich	47.372394	8.542333	St. Peter	47.371495	8.540753	Church
4	Zürich	47.372394	8.542333	Grossmünster	47.370142	8.543919	Church

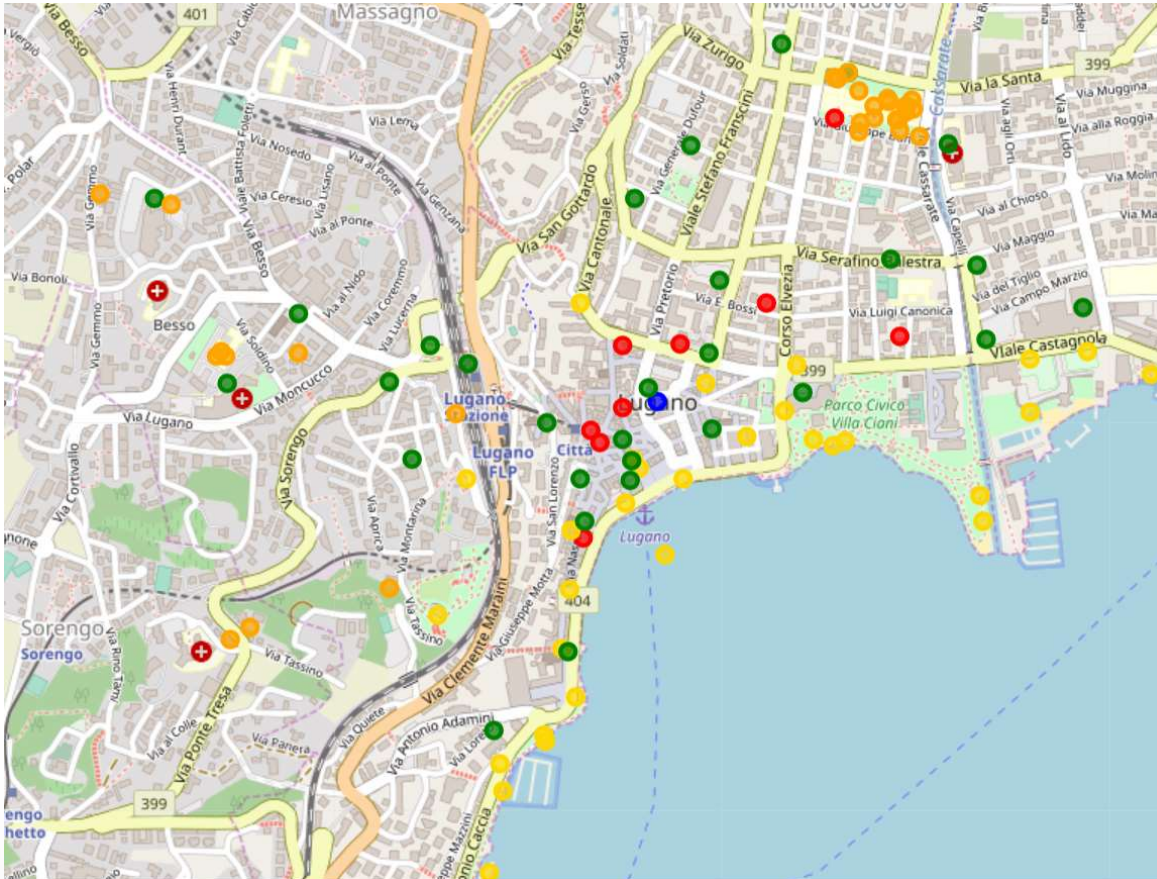
Rank		Location	Size	Latitude	Longitude	Backery	University	Working	Leisure
0	1.	Zürich	396'027	47.372394	8.542333	30.0	30.0	30.0	30.0
1	2.	Genf	194'565	46.201756	6.146601	30.0	30.0	29.0	30.0
2	3.	Basel	175'131	47.558108	7.587826	30.0	30.0	30.0	30.0
3	4.	Bern	140'634	46.948271	7.451451	30.0	28.0	30.0	30.0
4	5.	Lausanne	135'629	46.521827	6.632702	30.0	28.0	30.0	29.0
5	6.	Winterthur	106'778	47.499172	8.729150	11.0	30.0	29.0	30.0
6	7.	Luzern	81'284	47.050545	8.305468	29.0	28.0	30.0	30.0
7	8.	St. Gallen	75'310	47.425059	9.376588	20.0	26.0	28.0	29.0
8	9.	Lugano	63'668	46.005010	8.952028	9.0	29.0	30.0	30.0
9	10.	Biel/Bienne	53'667	47.140208	7.243903	10.0	27.0	29.0	30.0
10	11.	Thun	43'303	46.758283	7.628086	0.0	18.0	24.0	27.0
11	12.	Köniz	39'998	46.922238	7.413058	4.0	6.0	28.0	18.0
12	13.	La Chaux-de-Fonds	39'027	47.103287	6.832454	5.0	6.0	23.0	22.0
13	14.	Freiburg	38'288	46.678912	7.102711	0.0	0.0	1.0	3.0
14	15.	Schaffhausen	35'927	47.696049	8.634513	5.0	13.0	27.0	28.0
15	16.	Chur	34'547	46.855515	9.525407	8.0	20.0	26.0	28.0
16	17.	Vernier	34'477	46.213184	6.081576	2.0	0.0	26.0	11.0
17	18.	Neuenburg	33'641	46.989583	6.929264	6.0	30.0	26.0	29.0
18	19.	Uster	33'412	47.351207	8.717922	4.0	9.0	24.0	25.0
19	20.	Sitten	33'296	46.231175	7.358879	8.0	11.0	21.0	23.0
20	21.	Lancy	30'919	46.183916	6.122405	10.0	16.0	29.0	26.0

# Combining the data by Location

	Location	Score
8	Lugano	110.0
5	Winterthur	107.0
9	Biel/Bienne	105.0
17	Neuenburg	105.0
28	Montreux	101.0
23	Zug	98.0
37	Carouge	94.0
10	Thun	93.0
21	Yverdon-les-Bains	92.0
15	Chur	92.0
7	St. Gallen	91.0
0	Zürich	90.0
14	Schaffhausen	90.0
32	Baar	90.0
20	Lancy	90.0
2	Basel	90.0
6	Luzern	89.0
1	Genf	88.0
3	Bern	88.0

## Results

- The best location with a score of 110 is Lugano. Mario should open his new bakery there.
- The next best location would be Winterthur followed by Biel/Bienne and Neuenburg.
- By choosing Lugano as the location Mario reduces the competition. At the same time the location suits his needs best because the spot is near crowded areas. That is why he should have enough potential customers.



## Winner Location

- RED: Competition
- GOLD: Nature/Leisure spots
- GREEN: Working places
- ORANGE: Universities/schools



## Improvements / Recommendations

- To improve the analysis the categories should be filtered in more detail. I mainly worked with the top categories to get enough results
  - The size of the capital (number of citizens) could have an impact on the potential customers per day.
  - In the location itself, the distance between all potential customer „spots“ could be measured and weighted. At the moment all customer spots are equally weighted.
  - Rent prices are not considered, but could make a difference if you are planning to start a business somewhere.
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