




LOCATIONS IN HAUTE- SAVOIE FOR A DIVE EQUIPMENT STORE

WHERE TO OPEN A NEW DIVING & WATERSPORT EQUIPMENT STORE ?





BUSINESS PROBLEM

- **TARGET** : Stakeholders interested in opening a **diving & watersport equipment store** in **Haute-Savoie**, France
 - **CRITERIA** to find an optimal location :
 - water access in the vicinity
 - no sports store already established
 - frequented places
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DATA

- DATA COLLECTED :
 - Name and localization of all the cities in Haute-Savoie
 - Population of each city
 - Number and type of water access in the neighborhood of each city, if any
 - Number of existing sports store in the neighborhood of each city
- DATA SOURCES :
 - Names and populations of the cities in Haute-Savoie will be obtained using an available table of **Wikipedia**
 - Localization of the cities will be read from a local csv file
 - Venues such as water access and sports store will be extracted using **Foursquare API**

GATHERED DATA

Commune	Bay	Beach	Dive Spot	Harbor / Marina	Hot Spring	Lake	Pool	Rafting	Reservoir	River	Spa	Sporting Goods Shop	Water Park	Waterfall	Population
Ambilly	0	0	0	0	0	0	0	0	0	0	0	1	0	0	6385
Annecy	0	3	0	0	0	0	1	0	0	0	0	0	0	0	126924
Annemasse	0	0	0	0	0	0	0	0	0	0	0	1	0	0	35712
Armoy	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1295
Arthaz-Pont-Notre-Dame	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1577

[...]

A list of **58** cities were extracted based on the following selected venues :

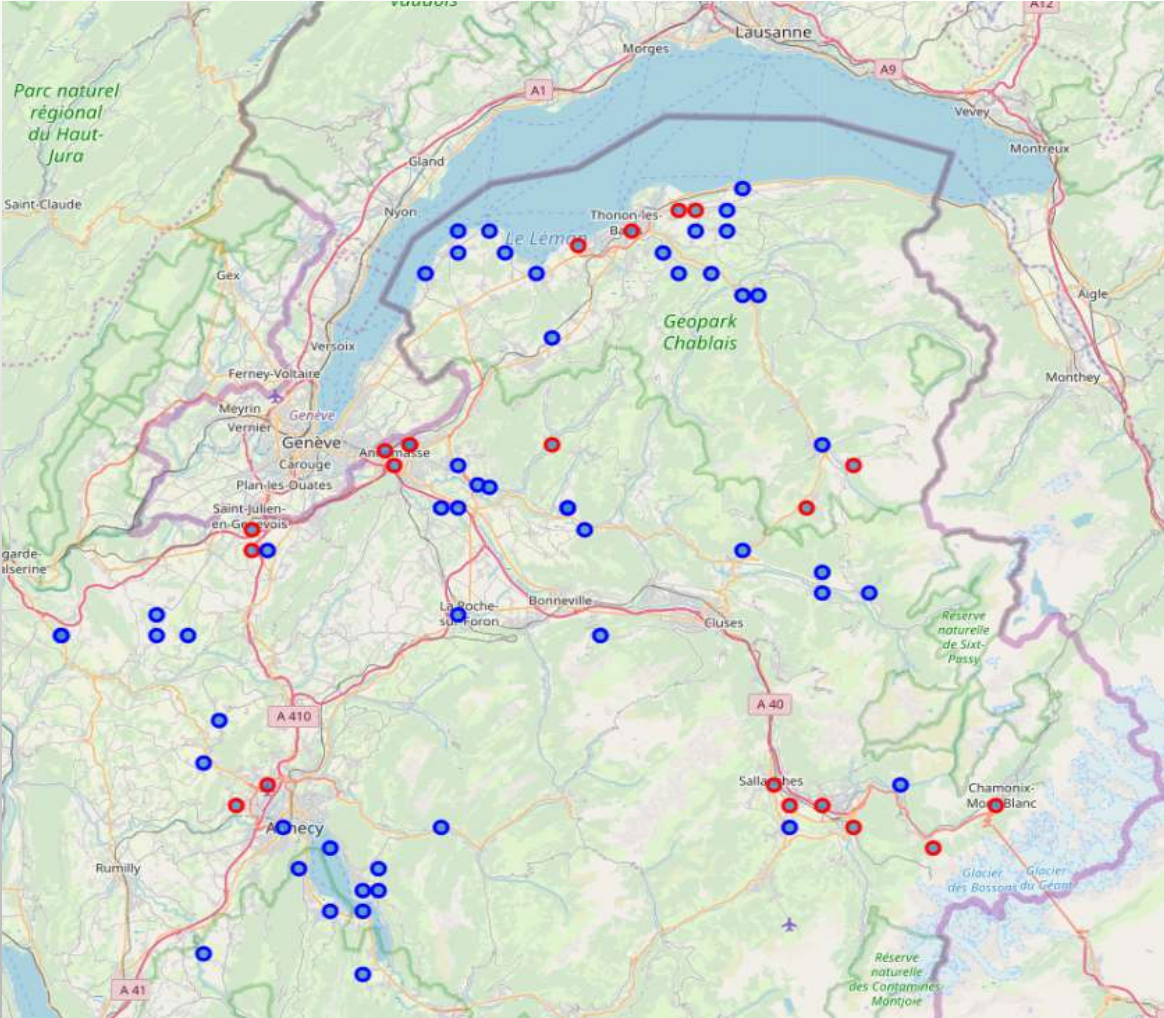
Water access :

- Bay
- Beach
- Dive Spot
- Harbor/Marina
- Hot spring
- Lake
- Pool
- Rafting
- Reservoir
- River
- Spa
- Water park
- Waterfall

Sports store :

Sporting Goods Shop

VISUALIZATION OF THE DATA



Map of Haute-Savoie with the **58** cities found with the mentioned criteria.

Water accesses are shown with a blue dot and if there's a sports shop at the same time we add a red circle around.

ANALYSIS

TYPES OF WATER ACCESS

To help the stakeholders in their final decision, it can be interesting to group them as follow :

- Open water access such as beach or lake
- Confined water access such as pool, spa or water park
- Rapids access such as rafting or waterfall

Indeed these 3 types of water access could involve specific sports equipment, which could impact the final choice of the stakeholders according to the selection of sports items in the store.

ANALYSIS

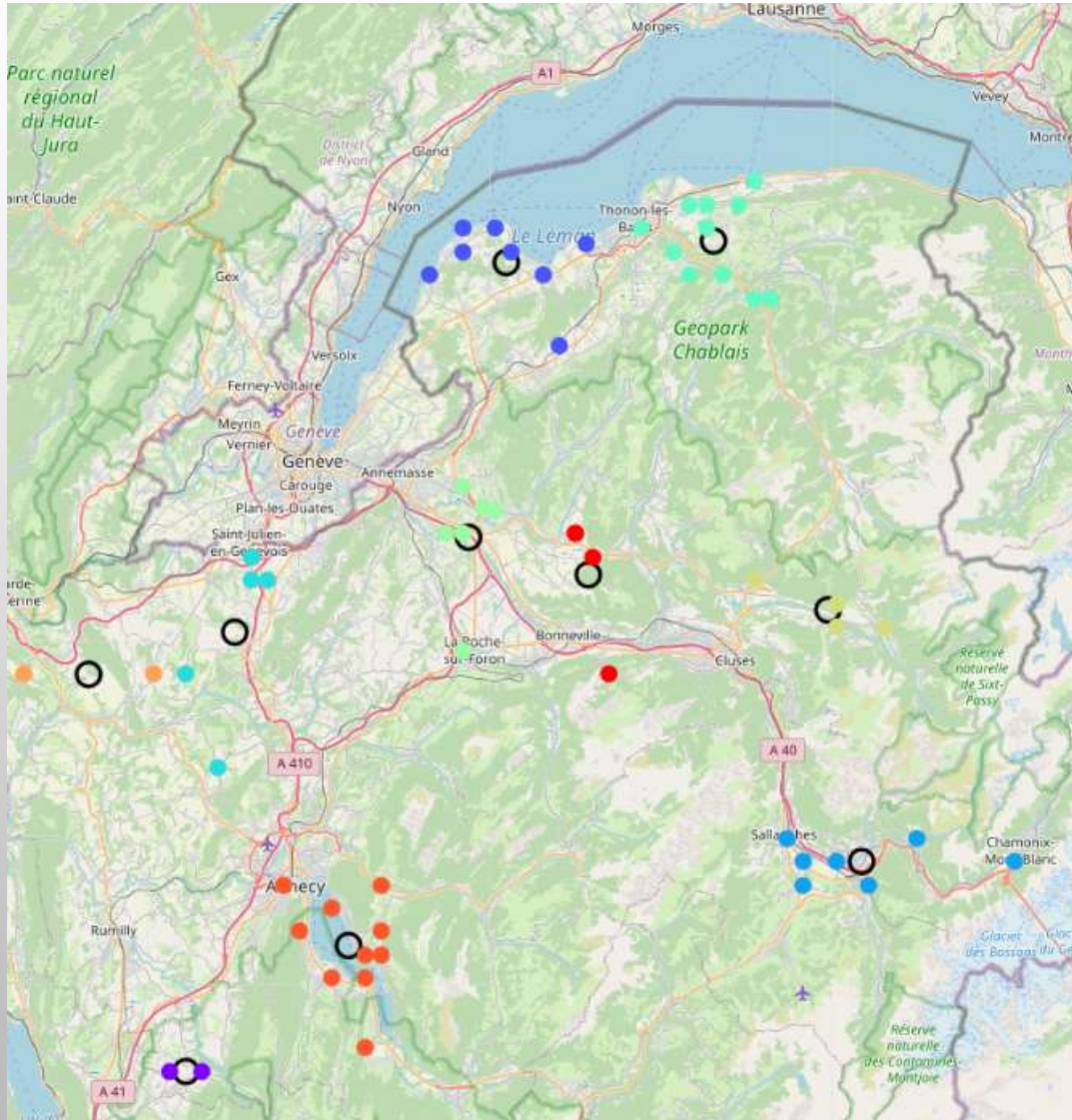
Commune	Sporting Goods Shop	Population	Latitude	Longitude	Open water	Confined water	Rapids
Annecy	0	126924	45.900002	6.11667	3	1	0
Armoy	0	1295	46.349998	6.51667	0	0	1
Arthaz-Pont-Notre-Dame	0	1577	46.150002	6.28333	0	1	0
Bluffy	0	391	45.866669	6.21667	2	0	0
Bonne	0	3218	46.168200	6.32150	0	1	0
Brenthonne	0	1037	46.283329	6.40000	0	1	0
Chainaz-les-Frasses	0	728	45.766670	6.00000	0	1	0
Chamonix-Mont-Blanc	1	8611	45.916672	6.86667	0	2	0
Champanges	0	1015	46.366669	6.55000	0	0	1
Chavannaz	0	236	46.049999	6.01667	0	1	0
Chens-sur-Léman	0	2776	46.333328	6.26667	1	0	0
Choisy	0	1604	45.983330	6.05000	1	0	0
Chêne-en-Semine	0	496	46.049999	5.85000	1	0	0
Combloux	0	2106	45.900002	6.65000	1	0	0
Cranves-Sales	0	6793	46.183331	6.30000	0	1	0
Cusy	0	1850	45.766670	6.03333	0	1	0
Domancy	0	2113	45.916672	6.65000	1	0	0
Duingt	0	972	45.833328	6.20000	6	0	1
Etaux	0	1979	46.066669	6.30000	0	1	0
Excenevex	0	1104	46.349998	6.35000	1	0	0
Feigères	1	1682	46.116669	6.08333	0	1	0
Fillinges	0	3413	46.166672	6.33333	0	1	0
Jonzier-Épagny	0	798	46.066669	5.98333	0	1	0
La Balme-de-Thuy	0	462	45.900002	6.28333	0	0	1
La Baume	0	309	46.283329	6.61667	0	0	1
La Forclaz	0	233	46.316669	6.61667	0	0	2

[...]

The list of the **58** cities is then obtained with :

- the number of sports store
- the number of water accesses by type
- the population
- the localization

CLUSTERING



With the list of the 58 cities, **10** clusters were defined based on the localization of the selected cities.

Each cluster center is represented with a black circle and a specific color is used to show the cities linked to each cluster.

RESULTS

The table below indicates for each of the 10 defined clusters, the number of sports store, the total number of water accesses and the population.

Cluster Labels	Sporting Goods Shop	Population	Total number of water access
0	0	7039	4
1	1	2578	2
2	2	16628	13
3	3	46392	11
4	4	19695	5
5	5	60958	11
6	6	18598	6
7	7	7315	5
8	8	1519	2
9	9	146771	34

Cluster n°9 corresponds to the **optimal zone** according to our criteria :

- 34 water accesses
- no existing sports shop in the area
- more than 145 000 inhabitants

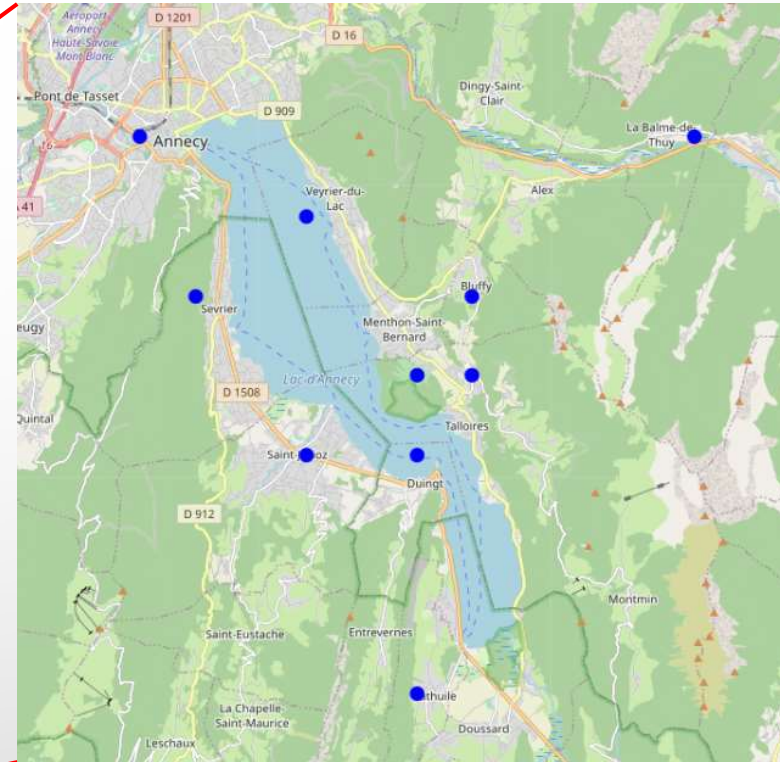
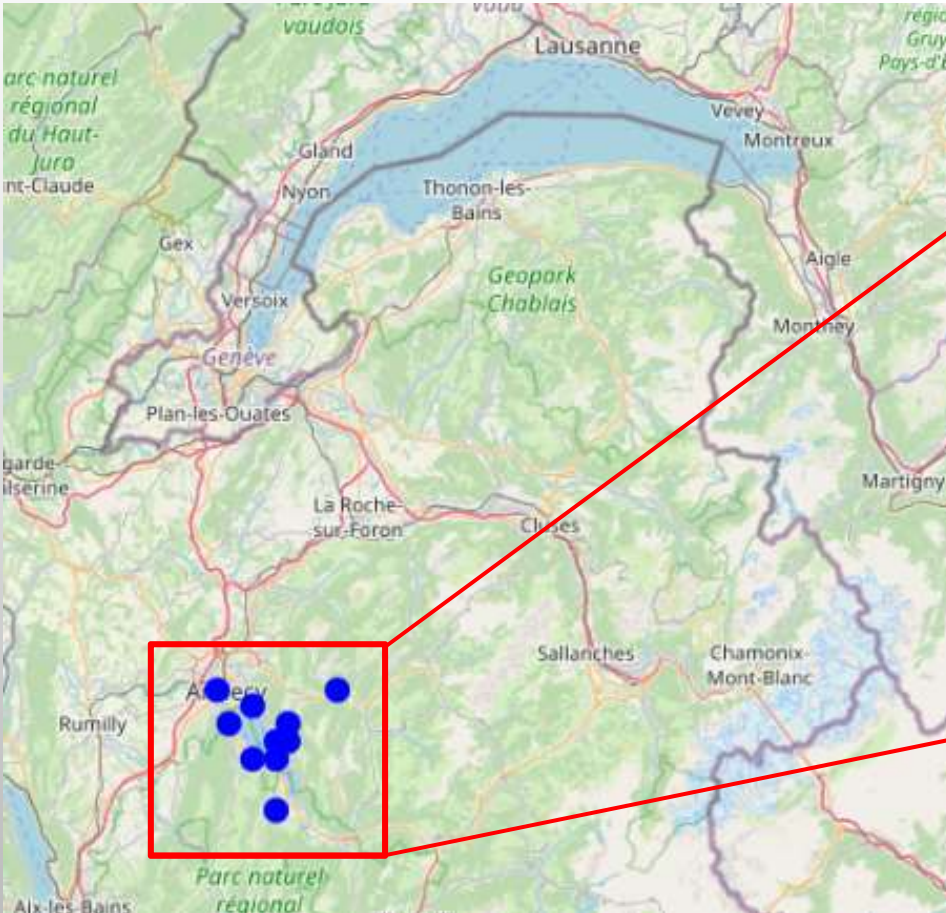
RESULTS

The table below indicates the 10 cities linked to the optimal cluster.

Commune	Sporting Goods Shop	Population	Open water	Confined water	Rapids	Latitude	Longitude
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Bluffy	0	391	2	0	0	45.866669	6.21667
Duingt	0	972	6	0	1	45.833328	6.20000
La Balme-de-Thuy	0	462	0	0	1	45.900002	6.28333
Lathuile	0	1016	1	0	0	45.783329	6.20000
Menthon-Saint-Bernard	0	1889	7	0	1	45.849998	6.20000
Saint-Jorioz	0	5738	1	0	0	45.833328	6.16667
Sevrier	0	4161	3	0	0	45.866669	6.13333
Talloires-Montmin	0	1996	2	0	1	45.849998	6.21667
Veyrier-du-Lac	0	2251	5	0	0	45.883331	6.16667

For each of these cities, we resume the population, the number of water accesses by type and the localization.

RESULTS



This **optimal zone** corresponds to the surroundings of the **Lake of Annecy**

CONCLUSION & FUTURE STEPS

- **Surroundings of the Lake of Annecy** were found to be the optimal area to build a dive equipment store according to the following criteria :
 - water access in the vicinity
 - no sports store already established
 - frequented places
- Final decision belongs to stakeholders and **further analysis** could also aid them such as :
 - preferential target of the store (types of water access)
 - real estate availability in the selected areas and prices
 - proximity to major roads ...