

Plan friends vacation in 2019

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1. Introduction

My friends always spend a lot of time to choose country for visiting.

This project in high level and fast helps them to decide where to go.

This project compiles data about countries and their capitals which are located in Europe continent with preferences to help my friends find the best destination for holidays 2019. based on their interests and budget limits.

They cant spend more than 125 euros per day for each person.

2. Data acquisition and cleaning

2.1 Data sources

In this project are used next data sources:

- Information about Countries and their capitals, capitals longitude and latitude, which are located in Europe continent.

<http://techslides.com/list-of-countries-and-capitals>

- Information about dailycost which including accommodation, food, entertainment.

<http://www.budgetyourtrip.com/>

- the Foursquare location data using the Capital Name

It helps to show in high level what they can find in each capitals (restaurants, museums, café and etc) within 10 km from Capitals center.

2.2 Data cleaning

Data scraped from multiple sources were combined into one table. I use only Europe data because my friends want to travel in capitals of European countries.

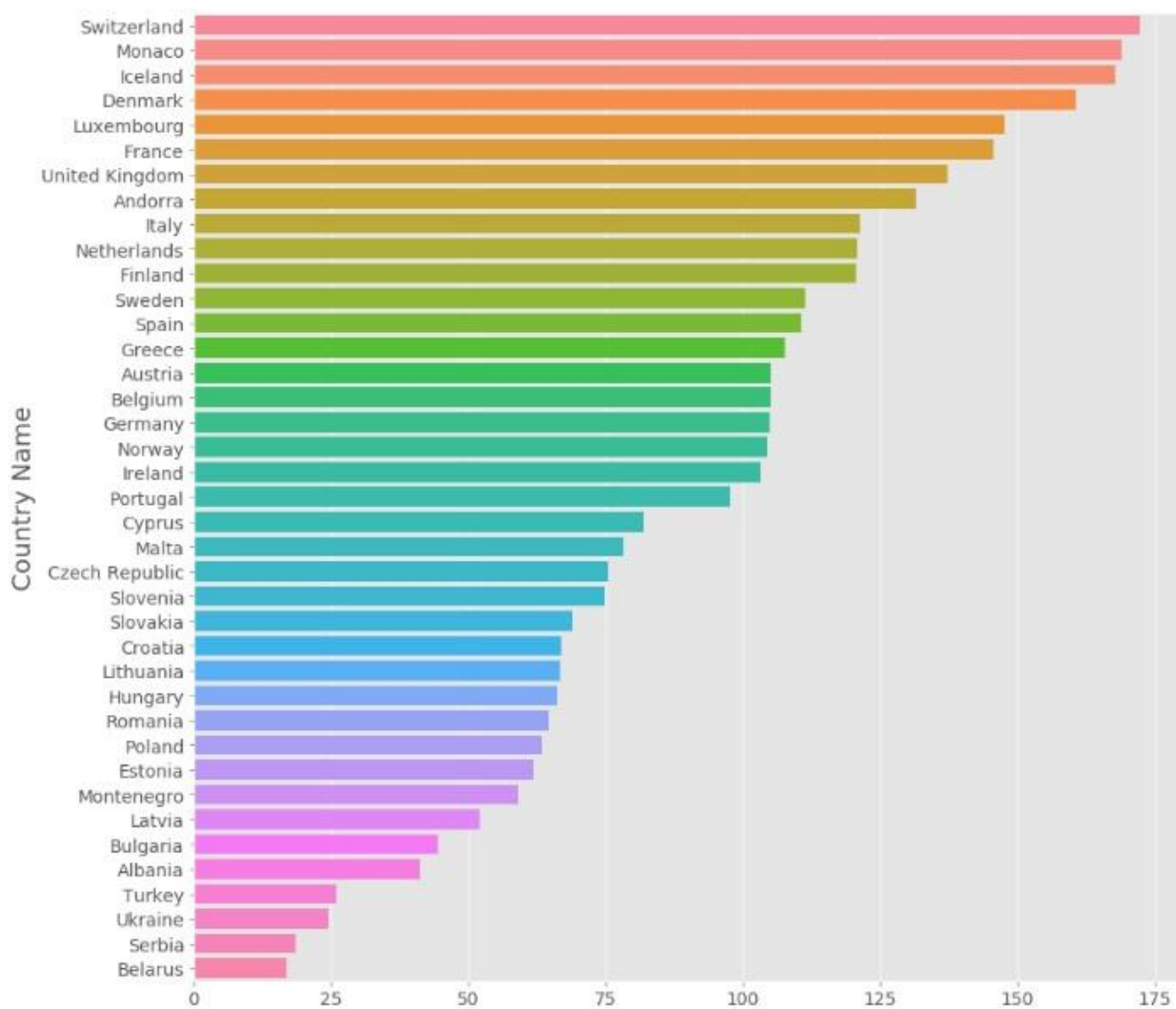
3. Exploratory Data Analysis

3.1 Create database with European countries, their capitals, location, daily costs

First of I create data base which contains European countries and their capitals names, their locations, and dailycosts scraped from different sources and joined together.

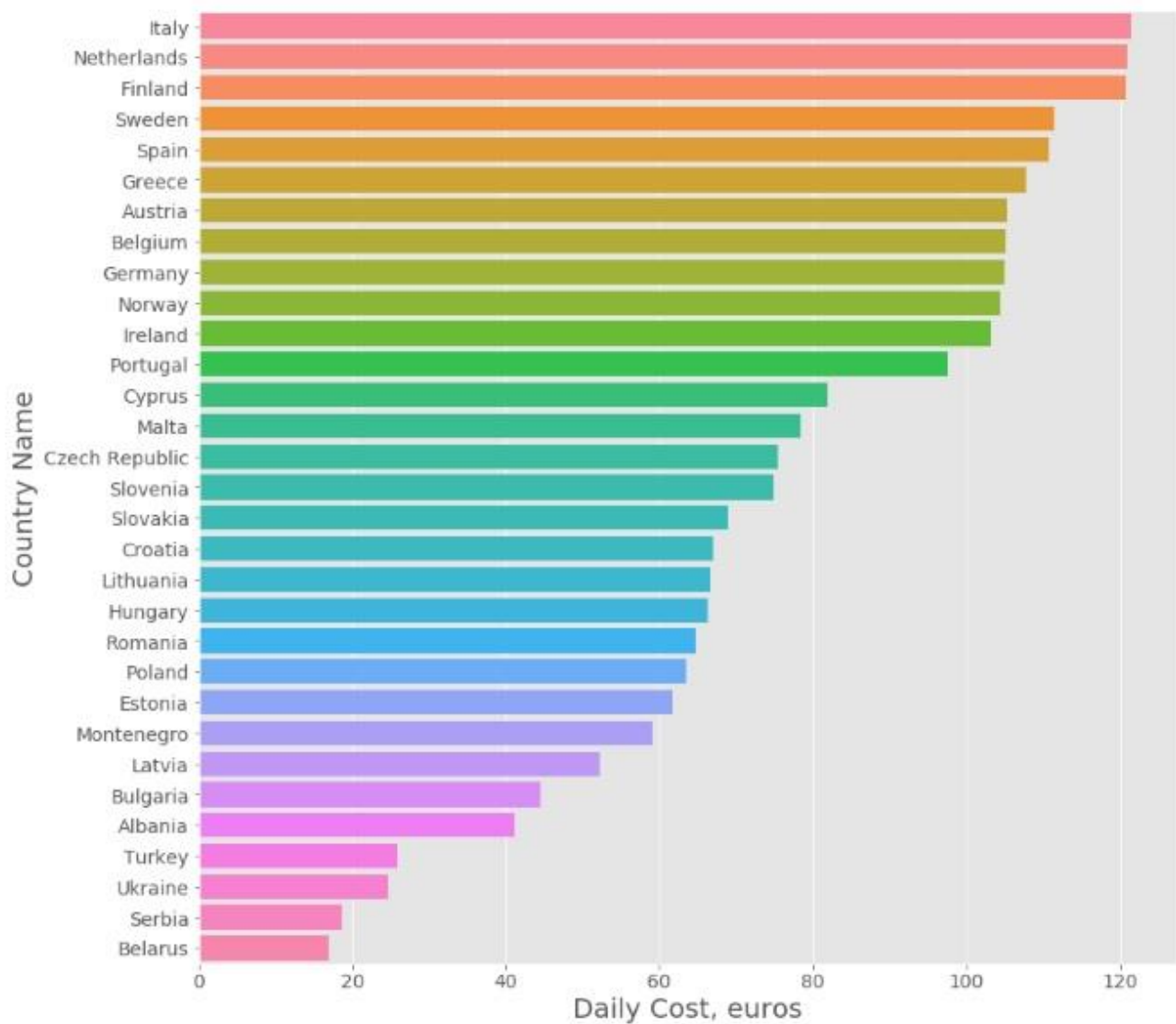
I dropped unnecessary information about other continents and capitals. Also as my friends live in Moscow, from data base Russia are excluded.

We get next information about European countries.



But my friends are short in budget. So they cant spend more than 125 euros per day.

That s we focus on that countries and their capitals which have daily costs less than 125 euros per day.



3.2 Create database of friends interests basing on their top-5 choices

We use Foursquare API to get venues (their location, category) within 10 km from Capitals center and create database about it.

After we create list of all unique venue category where my friends can choose what they are interested in.

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array(['Accessories Store', 'Airport Service', 'American Restaurant',
      'Antique Shop', 'Arcade', 'Argentinian Restaurant', 'Art Gallery',
      'Art Museum', 'Arts & Crafts Store', 'Arts & Entertainment',
      'Asian Restaurant', 'Athletics & Sports', 'Austrian Restaurant',
      'BBQ Joint', 'Bagel Shop', 'Bakery', 'Bar', 'Basketball Stadium',
      'Bay', 'Beach', 'Beach Bar', 'Bed & Breakfast', 'Beer Bar',
      'Beer Garden', 'Beer Store', 'Belgian Restaurant',
      'Bike Rental / Bike Share', 'Bistro', 'Blini House',
      'Boarding House', 'Bookstore', 'Botanical Garden', 'Boutique',
      'Breakfast Spot', 'Brewery', 'Bridal Shop', 'Bridge', 'Buffet',
      'Burger Joint', 'Burrito Place', 'Butcher', 'Cafeteria', 'Café',
      'Camera Store', 'Canal', 'Candy Store', 'Capitol Building',
      'Castle', 'Caucasian Restaurant', 'Cheese Shop',
      'Chinese Restaurant', 'Chocolate Shop', 'Church', 'Circus',
      'City Hall', 'Climbing Gym', 'Clothing Store', 'Cocktail Bar',
      'Coffee Shop', 'College Arts Building', 'College Library',
      'Comedy Club', 'Comfort Food Restaurant', 'Comic Shop',
      'Concert Hall', 'Cosmetics Shop', 'Creperie', 'Cultural Center',
      'Cupcake Shop', 'Cycle Studio', 'Dance Studio', 'Deli / Bodega',
      'Design Studio', 'Dessert Shop', 'Dim Sum Restaurant', 'Diner',
      'Discount Store', 'Distillery', 'Dog Run', 'Doner Restaurant',
      'Donut Shop', 'Eastern European Restaurant', 'Electronics Store',
      'Ethiopian Restaurant', 'Event Space', 'Exhibit',
      'Falafel Restaurant', 'Farmers Market', 'Fast Food Restaurant',
      'Filipino Restaurant', 'Fish & Chips Shop', 'Fish Market',
      'Fish Taverna', 'Flea Market', 'Flower Shop', 'Food',
      'Food & Drink Shop', 'Food Court', 'Food Truck', 'Forest',
      'Fountain', 'French Restaurant', 'Fried Chicken Joint',
      'Furniture / Home Store', 'Gaming Cafe', 'Garden', 'Gastropub',
      'Gay Bar', 'General Entertainment', 'German Restaurant',
      'Gift Shop', 'Gluten-free Restaurant', 'Gourmet Shop',
      'Greek Restaurant', 'Grocery Store', 'Gym', 'Gym / Fitness Center',
      'Gym Pool', 'Harbor / Marina', 'Hawaiian Restaurant',
      'Health & Beauty Service', 'Health Food Store',
      'Herbs & Spices Store', 'Hill', 'Historic Site', 'History Museum',
      'Hobby Shop', 'Hookah Bar', 'Hostel', 'Hot Dog Joint', 'Hotel',
      'Hotel Bar', 'Hotel Pool', 'Hungarian Restaurant', 'IT Services',
      'Ice Cream Shop', 'Indian Restaurant', 'Indie Movie Theater',
      'Indie Theater', 'Irish Pub', 'Italian Restaurant',
      'Japanese Restaurant', 'Jazz Club', 'Jewelry Store',
      'Jewish Restaurant', 'Juice Bar', 'Kafenio', 'Karaoke Bar',
      'Kebab Restaurant', 'Korean Restaurant', 'Lake',
      'Latin American Restaurant', 'Lebanese Restaurant', 'Library',
      'Lingerie Store', 'Liquor Store', 'Lounge', 'Marijuana Dispensary',
      'Market', 'Martial Arts Dojo', 'Massage Studio',
      'Mediterranean Restaurant', 'Men's Store', 'Mexican Restaurant',
      'Meyhane', 'Meze Restaurant', 'Middle Eastern Restaurant',
      'Mini Golf', 'Mobile Phone Shop', 'Modern European Restaurant',
      'Modern Greek Restaurant', 'Molecular Gastronomy Restaurant',
      'Monastery', 'Monument / Landmark', 'Moroccan Restaurant',
      'Mountain', 'Movie Theater', 'Multiplex', 'Museum', 'Music Store',
      'Music Venue', 'Neighborhood', 'Nightclub', 'Noodle House',
      'Office', 'Opera House', 'Other Great Outdoors', 'Other Nightlife',
      'Outdoor Sculpture', 'Palace', 'Park', 'Pastry Shop',
      'Pedestrian Plaza', 'Performing Arts Venue', 'Perfume Shop',
      'Peruvian Restaurant', 'Pet Café', 'Pet Store', 'Pharmacy',
      'Photography Studio', 'Pie Shop', 'Pizza Place', 'Playground',
      'Plaza', 'Polish Restaurant', 'Pool', 'Portuguese Restaurant',
      'Pub', 'Public Art', 'Racetrack', 'Ramen Restaurant',
      'Record Shop', 'Recreation Center', 'Restaurant', 'Road',
      'Rock Club', 'Romanian Restaurant', 'Roof Deck', 'Salad Place',
      'Salon / Barbershop', 'Sandwich Place', 'Sausage Shop',
      'Scandinavian Restaurant', 'Scenic Lookout',
      'Schnitzel Restaurant', 'Science Museum', 'Scottish Restaurant',
      'Sculpture Garden', 'Seafood Restaurant', 'Shoe Store',
      'Shopping Mall', 'Skating Rink', 'Ski Area', 'Snack Place',
      'Soccer Field', 'Soccer Stadium', 'Soup Place',
      'South American Restaurant', 'Souvlaki Shop', 'Spa',
      'Spanish Restaurant', 'Speakeasy', 'Sporting Goods Shop',
      'Sports Bar', 'Sports Club', 'Stables', 'Stadium', 'Steakhouse',
      'Street Art', 'Street Food Gathering', 'Strip Club', 'Supermarket',
      'Sushi Restaurant', 'Syrian Restaurant', 'Szechuan Restaurant',
      'Taco Place', 'Tapas Restaurant', 'Tatar Restaurant',
      'Tattoo Parlor', 'Tea Room', 'Temple', 'Tennis Court',
      'Thai Restaurant', 'Theater', 'Theme Park', 'Theme Restaurant',
      'Toy / Game Store', 'Track', 'Track Stadium', 'Trail',
      'Travel Agency', 'Turkish Restaurant', 'Used Bookstore',
      'Vacation Rental', 'Vape Store', 'Vegetarian / Vegan Restaurant',
      'Vietnamese Restaurant', 'Waterfront', 'Whisky Bar', 'Wine Bar',
      'Wine Shop', 'Winery', 'Women's Store', 'Yoga Studio', 'Zoo'],)
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My friends have top-5 interests what they want to see first of all.

1. Science Museum
2. Historic Site
3. Wine Bar
4. Vegetarian / Vegan Restaurant
5. Beer Bar

So I get list of interesting of my friends. After that I filter current database with all possible venues category to database which contains friends interests. So I create database of their choice.

3.3 Chosen city for vacation

After we get database with friends interests, we will focus on friends interests and capitals which has all top-5 their interests.

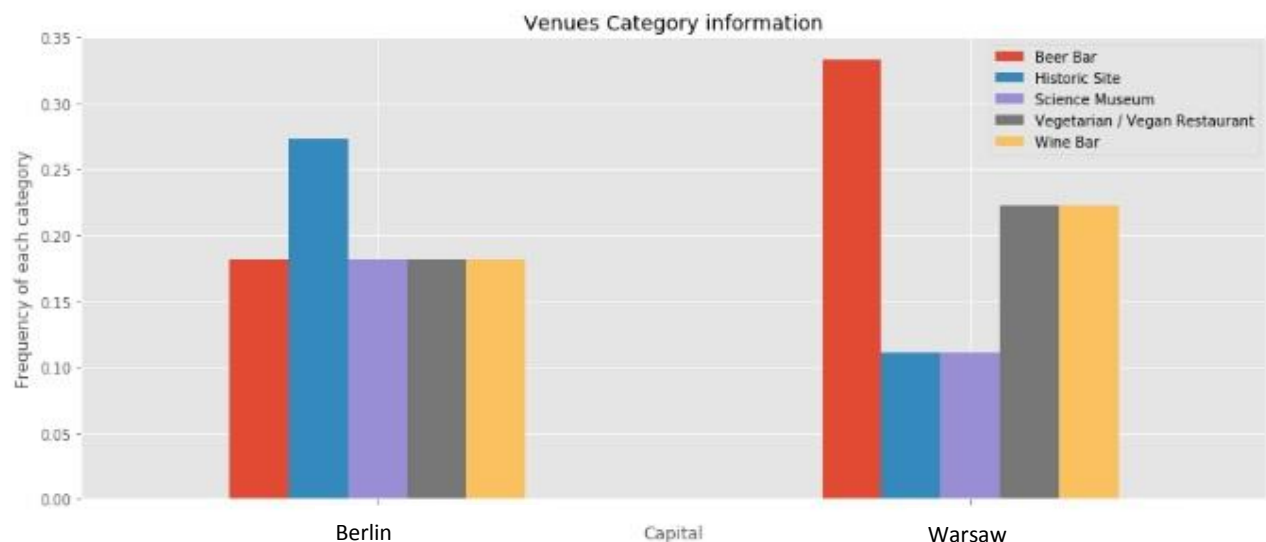
We create new database. We move each Venue Category as column and then group rows by capital names and by taking the mean of the frequency of occurrence of each category.

[49]:

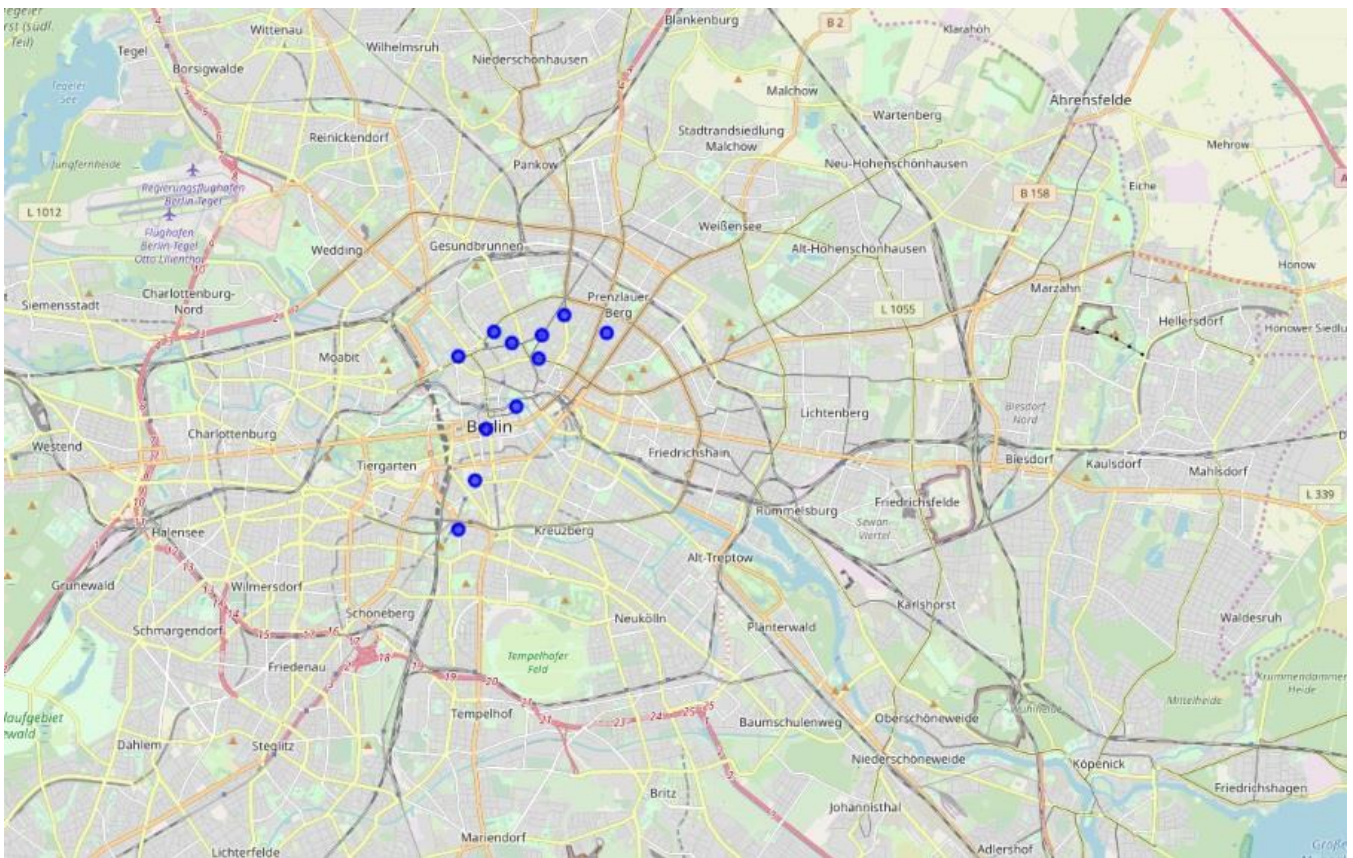
	Capital Name	Beer Bar	Historic Site	Science Museum	Vegetarian / Vegan Restaurant	Wine Bar
0	Amsterdam	0.250000	0.000000	0.000000	0.250000	0.500000
1	Ankara	0.000000	0.800000	0.000000	0.200000	0.000000
2	Athens	0.000000	0.666667	0.000000	0.066667	0.266667
3	Belgrade	0.000000	0.000000	0.000000	0.500000	0.500000
4	Berlin	0.181818	0.272727	0.181818	0.181818	0.181818
5	Bratislava	0.142857	0.000000	0.000000	0.428571	0.428571
6	Brussels	0.750000	0.000000	0.000000	0.000000	0.250000
7	Bucharest	0.000000	0.500000	0.000000	0.000000	0.500000
8	Budapest	0.600000	0.000000	0.000000	0.000000	0.400000
9	Dublin	0.500000	0.000000	0.000000	0.500000	0.000000
10	Helsinki	0.166667	0.000000	0.166667	0.166667	0.500000
11	Kyiv	0.000000	0.200000	0.000000	0.400000	0.400000
12	Lisbon	0.000000	0.000000	0.000000	0.300000	0.700000
13	Ljubljana	0.000000	0.166667	0.000000	0.500000	0.333333
14	Minsk	0.000000	0.000000	0.000000	0.000000	1.000000
15	Nicosia	0.000000	0.428571	0.000000	0.000000	0.571429
16	Oslo	0.500000	0.000000	0.000000	0.166667	0.333333
17	Podgorica	0.750000	0.000000	0.000000	0.000000	0.250000
18	Prague	0.166667	0.166667	0.000000	0.000000	0.666667
19	Riga	0.000000	0.000000	0.000000	0.250000	0.750000
20	Rome	0.000000	0.666667	0.000000	0.000000	0.333333
21	Sofia	0.166667	0.000000	0.000000	0.666667	0.166667
22	Stockholm	0.500000	0.000000	0.000000	0.250000	0.250000
23	Tallinn	0.200000	0.100000	0.000000	0.200000	0.500000
24	Valletta	0.000000	0.625000	0.000000	0.000000	0.375000
25	Vienna	0.000000	1.000000	0.000000	0.000000	0.000000
26	Vilnius	0.200000	0.200000	0.000000	0.100000	0.500000
27	Warsaw	0.333333	0.111111	0.111111	0.222222	0.222222
28	Zagreb	0.000000	0.333333	0.000000	0.000000	0.666667

First of all my friends want to visit that countries which contains all their top-5 interests. I check if there are countries which have all top-5.

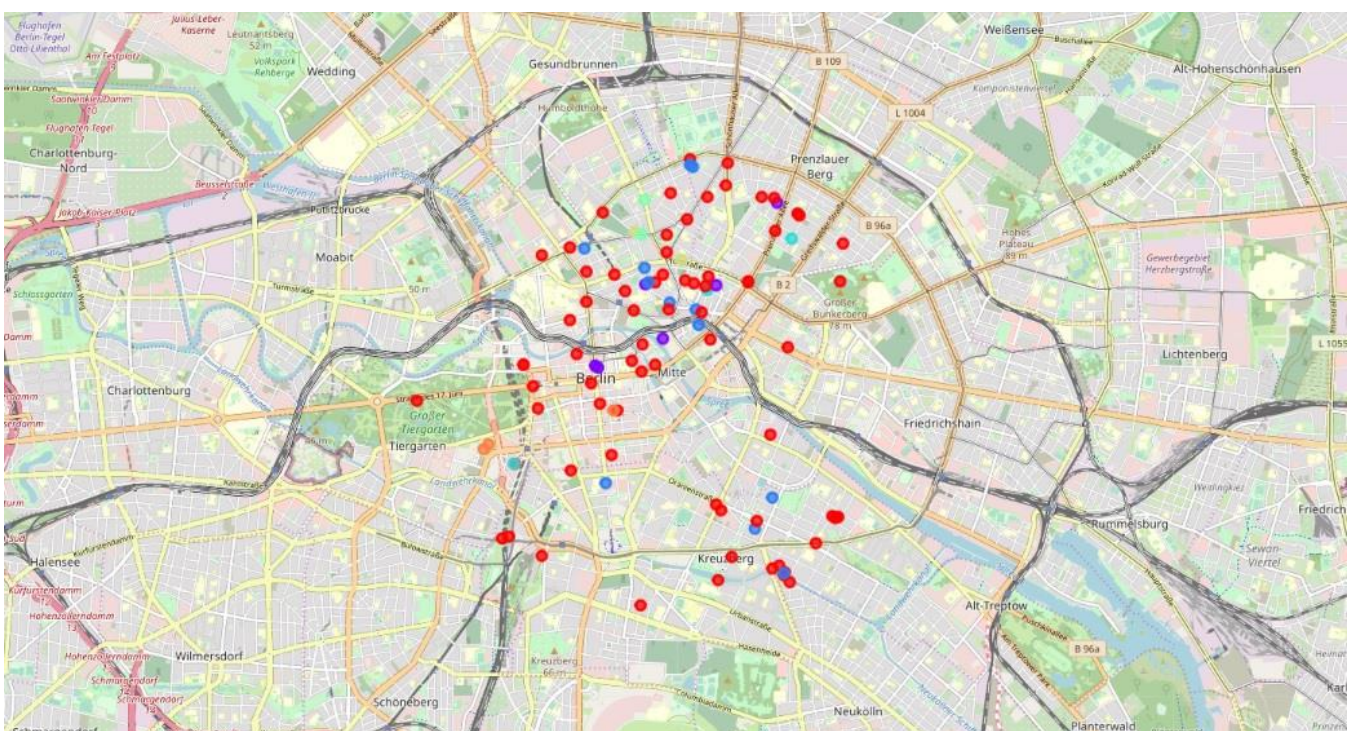
There are two countries



First of all my friends want to visit Museums and historic sites. So they choose Berlin. And I show them in map location of their interests.



Also I discover what else my friends can be explored in Berlin clustering all category venue in Berlin.



As my friends can see Berlin is interesting city when they can explore many things more.

4. Results and Discussion

My analysis shows that based on budgets short, friends interests and preferences they can chose city.

They cant spend more 125 euros per day, also they have their interests what they want to explore first of all in the city.

This analysis gives them high level understanding what they can find in the cities (using Venue Category).

After directing our attention to the top-5 friends interests I give them that cities which satisfied their interests.

After when they choose Berlin, I explore more about Berlin using clustering.

Also if they want to change their preferences or when they wont have limit in budget, they can easier change parameters and discover new recommendation places where they can go.

Purpose of this analysis is to provide info about cities and city which my friends potential choose.

5. Conclusion

Purpose of this project in high level was to help my friends to choose city for their vacation based on their interests and preferences and budget limit using foursquare.

Also this project helps them to explore more information about city which they choose (Berlin) using foursquare and clustering.

Final decision on where to go they can take after more detail exploring city which they choose or candidates