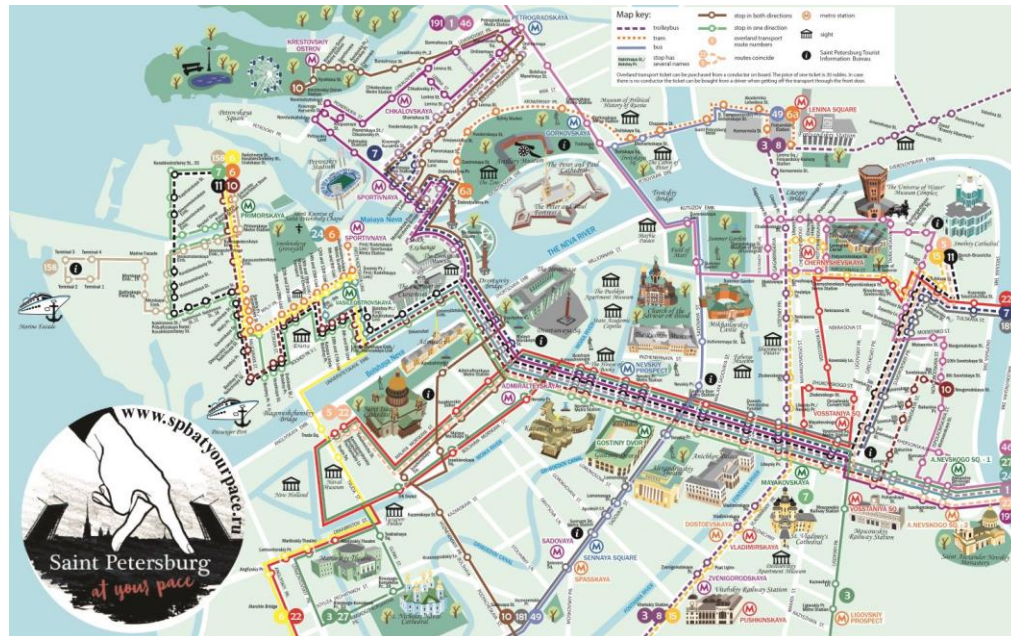


# Choosing the district, where to open an Italian Restaurant in Saint-Petersburg, Russia

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## 1. Introduction

### 1.1. Background

Starting your own business is always a challenge and big risks, something can always go wrong. You may not have enough money, your product may not find a response from buyers, you may be wrong with the chosen marketing strategy, or choose the wrong place to open your business. Among other things, opening your own restaurant is one of the most difficult beginnings in my opinion. Choosing the right area to open is a difficult choice and a lot depends on it. Will there be a sufficient number of people around, how strong is the competition and if there is none at all, then perhaps for a reason.

## **1.2.Problem**

In this study, we will consider one of the factors for the successful opening of a restaurant - the population density in a particular area of St. Petersburg and the number of Italian restaurants open around. We will be based on the fact that if there are no Italian restaurants in a certain radius in the area, then this area is not suitable for us, since most likely other restaurateurs conducted research and the absence of an Italian restaurant in it for a reason.

## **1.3.Interest**

This research will be of interest to those who want to open their own restaurant and choose a suitable area in St. Petersburg. Also, the study will be interesting to anyone who wants to open a business, to see the competition around, since it will be enough just to change a few parameters. For example, by entering the coordinates of an existing grocery store, changing the search radius and the name of the place found in Foursquare, you will see the number of competitors around.

# **2. Data acquisition and cleaning**

## **2.1.Data description**

We will use different types of data in our research. First of all, we will need to determine the coordinates of the city of St. Petersburg, as well as the coordinates of the city districts. We need the coordinates so that using the application programming interface (API) we can see what is around a given point and determine the number of Italian restaurants. We will also need the population size in the city districts, as well as their area to determine the population density. The data sources for our research will be the site, where the coordinates of the city will be indicated. Wikipedia, from there we can take data on the population in each district, as well as the coordinates of the districts and the area of each district. And of course, data from Foursquare, from where we will take the data we need on the location of Italian restaurants.

## 2.2.Data sources

- Foursquare API
- Coordinates of Saint-Petersburg and all districts (Wikipedia)
- Square area and population of districts (Wikipedia)
- Python libraries:
- Pandas: to create and manipulate Data Frames

Folium: to show the map of the city

Geopy: to get the coordinates

BeautifulSoup: to parse necessary data from websites

Data from parsing:

```
Latitude of st petersburg russia
59.934280
Longitude of st petersburg russia
30.335099
```

Data using geopy:

```
The geograpical coordinate of Saint-Petersburg City are 59.938732, 30.316229.
```

Data using Foursquare API:

	District	District_Latitude	District Longitude	Venue	Venue_Latitude	Venue_Longitude	Venue_Category
0	Admiraltejskij	59.91683	30.30000	Усачевские бани. Купеческий класс	59.918335	30.299474	Historic Site
1	Admiraltejskij	59.91683	30.30000	Alexander House	59.919205	30.300146	Hotel
2	Admiraltejskij	59.91683	30.30000	The Seven Bridges Point (Семимостье)	59.920811	30.298543	Historic Site
3	Admiraltejskij	59.91683	30.30000	Палантин	59.913655	30.296419	Hotel
4	Admiraltejskij	59.91683	30.30000	Круиков Canal (Крюков канал)	59.920978	30.299178	Canal
...	...	...	...	...	...	...	...
1340	Vyborgskij	59.99983	30.33301	Place of a prospective duel of A. Pushkin (Мес...	59.994982	30.301875	Historic Site
1341	Vyborgskij	59.99983	30.33301	Буквоед	60.002338	30.299127	Bookstore
1342	Vyborgskij	59.99983	30.33301	Ароматный мир	60.014783	30.323363	Wine Shop
1343	Vyborgskij	59.99983	30.33301	Black Cat Pub	60.013036	30.313266	English Restaurant
1344	Vyborgskij	59.99983	30.33301	Автосервис для Land Rover	60.000118	30.324379	Auto Workshop

Data accumulated from Wikipedia to .xlsx file

	District	Population	Square area	Longitude	Latitude
0	Admiraltejskij	156958	13,82	59.91683	30.30000
1	Central'nyj	210899	17,77	59.93860	30.35000
2	Frunzenskij	384385	37,52	59.84870	30.40000
3	Kalininskij	521875	40,18	59.99860	30.40000
4	Kirovskij	331550	47,46	59.86860	30.25000
5	Kolpinskij	194934	102,25	59.78920	30.59970
6	Krasnogvardejskij	355621	56,35	59.97200	30.48500
7	Krasnosel'skij	412886	90,49	59.77180	30.00230
8	Kronštadtskij	44353	19,53	59.99450	29.76680
9	Kurortnyj	78910	268,19	60.15930	29.90000
10	Moskovskij	347022	73,07	59.82860	30.32000
11	Nevskij	538323	60,66	59.88930	30.46030
12	Petrodvorcovyj	142655	107,08	59.85930	29.88970
13	Petrogradskij	125731	19,54	59.95910	30.27970
14	Primorskij	580100	109,90	59.99860	30.20000
15	Puškinskij	229403	240,09	59.69860	30.40000
16	Vasileostrovskij	205240	21,47	59.93283	30.25000
17	Vyborgskij	523497	115,52	59.99983	30.33301