

# Capstone Project

## Open a hotel in Madrid



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# Introduction

Most of the tourists that Spain receives go to sun and beach destinations, however, in recent years, Madrid (capital of Spain) has tried to grow this number of tourists using other skills such as museums, parks and leisure.

In 2019 more than 10 million tourists arrived in Madrid, 2.1% more than last year and spent an average of about 270 euros a day, 12.6% more than the previous year<sup>[1]</sup>.

With these data of possible future growth it could be interesting to open a hotel in the city of Madrid, however it is difficult to choose where.

Madrid could be an interesting place within Spain to open a hotel since compared to other communities it has a much lower number of hotels.

For example, the case of Galicia, with 2.7 million inhabitants, has an average of 1,409 hotels open, while Madrid, with 6.6 million inhabitants, has an average of 1,169 open hotels<sup>[2]</sup>.

Madrid also has the incentive that it has the Barajas airport, through which 57.8 million passengers passed in 2018.

## Principal problem

Madrid has 21 neighborhoods and depending on the hotel we plan to build, it will be better to choose one or the other. For example, building a hotel in Barajas where Madrid Airport is located may not attract young people who prefer to spend some night at a party in the center of Madrid, but it does attract some of the millions of travelers that we have previously commented that They spend the year at the airport to spend a night at the hotel. On the other hand, a family that plans to spend a few days visiting the parks and museums and eating in the restaurants may want to get away from the center a little to avoid night noise but stay relatively close to visit these places that are mostly in the center.

At the same time, doubts arise about which of these 21 neighborhoods have the greatest number of hotels since, if there is an excess, it is very likely that our hotel that has just opened will have difficulty making a place for itself among the others.

# Data

## Necessary information

1. To solve this problem we will need the neighborhoods of Madrid. It is essential since we want to know in which of these it may make more sense to build our hotel.
2. Coordinates of the neighborhoods of Madrid, we need these data to join it with the previous information and to be able to obtain the next step.
3. Information of all venues in Madrid, we will segment this information with the neighborhoods to carry out the analysis. It is key to our project with information about hotels, plazas, parks, museums, restaurants ... since in this information we will base our subsequent analysis

## Data sources

1. We will obtain the data of the neighborhoods of Madrid from Wikipedia, specifically from [https://es.wikipedia.org/wiki/Anexo:Barrios\\_administrativos\\_de\\_Madrid](https://es.wikipedia.org/wiki/Anexo:Barrios_administrativos_de_Madrid) will have to do scraping of the page to be able to obtain them. Specifically, we will use Python together with the BeautifulSoup package to obtain the data.
2. Once we have obtained the neighborhoods we will use the Python Geocoder tool to obtain the longitude and latitude of each neighborhood.
3. Finally, once we have linked the information of each neighborhood with its coordinates, we will use the Foursquare API to obtain the information of all venues of each neighborhood. Foursquare will give us the category of each venue, which will allow us to analyze relevant information for our project, such as how many hotels there are per neighborhood, parks, museums ...