Classification of Milan Hotels for Winter Games 2026

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Introduction and Business Problem

Italy will host the 2026 Winter Games. The Host City Contract (HCC)– Principles 2026, is the contract concluded between the International Olympic Committee ("the IOC") and the city elected to host the Olympic and Paralympic Games (the "Host City"), the National Olympic Committee of the Host Country (the "Host NOC") and Organizing Committees for the Olympic and Paralympic Games (OCOG).
The "Stakeholder Group Accommodation Requirements Table" outlines that International Federation (IF) Group should be accommodated in different type of hotels based on the Star Ratings. The challenge to resolve is being able to find hotels in Milan that offer such a requirement. Therefore, I want to find a hotel subject to thefollowing conditions:

- Hotels with (2 <= Star Rating <= 4)
- Unit located within walking distance (<=1.0 km) from a subway metro station in Milan
- Area with most ammenities and venues

Data

- The list of Milan neighborhoods will be extracted from Wikipedia Page (https://it.Wikipediaorg/wiki/Municipi_di_Milano) using Web Scraping.
- List of accommodation facilities in Milan area with descriptions will be obtained from DatiOpen.it Website (http://www.datiopen.it/it/opendata/Regione_Lombardia_Mappa_delle_strutture_ricettive).
- The Foursquare Platform is the main source to identify any location and find places nearby.
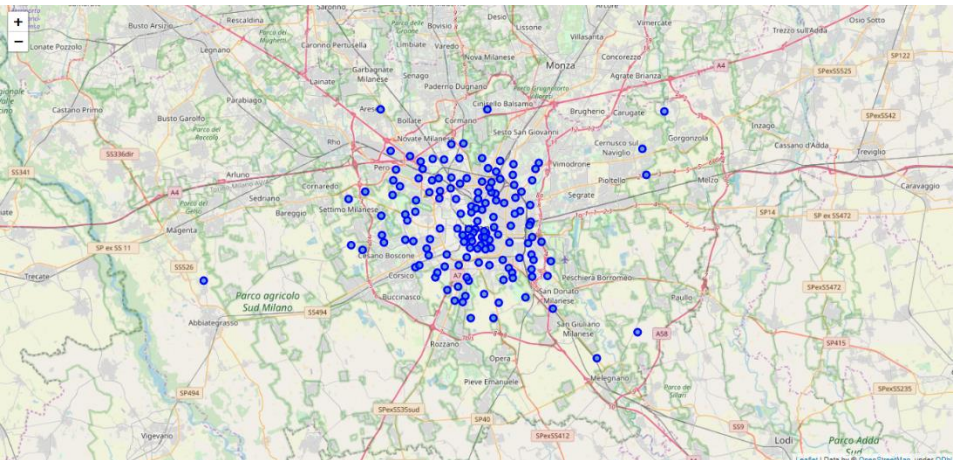- The geolocation will be obtained via an algorithm using Nominatim.

Methodology

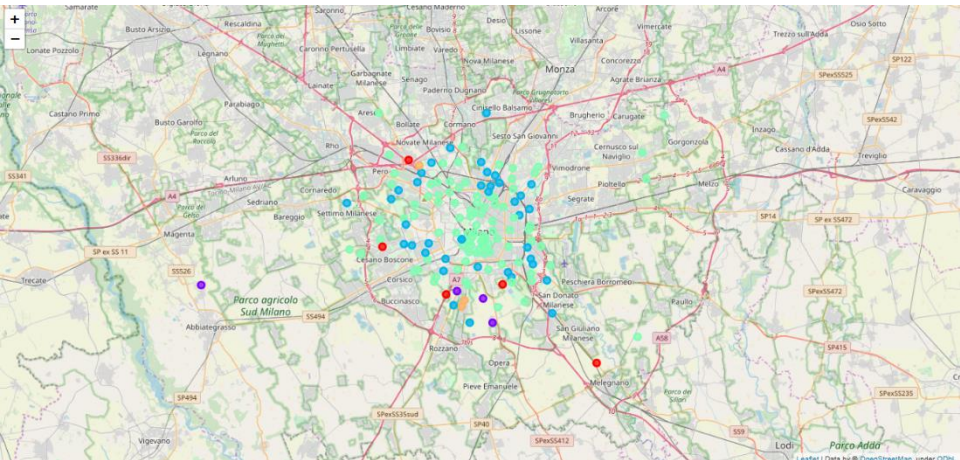In order to do the analysis and suggest the best location, following steps were followed:

- The Wikipedia page ('https://it.wikipedia.org/wiki/Stazioni_della_metropolitana_di_Milano' and (https://it.wikipedia.org/wiki/Municipi_di_Milano) was scraped using the BeautifulSoup library to build a pandas dataframe listing the boroughs, neighborhoods, subway stations of Metropolitan City of Milan. The data frame was cleaned and processed appropriately.

- The Municipality of Milan website presents the registry list of the accommodation facilities exist in the Municipality of Milan.
- The Foursquare API is then used to get the venues nearby each hotel of Milan, based on the categories of each.
- I will now use K means to cluster the venues based on the category.
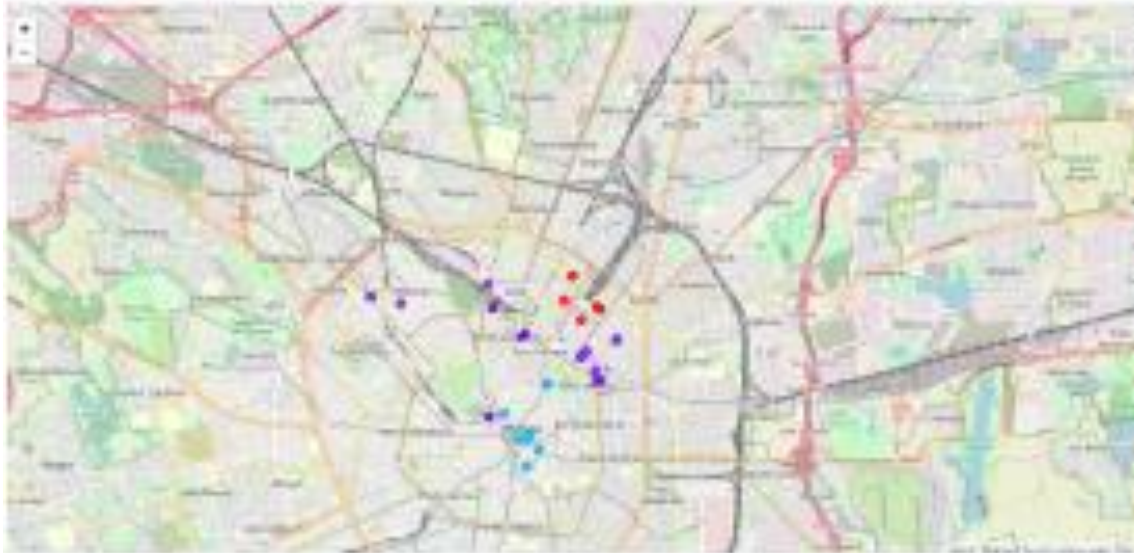
Map of Milan with Neighborhoods:

Map of Milan- Clustered:

Map of Clustered Results in Milan:

Based on the constraints we have chosen, we found that these hotels would be the better place to start.

Discussion

- The analysis shows that although there is a great number of high-quality hotels in Milan, there are groups of 2-4 stars rating hotels fairly close to subway stations.
- Moreover, they can provide 625 rooms to accommodate all IF+OCOG Stakeholder Group of Winter Games 2026.
- Results are containing largest number of potential hotel locations based on distance to subway station and number of existing venues around them.
- This, of course, does not imply that those are actually optimal locations to accommodate all IF+OCOG Stakeholder Group of Winter Games 2026!
- This analysis provide a proposed list of hotels. To submit the plan for accommodation, more accommodation requirements should be covered according to IOC Host City Contract. The IOC will choose, after an inspection visit, one or several hotels to become the OFH, thus covering its accommodation requirements.

Conclusion:

- Purpose of this project was to identify Milan Hotels close to a subway station with most venues and amenities in their neighborhoods (particularly Italian restaurants) in order to aid IOC administrationinnarrowingdownthesearchforoptimallocationforaccommodatingallIF+OCOG Stakeholder Group of Winter Games 2026.
- I have first identified hotels that satisfy some basic requirements, then by finding closest subway station to each hotel using Nominatim API, venues density distribution from Foursquare data, I generated extensive collection of location that justify further analysis. Clustering of those locations was then performed in order to create major locations of interest (containing greatest number of potential locations) and name and addresses of those hotels were created to be used as starting points for final exploration by IOC stakeholders.
- Final decision on optimal location will be made by IOC stakeholders based on more accommodation requirements which should be covered according to IOC Host City Contract.