IBM DATA SCIENCE CAPSTONE PROJECT

VENUES TO INVEST IN AROUND THE GRAND EGYPTIAN MUSEUM (GEM)

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Introduction

Egypt is currently building a megaproject called The Grand Egyptian Museum or GEM. The museum is projected to be the largest archeological museum in the world. The museum complex will be built on a plot of land of approximately 480,000 square meters, which will be situated less than 2 kilometers away from the timeless wonder of the Giza Pyramids.

As well as holding the entire collection of the famous king Tutankhamoun, the museum complex will be holding more than 100,000 artifacts. This will allow the museum to accommodate more than 15,000 visitors per day.

While this seems like a very promising project for the Egyptian government in order to boost the tourism sector, it is also a great opportunity for investors looking to invest in what is expected to be a major touristic hub in one of the top touristic destinations in the world.

Business problem

In this project we have tried to answer the question of ‘Where should a potential investor put their money around such a project?’. In an attempt to do so, we used a data–oriented approach and our data science toolkit in order to acquire, clean, and visualize it.

Additionally, we ran some analysis algorithms with the purpose of finding similar museums that already exist around the world and trying to get ideas of what category of venues would be the most successful around such project.

Data

- **Data required:**
  - A list of most visited museums around the world, adding to them the data of the GEM in order to study the demographic of the already existing venues in the vicinity.
  - Location data of these museums, including addresses and coordinates (latitude and longitude).
  - Venue data, which includes the venues that are currently existing and successfully functioning around these museums and the categories of said venues.

- **Data acquisition:**
  - https://en.wikipedia.org/wiki/List_of_most_visited_art_museums
  - We will start by using BeautifulSoup module in order to scrape the table containing the data that we need. Next, we will access the location data of these museums via **Geopy**, including their addresses and coordinates. Afterwards, using the **Foursquare API** we will acquire the venue data around these museums, including the venue coordinates, so we can visualize them on the map, and the venue category.

Methodology

- In this project we tried to understand the demographic of venues around the most visited museums around the world.

- First, we explored each museum and the top venues around them. Then, we ran some cluster analysis using K–means algorithm in order to find out the similarities between these museums. More importantly, to find out which cluster GEM belongs to.

- Secondly, we started taking a closer look at the venues around the museums that belong at the same cluster as GEM.

- Finally, we compared the categories of venues around the GEM and the categories of venues around these museums, in order to determine which venues seem successful, given the same circumstances and demographic.

Results & discussion

- As our cluster analysis suggests, the area around GEM has a very similar demographic to the Gyeongju National Museum's. This includes having a historic site and a history museum nearby, one of the most prominent factors shaping the demographic of the venues around these museums.

- By looking at the venues that exist around Gyeongju National Museum, we'll notice there are more outdoor activities for visitors to enjoy a well-rounded cultural experience. This suggests that investing in an outdoor activity venue in the area around GEM is very promising. Especially considering Egypt's year-round warm and sunny weather.

- Also, we can notice a more diverse food and beverage scene around Gyeongju National Museum. This suggests that the area around GEM could benefit from more diversity in terms of food and beverage.

Conclusion

- Our capstone project included the utilization of the data science toolkit in order to find out where should a potential investor invest their money around the Grand Egyptian Museum, which is expected to open its doors for visitors in 2021.

- Our capstone project provided us with a valuable insight regarding the demographic of venues around GEM. According to our brief study of the area, in comparison to the area of the Gyeongju National Museum, the area around GEM could benefit from outdoor activity venues that would provide a more rounded cultural experience for visitors.

- Lastly, the area could also benefit from a more diverse food and beverage scene, especially considering the diversity of the expected visitors to the museum.