



IBM Applied Data Science Capstone

**Clustering Five Financial Hub of the World
according to essential venues**

-Nishant Kumar

April 14, 2021

1. Introduction:

1.1 Background:

Financial hub is a location with a concentration of participants in banking, asset management, insurance or financial markets with venues and supporting services for these activities to take place. Participants can include financial intermediaries (such as banks and brokers), institutional investors (such as investment managers, pension funds, insurers, hedge funds), and issuers (such as companies and governments). Trading activity can take place on venues such as exchanges and involve clearing houses, although many transactions take place over-the-counter (OTC), that is directly between participants. Financial centres usually host companies that offer a wide range of financial services, for example relating to mergers and acquisitions, public offerings, or corporate actions; or which participate in other areas of finance, such as private equity and reinsurance. Ancillary financial services include rating agencies, as well as provision of related professional services, particularly legal advice and accounting services.

1.2 Problem:

- Which cities are similar?
- Which city ranks better in terms of essential venues?
- What is the venue is omni present and tops the list?
- Which city have more essential venues, both in terms of number and density?

1.3 Target Audience:

This project aims to help all individuals(bankers, investors, brokers, managers) planning to move to a new city by presenting visualizations and data. Thus helping the one to make informed decision.

1.4 Data Description:

- City Latitude/ Longitude:
 - Data is obtained using opencage library by fetching in city name and country name
 - Website: <https://opencagedata.com>
- City venues:
 - Data is obtained using Foursquare API
 - Website: <https://foursquare.com>
- City, Country, Population:
 - Obtained from google
 - Website: <https://google.com>