**Classification of Washington DC Metro Stations Using Foursquare Data**

**Introduction**

Washington, D.C., formally the District of Columbia and also known as D.C. or Washington, is the federal capital city of the United States of America since 1800. It is bordered by the state of Virginia to the southwest side and by Maryland to the southeast, northeast, and northwest sides.

The Washington Metropolitan Area Transit Authority (WMATA) commonly referred to as Metro operates and provides safe, clean and reliable transit service in Washington, DC and neighboring communities in Virginia and Maryland.

This project aims to describe different parts of Washington, DC by studying neighborhoods surrounding metro stations. Opened in 1976, the Washington metro has now 91 stations spread out on 6 lines with 117 miles (188 km) of tracks and carries an average weekday ridership of 764,300.

The result can be useful for someone who is planning to move to the Washington Metropolitan Area and would like to find a place that fits their lifestyle and interests.

**Data**

This project used two major data sources to solve the problem:

1.    List of the metro stations in Washington, DC and their geographical coordinates web scraped from  [**Wikipedia**](https://sv.wikipedia.org/w/index.php?title=Lista_%C3%B6ver_tunnelbanestationer_i_Stockholm&oldid=46033661)**.**

2.    Foursquare venue data:

* In order to explore and classify the neighborhoods surrounding each metro station, [Foursquare **Venue Data**](https://developer.foursquare.com/docs/api/venues/search) was used. The average distance between two metro stations in Washington, DC is approximately 1.22 miles or 2 kms. In order to avoid overlapping and to cover reasonable walking distance around each station, the radius of the query was limited to 500 meters.
* List of the venue categories on the main level and on lower levels was downloaded from [**Foursquare Venue Categories**](https://developer.foursquare.com/docs/resources/categories) and used in the exploratory data analysis section.