

## **Background**

London, a fascinating metropolis with the world's best attractions, is one of the most visited city all over the globe. With international travel having been restricted for like a decade, I miss my previous stays in the city so bad and can't help looking forward to the next visit. If I have one day in London, this would be it – a park in the morning, a museum/art gallery to follow, a Japanese restaurant for meal and a musical/live performance in a theater to end.

## **Business Problem**

To better fulfill the day, I'd like to do some early trip planning to figure out where to go with all the four types of venues of my interest nearby.

As I usually visit a city around by public transport, the result of this analysis will be a target Tube station, specifically in Zone 1, where most of the attractions and sites are located.

## **Audience**

The analysis could be applicable to trip planning for any tourist with their customized choice of city and interests.

## **Data**

1. Extract a list of London Tube stations in Zone 1 from wiki webpage and transform to Panda data frame  
[https://en.wikipedia.org/wiki/List\\_of\\_stations\\_in\\_London\\_fare\\_zone\\_1](https://en.wikipedia.org/wiki/List_of_stations_in_London_fare_zone_1)

There are 84 tube stations in Zone 1.

	Station	Local authority	Managed by	1981 to 1983[6]	Notes
0	Aldgate	City of London	London Underground		City
1	Aldgate East	Tower Hamlets	London Underground		City
2	Angel	Islington	London Underground		City
3	Baker Street	Westminster	London Underground		West End
4	Bank	City of London	London Underground		City

2. Look for stations in the most popular boroughs to foreign and domestic tourists to trim down the scope.

According to statistics of tourism trips by borough in Greater London from <https://data.gov.uk/dataset/ee5038be-d2be-4ab6-a612-70ade60eca12/tourism-trips-borough>, Westminster, Kensington & Chelsea, Camden, City of London and Tower Hamlets are the top 5 popular boroughs in Zone 1.

3. Filter out Zone-1 Tube stations managed by London Underground in the 5 boroughs listed above.

The number of stations is down to about 50 then.

	Station	Local authority	Managed by
0	Aldgate	City of London	London Underground
1	Aldgate East	Tower Hamlets	London Underground
2	Baker Street	Westminster	London Underground
3	Bank	City of London	London Underground
4	Barbican	City of London	London Underground

4. Download data of the annual entries and exits by passengers of a station from <https://data.london.gov.uk/download/london-underground-performance-reports/b6ab04fc-9062-4291-b514-7fa218073b4c/multi-year-station-entry-and-exit-figures.xls> and put into a Panda data frame, and to drop out the least busiest stations.

	Station	Local authority	Managed by	PAX mn
42	Queensway	Westminster	London Underground	8.523970
43	Great Portland Street	Westminster	London Underground	8.081276
44	Goodge Street	Camden	London Underground	7.524287
45	Edgware Road (Cir)	Westminster	London Underground	7.148956
46	Mansion House	City of London	London Underground	6.405554
47	Lancaster Gate	Westminster	London Underground	6.243768
48	Hyde Park Corner	Westminster	London Underground	5.538477
49	Bayswater	Westminster	London Underground	4.714236
50	Edgware Road (Bak)	Westminster	London Underground	4.623646
51	Regent's Park	Westminster	London Underground	3.611762

- Get geo codes of Tube stations from <https://www.doogal.co.uk/LondonStationsCSV.ashx> and merge with the existing data frame

	Station	Local authority	Managed by	PAX mn	Latitude	Longitude	Zone	Postcode
0	Aldgate	City of London	London Underground	8.846940	51.514342	-0.075627	1	EC3N 1AH
1	Aldgate East	Tower Hamlets	London Underground	13.998292	51.515082	-0.073001	1	E1 7PT
2	Baker Street	Westminster	London Underground	28.784591	51.523130	-0.156904	1	NW1 5LA
3	Bank	City of London	London Underground	61.796153	51.513347	-0.089000	1	EC3V 3LA
4	Barbican	City of London	London Underground	11.827212	51.520215	-0.097722	1	EC1A 4JA
5	Blackfriars	City of London	London Underground	14.825714	51.511587	-0.102995	1	EC4V 4DD

- The data of select Tube stations is ready now to explore nearby venues around via Foursquare API, with categories in 'Park', 'Art Gallery', 'Exhibit', 'Art Museum', 'History Museum', 'Japanese Restaurant', 'Opera House', and 'Theater'.