
For apartment building development project

LOCATION RECOMMENDATION

BACKGROUNDS

- **This project is commissioned by an overseas real estate developer is looking to take advantage of the current housing shortage problem in London as an opportunity to enter the UK real estate market**
 - **The locational scope of this project should be expanded to the Greater London area given potential affordability constraint in Central London**
 - **The developer's plan is to build 2-4 bedroom apartments**
 - **Key strategy / consideration: locations with close proximity to schools that are likely to be favoured by young families with kids**
-

DATA ACQUISITION

- **Postal areas and its corresponding postcodes in Greater London**
- **Latitudes and Longitudes of all postal areas fetched**
- **All school venues in the specified postal areas. This also includes additional details about these venues, e.g. venue categories, geo coordinates, etc.**

worldpostalcode.com/united-kingdom/england/greater-london

postal code

Codes List

all

☆

A

B

C

D

E

F

G

H

I

K

L

M

N

O

P

Q

R

S

T

U

V

W

Y

A

Abbey Road

NW8

Abbey Wood

SE2

Acton

W3

Acton Green

W4

Acton Town

W5

Addington

CR0

Aldersbrook

E12

Aldersgate

EC1

Aldgate

EC3

Aldgate East

E1

Aldwych

WC2

Alexandra Palace

N22

Source: www.worldpostalcode.com

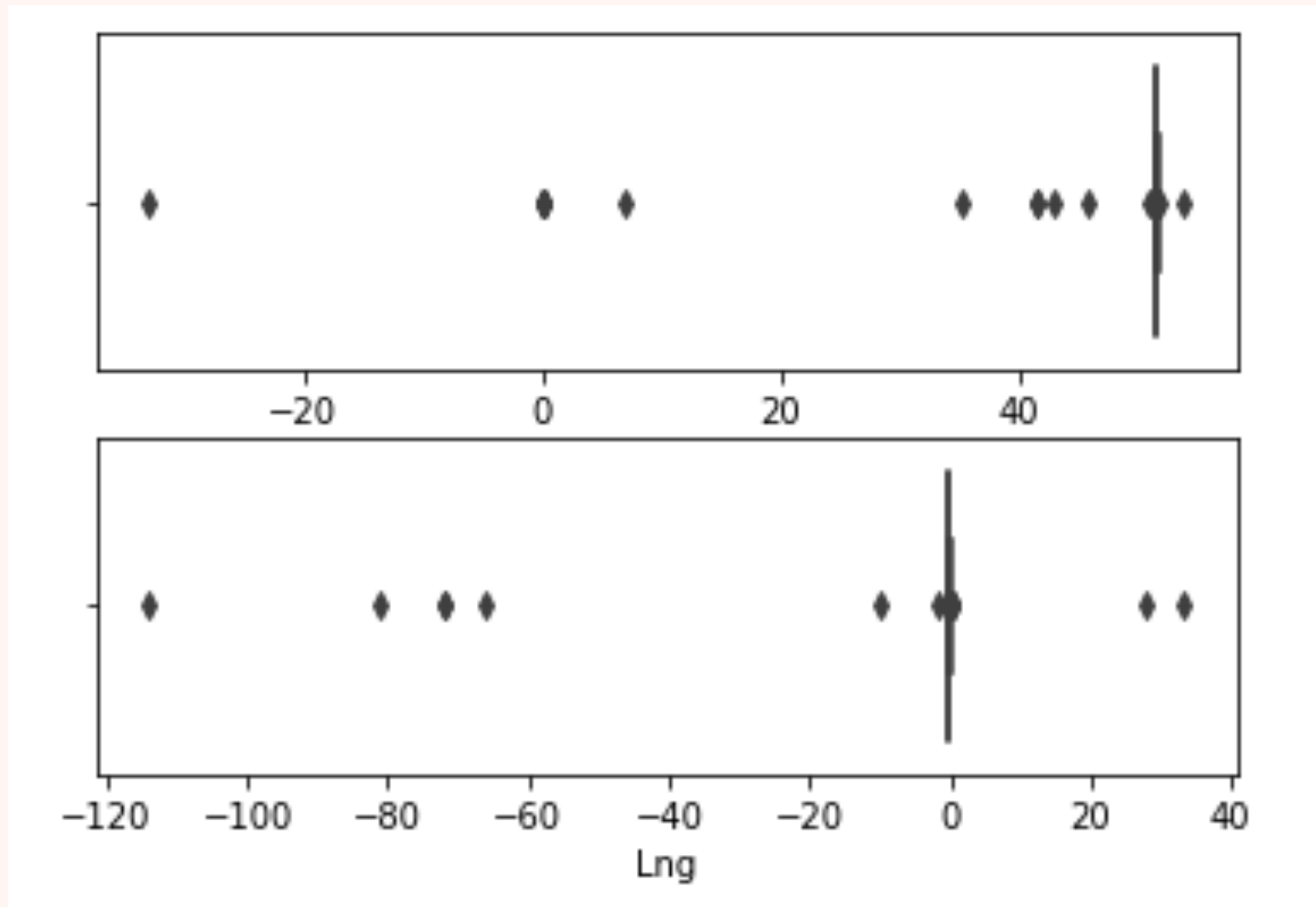
	PostCode	Areas	Lat	Lng
0	NW8	Abbey Road	51.458009	0.134958
1	SE2	Abbey Wood	51.487621	0.114050
2	W3	Acton	51.508140	-0.273261

Source: Geopy library

	PostCode	Areas	Lat	Lng	School_check	School_name	School_category
0	NW8	Abbey Road	51.458009	0.134958	1	[Top dog Training School & Home Boarding, Upla...	[Pet Service, School, Elementary School]
1	SE2	Abbey Wood	51.487621	0.114050	1	[Abbeywood Nursury School & Children's Centre,...	[Nursery School, Middle School, Driving School...
2	W3	Acton	51.508140	-0.273261	1	[Aim Driving School, Aim Driving School, Acton...	[Driving School, Driving School, Music School,...

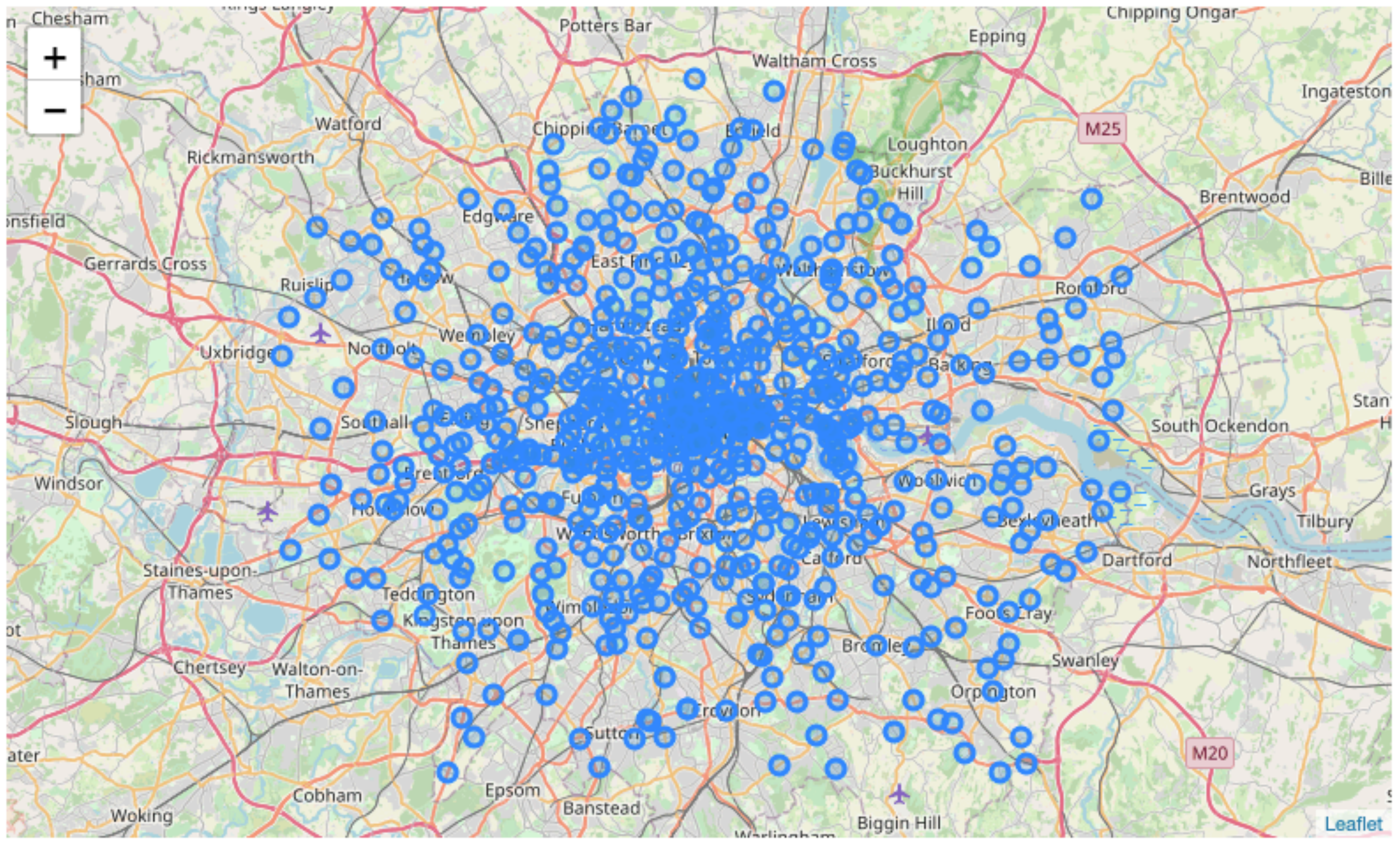
Source: Foursquare API

DATA CLEANING - REMOVE LOCATION OUTLIERS



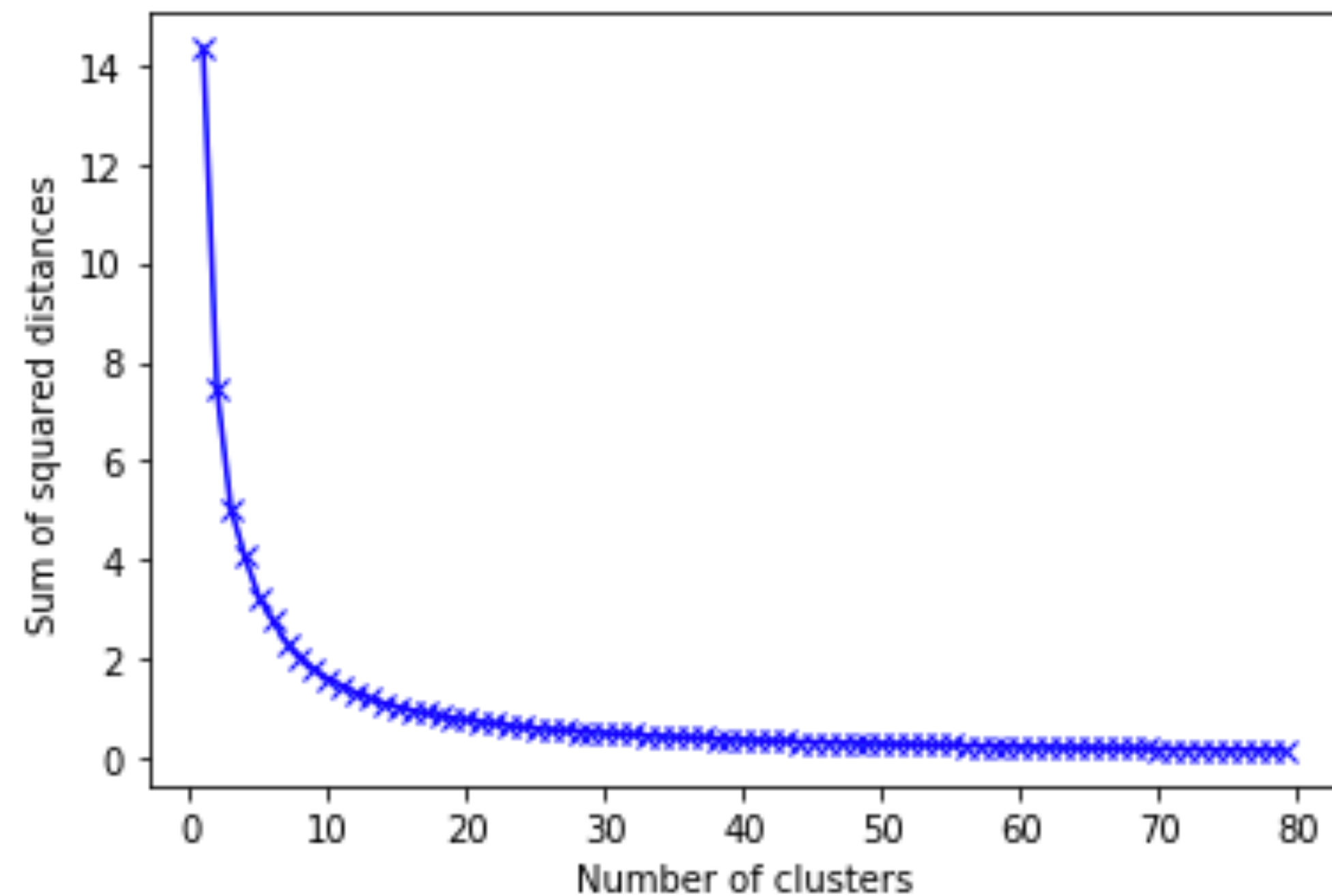
- 40 outlier locations are removed
- This could either be errors from worldpostalcode.com or the Geopy library
- However given the size of Greater London, these outliers have simply been removed without further investigation (680 areas fetched after the removal of outliers)

MAPPING ALL POSTAL AREAS IN LONDON



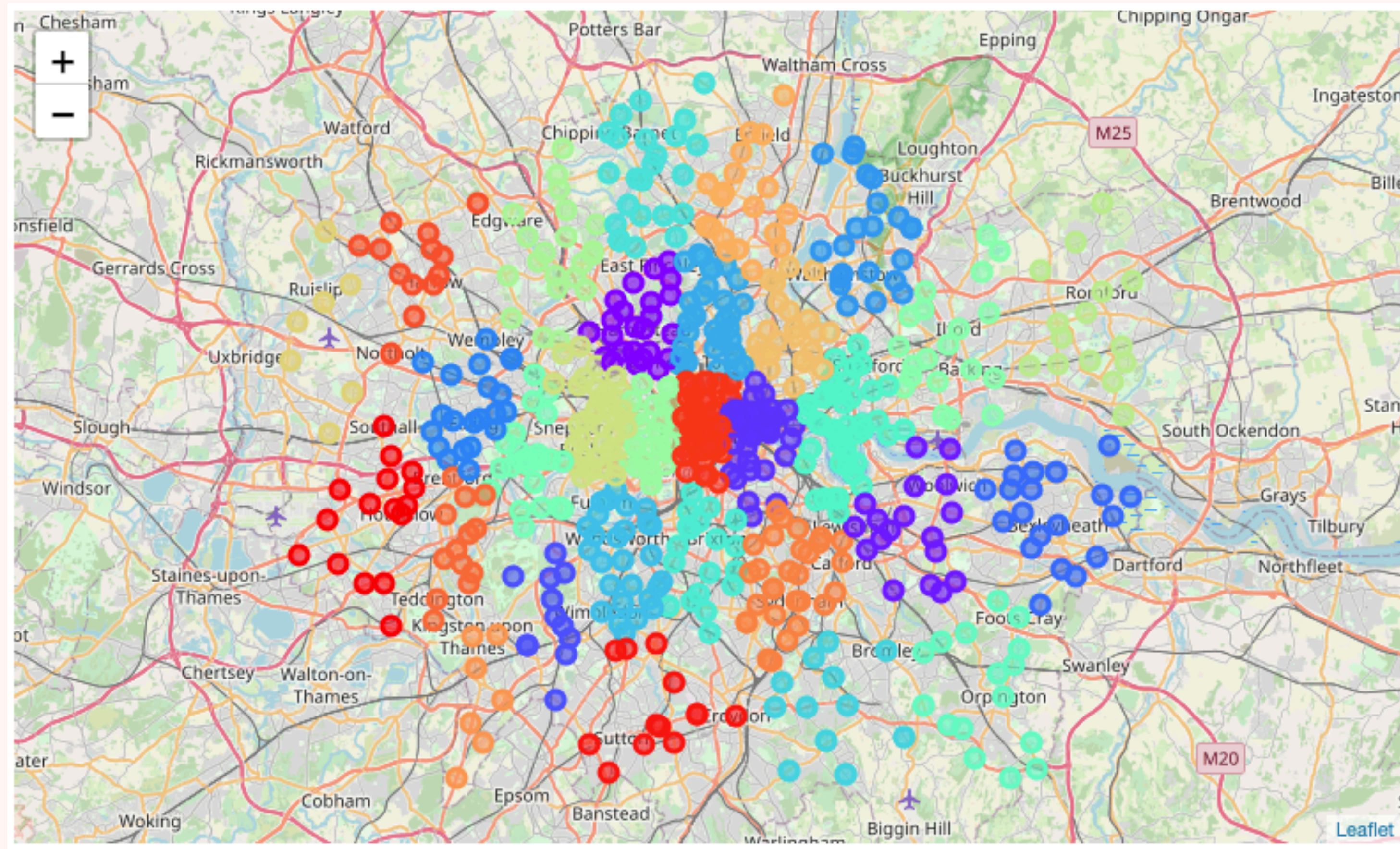
Source: worldpostalcode.com and Geopy

K-MEANS CLUSTER - FIND THE OPTIMAL K

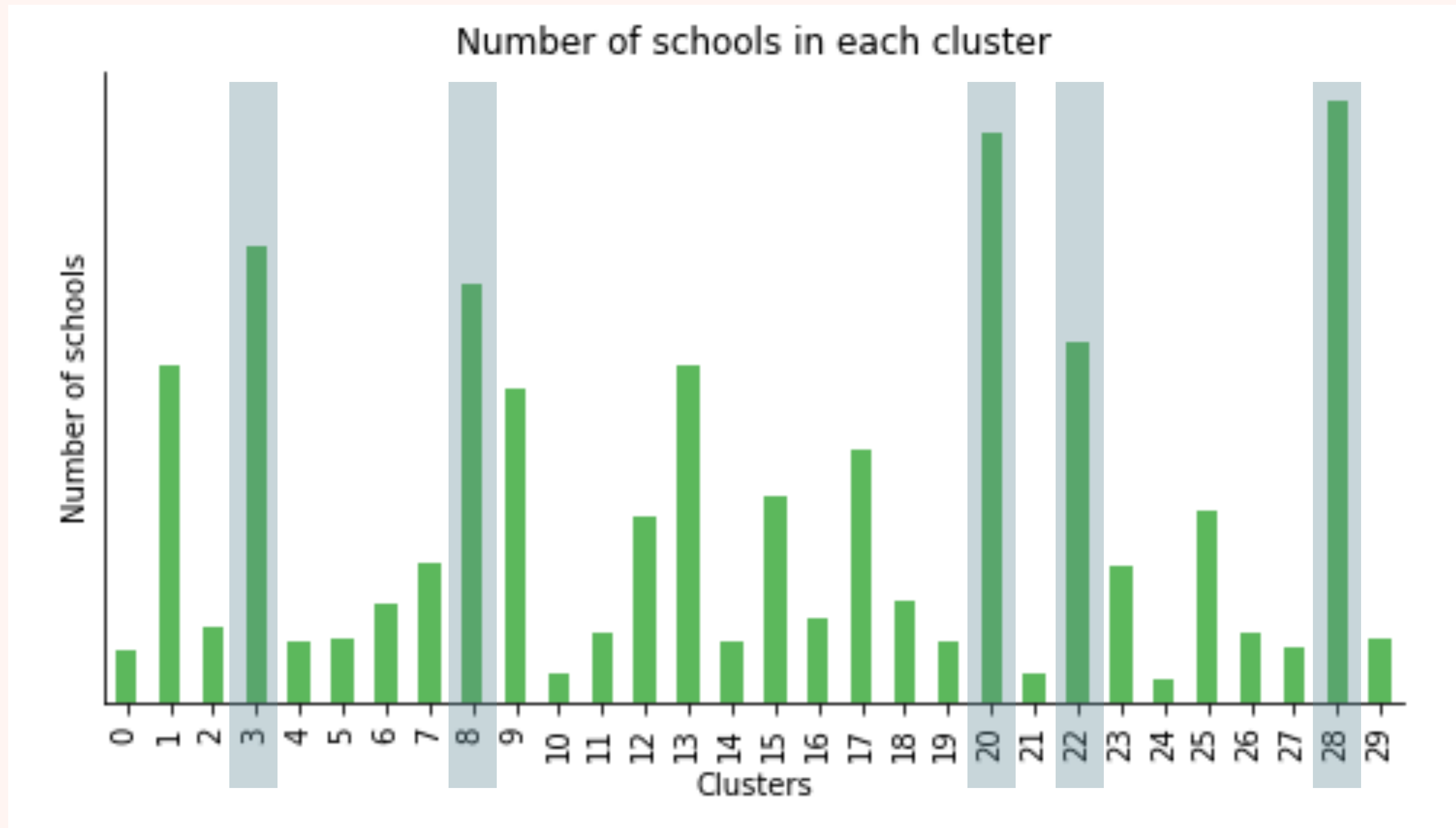


- $k=30$ appears to be a good optimal point
- Any further increases in clusters yield little reduction in error (sum of squared distances)

K-MEANS CLUSTERING - MAPPING



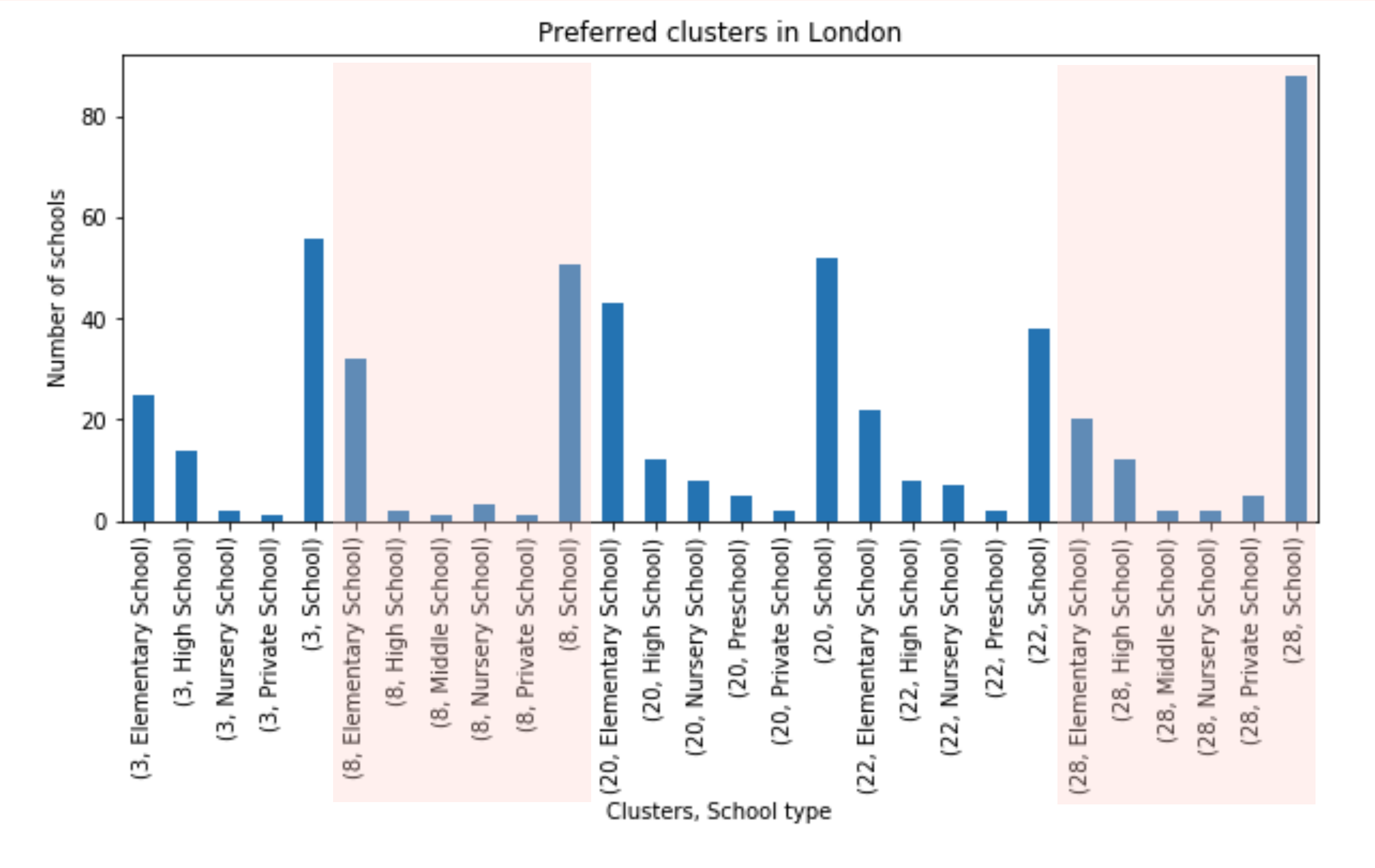
CLUSTERING ANALYSIS - BEST CLUSTER



PLOTTING SCHOOLS IN THE IDENTIFIED CLUSTERS



DIFFERENT TYPES OF SCHOOLS IN A CLUSTER



CONCLUSION AND FURTHER WORK

- We are able to narrow the target location to 80 postal code areas in Greater London (right)
- Factors such as crime rate, transport connectivity, pollution level could also be important locations factors for target buyers of this project
- The next phase of this project should take into account the additional factors mentioned above

	PostCode	Areas
0	WC2	Aldwych
1	N22	Alexandra Park
2	E14	All Saints
3	EC1	Angel
4	N19	Archway
...
75	W9	Warwick Park
76	SE1	Waterloo
77	SW1	Westminster
78	SW1A	Westminster Abbey
79	SE1	Westminster Bridge
80 rows x 2 columns		