**Cluster Analysis:**

For cluster analysis, we converted all the variables (columns) into numeric type. we also removed Date and time column from the dataset.

Findings:

For this dataset, we first took 20000 random entries to plot the elbow curve (since it kept crashing for larger number of entries). The elbow curve we got was:

A close up of a map

Description automatically generated

Thus, I took number of clusters = 4

After clustering the data, I applied k-means model on the dataset with 20000 entries and the result I got was:

A screenshot of a cell phone

Description automatically generated

A close up of a map

Description automatically generated

For hierarchical clustering, I got the following results:

A screenshot of a cell phone

Description automatically generated

Then I used the same number of clusters on the whole data set. The results I got were:

A screenshot of a cell phone

Description automatically generated

A close up of a map

Description automatically generated