```
clustering for k = 5
Cluster 1 -> 1508 tweets
Cluster 2 -> 1044 tweets
Cluster 3 -> 2000 tweets
Cluster 4 -> 1 tweets
Cluster 5 -> 11 tweets
SSE -> 3058.810106306114

clustering for k = 15
Cluster 1 -> 331 tweets
Cluster 2 -> 2 tweets
Cluster 3 -> 136 tweets
Cluster 4 -> 2000 tweets
Cluster 5 -> 62 tweets
Cluster 6 -> 196 tweets
Cluster 7 -> 796 tweets
Cluster 8 -> 8 tweets
Cluster 9 -> 91 tweets
Cluster 10 -> 49 tweets
Cluster 11 -> 2 tweets
Cluster 12 -> 462 tweets
Cluster 13 -> 58 tweets
Cluster 14 -> 20 tweets
Cluster 15 -> 351 tweets
SSE -> 2684.082058834818

clustering for k = 25
Cluster 1 -> 369 tweets
Cluster 2 -> 48 tweets
Cluster 3 -> 1095 tweets
Cluster 4 -> 897 tweets
Cluster 5 -> 249 tweets
Cluster 6 -> 235 tweets
Cluster 7 -> 1 tweets
Cluster 8 -> 1 tweets
Cluster 9 -> 11 tweets
Cluster 10 -> 1 tweets
Cluster 11 -> 151 tweets
Cluster 12 -> 65 tweets
Cluster 13 -> 1 tweets
Cluster 14 -> 1 tweets
Cluster 15 -> 373 tweets
Cluster 16 -> 80 tweets
Cluster 17 -> 1 tweets
Cluster 18 -> 4 tweets
Cluster 19 -> 255 tweets
Cluster 20 -> 151 tweets
```

```
Cluster 21 -> 1 tweets
Cluster 22 -> 1 tweets
Cluster 23 -> 9 tweets
Cluster 24 -> 89 tweets
Cluster 25 -> 475 tweets
SSE -> 2426.115478322011

clustering for k = 35
Cluster 1 -> 334 tweets
Cluster 2 -> 99 tweets
Cluster 3 -> 896 tweets
Cluster 4 -> 82 tweets
Cluster 5 -> 1 tweets
Cluster 6 -> 256 tweets
Cluster 7 -> 997 tweets
Cluster 8 -> 1 tweets
Cluster 9 -> 330 tweets
Cluster 10 -> 1 tweets
Cluster 11 -> 25 tweets
Cluster 12 -> 53 tweets
Cluster 13 -> 154 tweets
Cluster 14 -> 299 tweets
Cluster 15 -> 1 tweets
Cluster 16 -> 8 tweets
Cluster 17 -> 47 tweets
Cluster 18 -> 23 tweets
Cluster 19 -> 8 tweets
Cluster 20 -> 1 tweets
Cluster 21 -> 1 tweets
Cluster 22 -> 58 tweets
Cluster 23 -> 2 tweets
Cluster 24 -> 1 tweets
Cluster 25 -> 56 tweets
Cluster 26 -> 54 tweets
Cluster 27 -> 1 tweets
Cluster 28 -> 5 tweets
Cluster 29 -> 1 tweets
Cluster 30 -> 24 tweets
Cluster 31 -> 30 tweets
Cluster 32 -> 73 tweets
Cluster 33 -> 1 tweets
Cluster 34 -> 72 tweets
Cluster 35 -> 569 tweets
SSE -> 2357.6127474661416

clustering for k = 45
Cluster 1 -> 307 tweets
```

```
Cluster 2 -> 227 tweets
Cluster 3 -> 74 tweets
Cluster 4 -> 250 tweets
Cluster 5 -> 2 tweets
Cluster 6 -> 4 tweets
Cluster 7 -> 30 tweets
Cluster 8 -> 174 tweets
Cluster 9 -> 47 tweets
Cluster 10 -> 67 tweets
Cluster 11 -> 77 tweets
Cluster 12 -> 992 tweets
Cluster 13 -> 12 tweets
Cluster 14 -> 1 tweets
Cluster 15 -> 138 tweets
Cluster 16 -> 896 tweets
Cluster 17 -> 4 tweets
Cluster 18 -> 1 tweets
Cluster 19 -> 1 tweets
Cluster 20 -> 1 tweets
Cluster 21 -> 1 tweets
Cluster 22 -> 1 tweets
Cluster 23 -> 88 tweets
Cluster 24 -> 1 tweets
Cluster 25 -> 297 tweets
Cluster 26 -> 1 tweets
Cluster 27 -> 393 tweets
Cluster 28 -> 110 tweets
Cluster 29 -> 25 tweets
Cluster 30 -> 1 tweets
Cluster 31 -> 75 tweets
Cluster 32 -> 37 tweets
Cluster 33 -> 34 tweets
Cluster 34 -> 9 tweets
Cluster 35 -> 36 tweets
Cluster 36 -> 1 tweets
Cluster 37 -> 7 tweets
Cluster 38 -> 1 tweets
Cluster 39 -> 9 tweets
Cluster 40 -> 1 tweets
Cluster 41 -> 1 tweets
Cluster 42 -> 1 tweets
Cluster 43 -> 1 tweets
Cluster 44 -> 65 tweets
Cluster 45 -> 63 tweets
SSE -> 2318.2232571792424
```