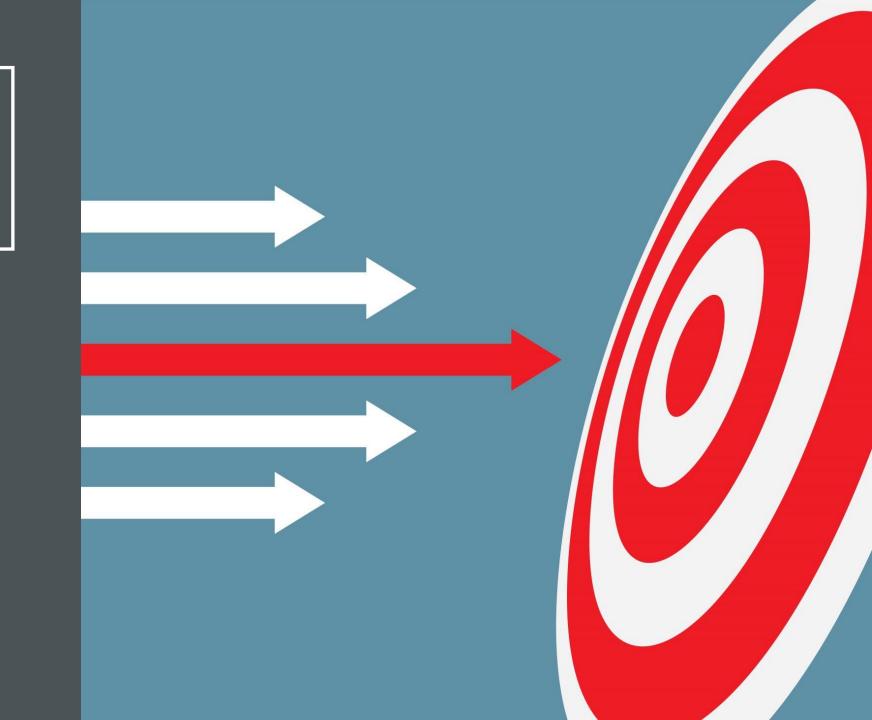
# KLASTERYZACJA

|   | ID | Title  | VendorID | ClusterID | ClusterLabel             | CategoryID | CategoryLabel |
|---|----|--|----------|-----------|--------------------------|------------|---------------|
| 0 | 2  | apple iphone 8 plus 64 gb spacegrau            | 2        | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |
| 1 | 3  | apple mq8n2b/a iphone 8 plus 64gb 5.5 12mp sim | 3        | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |
| 2 | 4  | apple iphone 8 plus 64gb space grey            | 4        | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |
| 3 | 5  | apple iphone 8 plus gold 5.5 64gb 4g unlocked  | 5        | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |
| 4 | 6  | apple iphone 8 plus gold 5.5 64gb 4g unlocked  | 6        | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |
| 5 | 7  | apple iphone 8 plus 64 gb space grey           | 7        | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |
| 6 | 8  | apple iphone 8 plus 64gb space grey            | 8        | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |
| 7 | 9  | apple iphone 8 plus 64gb space grey            | 9        | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |
| 8 | 10 | apple iphone 8 plus 64gb space grey            | 10       | 1         | Apple iPhone 8 Plus 64GB | 2612       | Mobile Phones |

### DANE

CEL

Klasteryzacja produktów po nazwach firm



#### **PREPROCESSING**



|   | aa  | ac  | acces | access | ace | acer | action | adapter | adelberg | adg | <br>yota | yotaphone | you | zanker | zanussi | zenfone | zero | zoom | zte | zylo |
|---|-----|-----|-------|--------|-----|------|--------|---------|----------|-----|----------|-----------|-----|--------|---------|---------|------|------|-----|------|
| C | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | 0.0 | <br>0.0  | 0.0       | 0.0 | 0.0    | 0.0     | 0.0     | 0.0  | 0.0  | 0.0 | 0.0  |
| 1 | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | 0.0 | <br>0.0  | 0.0       | 0.0 | 0.0    | 0.0     | 0.0     | 0.0  | 0.0  | 0.0 | 0.0  |
| 2 | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | 0.0 | <br>0.0  | 0.0       | 0.0 | 0.0    | 0.0     | 0.0     | 0.0  | 0.0  | 0.0 | 0.0  |
| 3 | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | 0.0 | <br>0.0  | 0.0       | 0.0 | 0.0    | 0.0     | 0.0     | 0.0  | 0.0  | 0.0 | 0.0  |
| 4 | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | 0.0 | <br>0.0  | 0.0       | 0.0 | 0.0    | 0.0     | 0.0     | 0.0  | 0.0  | 0.0 | 0.0  |
| 5 | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | 0.0 | <br>0.0  | 0.0       | 0.0 | 0.0    | 0.0     | 0.0     | 0.0  | 0.0  | 0.0 | 0.0  |
| 6 | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | 0.0 | <br>0.0  | 0.0       | 0.0 | 0.0    | 0.0     | 0.0     | 0.0  | 0.0  | 0.0 | 0.0  |
| 7 | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | 0.0 | <br>0.0  | 0.0       | 0.0 | 0.0    | 0.0     | 0.0     | 0.0  | 0.0  | 0.0 | 0.0  |

#### ZWEKTORYZOWANIE DANYCH

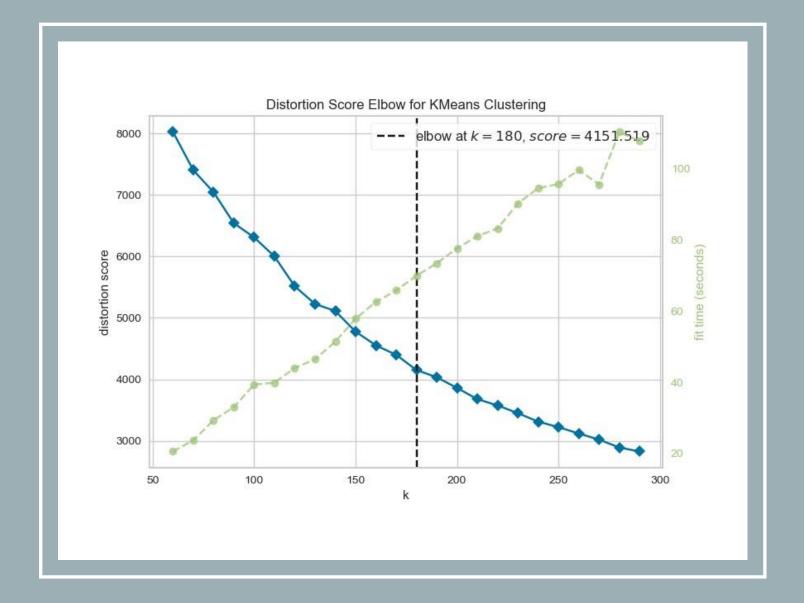
### SPRAWDZENIE KORELACJI

'asus' :'zenfone' Korelacja: 0.9804701358002206

'hobbs' :'russell' Korelacja: 1.0

```
to_drop = ['powertel','iphone','aquaris','rb','is','sim','dual','tm','cpa','porsche','design','explore',
'hfo','hio','hip','rsg','neffos','mg','mic','xwde','ftz','kit','rpd',
'eos','quattro','pixpro','sempron','opteron','plus','galaxy','honor','xs','aw','pc','cpa','halo',
```

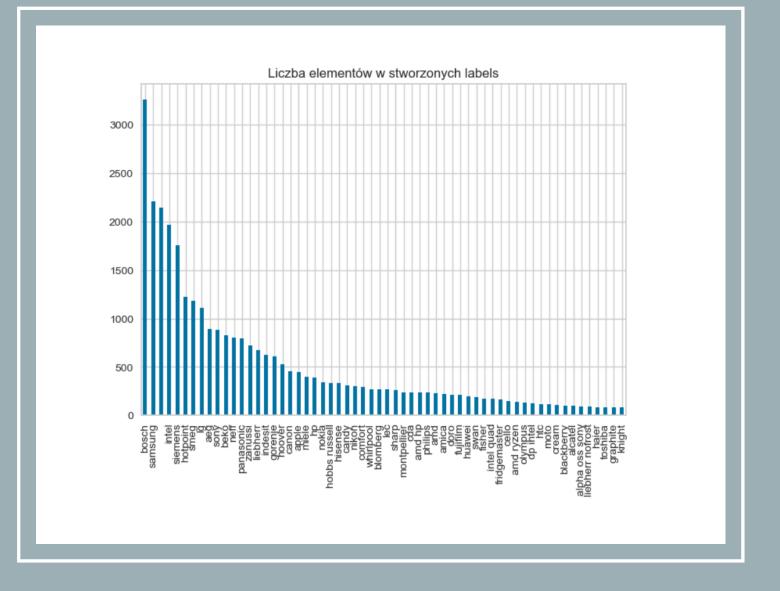
#### ELBOW METHOD

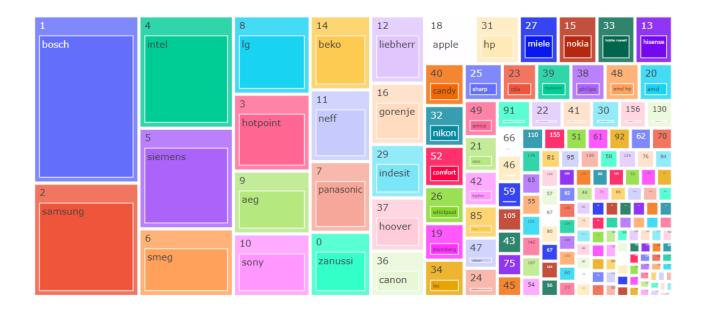


|   | ClusterLabel                | aa  | ac  | acces | access | ace | acer | action | adapter | adelberg | <br>you | zanker | zanussi | zenfone  | zero | zoom | zte | zylo | cluster | label |
|---|-----------------------------|-----|-----|-------|--------|-----|------|--------|---------|----------|---------|--------|---------|----------|------|------|-----|------|---------|-------|
| 0 | apple iphone<br>8 plus 64gb | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | <br>0.0 | 0.0    | 0.0     | 0.000000 | 0.0  | 0.0  | 0.0 | 0.0  | 18      | apple |
| 1 | apple iphone<br>8 plus 64gb | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | <br>0.0 | 0.0    | 0.0     | 0.000000 | 0.0  | 0.0  | 0.0 | 0.0  | 18      | apple |
| 2 | apple iphone<br>8 plus 64gb | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | <br>0.0 | 0.0    | 0.0     | 0.000000 | 0.0  | 0.0  | 0.0 | 0.0  | 18      | apple |
| 3 | apple iphone<br>8 plus 64gb | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | <br>0.0 | 0.0    | 0.0     | 0.000000 | 0.0  | 0.0  | 0.0 | 0.0  | 18      | apple |
| 4 | apple iphone<br>8 plus 64gb | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | <br>0.0 | 0.0    | 0.0     | 0.000000 | 0.0  | 0.0  | 0.0 | 0.0  | 18      | apple |
| 5 | apple iphone<br>8 plus 64gb | 0.0 | 0.0 | 0.0   | 0.0    | 0.0 | 0.0  | 0.0    | 0.0     | 0.0      | <br>0.0 | 0.0    | 0.0     | 0.000000 | 0.0  | 0.0  | 0.0 | 0.0  | 18      | apple |

KMEANS - 180

#### BADANIE STWORZONYCH LABELS





#### BADANIE STWORZONYCH LABELS

# WSPÓŁCZYNNIK SILHOUETTE

Współczynnik Silhouette: 0.8142936735267928