Clustering cities based on products

Dataset: Divar

Clustering with all three Categories
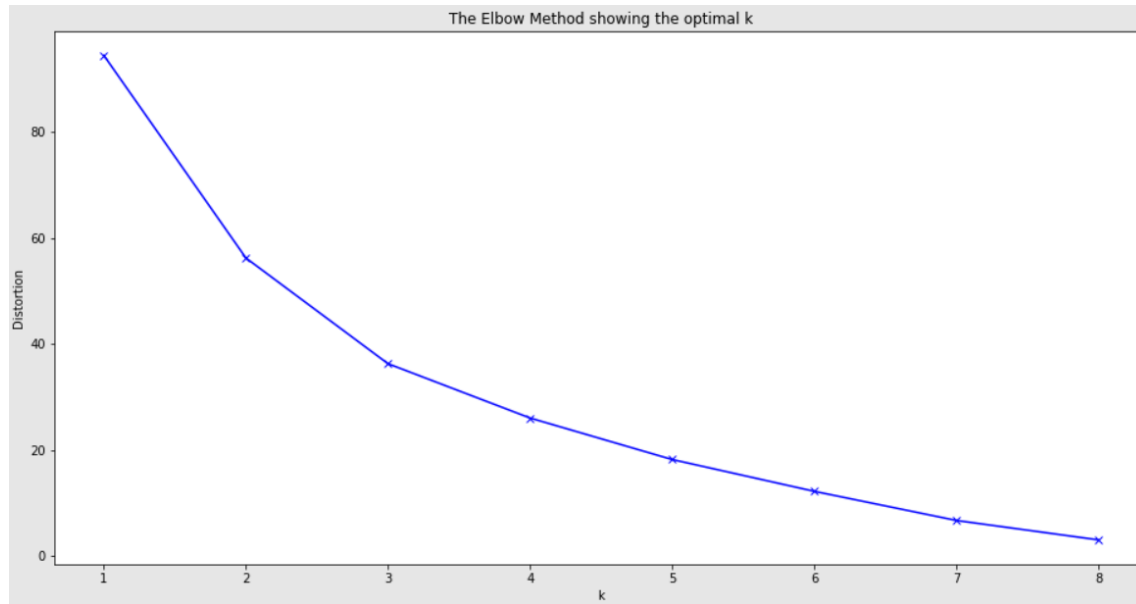
The Elbow Method showing the optimal k

kmeans

- Cluster 0 contains:

  city Qom

  city Tabriz

  city Kermanshah

- Cluster 1 contains:

  city Isfahan

  city Ahvaz

- Cluster 2 contains:

  city Tehran

- Cluster 3 contains:

  city Mashhad

  city Karaj

  city Shiraz

Agglomerative

- Cluster 0 contains:

  city Qom

  city Tabriz

  city Kermanshah

- Cluster 1 contains:

  city Isfahan

  city Ahvaz

- Cluster 2 contains:

  city Tehran

- Cluster 3 contains:
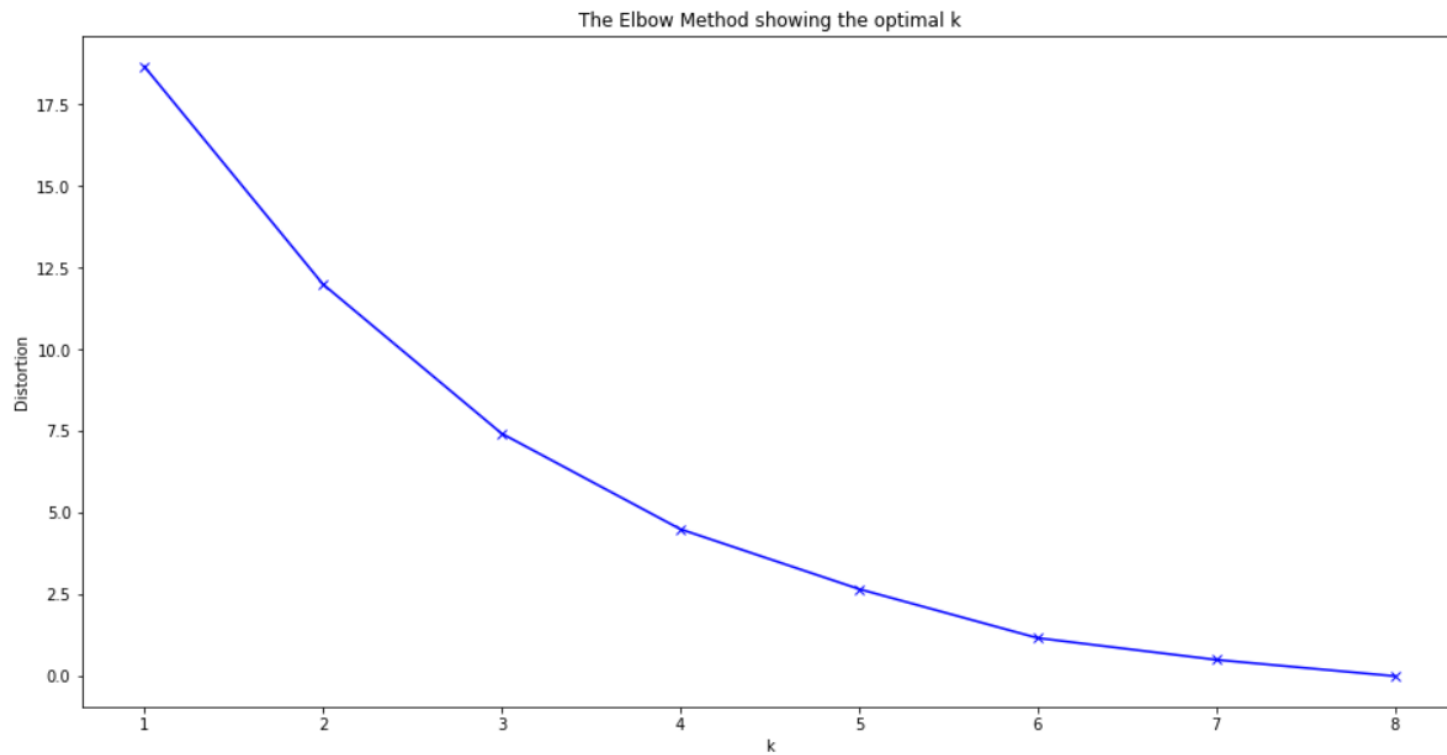
  city Mashhad

  city Karaj

  city Shiraz

MeanShift

- Cluster 0 contains:

  city Mashhad

  city Karaj

  city Isfahan

  city Shiraz
- Cluster 1 contains: city Tehran
- Cluster 2 contains: city Qom
- Cluster 3 contains: city Ahvaz
- Cluster 4 contains: city Tabriz
- Cluster 5 contains: city Kermanshah

Gaussian

- Cluster 0 contains:

  city Isfahan

  city Ahvaz

- Cluster 1 contains:

  city Tehran

  city Mashhad

  city Karaj

  city Shiraz

- Cluster 2 contains: city Qom

- Cluster 3 contains:

  city Tabriz

  city Kermanshah

Clustering with second Category

The Elbow Method showing the optimal k

KMeans

- Cluster 0 contains:

  city Mashhad

  city Qom

  city Shiraz

- Cluster 1 contains:

  city Karaj

  city Isfahan

  city Tabriz

  city Ahvaz

- Cluster 2 contains: city Tehran
- Cluster 3 contains: city Kermanshah

Agglomerative

- Cluster 0 contains:

  city Karaj

  city Isfahan

  city Tabriz

  city Ahvaz

- Cluster 1 contains:

  city Mashhad

  city Qom

  city Shiraz

- Cluster 2 contains: city Tehran
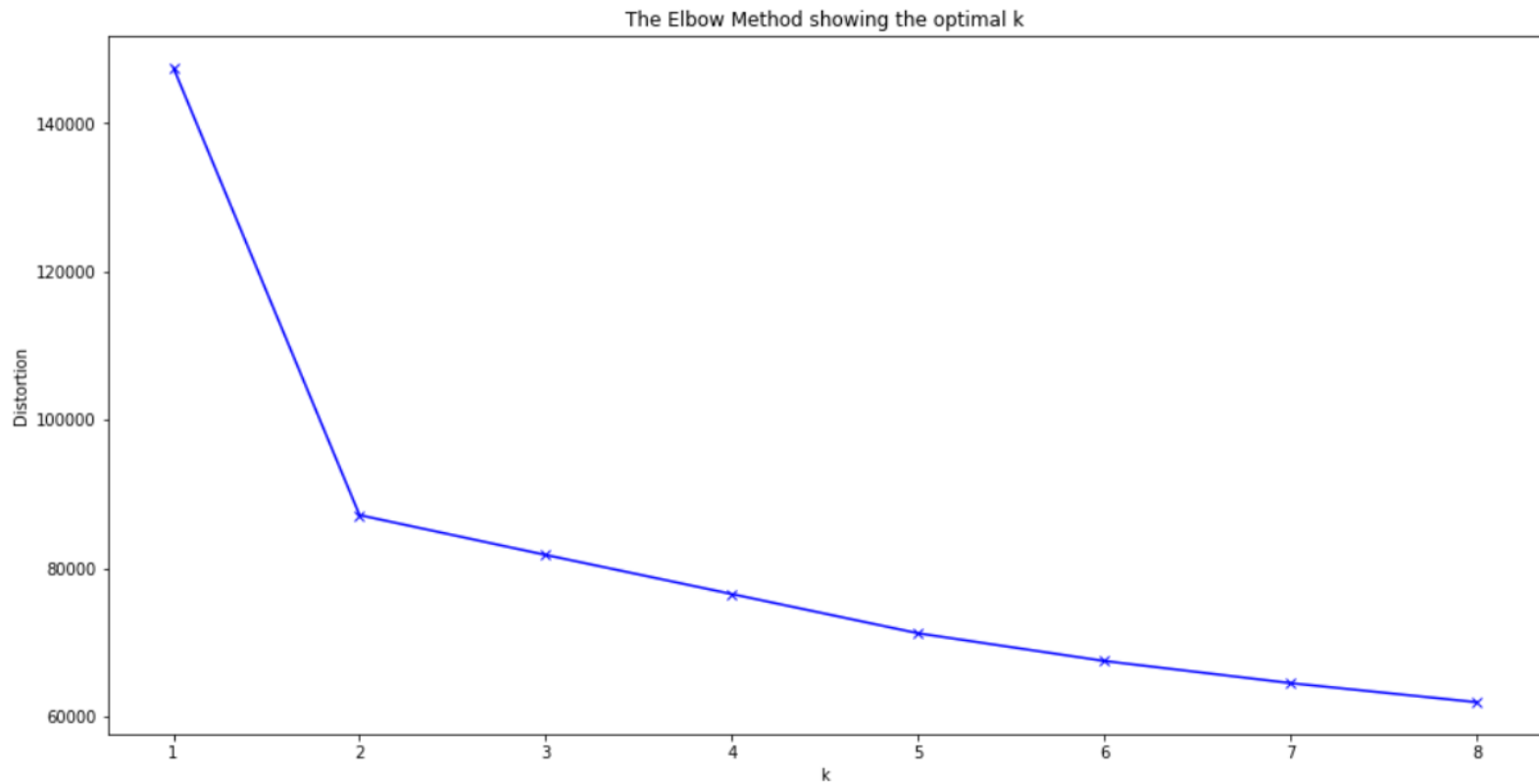- Cluster 3 contains: city Kermanshah

MeanShift

- Cluster 0 contains:

    city Mashhad

    city Karaj

    city Isfahan

    city Shiraz

    city Ahvaz

- Cluster 1 contains: city Tehran
- Cluster 2 contains: city Qom
- Cluster 3 contains: city Tabriz
- Cluster 4 contains: city Kermanshah

Gaussian

- Cluster 0 contains:

    city Kermanshah

- Cluster 1 contains:

    city Mashhad

    city Qom

    city Shiraz

- Cluster 2 contains:

    city Karaj

    city Isfahan

    city Tabriz

    city Ahvaz

- Cluster 3 contains: city Tehran

Clustering cities based on products

Dataset: DigiKala

cities (city_name_fa) products (ID_Item)

The Elbow Method showing the optimal k

KMeans

- Cluster 0 contains:

  قم city

  مشهد city

  اهواز city

  شیراز city

  تبریز city

  کرمانشاه city

- Cluster 1 contains: city تهران
- Cluster 2 contains: city کرج
- Cluster 3 contains: city اصفهان

Agglomerative

- Cluster 0 contains:

    مشهد city

    اصفهان city

- Cluster 1 contains: city کرج

- Cluster 2 contains:

    قم city

    اهواز city

    شیراز city

    تبریز city

    کرمانشاه city

- Cluster 3 contains: city تهران

MeanShift

- 234 Clusters

Comparing clusterings

Agglomerative

- Cluster 0 contains:

  city Qom

  city Tabriz

  city Kermanshah

- Cluster 1 contains:

  city Isfahan

  city Ahvaz

- Cluster 2 contains:

  city Tehran

- Cluster 3 contains:

  city Mashhad

  city Karaj

  city Shiraz

Agglomerative

- Cluster 0 contains:

  مشهد city

  اصفهان city

- Cluster 1 contains: city کرج

- Cluster 2 contains:

  قم city

  اهواز city

  شیراز city

  تبریز city

  کرمانشاه city

- Cluster 3 contains: city تهران

Gaussian

- Cluster 0 contains:

  city Isfahan

  city Ahvaz

- Cluster 1 contains:

  city Tehran

  city Mashhad

  city Karaj

  city Shiraz

- Cluster 2 contains: city Qom

- Cluster 3 contains:

  city Tabriz

  city Kermanshah

Clustering products based on their price

Clustering with second Category

The Elbow Method showing the optimal k
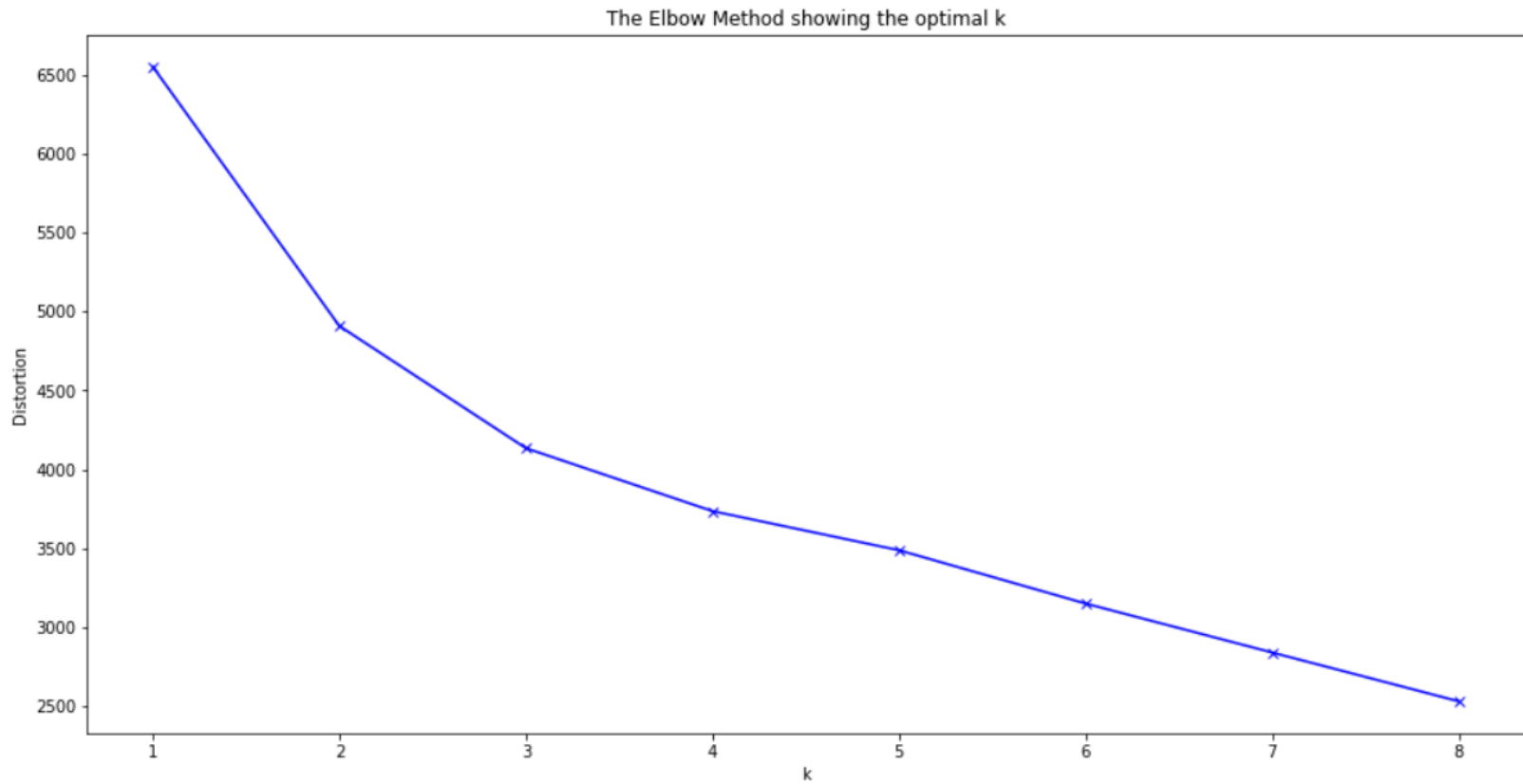
KMeans

```
Cluster 0 countains:
product baby-and-toys
product clothing-and-shoes
product animals
product batch
product health-beauty
Cluster 1 countains:
product cars
Cluster 2 countains:
product furniture-and-home-decore
product utensils-and-appliances
product mobile-tablet
product equipments-and-machinery
Cluster 3 countains:
product childrens-clothing-and-shoe
product musical-instruments
product book-student-literature
product hobby-collectibles
product utility
product leisure-hobbies-toys
product travel-packages
product phone
```

```
Cluster 4 countains:
product parts-accessories
product game-consoles-and-video-games
product audio-video
product building-and-garden
product jewelry-and-watches
product bicycle
product computers
product sport-leisure
Cluster 5 countains:
product motorcycles
```

Agglomerative

Cluster 0 countains:
city furniture-and-home-decore
city utensils-and-appliances
city audio-video
city computers
Cluster 1 countains:
city equipments-and-machinery
city motorcycles
Cluster 2 countains:
city childrens-clothing-and-shoe
city building-and-garden
city jewelry-and-watches
city bicycle
city musical-instruments
city sport-leisure
city book-student-literature
city hobby-collectibles
city leisure-hobbies-toys
city travel-packages
city phone

Cluster 3 countains:
city cars
Cluster 4 countains:
city baby-and-toys
city parts-accessories
city clothing-and-shoes
city game-consoles-and-video-games
city animals
city batch
city health-beauty
city utility
Cluster 5 countains:
city mobile-tablet

MeanShift

Cluster 0 countains:
city baby-and-toys
city parts-accessories
city utensils-and-appliances
city clothing-and-shoes
city childrens-clothing-and-shoe
city game-consoles-and-video-games
city audio-video
city building-and-garden
city jewelry-and-watches
city bicycle
city animals
city batch
city musical-instruments
city health-beauty
city computers
city sport-leisure
city book-student-literature
city hobby-collectibles
city utility
city leisure-hobbies-toys
city travel-packages
city phone

Cluster 1 countains:
city equipments-and-machinery
Cluster 2 countains:
city cars
Cluster 3 countains:
city furniture-and-home-decore
Cluster 4 countains:
city motorcycles
Cluster 5 countains:
city mobile-tablet

Gaussian

Cluster 0 countains:
city parts-accessories
city utensils-and-appliances
city mobile-tablet
city game-consoles-and-video-games
city audio-video
city equipments-and-machinery
city computers
Cluster 1 countains:
city baby-and-toys
city clothing-and-shoes
city childrens-clothing-and-shoe
city animals
city batch
city health-beauty
city book-student-literature
city hobby-collectibles
city utility
city leisure-hobbies-toys
city phone

Cluster 2 countains:
city motorcycles
Cluster 3 countains:
city cars
Cluster 4 countains:
city furniture-and-home-decore
Cluster 5 countains:
city building-and-garden
city jewelry-and-watches
city bicycle
city musical-instruments
city sport-leisure
city travel-packages