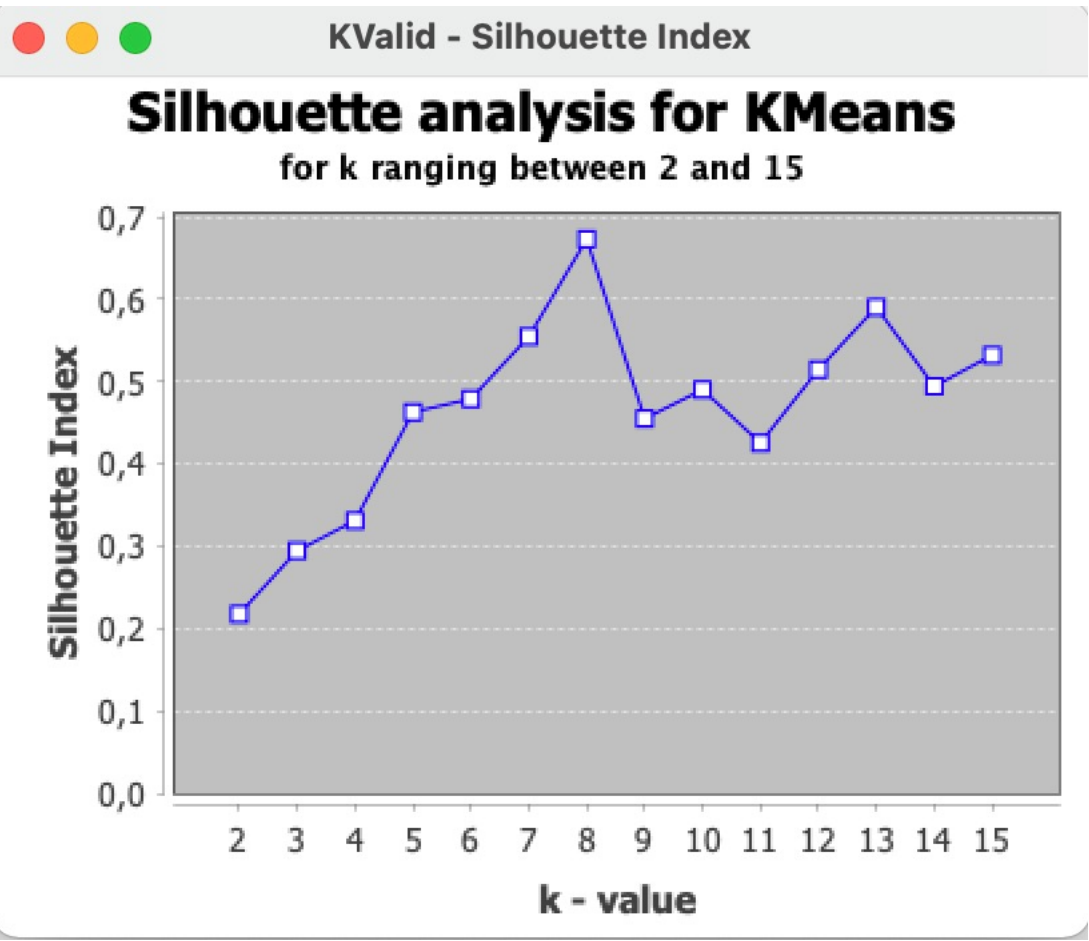# Clustering Exercises

Exercise 1

- Given the cluss.arff dataset, apply the three clustering algorithms discussed in this class as follows:

1) Use kValid for setting the number of clusters for the simpleKmeans (k=2-15).

1) Run DBscan with default parameters

2) Run Hierarchical clustering (default parameters) using as number of clusters the one identified by kValid and by Dbscan.
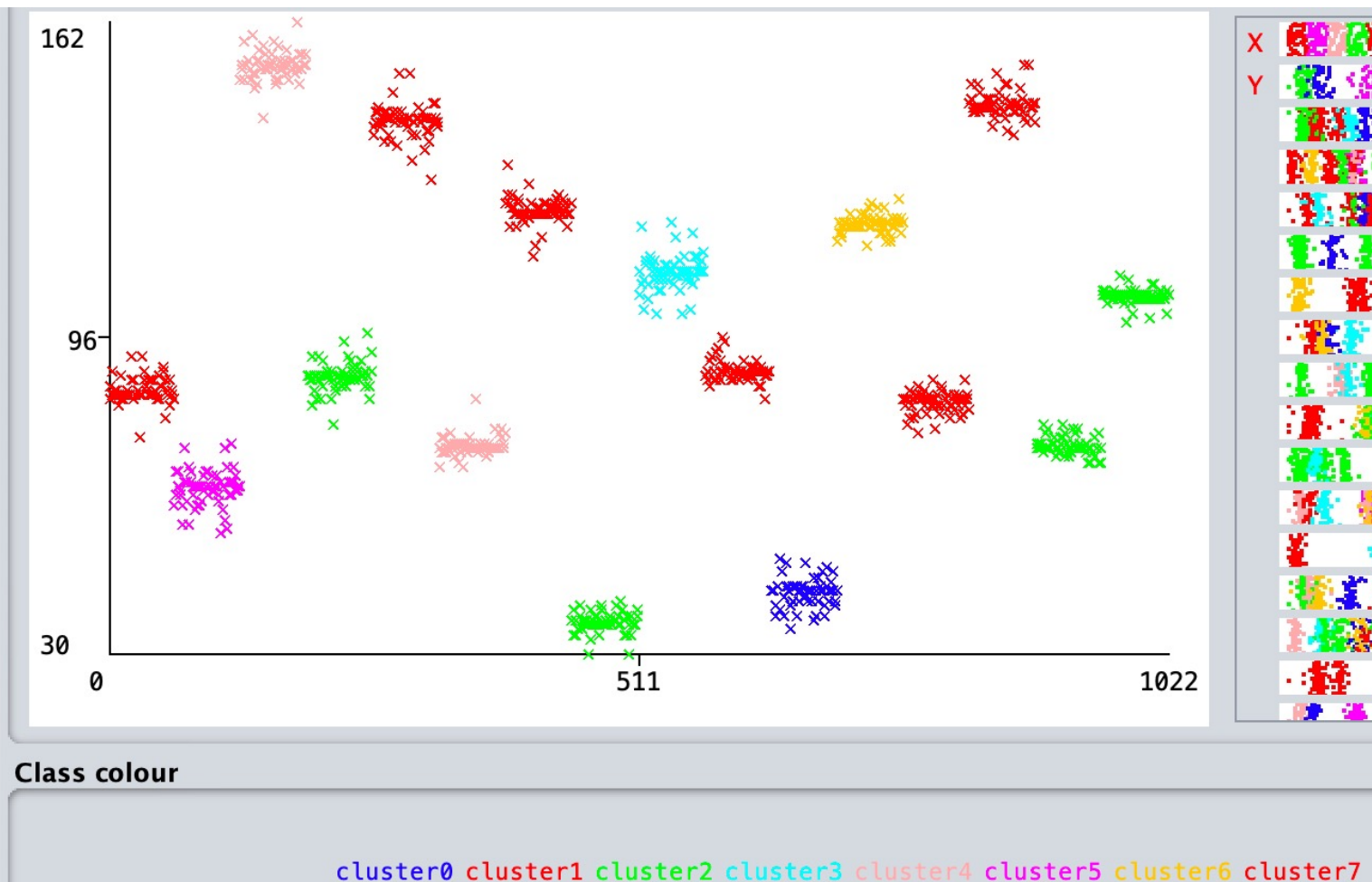
- Discuss the final results.

att26	123.1642	136.7344	75.0157	93.6758	208.
att27	105.6383	198.1719	57.748	90.4453	15
att28	122.2454	34.2344	56.2441	121.2109	1
att29	130.0694	198.2969	146.7717	128.5781	181.
att30	130.9619	66.25	87.2992	146.4922	107.
att31	106.172	71.0625	181.0551	102.5781	51.
att32	116.9316	42.375	114.3228	120.3516	196.

```
Time taken to build model (full training data) : 2.12 seconds

=== Model and evaluation on training set ===

Clustered Instances

0       64 (  6%)
1      127 ( 12%)
2      256 ( 25%)
3       64 (  6%)
4      128 ( 13%)
5       64 (  6%)
6       64 (  6%)
7      256 ( 25%)
```


Class colour

cluster0 cluster1 cluster2 cluster3 cluster4 cluster5 cluster6 cluster7
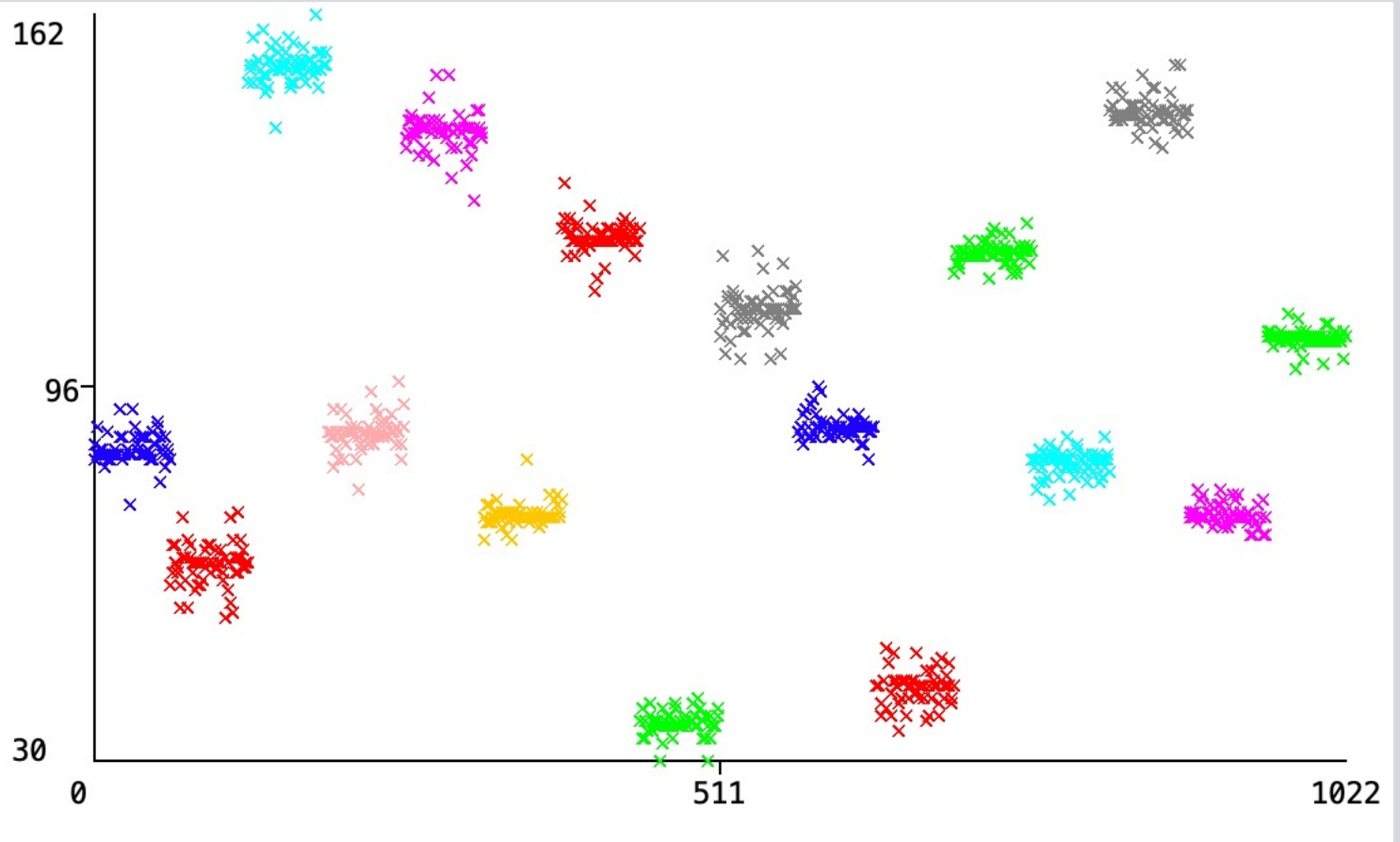
Kvalid with k = 8

```
(1019.) 104,53,169,77,
(1020.) 101,52,171,78,
(1021.) 106,59,165,74,
(1022.) 105,53,168,77,


Time taken to build mo

=== Model and evaluati

Clustered Instances

0        63 (   6%)
1        64 (   6%)
2        64 (   6%)
3        64 (   6%)
4        64 (   6%)
5        64 (   6%)
6        64 (   6%)
7        64 (   6%)
8        64 (   6%)
9        64 (   6%)
10       64 (   6%)
11       64 (   6%)
12       64 (   6%)
13       64 (   6%)
14       64 (   6%)
15       64 (   6%)
```

Class colour

cluster0 cluster1 cluster2 cluster3 cluster4 cluster5 cluster6 cluster7 cluster8 cluster9 cluster10 cluster11
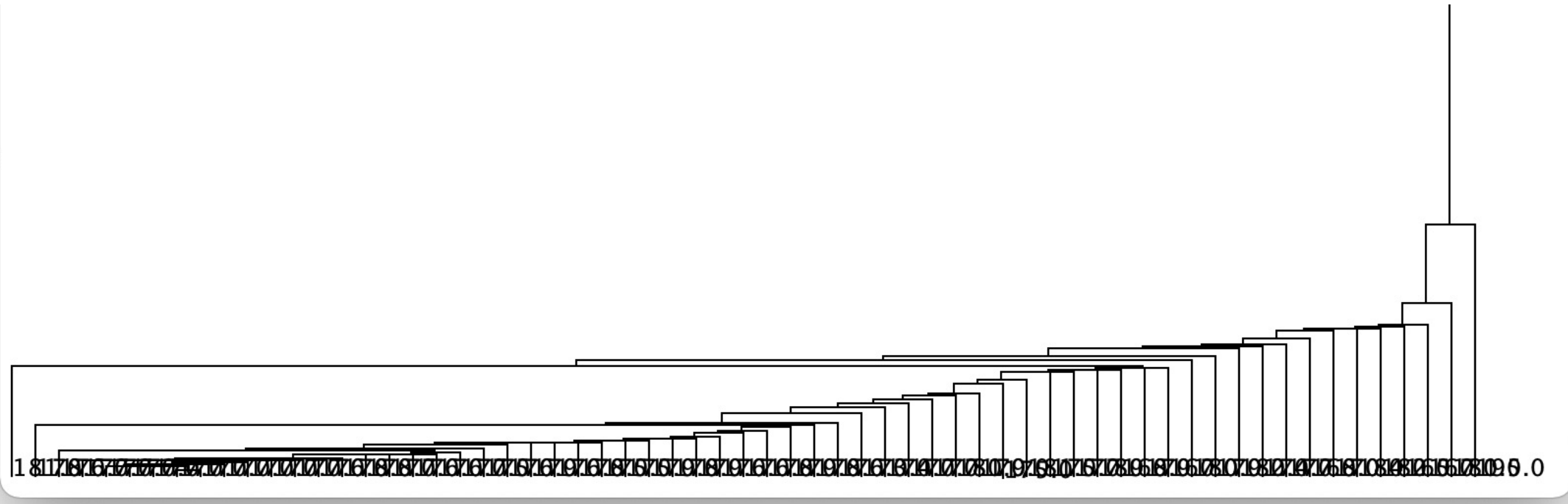cluster12 cluster13 cluster14 cluster15

DBScan with default

```
Time taken to build

=== Model and evalua

Clustered Instances

0        63 (   6%)
1       192 (  19%)
2        64 (   6%)
3       384 (  38%)
4        64 (   6%)
5        64 (   6%)
6       128 (  13%)
7        64 (   6%)
```

Hierarchical clustering with number of clusters = 8

```
=== Model and evaluat

Clustered Instances

0          63 (    6%)
1          64 (    6%)
2          64 (    6%)
3          64 (    6%)
4          64 (    6%)
5          64 (    6%)
6          64 (    6%)
7          64 (    6%)
8          64 (    6%)
9          64 (    6%)
10         64 (    6%)
11         64 (    6%)
12         64 (    6%)
13         64 (    6%)
14         64 (    6%)
15         64 (    6%)
```

Hierarchical clustering with number of clusters = 15