

agglomerative cluster

October 26, 2022

```
[1]: import pandas as pd
import numpy as np
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[2]: data= pd.read_csv("zoo.csv")
```

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[3]: data
```

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[3]:
```

	animal_name	hair	feathers	eggs	milk	airborne	aquatic	predator	\
0	aardvark	1	0	0	1	0	0	1	
1	antelope	1	0	0	1	0	0	0	
2	bass	0	0	1	0	0	1	1	
3	bear	1	0	0	1	0	0	1	
4	boar	1	0	0	1	0	0	1	
..		
96	wallaby	1	0	0	1	0	0	0	
97	wasp	1	0	1	0	1	0	0	
98	wolf	1	0	0	1	0	0	1	
99	worm	0	0	1	0	0	0	0	
100	wren	0	1	1	0	1	0	0	

	toothed	backbone	breathes	venomous	fins	legs	tail	domestic	\
0	1	1	1	0	0	4	0	0	
1	1	1	1	0	0	4	1	0	
2	1	1	0	0	1	0	1	0	
3	1	1	1	0	0	4	0	0	
4	1	1	1	0	0	4	1	0	
..		
96	1	1	1	0	0	2	1	0	
97	0	0	1	1	0	6	0	0	
98	1	1	1	0	0	4	1	0	
99	0	0	1	0	0	0	0	0	
100	0	1	1	0	0	2	1	0	

	catsize	class_type
0	1	1
1	1	1
2	0	4

```

3         1         1
4         1         1
..      ...      ...
96        1         1
97        0         6
98        1         1
99        0         7
100       0         2

```

[101 rows x 18 columns]

```
[4]: data.shape
```

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[4]: (101, 18)
```

```
[5]: features= data.drop(["animal_name","class_type"], axis=1)
```

```
[6]: features
```

```
[6]:
```

	hair	feathers	eggs	milk	airborne	aquatic	predator	toothed	\
0	1	0	0	1	0	0	1	1	
1	1	0	0	1	0	0	0	1	
2	0	0	1	0	0	1	1	1	
3	1	0	0	1	0	0	1	1	
4	1	0	0	1	0	0	1	1	
..	
96	1	0	0	1	0	0	0	1	
97	1	0	1	0	1	0	0	0	
98	1	0	0	1	0	0	1	1	
99	0	0	1	0	0	0	0	0	
100	0	1	1	0	1	0	0	0	

	backbone	breathes	venomous	fins	legs	tail	domestic	catsize
0	1	1	0	0	4	0	0	1
1	1	1	0	0	4	1	0	1
2	1	0	0	1	0	1	0	0
3	1	1	0	0	4	0	0	1
4	1	1	0	0	4	1	0	1
..	
96	1	1	0	0	2	1	0	1
97	0	1	1	0	6	0	0	0
98	1	1	0	0	4	1	0	1
99	0	1	0	0	0	0	0	0
100	1	1	0	0	2	1	0	0

[101 rows x 16 columns]

```

[8]: from sklearn.cluster import AgglomerativeClustering

[13]: cluster= AgglomerativeClustering(n_clusters=7)

[14]: cluster.fit(features)

[14]: AgglomerativeClustering(n_clusters=7)

[15]: cluster.labels_

[15]: array([1, 1, 2, 1, 1, 1, 1, 2, 2, 1, 1, 3, 2, 6, 0, 0, 3, 1, 2, 2, 3, 3,
            1, 3, 0, 5, 5, 4, 1, 4, 0, 1, 4, 3, 2, 1, 1, 3, 2, 0, 0, 3, 0, 3,
            1, 1, 0, 1, 1, 1, 1, 0, 5, 0, 1, 1, 3, 3, 3, 3, 2, 2, 6, 5, 1, 1,
            2, 1, 1, 1, 1, 3, 0, 2, 2, 4, 6, 6, 3, 3, 6, 6, 2, 3, 4, 0, 2, 3,
            0, 5, 5, 5, 2, 4, 1, 3, 4, 0, 1, 6, 3])

[ ]:

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