Chapter 4: Clustering

Lore

You look across the plains of despair. Towards the tower of doom. Ecolenor's dragons are circling in the sky. The knights of ACME have been given a new powerful spell by the CCC. With this knowledge they are armed to face the evil sorcerer.

> "Behold! Last battle's face is here at last, all our triumphs things of past. Here we make our last stand, for our people, family, home and land."

Welcome!

Brave Knights

You have brought the fight to Ecolenor's door. Armed with the new clustering magic you are prepared to put his minions into groups and defeat them in one fell stroke.

Given the dataset, how many clusters does it take to minimize the distance between the animals and the number of clusters?

Helpful Spells

SKLEARN

Your spell book section on clustering

```
import numpy as np
import pandas as pd

from pydataset import data

from sklearn.cluster import KMeans,
    SpectralClustering

df = data("animals")
```

STR	DEX	CON	INT	WIS	CHA
8 (−1)	10 (+0)	10 (+0)	14 (+2)	14 (+2)	12 (+1)

Senses —
Languages Python

Challenge 100% accuracy

Actions

KMeans. Clusters groups heuristically, done my minimizing sum of squares between all data points and cluster means. Falls often into local minima, requires restart at times.

Spectral Clustering. Uses laplacian information to cluster groups together. Works well when data is highly non convex and mean information is not suitable for representing groups.

Incantation Preparation

Jupyter Notebook

4th-level discernment

Casting Time: < 5 hours
Range: SSH distance
Components: Python3 and dependencies
Duration: Until dispelled

Your job is to report on your findings about number of clusters, and distance to the centers. Don't forget to think hard about missing values!

Post Spell

With Ecolenor captured, the kingdom returns to a time of peace. You all are rewarded with 20% of the treasure of the kingdom.

"Fin"