Chapter 2: Regression

Lore

After solving the curious case of the poisonous mushrooms, the villagers cheer! They throw a great feast for the knights of ACME. Honoring their classification prowess.

As the night wears on and the party begins to fade, a strange whisper is heard over the wind.

> "Behold! When celebrations begin and end, your last breaths you won't win. Enjoy the air, wind and sky; the last you know soon to die."

Welcome!

Brave Knights

The kingdom is in chaos and it's up to you to save the day! The CCC has asked you to help determine why the atmosphere is disappearing! It seems like some foul magic is at work, reducing the ozone.

Helpful Spells

SKLEARN

Your spell book section on regression

```
from sklearn.model_selection import
    train_test_split

from sklearn.svm import SVR
from sklearn.linear_model import
    LinearRegression
from sklearn.ensemble import
    AdaBoostRegressor,
    GradientBoostingRegressor

import pandas as pd
import numpy as np

from pydataset import data
data("airquality")
```

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

Train Test Split. Split the data that the villagers have provided into a training set and a testing set. The villagers are all extremely skilled in data collection, so the data provided for you is completely error free, no enchantments are required for further cleaning.

Regressors. These powerful spells have been passed down throughout the generations, their origins and uses can be found on the World Wide Web of magical cantrips (wikipedia). Your training has shown that this trusty incantation has enough capacity to figure out what is causing the weakening atmosphere

Incantation Preparation

Jupyter Notebook

4th-level discernment

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

Working as a team, much of the preparation for this regression work has been done for you. It can be found in the pydatasets codex.

Your job will be to split and clean the data, and determine which atmospheric features are most important to regression by examining the r^2 score. When this knowledge is found, you must cast the regression and report how well it does on your test set.

Your wise instructors at Brighamiya Youngerton Universal write about Knights who were able to achieve 0.72 r^2 value on regression wielding these very spells. Can you fill those shoes?

Post Spell

After the atmosphere begins to return, and breath returns to the villagers. You hear a voice carried on the winds of algebraic energy.

> "After your success on the classification, I thought you would give up when facing the lack of oxygen in the air. I, *Ecolenor*, Destroyer of Logic cannot be contained by your axioms and definitions! Beware, my return is imminent, and nothing you do can stop me!"