numpy

What is numpy?

- Pre-made Python package

- num = numbers
- py = Python

- Used for:
  - Working with arrays and matrices
  - Data wrangling

Arrays

- Another way to store data

- Created by:

np.array([#,#])

Aggregate Functions on Arrays

arrayName.min()

arrayName.max()

arrayName.sum()

arrayName.mean()

arrayName.std()

Generating Data

Math with Arrays

- As long as they are both numeric and the same length, you can do math to multiple arrays

array1 x array2

- OR you can do the same math to every element in one array

array1 x 7

Matrixes

- An array with dimensionality
- Both rows and columns

np.array([[#,#], [#,#]])

Indexing

- The index refers to a number’s position in an array

- Python starts counting at zero from left to right

Array = np.array([1,2,3])
Array[0] will give the first element

Matrix Indexing

Matrix = np.array([[1,2], [3,4]])

1 2
3 4

Matrix[0,0] will give the top left element

- First number = rows
- Second number = columns

Aggregate Functions on Matrices

- Same functions as arrays!

- Use for the whole matrix

- Or just columns:
matrixName.agg(axis=0)

- Or just rows:
matrixName.agg(axis=1)

Reshaping Matrixes

- Change the format of columns and rows

matrixName.reshape(# of rows, # of columns)

- Must multiply to the total number of elements you have