



NumPy



NumPy

- The first python data science library we will learn about is NumPy.
- Almost every data science library we learn about in this course is built using NumPy!
- Let's explore what this section will cover and why it is important.



NumPy

- Section Goals
 - Understand NumPy
 - Create arrays with NumPy
 - Retrieve information from a NumPy array through slicing and indexing.
 - Learn basic NumPy operations
 - Test NumPy skills with exercise questions.



- What is NumPy?
 - Python library for creating N-dimensional arrays
 - Ability to quickly broadcast functions
 - Built-in linear algebra, statistical distributions, trigonometric, and random number capabilities



NumPy

- Why use NumPy?
 - While NumPy structures look similar to standard Python lists, they are **much** more efficient!
 - The broadcasting capabilities are also extremely useful for quickly applying functions to our data sets.



Let's get started!



Numpy Arrays



NumPy

- Let's explore how to create NumPy arrays
 - Transforming standard list
 - Built-in functions
 - Generating random data
- We'll also discuss some key attributes of NumPy arrays.



Numpy

Indexing and Selection



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- Let's explore how to create NumPy arrays
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Numpy Operations



NumPy

- A key feature of NumPy is its ability to perform arithmetic on large arrays on an **element by element** basis.
- Let's learn how this works with multiple arrays, as well as how we can apply universal array functions.



Numpy Exercises

Overview of Exercise Notebook



Numpy Exercise Solutions

Walkthrough of Solutions Notebook