NumPy Tutorial

* NumPy stands for Numerical Python.
* NumPy is a Python library.
* NumPy is used for working with arrays.
* NumPy is short for "Numerical Python".
* It also has functions for working in domain of linear algebra, fourier transform, and matrices.
* NumPy was created in 2005 by Travis Oliphant.

## Data Types in Python

By default Python have these data types:

* strings - used to represent text data, the text is given under quote marks. e.g. "ABCD"
* integer - used to represent integer numbers. e.g. -1, -2, -3
* float - used to represent real numbers. e.g. 1.2, 42.42
* boolean - used to represent True or False.
* complex - used to represent complex numbers. e.g. 1.0 + 2.0j, 1.5 + 2.5j

## Data Types in NumPy

NumPy has some extra data types, and refer to data types with one character, like i for integers, u for unsigned integers etc.

Below is a list of all data types in NumPy and the characters used to represent them.

* i - integer
* b - boolean
* u - unsigned integer
* f - float
* c - complex float
* m - timedelta
* M - datetime
* O - object
* S - string
* U - unicode string
* V - fixed chunk of memory for other type ( void )

## The Difference Between Copy and View

The main difference between a copy and a view of an array is that the copy is a new array, and the view is just a view of the original array.

The copy owns the data and any changes made to the copy will not affect original array, and any changes made to the original array will not affect the copy.

The view does not own the data and any changes made to the view will affect the original array, and any changes made to the original array will affect the view.