What is NumPy?

This lesson gives a brief introduction to what is NumPy and explains data types in NumPy.

NumPy is a *library for the Python programming language,* adding support for large, multi-dimensional arrays and matrices, along with a large collection of high-level mathematical functions to operate on these arrays.

Data type

Type	Name	Bytes	Description
`bool`	`b`	1	Boolean (True or False) stored as a byte
`int`	`l`	4-8	Platform (long) integer (normally either int32 or int64)
`intp`	`p`	4-8	Integer used for indexing (normally either int32 or int64)

`int8`	`i1`	1	Byte (-128 to 127)
`int16`	`i2`	2	Integer (-32768 to 32767)
`int32`	`i4`	4	Integer (-2147483648 to 2147483647)
`int64`	`i8`	8	Integer (-9223372036854775808 to 9223372036854775807)
`uint8`	`u1`	1	Unsigned integer (0 to 255)
`uint16`	`u2`	2	Unsigned integer (0 to 65535)
`uint32`	`u4`	4	Unsigned integer (0 to 4294967295)
`uint64`	`u8`	8	Unsigned integer (0 to 18446744073709551615)
`float`	`f8`	8	Shorthand for float64

`float16`	`f2`	2	Half precision float: sign bit, 5 bits exponent, 10 bits mantissa
`float32`	`f`	4	Single precision float: sign bit, 8 bits exponent, 23 bits mantissa
`float64`	`d`	8	Double precision float: sign bit, 11 bits exponent, 52 bits mantissa
`complex`	`c16`	16	Shorthand for complex128.
`complex64`	`c8`	8	Complex number, represented by two 32-bit floats
`complex128`	`c16`	16	Complex number, represented by two 64-bit floats

`NumPy` knows that `int` refers to `np.int_`, `bool` means `np.bool_`, that `float` is `np.float_` and `complex` is `np.complex_`. The other data-types do not have Python equivalents.

Additionally, the names such as `intc`, `long`, or `double` used in the C programming language are defined.

Now that the concept of data types is clear, let's move on to the next lesson "Creation in NumPy".