

What is NumPy?

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

We'll cover the following



- Data type

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
<code>bool</code>	<code>b</code>	1	Boolean (True or False) stored as a byte
<code>int</code>	<code>l</code>	4-8	Platform (long) integer (normally either int32 or int64)
<code>intp</code>	<code>p</code>	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

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

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".