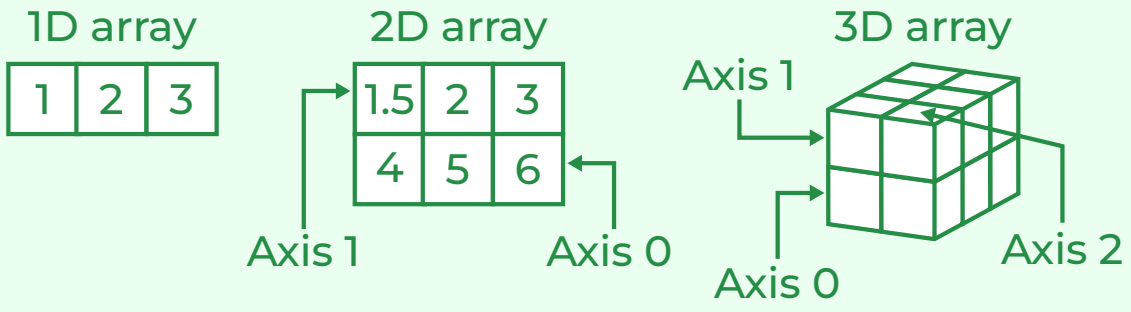
NumPy Cheat Sheet

NumPy stands for Numerical Python.

It is one of the most important foundational packages for numerical computing & data analysis in Python. Most computational packages providing scientific functionality use NumPy's array objects as the lingua franca for data exchange.

Types of Numpy Array



Creating Arrays Commands

One Dimensional Array

From Python List	`np.array([1, 2, 3, 4, 5])`
From Python Tuple	`np.array((1, 2, 3, 4, 5))`
fromiter() function	`np.fromiter((a for a in range(8)), float)`

Python3

- create a NumPy array from a list

```
li = [1, 2, 3, 4]
print(np.array(li))
```

- create a NumPy array from a tuple

```
tup = (5, 6, 7, 8)
print(np.array(tup))
```

- create a NumPy array using fromiter()

```
iterable = (a for a in range(8))
print(np.fromiter(iterable, float))
```

Multi-Dimensional Array

Using Python Lists	`np.array([[1, 2, 3, 4],[5, 6, 7, 8], [9, 10, 11, 12]])`
Using empty()	`np.empty([4, 3], dtype=int)`

Python3

- create a NumPy array from a list

```
list_1 = [1, 2, 3, 4]
list_2 = [5, 6, 7, 8]
list_3 = [9, 10, 11, 12]
print(np.array([list_1, list_2, list_3]))
```

- create a NumPy array using numpy.empty()

```
print(np.empty([4, 3], dtype=int))
```

Initial Placeholders

One Dimensional Array

arange()	`np.arange(1, 10)`
linespace()	`np.linspace(1, 10, 3)`
zeros()	`np.zeros(5, dtype=int)`
ones()	`np.ones(5, dtype=int)`
random.rand()	`np.random.rand(5)`
random.randint()	`np.random.randint(5, size=10)`

Python3

- create a NumPy array using numpy.arange()

```
print(np.arange(1, 10))
```

- create a NumPy array using numpy.linspace()

```
print(np.linspace(1, 10, 3))
```

- create a NumPy array using numpy.zeros()

```
print(np.zeros(5, dtype=int))
```

- ccreate a NumPy array using numpy.ones()

```
print(np.ones(5, dtype=int))
```

- create a NumPy array using numpy.random.rand()

```
print(np.random.rand(5))
```

- create a NumPy array using numpy.random.randint()

```
print(np.random.randint(5, size=10))
```

N-dimensional Numpy Arrays

zeros()	`np.zeros([4, 3], dtype = np.int32)`
ones()	`np.ones([4, 3], dtype = np.int32)`
full()	`np.full([2, 2], 67, dtype = int)`
eye()	`np.eye(4)`

Python3

- create a NumPy array using numpy.zeros()

```
print(np.arange(1, 10))
```

- create a NumPy array using numpy.ones()

```
print(np.ones([4, 3], dtype = np.int32))
```

- create a NumPy array using numpy.full()

```
print(np.full([2, 2], 67, dtype = int))
```

- create a NumPy array using numpy.eye()

```
print(np.eye(4))
```

GeeksforGeeks