



**DECODING**  
**DATA SCIENCE**

# NUMPY

## Cheat Sheet



[NAS.IO/ARTIFICIALINTELLIGENCE](https://NAS.IO/ARTIFICIALINTELLIGENCE)

# 1. Basic Commands

**Importing NumPy and checking its version:**

A terminal window with a blue border and a black background. It features three colored window control buttons (red, yellow, green) in the top-left corner. The text inside the terminal is written in a monospaced font, with 'import' and 'print' in blue and 'numpy' and 'version' in purple.

```
import numpy as np  
print(np.__version__)
```



# 2. Array Creation

Creating NumPy arrays from lists and with initial placeholders:

```
# From a list
arr = np.array([1, 2, 3, 4, 5])

# Array of zeros
arr = np.zeros((3, 3))

# Array of ones
arr = np.ones((3, 3))

# Array with a range of values
arr = np.arange(0, 10)

# Array of random values
arr = np.random.rand(3, 3)
```



# 3. Array Attributes

Getting an array's shape and data type:

```
arr = np.array([[1, 2, 3], [4, 5, 6]])

# Shape
print(arr.shape)

# Data type
print(arr.dtype)
```



# 4. Indexing and Slicing

**Indexing and slicing one-dimensional and multi-dimensional arrays:**

```
arr = np.array([1, 2, 3, 4, 5])

# Get the first element
print(arr[0])

# Get the last element
print(arr[-1])

# Get a slice from the second to the fourth element
print(arr[1:4])
```



# 5. Array Manipulation

Various ways to manipulate arrays such as reshaping, stacking, and splitting:

```
arr = np.array([[1, 2, 3], [4, 5, 6]])  
  
# Reshape  
arr_resaped = arr.reshape((3, 2))  
  
# Vertical stack  
arr_stack = np.vstack([arr, arr])
```



# 6. Arithmetic Operations

Performing addition, subtraction, multiplication, division, and dot product on arrays:

```
● ● ●  
  
arr1 = np.array([1, 2, 3])  
arr2 = np.array([4, 5, 6])  
  
# Addition print  
(arr1 + arr2)  
  
# Subtraction print  
(arr1 - arr2)  
  
# Multiplication print  
(arr1 * arr2)  
  
# Division print  
(arr1 / arr2)
```



# 7. Statistical Operations

Calculating the mean, median, and standard deviation of an array:

```
arr = np.array([1, 2, 3, 4, 5])

# Mean
print(np.mean(arr))

# Median
print(np.median(arr))

# Standard deviation
print(np.std(arr))
```







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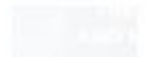
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