NUMPY
CHEATSHEET
READY REFERENCE

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Importing Numpy

```
import numpy as np
```

Creating Arrays 📊

Create arrays using various methods.

- 📝 **1D Array:**
  ```
  arr = np.array([1, 2, 3])
  ```

- 📝 **2D Array (Matrix):**
  ```
  matrix = np.array([[1, 2, 3], [4, 5, 6]])
  ```

- 📝 **Zeros Array:**
  ```
  zeros = np.zeros((2, 3))
  ```

- 📝 **Ones Array:**
  ```
  ones = np.ones((3, 2))
  ```

- 📝 **Random Array:**
  ```
  random = np.random.rand(2, 2)
  ```

Basic Operations ✨

Perform basic arithmetic operations on arrays.

- 🧮 **Addition:**
  result = arr1 + arr2

- 🧮 Subtraction:
  result = arr1 - arr2

- 🧮 Multiplication:
  result = arr1 * arr2

- 🧮 Division:
  result = arr1 / arr2

Indexing and Slicing 🪒

Access and manipulate array elements.

- 🔍 **Indexing:**
  element = arr[2]

- 🔍 Slicing:
  sub_array = arr[1:4]

Array Manipulation 🔄

Manipulate the shape and contents of arrays.

- 🔄 **Reshape Array:**
  reshaped = arr.reshape((2, 2))

- 🔄 **Transposed Array:**
  transposed = arr.T

- 🔄 **Flatten Array:**
  flattened = matrix.flatten()

Broadcasting 📡

Perform element-wise operations on arrays of different shapes.

- 📡 **Broadcasting Example:**
  result = arr + 5

Aggregation Functions 📊

Compute statistics and aggregates on arrays.

- 📊 **Mean:**
  mean_value = np.mean(arr)

- 📊 **Median:**
  median_value = np.median(arr)

- 📊 **Sum:**
  sum_value = np.sum(arr)

Linear Algebra 🔗

Perform linear algebra operations with arrays.

- 🔗 **Matrix Multiplication:**
  result = np.dot(matrix1, matrix2)

- 🔗 **Determinant:**
  determinant = np.linalg.det(matrix)

- 🔗 **Inverse:**
  inverse = np.linalg.inv(matrix)

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