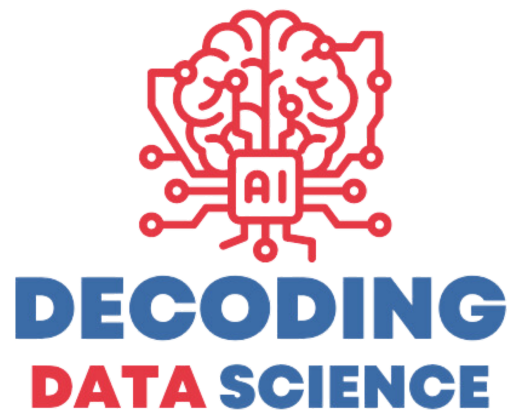


NumPy Cheat Sheet

Decoding Data Science



1. Basic Commands

Importing NumPy and checking its version:

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

2. Array Creation

Creating NumPy arrays from lists and with initial placeholders:

```
```python
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:

```
```python
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:

```
```python
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:

```
```python
```

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

```
Reshape
```

```
arr_reshaped = arr.reshape((3, 2))
```

```
Vertical stack
```

```
arr_stack = np.vstack([arr, arr])
```

```
Horizontal stack
```

```
arr_stack = np.hstack([arr, arr])
```

```
```
```

6. Arithmetic Operations

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

```
```python
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:

```
```python
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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