NumPy Cheat Sheet

1. Importing

```
import numpy as np
```

2. Array Creation

```
np.array(list_or_tuple)       # Create array from list/tuple

np.zeros(shape)               # Array of zeros

np.ones(shape)                # Array of ones

np.arange(start, stop, step) # Array with a range of values

np.linspace(start, stop, num)  # Array of evenly spaced values

np.random.rand(*shape)      # Array of random floats (0-1)

np.random.randint(low, high, size=shape) # Array of random integers
```

3. Array Inspection

```
arr.shape                     # Dimensions of array

arr.ndim                      # Number of dimensions

arr.dtype                     # Data type of elements

arr.size                      # Number of elements
```

4. Array Manipulation

```
arr.reshape(new_shape)      # Change array shape

arr.flatten()                 # Flatten array to 1D

np.transpose(arr) or arr.T  # Transpose array

np.concatenate((arr1, arr2), axis)    # Join arrays along an axis
```

np.stack((arr1, arr2), axis) # Stack arrays along a new axis

np.split(arr, indices_or_sections, axis) # Split an array into multiple sub-arrays.

5. Indexing and Slicing

arr[index] # Access single element

arr[start:stop:step] # Slice array

arr[condition] # Boolean indexing

6. Operations

arr1 + arr2, arr1 - arr2, arr1 * arr2, arr1 / arr2 # Element-wise operations

np.dot(arr1, arr2) # Matrix multiplication

np.sum(arr, axis) # Sum of array elements

np.mean(arr, axis) # Mean of array elements

np.max(arr, axis) # Maximum value

np.min(arr, axis) # Minimum value

7. Useful Functions

np.unique(arr) # Unique elements in array

np.sort(arr, axis) # Sort array

np.where(condition) # Indices where condition is true