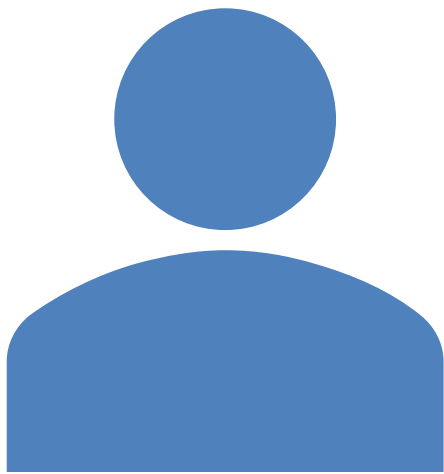




A comprehensive guide to NumPy
functions with examples

NumPy Commands Overview

np.array()

- Description:
- Creates a NumPy array from a list or tuple.
- Example:
- `arr = np.array([1, 2, 3])`

np.zeros()

- Description:
- Creates an array of zeros with specified shape.
- Example:
- `arr = np.zeros((2, 3))`

np.ones()

- Description:
- Creates an array of ones with specified shape.
- Example:
- `arr = np.ones((3, 3))`

np.empty()

- Description:
- Creates an uninitialized array with specified shape.
- Example:
- `arr = np.empty((2, 2))`

np.arange()

- Description:
- Creates an array with evenly spaced values within a range.
- Example:
- `arr = np.arange(0, 10, 2)`

np.linspace()

- Description:
- Creates an array with evenly spaced numbers over a specified interval.
- Example:
- `arr = np.linspace(0, 1, 5)`

`np.random.rand()`

- Description:
- Generates an array of random numbers from a uniform distribution.
- Example:
- `arr = np.random.rand(3, 3)`

`np.random.randn()`

- Description:
- Generates an array of random numbers from a standard normal distribution.
- Example:
- `arr = np.random.randn(3, 3)`

np.shape()

- Description:
- Returns the shape of an array.
- Example:
- `shape = arr.shape`

np.size()

- Description:
- Returns the total number of elements in an array.
- Example:
- `size = arr.size`

np.reshape()

- Description:
- Gives a new shape to an array without changing its data.
- Example:
- `arr = arr.reshape((3, 2))`

np.transpose()

- Description:
- Reverses or permutes the axes of an array.
- Example:
- `arr = arr.transpose()`

np.dot()

- Description:
- Computes the dot product of two arrays.
- Example:
- `result = np.dot(a, b)`

np.sum()

- Description:
- Calculates the sum of array elements over a specified axis.
- Example:
- `total = arr.sum(axis=0)`

np.mean()

- Description:
- Calculates the mean of array elements.
- Example:
- `mean = arr.mean()`

np.median()

- Description:
- Calculates the median of array elements.
- Example:
- `median = np.median(arr)`

np.std()

- Description:
- Calculates the standard deviation of array elements.
- Example:
- `std = np.std(arr)`

np.var()

- Description:
- Calculates the variance of array elements.
- Example:
- `var = np.var(arr)`

np.sqrt()

- Description:
- Computes the non-negative square root of each element in the array.
- Example:
- `sqrt_arr = np.sqrt(arr)`

np.sin()

- Description:
- Calculates the trigonometric sine of each element in the array.
- Example:
- `sine_arr = np.sin(arr)`

np.sort()

- Description:
- Sorts the elements of an array along a specified axis.
- Example:
- `sorted_arr = np.sort(arr, axis=1)`

np.concatenate()

- Description:
- Joins two or more arrays along an existing axis.
- Example:
- `combined = np.concatenate((arr1, arr2), axis=0)`

np.vstack()

- Description:
- Stacks arrays in sequence vertically (row-wise).
- Example:
- `stacked = np.vstack((arr1, arr2))`

np.hstack()

- Description:
- Stacks arrays in sequence horizontally (column-wise).
- Example:
- `stacked = np.hstack((arr1, arr2))`

np.split()

- Description:
- Splits an array into multiple sub-arrays.
- Example:
- `sub_arrays = np.split(arr, 3)`

np.where()

- Description:
- Returns elements chosen from x or y depending on a condition.
- Example:
- `result = np.where(arr > 0, arr, 0)`

np.unique()

- Description:
- Finds unique elements in an array.
- Example:
- `unique_elements = np.unique(arr)`

