

NumPy Basics

1. What is NumPy?

NumPy is a Python library used for numerical and scientific computing. It provides support for arrays, matrices, and mathematical operations.

2. Why is NumPy faster than Python lists?

NumPy uses optimized C-based implementation and stores data in contiguous memory. This makes computations faster and more efficient than Python lists.

3. What is an ndarray?

An ndarray is the main data structure of NumPy. It is a multi-dimensional array that stores elements of the same data type.

4. Difference between array and list

A NumPy array stores elements of the same data type and supports fast mathematical operations.

A Python list can store different data types and is slower for numerical computations.

5. What is broadcasting?

Broadcasting is a NumPy feature that allows arithmetic operations on arrays of different shapes.

It automatically expands smaller arrays to match larger ones.