# NumPy

**1.What is vectorization in NumPy**?
Vectorization is the process of performing operations on entire arrays at once without using loops, which improves speed and efficiency.

**2.What is the difference between reshape() and resize()?**
reshape() changes the shape of an array without modifying the original data, while resize() changes the shape of the original array and may repeat or remove elements.

**3.What are NumPy dimensions and axes?**
Dimensions indicate the number of levels in an array (1D, 2D, etc.), and axes represent the directions along which array operations are performed.

**4.What is slicing in NumPy arrays?**
Slicing is used to extract a part of an array by specifying a range of indices.

**5.How does NumPy help in mathematical computations for AI?**
NumPy provides fast numerical operations, matrix handling, and optimized mathematical functions required for AI and machine learning tasks.