Numpy question:

BASIC (Array Creation & Inspection)

- Create a 1D NumPy array from a Python list.
- Create a 2D NumPy array of shape (3, 4) filled with zeros.
- Create a NumPy array of shape (4, 4) filled with ones.
- Create an identity matrix of size 5 × 5.
- Create a NumPy array with values from 10 to 50.
- Create an array of 10 equally spaced values between 0 and 1.
- Find the shape, size, and data type of a NumPy array.
- Reshape a 1D array of size 12 into a (3, 4) matrix.
- Flatten a 2D NumPy array.
- Convert a NumPy array to a Python list.

INTERMEDIATE (Indexing, Slicing & Operations)

- Access the 3rd element of a 1D array.
- Slice the first 3 rows and first 2 columns of a 2D array.
- Select all even numbers from a NumPy array.
- Replace all negative values in an array with 0.
- Perform element-wise addition of two arrays.
- Perform element-wise multiplication of two arrays.
- Compute the dot product of two arrays.
- Calculate the mean, median, and standard deviation of an array.
- Find the maximum and minimum values along each column.
- Sort a NumPy array.

ADVANCED (Broadcasting, Random, Linear Algebra):

- Use broadcasting to add a 1D array to each row of a 2D array.
- Generate an array of 20 random integers between 1 and 100.
- Set a random seed and generate random numbers.
- Shuffle the elements of a NumPy array.
- Find unique elements and their counts in an array.
- Stack two arrays vertically and horizontally.
- Split an array into 3 equal parts.
- Compute the inverse of a square matrix.
- Calculate eigenvalues and eigenvectors of a matrix.
- Replace all values greater than the mean with the mean value.