NumPy Practice Questions

# A. Basic Array Creation and Properties

1. Create a 1D NumPy array of integers from 10 to 20.

2. Create a 3x3 NumPy array filled with zeros.

3. Create an array of 5 random integers between 1 and 100.

4. Create a NumPy array of 10 evenly spaced numbers between 0 and 1.

# B. Indexing and Slicing

5. Given an array arr = np.array([5, 10, 15, 20, 25]), extract elements from index 1 to 3.

6. From a 3x3 matrix, extract the second column.

7. Replace the last element of a NumPy array with 999.

# C. Array Operations

8. Perform element-wise addition and multiplication on two arrays: a = np.array([1, 2, 3]), b = np.array([4, 5, 6]).

9. Find the mean, median, and standard deviation of the array: arr = np.array([10, 20, 30, 40, 50]).

10. Create a 4x4 matrix of random integers between 1 and 50, and find the maximum value in each row.

# D. Reshaping and Stacking

11. Reshape a 1D array of 12 elements into a 3x4 matrix.

12. Stack two arrays vertically and horizontally: a = np.array([1, 2, 3]), b = np.array([4, 5, 6]).

# E. Logical Operations and Filtering

13. Given arr = np.array([3, 8, 12, 15, 21]), filter out elements greater than 10.

14. Replace all odd numbers in a NumPy array with -1.

15. Find the positions (indices) where the elements in the array are divisible by 3.