 **Array Creation and Basic Operations:**

* Create a 1D NumPy array of numbers from 1 to 20.
* Perform basic arithmetic operations (addition, subtraction, multiplication, and division) on this array by a scalar value of 5.
* Find the sum, mean, maximum, and minimum of the array.

 **Array Indexing and Slicing:**

* Create a 2D array of shape (4, 5) filled with random integers between 10 and 50.
* Extract the third column from the array.
* Extract the first two rows.
* Replace all elements greater than 25 with the value 100.

 **Array Reshaping:**

* Create an array of shape (3, 4) with numbers from 1 to 12.
* Reshape the array to shape (2, 6) and then to (6, 2).
* Flatten the array back to 1D.

 **Broadcasting:**

* Create two arrays: arr1 of shape (3, 1) and arr2 of shape (1, 4).
* Add these two arrays together using broadcasting.
* Explain why broadcasting works in this case and show the resulting array.

 **Statistical Functions:**

* Create a 3x3 NumPy array of random floats between 0 and 1.
* Compute the mean, standard deviation, and variance of the array.
* Find the median of the array along both axes (axis=0 and axis=1).

 **Sorting and Searching:**

* Create a 1D array of 15 random integers between 50 and 100.
* Sort the array in ascending order.
* Find the indices of the array elements that are greater than 75.

 **Element-wise Operations:**

* Create two 2D arrays of shape (3, 3) with random integers.
* Perform element-wise addition, subtraction, multiplication, and division.
* Compute the dot product of the two arrays.