1. Basic Array Operations

```
# creating NumPy Arrays
        import numpy as np
        arr1 = np.array([1, 2, 3, 4, 5])
        print("Array 1:", arr1)
      #Output
        Array 1: [1 2 3 4 5]
# Initializing Arrays with Different Data Types
        arr2 = np.array([1.2, 3.4, 5.6], dtype=np.float32)
        arr3 = np.array([1, 0, 1, 0], dtype=np.bool_)
        print("Float Array:", arr2)
        print("Boolean Array:", arr3)
      #Output
        Float Array: [1.2 3.4 5.6]
        Boolean Array: [ True False  True False]
#Reshaping Arrays
        arr4 = np.arange(1, 10).reshape(3, 3)
        print("Reshaped Array (3x3):\n", arr4)
      #Output
        Reshaped Array (3x3):
         [[1 2 3]
         [4 5 6]
         [7 8 9]]
# Element-wise Operations
        arr6 = np.array([1, 2, 3])
        arr7 = np.array([4, 5, 6])

        sum_arr = arr6 + arr7
        diff_arr = arr6 - arr7
        prod_arr = arr6 * arr7
```

```
print("Sum:", sum_arr)
print("Difference:", diff_arr)
print("Product:", prod_arr)
#Output
Sum: [5 7 9]
Difference: [-3 -3 -3]
Product: [ 4 10 18]
```