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import numpy as np

# Q1
arr1 = np.array([1, 2, 3, 4, 5])
print(arr1)

# Q2
arr2 = np.arange(10, 101, 10)
print(arr2)

# Q3
arr3 = np.array(list(string.ascii_uppercase))
print(arr3)

# Q4
arr4 = np.zeros(10)
print(arr4)

# Q5
arr5 = np.ones(10)
print(arr5)

# Q6
print(arr3.dtype)

# Q7
arr7 = np.random.randint(1, 6, 10)
print(arr7)

# Q8
arr8 = np.arange(10)
print(arr8)

# Q9
input_arr = np.array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
print(input_arr[input_arr % 2 == 1])

# Q10
print(np.where(input_arr % 2 == 1, -1, input_arr))

*new slide*

import numpy as np

# Q11: Create a NumPy array of even numbers from 2 to 20
arr11 = np.arange(2, 21, 2)
print(arr11)

# Q12: Create a NumPy array of 5 equally spaced numbers between 0 and 1
arr12 = np.linspace(0, 1, 5)
print(arr12)

# Q13: Create a 3x3 NumPy array filled with the value 7
arr13 = np.full((3, 3), 7)
print(arr13)

# Q14: Create a 4x4 identity matrix using NumPy
arr14 = np.eye(4)
print(arr14)

# Q15: Create a NumPy array of 10 random floating-point numbers between 0 and 1
arr15 = np.random.rand(10)
print(arr15)
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# Q16: Reshape a 1D array of numbers from 1 to 12 into a 3x4 matrix
arr16 = np.arange(1, 13).reshape(3, 4)
print(arr16)

# Q17: Find the shape and dimension of the array created in Question 16
print(arr16.shape)
print(arr16.ndim)

# Q18: Create a NumPy array of integers from 1 to 25 and reshape it into a 5x5
matrix
arr18 = np.arange(1, 26).reshape(5, 5)
print(arr18)

# Q19: Extract the first row from the array created in Question 18
print(arr18[0])

# Q20: Extract the last column from the array created in Question 18
print(arr18[:, -1])

# Q21: Replace all values greater than 15 in the array created in Question 18
with 0
arr18[arr18 > 15] = 0
print(arr18)
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