tips: Correct option and Modified option

**Single-Choice Questions**

1. Which command is used to create a 3x3 identity matrix?

A) np.eye(3)

B) np.identity(3)

C) np.ones(3)

D) np.array(3)

1. What does np.zeros((2, 3)) produce?

A) A 2x3 matrix of zeros

B) A 3x2 matrix of zeros

C) A 2x3 matrix of ones

D) A 3x2 matrix of ones

1. How would you generate an array with values ranging from 1 to 5?

A) np.range(1, 5)

B) np.array([1, 2, 3, 4, 5])

C) np.arange(1, 6)

D) np.array(1, 5)

1. Which function calculates the mean of an array?

A) np.sum()

B) np.mean()

C) np.average()

D) np.mode()

1. How can you reshape a 1D array with 6 elements into a 2x3 array?

A) np.reshape(arr, 2, 3)

B) np.reshape(arr, (2, 3))

C) np.array(arr, 2, 3)

D) np.change\_shape(arr, 2, 3)

**Multiple-Choice Questions**

1. Which of the following operations can create a 1D NumPy array?

A) np.array([1, 2, 3])

B) np.zeros((2, 2))

C) np.arange(10)

D) np.array([[1, 2], [3, 4]])

1. Which statements are correct about NumPy array slicing?

A) arr[1:] selects all elements from index 1 to the end

B) arr[:2] selects the first two elements

C) arr[::2] selects every second element

D) arr[1:3] includes the third element

1. Which attributes are correct about a NumPy array arr?

A) arr.shape gives the array dimensions

B) arr.size gives the number of elements

C) arr.type gives the data type

D) arr.length gives the length of the array

1. Which methods can be used to change the shape of a NumPy array?

A) np.reshape()

B) np.resize()

C) np.shape\_change()

D) np.array\_reshape()

1. Which functions can be used to perform element-wise multiplication?

A) np.multiply()

B) \* operator on arrays

C) np.matmul()

D) np.dot()

**Programming Questions**

1. Given a 3x3 matrix. Write code to extract the first row, last column, and all elements in the center (1,1).

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| import numpy as np  matrix = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]]) first\_row = matrix[0, :] last\_column = matrix[:, -1] center\_element = matrix[1, 1] print("First row:", first\_row) print("Last column:", last\_column) print("Center element:", center\_element) |