tips: Correct option and Modified option

**Single-Choice Questions**

1. Which function is used to create a NumPy array?

A) array()

B) list()

C) dict()

D) np\_array()

1. How do you find the shape of a NumPy array arr?

A) arr.size

B) arr.shape

C) arr.length

D) arr.dimensions

1. What is the default data type of a NumPy array?

A) int

B) float

C) str

D) bool

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. How do you get the total number of elements in a NumPy array arr?

A) arr.shape

B) arr.length()

C) arr.size

D) len(arr)

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. What does arr[0:2, 1] do for a 2D NumPy array arr?

A) Selects the first row

B) Selects the second column

C) Selects the elements in the first two rows of the second column

D) Selects the entire matrix

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(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 of the following methods can be used to create a matrix filled with ones?

A) np.ones((3, 3))

B) np.full((3, 3), 1)

C) np.empty((3, 3))

D) np.zeros((3, 3))

1. Which functions can be used to create evenly spaced values in NumPy?

A) np.array()

B) np.linspace()

C) np.arange()

D) np.arange\_space()

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 of the following statements about NumPy broadcasting is correct?

A) Arrays with compatible shapes can be added element-wise

B) Broadcasting only works with 1D arrays

C) Broadcasting allows operations on arrays of different shapes

D) Broadcasting only works with arrays of the same shape

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 of the following are correct ways to initialize a 3x3 identity matrix?

A) np.eye(3)

B) np.identity\_matrix(3)

C) np.ones((3,3))

D) np.identity(3)

1. Which statements about np.sum() are correct?

A) np.sum() can sum elements along a specific axis

B) np.sum() can operate on both 1D and 2D arrays

C) np.sum() only works with 1D arrays

D) np.sum() can sum all elements of the entire array

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. Create a NumPy array with values from 1 to 10. Reshape it into a 2x5 matrix and find the sum of each row.

|  |
| --- |
| import numpy as np  arr = np.arange(1, 11).reshape(2, 5) print(arr.sum(axis=1)) |