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3.3.4 Fin		ise: Pract	ice us	sing n	darrays	•			
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Finger Exercises 2 due Aug 10, 2023 05:00 IST Completed

MO2.3

In Section <u>3.1.3</u>, we asked questions about using standard Python lists to represent and manipulate vectors and matrices. In this section, we now ask similar questions but using NumPy ndarray objects instead. We recommend looking back at the questions in Section <u>3.1.3</u> to contrast how Python lists versus NumPy ndarray objects work.

Problem: Using ndarrays for vector manipulations

2/2 points (graded)

In these questions, we will look at some common vector manipulations and the results when using NumPy ndarrays.

To begin, let's consider addition of two vectors. Consider the following Python code:

```
import numpy as np

u = np.array([1, 2, 3])
v = np.array([4, 5, 6])
w = np.array([u[0]+v[0], u[1]+v[1], u[2]+v[2]]) # i.e. w = [5,7,9]

print( u+v == w )
```

What will this code print when run? If an error would occur at any point, select ERROR OCCURS.

False

True

[False False False]

[True True True]

ERROR OCCURS



And now let's consider multiplication of a vector by a scalar. Consider the following Python code:

```
import numpy as np

u = np.array([1, 2, 3])
v = np.array([2*u[0], 2*u[1], 2*u[2]]) # i.e. v = [2,4,6]

print( v == 2*u )
```

What will this code print when run?

False

Discussions

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	True
	[False False False]
	[True True True]
	ERROR OCCURS
~	
Sub	omit
1	answers are displayed within the problem
nde 2/2 poi	olem: Retrieving a matrix element using ndarray xing ints (graded)
	se questions, we will look at how to retrieve an element of a matrix by ng into an <code>ndarray</code> .
Consi	der the following Python code.
	rt numpy as np np.array([[1,2,3], [4,5,6]])
	does A[1][1] evaluate to?
	1
	2
	4
	5
	ERROR OCCURS
~	
What	does A[1,1] evaluate to?
	1
	2
	4
	5
	ERROR OCCURS





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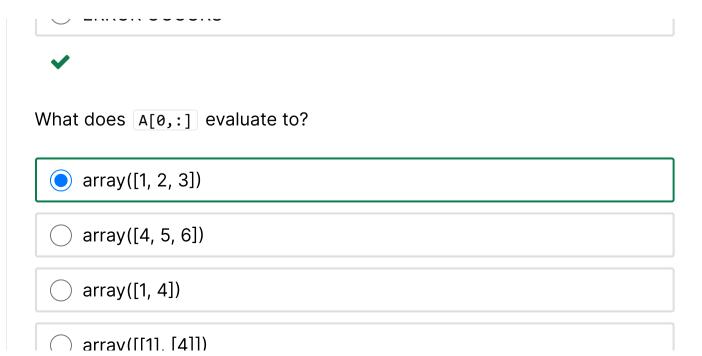






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ERROR OCCURS	
✓	
Vhat does A[:,0] eval	uate to?
array([1, 2, 3])	
array([4, 5, 6])	
array([1, 4])	
<pre> array([[1], [4]])</pre>	
O ERROR OCCURS	
✓	
Submit	