Course – Python for Mathematicians

Week 5 Quiz: NumPy – Basics to Advance

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What will be the result of the following code?

```
list1 = [1,2,3]
list2 = [2,4,5]
print(list1+list2)
```

Answer = [1, 2, 3, 2,4,5]

What is the primary advantage of using NumPy arrays over Python lists?

1. Faster computation (Answer)
2. Automatic error correction
3. Both Lists and arrays are same
4. None of the above

What will be the output of the following code?

```
a = np.array([1,2,3,4,5,6,7,8,9,10,11,12])
a2 = a.reshape([2,4])
print(a2)
```

[[1 2 3 4]
[5 6 7 8]]

[1 2 3 4]
[5 6 7 8]

[[1, 2],
[3, 4],
[5, 6],
[7, 8]]

Will raise an error (Answer)

What could be the possible output of the following code?

```
np.random.random(3)
```

1. [0.84480748, 0.51097625, 0.11832769] (Answer)
2. [-0.02341, 0.51234, 0.95673]
3. [1.239087, 0.5454556, 0.7434328]
4. [1.239087, -0.5454556, -0.7434328]

What will be the number of dimensions of the following array?

```
a = np.array([1,2,3,4,5,6,7])
```

- 1 (Answer)

- 2
- 7
- 0

What does the expression np.min(stats, axis=0) do in 2d NumPy array?

1. Finds the minimum value in each row of the array stats.
2. Finds the minimum value in each column of the array stats. (Answer)
3. Finds the overall minimum value in the array stats.
4. Finds the maximum value in each column of the array stats.

What will be the output of the following code?

```
import numpy as np
a = np.linspace(1, 10, 4)
print(a)
```

1. [1 4 7 10]
2. [1. 3. 5. 7.]
3. [1. 4. 7. 10.] (Answer)
4. [1. 3.25 5.5 7.75 10.]

What will be the output of the following code?

```
import numpy as np
a = np.arange(2, 10, 2)
print(a)
```

1. [2, 4, 6, 8, 10]
2. [2, 4, 6, 8] (Answer)
3. [2, 3, 4, 5, 6, 7, 8, 9]
4. Raises an error because arrange does not accept three arguments.

What will be the output of the following code?

```
import numpy as np
a = np.array([1, 2, 3, 4, 5])
a[1:4] = 10
print(a)
```

Answer = [1, 10, 10, 10, 5]

What will be the output of the following code?

```
import numpy as np
a = np.array([1, 2, 3, 4, 5])
a[1:4]
```

1. array([2, 3, 4]) (Answer)
2. array([2, 3, 4,5])
3. array([1, 2, 3, 4])
4. None

What will be the output of the following code?

```
import numpy as np
a = np.array([5, 10, 15, 20])
print(a[::-1])
```

1. [20 15 10 5] (Answer)
2. [5, 10, 15, 20]
3. [15, 10, 5]
4. [15, 10, 5,20]

What will be the output of the following code?import numpy as np

```
a = np.array([1, 2, 3, 4, 5, 6, 7, 8, 9])
print(a[1:8:2])
```

1. [2 4 6 8] (Answer)
2. [2 4 6 8, 9]
3. error
4. [1, 2, 3, 4, 5, 6, 7, 8]

What does the expression np.sum(stats, axis=1) do if stats is 2d NumPy array?

Answer: Computes the sum for each row