

**Report for One Day Guest Lecture by Affiliate Professor on
“NumPy in Python”**

Conducted on 29th August 2024

**Organized by School of Computer, Information and Mathematical Sciences
(SCIMS) Department of Computer Applications**

Conveners

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Coordinators

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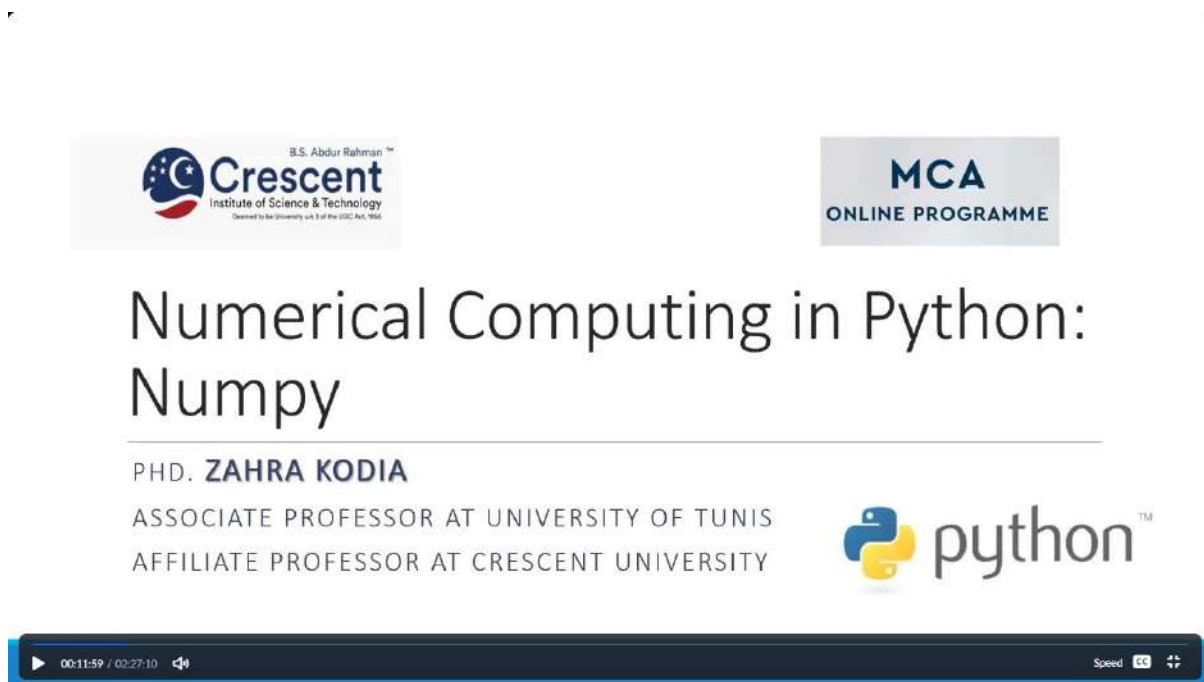
Event Details

The Department of Computer Applications, under the School of Computer, Information, and Mathematical Sciences, organized a One Day Guest Lecture by Affiliate Professor. Dr.Zarah Kodia – Associate Professor from University of Tunis , Tunisia on “NumPy in Python” from 2:00 PM to 4:00 PM at Mechanical Block, Crescent Campus.

The Guest Lecture focused on the following key takeaways:

- ❖ Understanding the fundamentals of NumPy and its significance.
- ❖ Using NumPy for Creating One Dimensional Array, 2D Array, 3D Array and Multidimensional Array.
- ❖ Implementation of Indexing, Slicing, Shape, Reshape, Join and Filter in Array environment.
- ❖ A Complete overview on various types of Sub Modules in NumPy.
- ❖ Discussion on various logical and mathematical capabilities for those arrays such as shape manipulation, sorting, selection in NumPy
- ❖ Exploring linear algebra and statistical operations in NumPy environment for real-time problem solving scenario.
- ❖ Overview of random number generation and discrete Fourier transforms to solve an analytical problem using NumPy library.

Sample Screenshots of the Guest Lecture:



The screenshot shows a video player interface with a slide. The slide features the Crescent Institute of Science & Technology logo (B.S. Abdur Rahman™) and the MCA ONLINE PROGRAMME logo. The main title is "Numerical Computing in Python: Numpy". Below the title, the presenter is identified as PHD. ZAHRA KODIA, an Associate Professor at the University of Tunis and an Affiliate Professor at Crescent University. The Python logo is also present. At the bottom, a video player control bar shows a play button, a progress bar at 00:11:59 / 02:27:10, a volume icon, and a speed control icon.

Creating ndarrays

```
array = np.array([[0,1,2],[2,3,4]])
[[0 1 2]
 [2 3 4]]
```

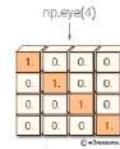
```
array = np.zeros((2,3))
[[0. 0. 0.]
 [0. 0. 0.]]
```

Shape

```
array = np.ones((2,3))
[[1. 1. 1.]
 [1. 1. 1.]]
```

(4,4)

```
array = np.eye(4)
[[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]
```

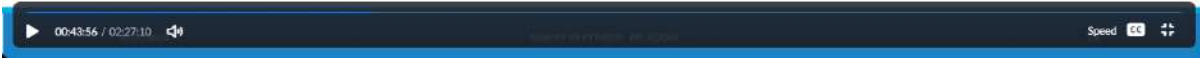


```
array = np.arange(0, 10, 2)
[0 2 4 6 8]
```

*arange is an array-valued version of the built-in Python range function

```
array = np.random.randint(0, 10, (3,3))
[[6 4 3]
 [1 5 6]
 [9 8 5]]
```

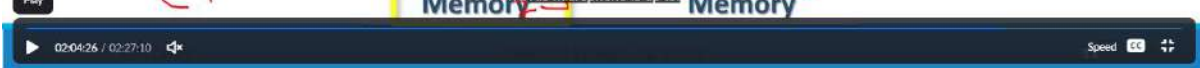
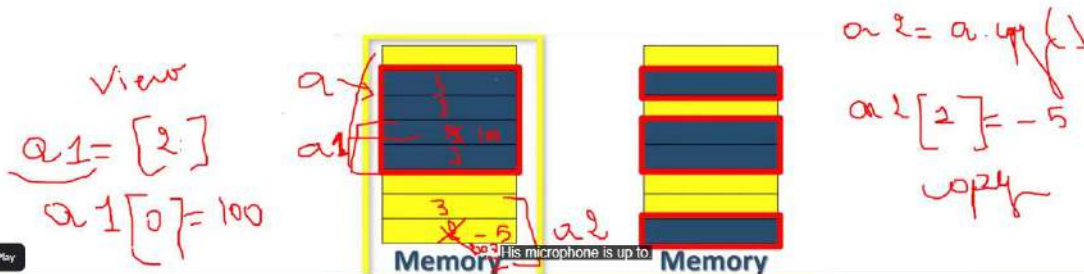
It's very usage, especially in the symmetric matrix. Okay? And use this method



Array item types

Every ndarray is a homogeneous collection of exactly the **same** data-type

- every item takes up the same size block of memory
- each block of memory in the array is interpreted in exactly the same way

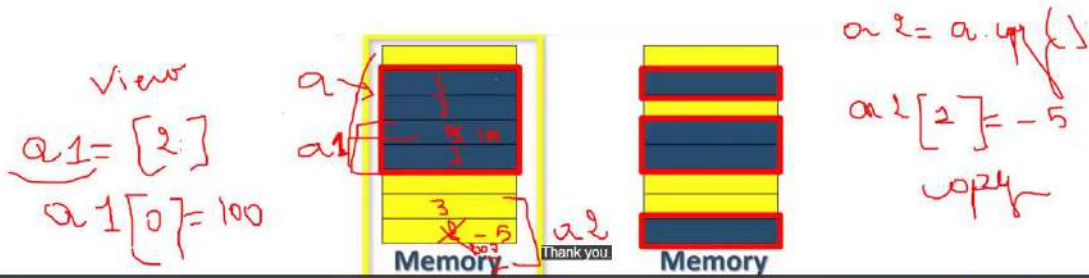




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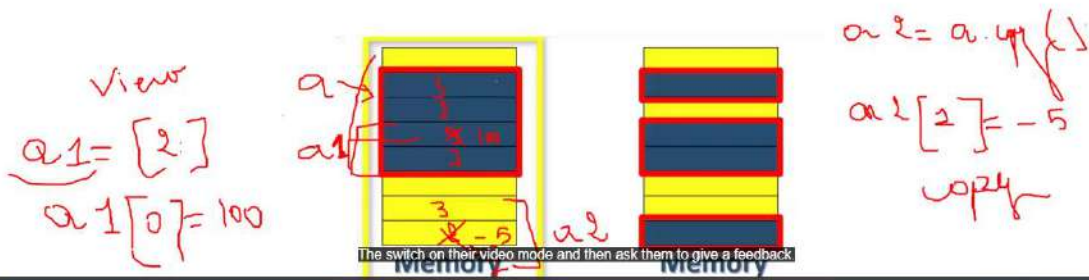
02:04:07 / 02:27:10

Speed

Array item types

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02:04:52 / 02:27:10

Speed