Accessing Parts of Arrays-I

Spoken Tutorial Project
http://spoken-tutorial.org
National Mission on Education through ICT

http://sakshat.ac.in

Script: Aditya Palaparthy

Narration: Kiran K

IIT Bombay

02 November 2015

Objectives

In this tutorial we will learn,

Objectives

In this tutorial we will learn,

- **Access and change individual elements of**
  - **single dimensional arrays**
  - **multi-dimensional arrays**
- **Access and change rows and columns of arrays.**

Objectives

- **Access and change other elements of an array, using slicing and striding.**

System Specifications

System Specifications

- **Ubuntu Linux 14.04**

System Specifications

- **Ubuntu Linux 14.04**
- **`Python 2.7.6`**

System Specifications

- **Ubuntu Linux 14.04**
- **`Python 2.7.6`**
- **`IPython 4.0.0`**

Pre-requisite

To practise this tutorial, you should know how to

- **run basic Python commands on the ipython console.**
- **use arrays.**

If not, see the pre-requisite Python tutorials on http://spoken-tutorial.org

Sample Arrays

```
In []: A = array([1, 2, 3, 4, 5])

In []: C = array([[1, 2, 3, 4, 5],
                  [6, 7, 8, 9, 10],
                  [11, 12, 13, 14, 15],
                  [16, 17, 18, 19, 20],
                  [21, 22, 23, 24, 25]])
```

Exercise 1

- First obtain `[7, 8]` from `C`.
- Then obtain `[1,6,11,16]` from `C`.
- Finally obtain `[6,11,16,0]`.

Exercise 2

Obtain the elements `[[8,9],[13,-14]]` from `C`

Exercise 3

Obtain the following

- `[[2, 5], [17, 20]]`

Exercise 3

Obtain the following

- `[[2, 5], [17, 20]]`
- `[[2, 3, 4], [0, 0, 0]]`

Solution 3

- `C[::3, 1::3]`

Solution 3

- `C[::3, 1::3]`
- `C[::4, 1:4]`

Summary

In this tutorial, we have learnt to,

Summary

In this tutorial, we have learnt to,

- **Manipulate single & multi dimensional arrays.**

Summary

In this tutorial, we have learnt to,

- **Manipulate single & multi dimensional arrays.**
- **Access and change individual elements by using their index numbers.**

Summary

- **Access and change rows and columns of arrays by specifying the row and column numbers.**

Summary

- **Access and change rows and columns of arrays by specifying the row and column numbers.**
- **Slice and stride on arrays.**

Evaluation

1. **Given the array,**
   `A = array([12,15,18,21])`,
   How do we access the element 18?

Evaluation

2. **Given the array,**

```
B = array([[10, 11, 12, 13],
           [20, 21, 22, 23],
           [30, 31, 32, 33],
           [40, 41, 42, 43]])
```

Obtain the elements, `[[21, 22], [31, 32]]`

Solutions

1. `A[ 2 ]`
2. `B[1:3, 1:3]`

Forum to answer questions

- **Do you have questions in THIS Spoken Tutorial?**
- **Choose the minute and second where you have the question.**
- **Explain your question briefly.**
- **Someone from the FOSSEE team will answer them. Please visit**

http://forums.spoken-tutorial.org/

Forum to answer questions

- **Questions not related to the Spoken Tutorial?**
- **Do you have general / technical questions on the Software?**
- **Please visit the FOSSEE Forum**

  http://forums.fossee.in/
- **Choose the Software and post your question.**

Textbook Companion Project

- **The FOSSEE team coordinates coding of solved examples of popular books**
- **We give honorarium and certificate to those who do this**

For more details, please visit this site:

http://tbc-python.fossee.in/

Acknowledgements

- Spoken Tutorial Project is a part of the Talk to a Teacher project
- It is supported by the National Mission on Education through ICT, MHRD, Government of India
- More information on this Mission is available at: http://spoken-tutorial.org/NMEICT-Intro

THANK YOU!

For more Information, visit our website
http://fossee.in/