Testing and Debugging

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

http://sakshat.ac.in
Script: Arun KP

Narrator: Priya K

IIT Bombay

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Learning Objectives

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▶ **Understand what is software testing**

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▶ **Test simple functions for their functionality**

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▶ **Understand what is software testing**

▶ **Test simple functions for their functionality**

▶ **Automate tests**

Learning Objectives

► **Understand the need for coding style**

Learning Objectives

▶ **Understand the need for coding style**

▶ **Learn some of the standards followed by the Python Community**

System Specifications

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▶ **Ubuntu Linux 16.04**

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▶ **Python 3.4.3**

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- Ubuntu Linux 16.04
- Python 3.4.3
- IPython 5.1.0

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▶ **Ubuntu Linux 16.04**

▶ `Python 3.4.3`

▶ `IPython 5.1.0`

▶ **Gedit text editor**

To practise this tutorial, you should know how to

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► **use functions**

Pre-requisite

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

What is Software testing?

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▶ **Software testing is the process to evaluate the functionality of a software or a program**

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► **Software testing is the process to evaluate the functionality of a software or a program**

► **It helps to find whether the program met the specified requirements or not**

What is Software testing?

► **It ensures a defect free program so that we will get a quality program**

Source code

- ▶ **All the codes used in this tutorial are available in the Code Files link of this tutorial**

- ▶ **You should download in the current working directory and use them**

Test cases

▶ **To check where our code is breaking we should run many tests**

Test cases

- **To check where our code is breaking we should run many tests**
- **This is where the concept of automating tests comes in**

Exercise

▶ For the same inputs as **GCD** write automated tests for **LCM**

▶ Use the data from the file **lcmtestcases.txt**

Coding Style

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► **A good program should be readable**

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▶ **Others can extend and improve it**

Coding Style

- ▶ **A good program should be readable**
- ▶ **Others can extend and improve it**
- ▶ **Code is read more often than it is written**

Meaningfull names

```
mass = 10
acceleration = 2
force = mass * acceleration
```

Coding Instructions

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▶ **Four Space Indentation**

Coding Instructions

▶ **Four Space Indentation**

▶ **79 characters limit on a line**

Coding Instructions

► **Four Space Indentation**

► **79 characters limit on a line**

► **Funtions and methods should be seperated with two blank lines**

Coding Instructions

► **Use Docstring to document a specific segment of code**

Coding Instructions

- ▶ Use **Docstring** to document a specific segment of code
- ▶ Use **whitespace** around operators and after punctuations

Summary

▶ **Create simple tests for a function**

▶ **Automate tests using many predefined test cases**

▶ **Use the python coding standards**

Evaluation

1. **What is the proper indentation for python code according to the style guidelines?**
   - ▶ **two space indentation**
   - ▶ **three space indentation**
   - ▶ **four space indentation**
   - ▶ **no indentation**

1. **four space indentation**

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

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▶ **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/