Testing and debugging

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

http://sakshat.ac.in

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Objectives

At the end of this tutorial, you should be able,

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- **Understand what is software testing.**
- **Test simple functions for their functionality.**
- **Automate tests.**

Objectives contd..

- **Understand the need for coding style.**

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- **Learn some of the standards followed by the Python Community.**

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- **Understand the need for coding style.**
- **Learn some of the standards followed by the Python Community.**
- **Handle Errors and Exceptions.**

System Specifications

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- **`Python 2.7.6`**

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- **`Python 2.7.6`**
- **`IPython 4.0.0`**

Pre-requisite

To practice this tutorial, you should know how to -

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

What is Software testing?

- **Software testing is an activity aimed at evaluating a program, and determining that it meets its required results.**

gcd function

Create find_gcd.py file with:

```
def gcd(a, b):
    if b == 0:
        return a
    return gcd(b, a%b)
```

Assignment 1

- **For the same inputs as gcd write automated tests for LCM.**

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

Coding Style

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- **A good program should be readable**
- **Code is read more often than it is written. This is because, that way, other people can learn from it and extend and improve it.**

Meaning full names

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

Code style

- **Four Space Indentation**

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Code style

- Four Space Indentation
- 79 characters limit on a line
- Funtions and methods should be seperated with two blank lines
- Use Docstring to explain units of code performing specific task
- Use whitespace around operators and after punctuation.

Summary

In this tutorial, we have learnt to,

- **Create simple tests for a function.**

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- **Automate tests using many predefined test cases.**

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In this tutorial, we have learnt to,

- **Create simple tests for a function.**
- **Automate tests using many predefined test cases.**
- **Use the python coding standards.**

Summary contd..

- **Handle exception using `try` and `except`.**

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- **Handle exception using `try` and `except`.**
- **Use `%debug` for debugging on `ipython`.**

Self assessment questions

1. **What is proper indentation for python code according to style guidelines?**

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   - **two space identation**
   - **three space identation**
   - **four Space Indentation**
   - **no Indentation**

Self assessment questions

2. **How do you start the debugger on ipython?**

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   - `debug`
   - `%debug`
   - `%debugger`
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Solutions

1. **Four Space Indentation**

Solutions

1. **Four Space Indentation**
2. **`%debug`**

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/

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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/