Creating simple plots using IPython

Spoken Tutorial Project
http://spoken-tutorial.org

National Mission on Education through ICT

http://sakshat.ac.in

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16 October 2016

Objectives

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- **Create simple plots of mathematical functions.**

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- **Create simple plots of mathematical functions.**
- **Use the plot window to study plots better.**

System Specifications

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- **`Python 3.4.3`**
- **`IPython 5.1.0`**

Pre-requisites

Pre-requisites to practise this tutorial -

- **You should know how to run basic Python commands on the ipython console.**
- **If not, for relevant Python tutorials, please visit this website.**

http://spoken-tutorial.org

Pylab

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Pylab is a convenient Python module -

- **which provides plotting functionality**
- **and use of mathematical and scientific functions.**

Error if matplotlib is not installed

- `ImportError: No module named matplotlib`

clf() function

- To clear the plot, we have to use the clf() function.
- This avoids overlapping of new plots over older plots.

Exercise 1

Plot `(sin(x)*sin(x))/x`.

1. **Save the plot as sinsquarebyx.pdf**
2. **Zoom and find the maxima.**
3. **Bring it back to initial position.**

Summary

In this tutorial, we have learnt to -

- Start ipython with pylab
- Use the linspace function to create equally spaced points in a region.
- Find the length of sequences using len function.
- Plot mathematical functions using plot.

Summary

- Clear drawing area using clf.
- Usage of buttons in the UI of the plot window such as - Save, Zoom, Move axis, Back and Forward, Home

Assignment

1. **Create 100 equally spaced points between -pi/2 and pi/2**
2. **How to find the length of a sequence?**

Assignment

3. **What will the command `linspace(-pi,pi,100)` do?**
   - **returns 100 evenly spaced samples from -pi to pi?**
   - **returns 100 evenly spaced samples from -pi to pi excluding pi but including -pi?**
   - **returns 100 evenly spaced samples from -pi to pi excluding -pi but including pi?**
   - **returns 100 evenly spaced samples from -pi to pi including both -pi & pi?**

Solutions. . .

1. `linspace(-pi/2,pi/2,100)`
2. `len(sequence_name)`
3. **returns 100 evenly spaced samples from -pi to pi including both -pi and pi**

About the Spoken Tutorial Project

- **Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial**
- **It summarises the Spoken Tutorial project**
- **If you do not have good bandwidth, you can download and watch it**

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

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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/