Using plot command interactively

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 will be able to - **

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

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At the end of this tutorial, you will be able to -

- ▶ 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

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Pylab

Pylab is a convenient Python module -

- ▶ **which provides plotting functionality**
- ▶ **and has 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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- ► **Conducts workshops using spoken tutorials**

- ► **Gives certificates to those who pass an online test**

- ► **For more details, please write to contact@spoken-tutorial.org**

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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**

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Forum to answer questions

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  http://forums.fossee.in/

- **Choose the Software and post your question.**

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- **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/