Plotting Data

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

http://sakshat.ac.in

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Objectives

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- **Plot errorbars.**

System Specifications

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- **`IPython 4.0.0`**

Pre-requisites

To practise this tutorial, you should know how to

- **run basic Python commands on the ipython console**
- **use Plots interactively.**
- **Embellish a plot.**

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

Simple Pendulum Data

L	T
0.1	0.69
0.2	0.90
0.3	1.19
0.4	1.30
0.5	1.47
0.6	1.58
0.7	1.77
0.8	1.83
0.9	1.94

Exercise 1

Plot the given experimental data with large dots.

Exercise 1 Data

δ L	δ T
0.08	0.04
0.09	0.08
0.07	0.03
0.05	0.05
0.06	0.03
0.00	0.03
0.06	0.04
0.06	0.07
0.01	0.08

Exercise 2

Plot the given experimental data with small dots.

Exercise 2 Data

S	n	δ S	δ n
0.19	10.74	0.006	0.61
0.38	14.01	0.006	0.69
0.57	18.52	0.005	0.53
0.77	20.23	0.003	0.38
0.96	22.88	0.004	0.46
1.15	24.59	0.007	0.37
1.34	27.55	0.004	0.46
1.54	28.48	0.004	0.46
1.73	30.20	0.007	0.37

Summary

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- **Declare a list of numbers using the function “array”.**

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In this tutorial, we have learnt to -

- **Declare a list of numbers using the function “array”.**
- **Perform element wise squaring using the “square” function.**

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- **Use the various options available for plotting like dots, lines.**

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- Use the various options available for plotting like dots, lines.
- Plot experimental data such that we can also represent error by using the `errorbar()` function.

Evaluation

1. **Square the following sequence.**
   - **distance_values=[2.1,4.6,8.72,9.03]**

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   - **distance_values=[2.1,4.6,8.72,9.03]**
2. **Plot L v/s T in red plusses from the Simple Pendulum Data.**

Solutions

1. `square(distance_values)`

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1. `square(distance_values)`
2. `plot(L,T,'r+')`

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/