2016

Plotting Graph

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SCILAB.

CERTIFIED TRAINING CENTER
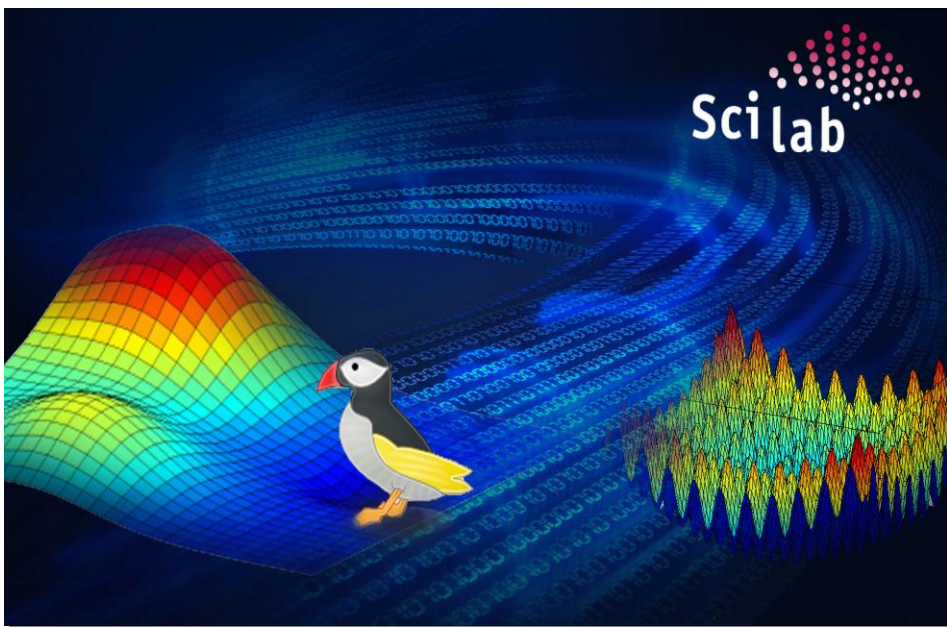
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Contents

Introduction:

Producing plots and graphs is a very common task in almost all the domains for analyzing data and creating reports. Scilab has various commands to facilitate in many ways to create and customize various types of plots and charts. In this part, we see how to create different types of 1D, 2D, 3D plots and contour plots. Then we customize the title and the legend of our graphs. Finally export the plots, so that we can use it in a report.

Plot functions:

Plot	2D plot
surf	3D plot
Contour	Contour plot
Pie	Pie chart
Bar	Bar chart
Histplot	Histogram
Barh	Horizontal bar chart
hist3d	3D histogram
polarplot	Plot polar coordinates
Matplot	2D plot of a matrix using colors
Sgrayplot	Smoot 2D plot of a surface using colors
grayplot	2D plot of a surface using colors

Table 1: Scilab plot functions

linspace	linearly spaced vector
feval	evaluates a function on a grid
legend	configure the legend of the current plot
title	configure the title of the current plot
xtitle	configure the title and the legends of the current plot

Table 2: Scilab functions used when creating a plot

2D plot:

In this section, we present how to produce a simple x-y plot.

Step1: open scilab and write following function,

function f = temperature(x)

f = (x*1.8)+32

endfunction

Click, Execute -> Save and execute

Then write the following steps code in scilab console window.

Step 2: Use the linspace function to produce 20 values in the interval [1, 20].

xdata = linspace (1 , 20, 20);

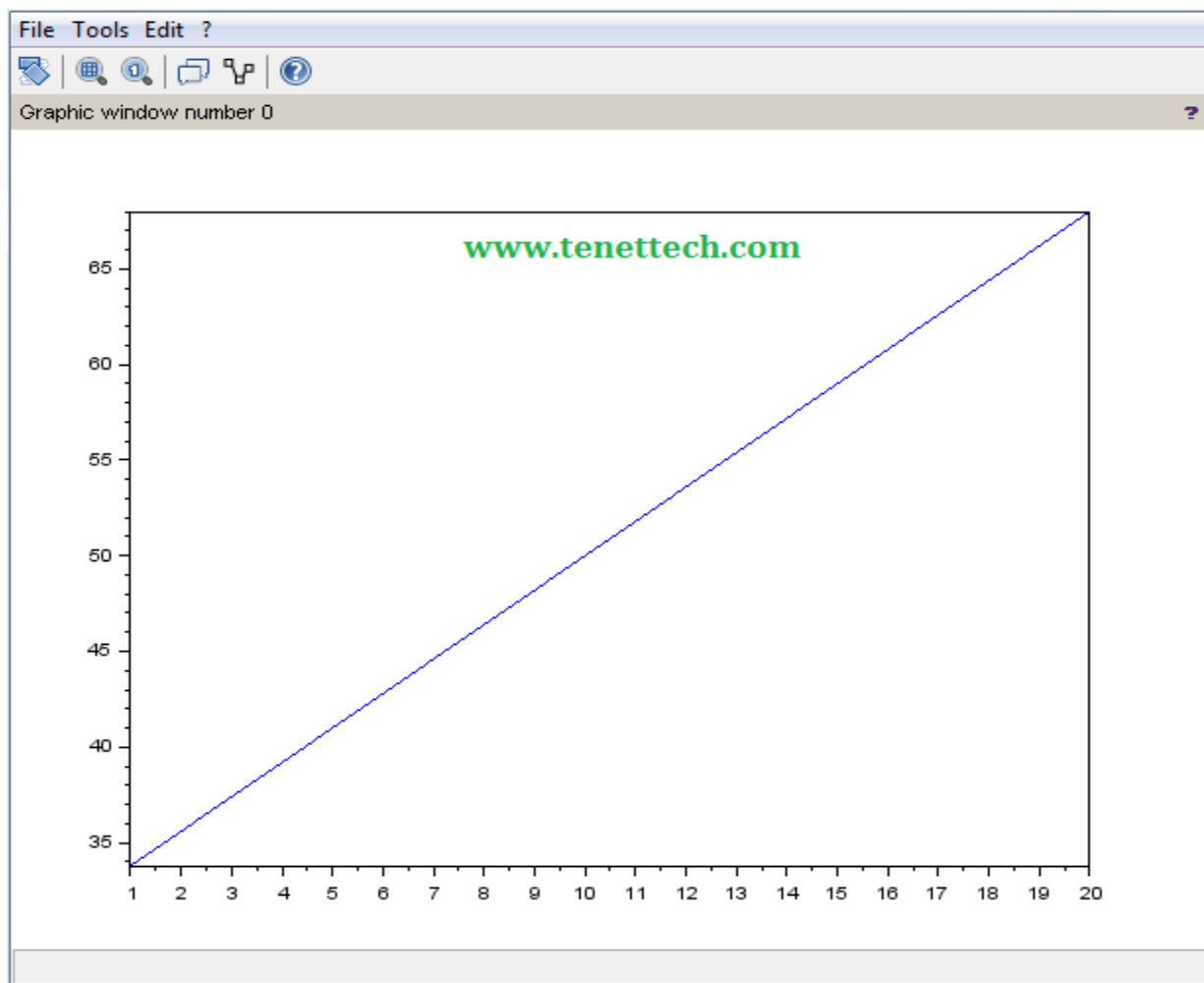The xdata variable now contains a row vector with 20 entries, where the first value is1 and the last value is 20.

Step 3: Pass xdata to the temperature function and get the function value at the given points.

ydata = temperature (xdata);

Step 4: Now use the plot function so that the data is displayed as an x-y plot.

plot (xdata , ydata)

Click Enter, graph will be displayed

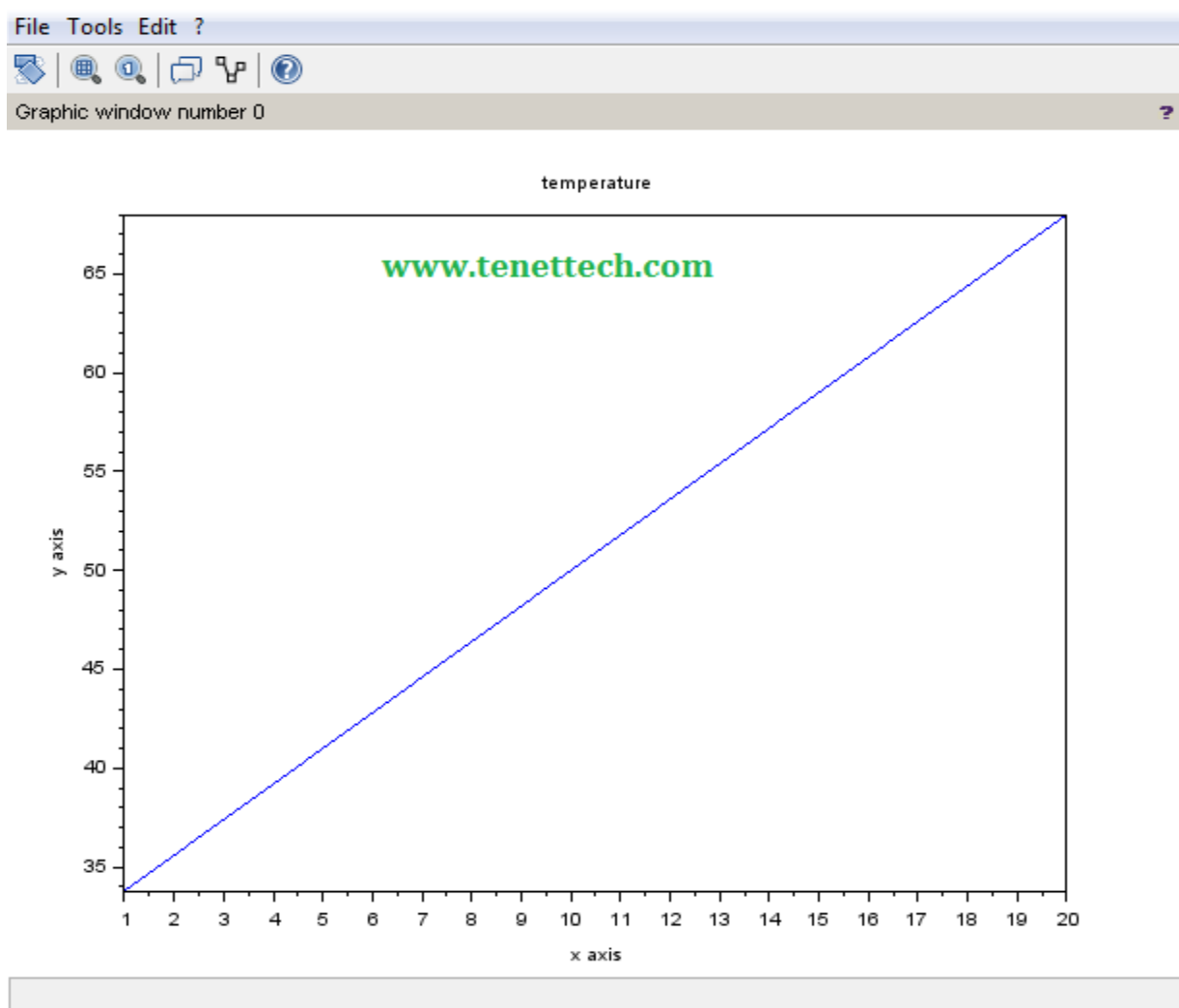**Figure 1:** Simple X-Y plot

Title & Axes :

In this part, we see the Scilab graphics features which configure the title, axes and legends of an x-y plot.

To configure the title in our plot use the script below.

title("temperature");

To configure the axes in our plot use the "xtitle" script.

xtitle ("temperature" , "X axis" , "Y axis");

Figure 2: Simple X-Y plot with title & axes configured.
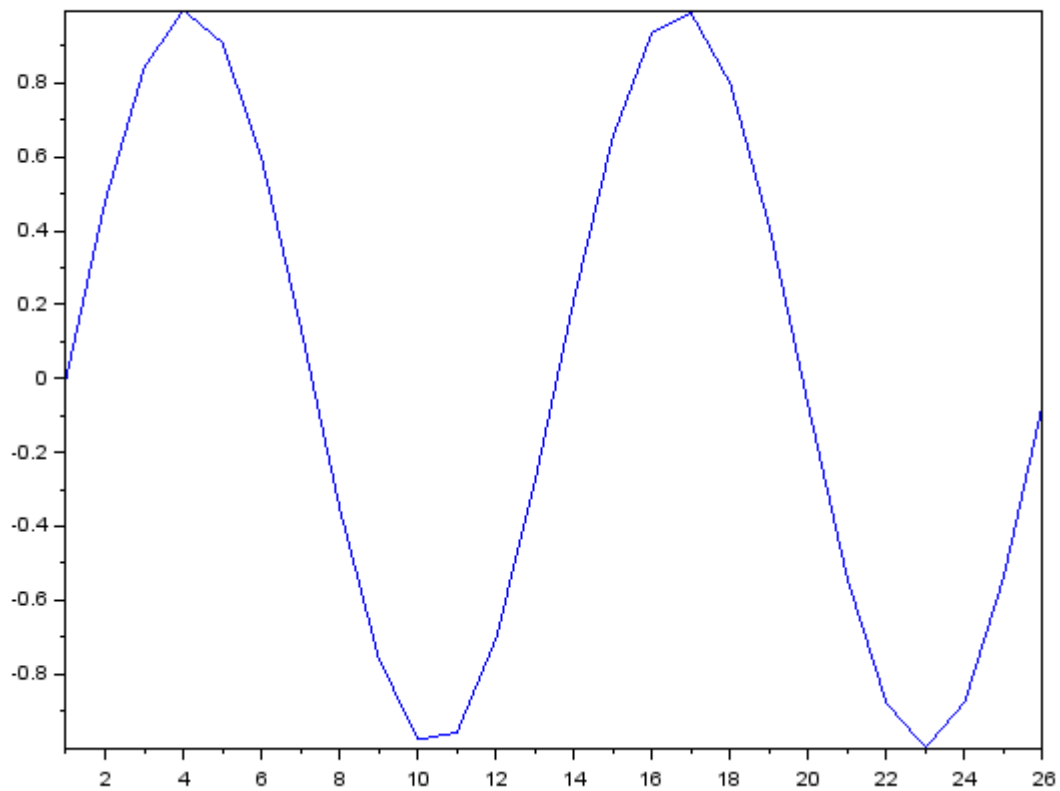
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2D Scilab Code:

Example 1:

x=[0:0.5:4*%pi]';

//simple plot

plot(sin(x))
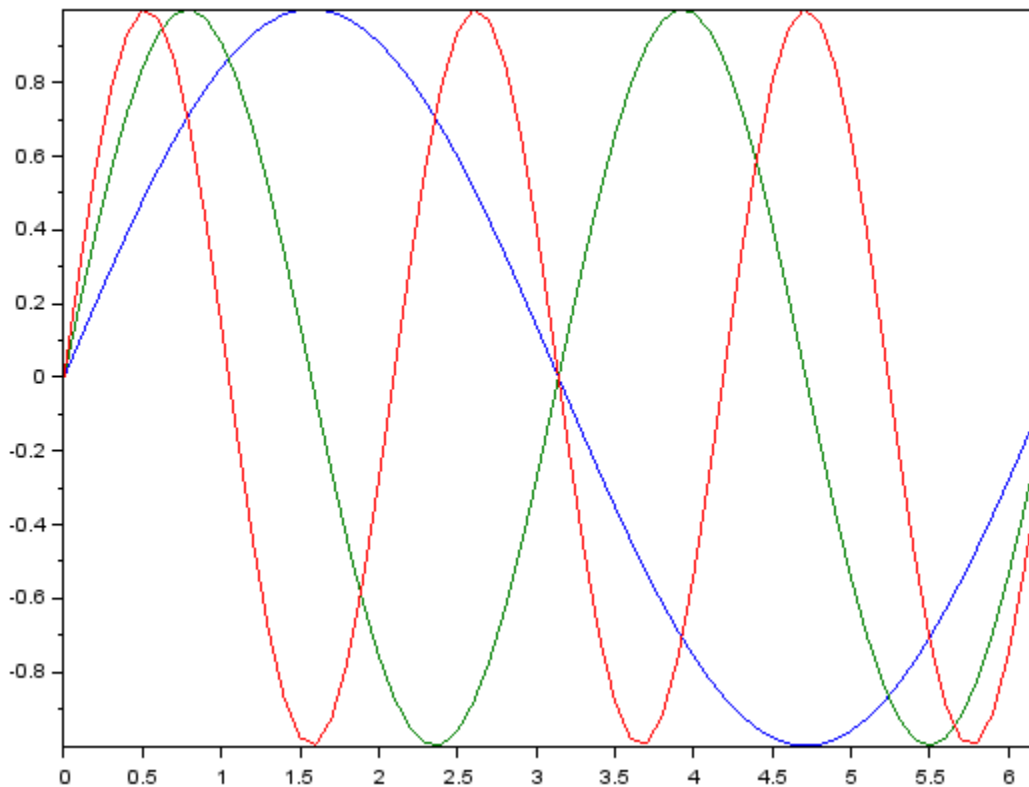
Output:

Example 2:

clf()

//multiple plot

x=[0:0.1:2*%pi]';

plot(x,[sin(x) sin(2*x) sin(3*x)])

Output:

For more information please visit: www.tenettech.com

For technical query please send an e-mail: info@tenettech.com