clc;

clear all;

close all;

pkg load statistics;

name=input("enter name: ","s");

printf("Student name: %s\n ",name);

roll=input("Enter Roll no. ","s");

printf("Roll No. : %s\n",roll);

% EXPERIMENT-1 <<Part-A>>

% Write a program to plot PDF of a Gaussian (Normal) Random Variable for:

% CASE-1 Standard Gaussian: mean = 0 and standard deviation = 1

% CASE-2 General Gaussian: mean = 1 and standard deviation = 1

% CASE-3 General Gaussian: mean = -1 and standard deviation = 1

% CASE-4 General Gaussian: mean = 0 and standard deviation = 1.5

% CASE-5 General Gaussian: mean = 0 and standard deviation = 0.5

% CASE-6 General Gaussian: mean = 1 and standard deviation = 0.5

% Plotting Case-1:

m = 0; # Given: mean = 0

sd = 1; # Given: standard deviation = 1

x=-6:0.1:6; # Define suitable range of x values (as per our choice).

y=normpdf(x,m,sd); # Calculate values of Normal PDF for all xs.

# Note: The 'normpdf' function belongs to the statistics package.

# To load the package,run 'pkg load statistics' from the Octave prompt

# in command window before running this program.

figure(1) # Open a figure window named as figure-1.

# We wish to plot all the cases (Total 6 Plots) in the same figure window.

# Use 2 rows & 3 columns so that we have total 6 plots as shown below.

# +-----+-----+-----+

# | 1 | 2 | 3 |

# +-----+-----+-----+

# | 4 | 5 | 6 |

# +-----+-----+-----+

subplot(2,3,1) # The plot (Case-1) will be on location-1 as shown above.

plot(x,y) # To plot Case-1 (y vs x).

axis([-6 6 0 1]) # x-axis ranges from -10 to 10 & y-axis ranges from 0 to 1.

xlabel('x values----->');

ylabel('PDF--->');

title('CASE-1: mean=0, std dev=1') # Title of the plot

grid on;

m=1;

sd=1;

y=normpdf(x,m,sd);

subplot(2,3,2);

plot(x,y);

axis([-6 6 0 1]) # x-axis ranges from -10 to 10 & y-axis ranges from 0 to 1.

xlabel('x values----->');

ylabel('PDF--->');

title('CASE-2: mean=1, std dev=1') # Title of the plot

grid on;

m=-1;

sd=1;

x=-6:0.1:6;

y=normpdf(x,m,sd);

subplot(2,3,3);

plot(x,y);

axis([-6 6 0 1]) # x-axis ranges from -10 to 10 & y-axis ranges from 0 to 1.

xlabel('x values----->');

ylabel('PDF--->');

title('CASE-3: mean-1, std dev=1') # Title of the plot

grid on;

m=0;

sd=1.5;

x=-6:0.1:6;

y=normpdf(x,m,sd);

subplot(2,3,4);

plot(x,y);

axis([-6 6 0 1]) # x-axis ranges from -10 to 10 & y-axis ranges from 0 to 1.

xlabel('x values----->');

ylabel('PDF--->');

title('CASE-4: mean=0, std dev=1.5') # Title of the plot

grid on;

m=0;

sd=.5;

x=-6:0.1:6;

y=normpdf(x,m,sd);

subplot(2,3,5);

plot(x,y);

axis([-6 6 0 1]) # x-axis ranges from -10 to 10 & y-axis ranges from 0 to 1.

xlabel('x values----->');

ylabel('PDF--->');

title('CASE-5: mean=0, std dev=.5') # Title of the plot

grid on;

m=1;

sd=.5;

x=-6:0.1:6;

y=normpdf(x,m,sd);

subplot(2,3,6);

plot(x,y);

axis([-6 6 0 1]) # x-axis ranges from -10 to 10 & y-axis ranges from 0 to 1.

xlabel('x values----->');

ylabel('PDF--->');

title('CASE-6: mean=1, std dev=.5') # Title of the plot

grid on;