INTRODUCTION TO PROGRAMMING LAB. Experiment 5 : Matlab - User Input

OBJECTIVES

1. Learn to prepare simple user interface using MATLAB functions.
2. Get introduced to MATLAB arrays.
3. Get introduced to MATLAB graphs/plots

GENERAL INFORMATION

While a MATLAB function/script is running, it might need additional information that users can enter. In very simple cases, this may be just holding the execution programmatically and asking the user to enter required additional data. MATLAB provides several user interface functions for this purpose, and input is just one of them.

The simplest use of input function just stops and waits for the user to enter something, evaluates the entered expressions and returns the result. For example \( X = \text{input}('\text{Enter X:}') \); waits for the user to enter a value(s) and stores it to \( X \) variable. It prompts with 'Enter X:' (try it!).

The simplest usage of plot function requires an array of function values to be plotted. Try, for example, \( \text{plot}(0:10); \) and \( Y = \sin(0:0.1:2*\pi); \text{plot}(Y); \) on the command window.

EXPERIMENT

1. Create the function or function that asks the user to enter an expression (of function data) and plots it afterwards, in an infinite loop. For example, the function prompts the user with
   
   Enter function :
   
   and the user enters the expression
   
   Enter function : \( \sin(0:0.1:2*\pi) \)
   
   and after plotting the function it will prompt again
   
   Enter function :
   
   When user just presses enter without typing in any data, the function exits the loop and terminates.

   Use while loop, isempty and plot functions in your code.

   Report what you did and what you got.

2. Try to display two user entered functions on the same plot. For that you need to handle 2 dimensional arrays. For example \( \text{plot}([0:10; 10:-1:0]) \) puts a large cross on the plot area.

3. Enter additional code to ask the user is he/she is sure of exiting, when he/she presses enter without any data.
   
   Exiting. Are you sure? :
   
   If user presses n or N, the loop continues. Otherwise it terminates.

4. Use inputdlg function instead of input function.

QUESTIONS

1. How would you display each function on its own plot? (read help file)
2. How would you display horizontal axis values correctly?