Laboratory 2: Modal Dialogs and Plotting Complex Numbers (v 1.1)
BE 205, Winter '05-'06, Drs. Richardson & Tritt

Part 1a: Write a program script that accepts a complex number from the user using the *inputdlg* function. Plot that point on the Cartesian coordinate system with a blue circular marker. The plot should include both the x and y axes labeled and a blue vector drawn from the origin to the point.

Part 1b Determine the magnitude and angle of the complex number input by the user. Output both values to the user in a clear and concise manner using the *msgbox* function.

Part 2: Euler's Equation: This equation defines e raised to an imaginary power in terms of sinusoidal function as follows:

$$e^{i\theta} = \cos\theta + i\sin\theta$$

Create an appropriately labeled two dimensional plot of this function as θ varies from 0 to 4pi

Part 3: Create an appropriately labeled three dimensional line plot using function plot3 of Euler's Equation. The three dimensions are the real part of the expression, the imaginary part of the expression, and theta (note: be careful to watch your warnings and be sure that the imaginary part is not ignored).

Laboratory requirements: Provide the instructor an electronic copy of your code (probably 3 program scripts) and any other documentation required by your instructor. Remember to comment your code properly. This laboratory is due prior to the next laboratory period. The grading rubric is attached.

Grading Rubric

The below is the scoring that will be used for Laboratory 2. The scale is a 5 point scale with 5 being superior, 4 being satisfactory, 3 being average, 2 being unsatisfactory and 1 being not undertaken.

Program Requirements

Correct use of *inputdlg* to get input from user	1	2	3	4	5
Input by the user is easy to understand and concise	1	2	3	4	5
The point input is plotted on a Cartesian coordinate system	1	2	3	4	5
The point is plotted using a circular marker					
Accurate calculation of the line to connect the origin and point	1	2	3	4	5
Correct plotting of line to connect points	1	2	3	4	5
Axes are labeled properly	1	2	3	4	5
Determination of the magnitude of the point	1	2	3	4	5
Determination of the angle of the point	1	2	3	4	5
Accurate output of the magnitude and angle	1	2	3	4	5
Concise and easy to read output using *msgbox*	1	2	3	4	5
Accurate 2D Euler Plot	1	2	3	4	5
Accurate 3D Euler Plot	1	2	3	4	5

Other considerations

Appropriate cover memo provided (if required)	1	2	3	4	5
Was a header to the file given with student name, course, and brief description of the problem to be solved?	1	2	3	4	5
Was a description of all variables given in the header?	1	2	3	4	5
Were proper variable names used?	1	2	3	4	5
Was the code commented properly?	1	2	3	4	5

Total possible points – 100

Points Earned -

Comments: