

FTA Introduction to Software Development

CAA 1

Submission Date : 24/05/2010

Submission Formats: You can submit your work in text , HTML, OpenOffice Document or PDF format.

1. Choose a GNU/Linux distribution and enumerate and describe the necessary actions to install the following packages:

- . emacs-snapshot
- . ddd
- . eclipse and cdt plugin

2. Using the Emacs editor, write a program to initialize and print on screen at least three different matrix data structures. These structures should be of different data types.

Compile the program, using gcc with the -Wall flag. Make sure that you obtain 0 warnings and 0 errors

With Emacs embedded gdb (GUD) :

Insert two break points , run the program, stop at each break point and continue.
show the local variables values in at least two different states of the program.

Insert in the CAA the screenshots of every relevant situation of this process.

3. Compile the example 6.3 code (page 28 Study Guide PDF version) with -Wall flag and make sure that you obtain 0 errors and 0 warnings.

If you find a bug, you have to solve it and explain its origin.

Load the program in ddd and execute step by step one run loop (three times is enough), inspecting local variables.

Submit the necessary screenshots to illustrate your work.

4. Basing yourself on 7.1.2 section code, write a program that:

Defines a data structure to allocate the following data:

pole1	41,30	2,09	41.3528	0.0505
pole2	71,33	156,00	171.5341	1.1219
pole3	39.92	116.38	123.0362	1.2403
pole4	34.33	58.50	66.8291	1.0401

Every data structure element must have 5 fields.

The first has to be the name. The second and third have to be the rectangular coordinates (X,Y). The last two, the polar coordinates of the point (radius and angle in radians).

The program should go through the data structure, taking the rectangular coordinates as true, and revise the values of polar coordinates.

If the program finds an error, it will print "the point XXXXX has erroneus polar coordinates, the correct ones are : radious angle" on screen.

Use the Emacs editor and GUD to solve the task.

Explain how you compile the program.

Using GUD, execute step by step any loop of the program, show the difference between the debugger print and display commands.