Athens University of Economics & Business
Department of Management Science and Technology

Advanced Topics in Software Engineering

Project Team – jLab

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jLab

- The jLab project aims to provide a Matlab/Scilab environment
  - with a scripting interpreter implemented in Java
  - with the potential of linking dynamically Java numerical computing code.
- The system will perform very efficiently since the Java class code executes very fast.
- Moreover the potentiality for distributed execution can be explored.

Project Summary

Keywords: Programming Environments, Java, Scientific Software, Scripting, Interpreter, Reflection

License: GNU General Public License (GPL)

Project web site URL: https://jlab.dev.java.net/

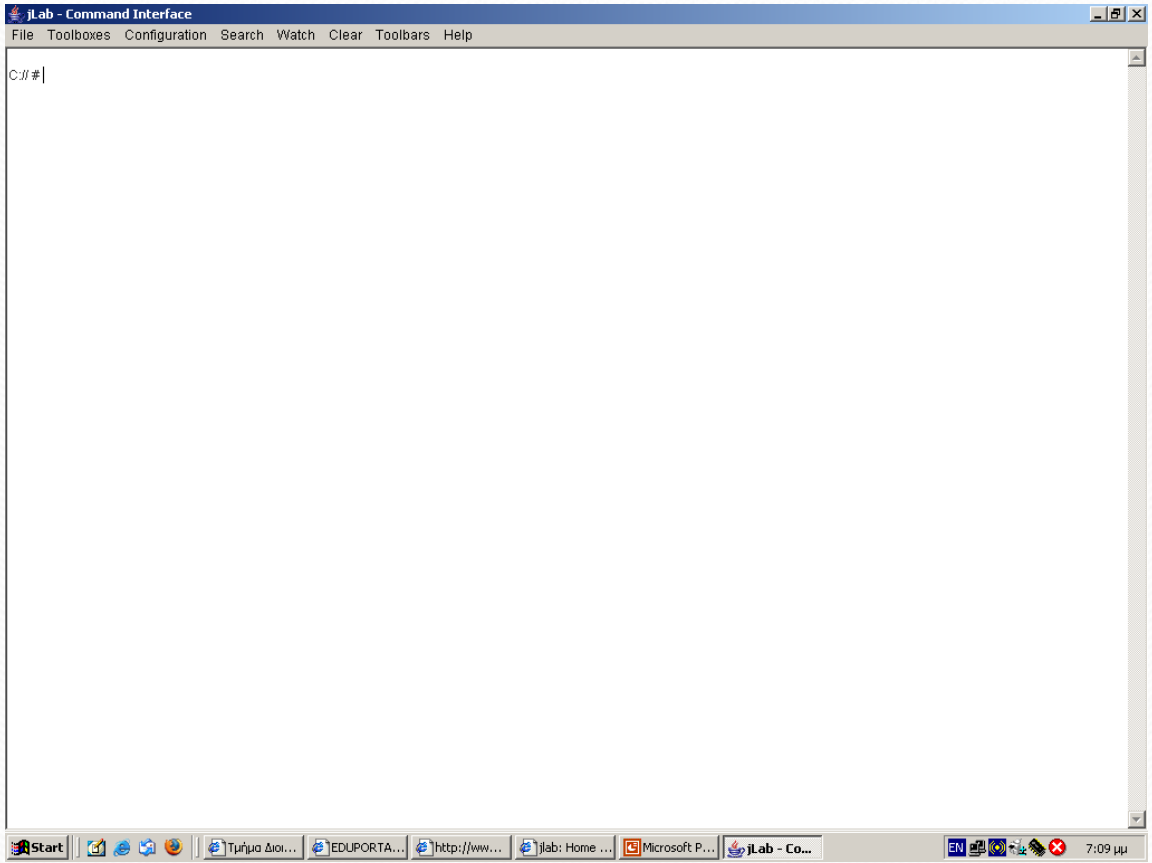
Implementation language: java

Platform: totally platform independent- tested on Linux, Solaris and Windows XP and it runs in the same way, on all these different environments, without any change of the code.

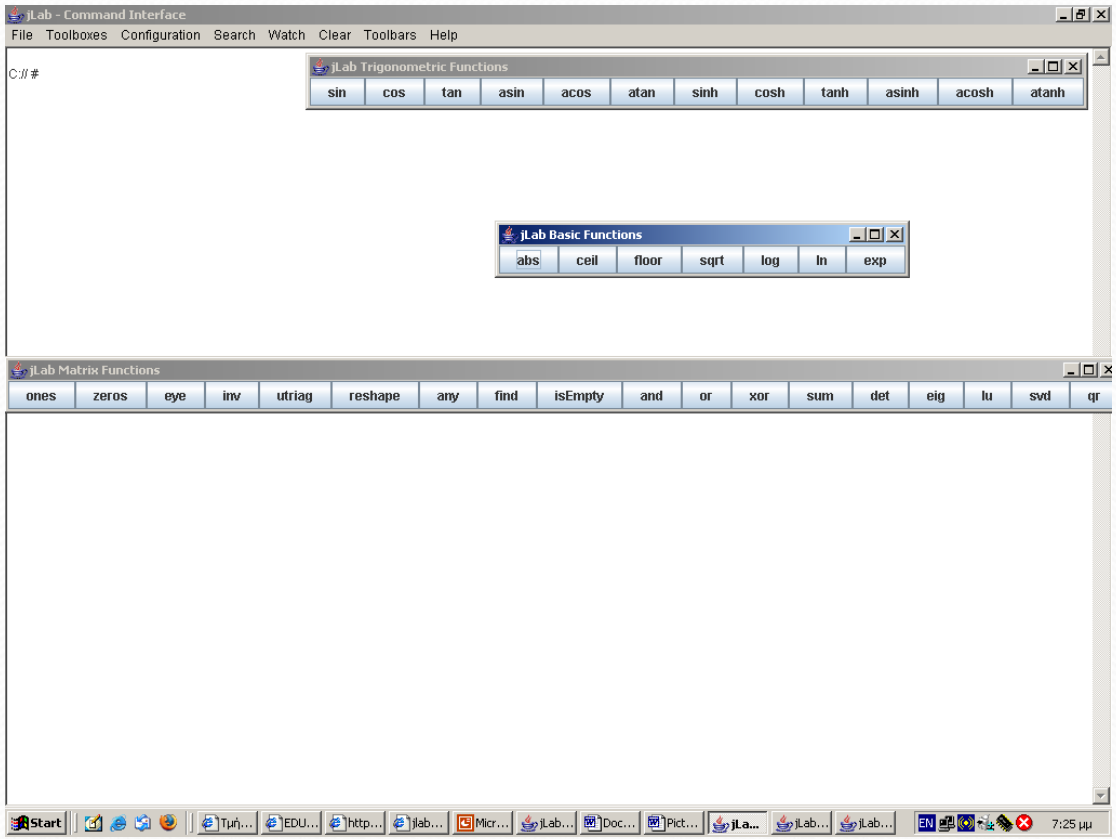
Description

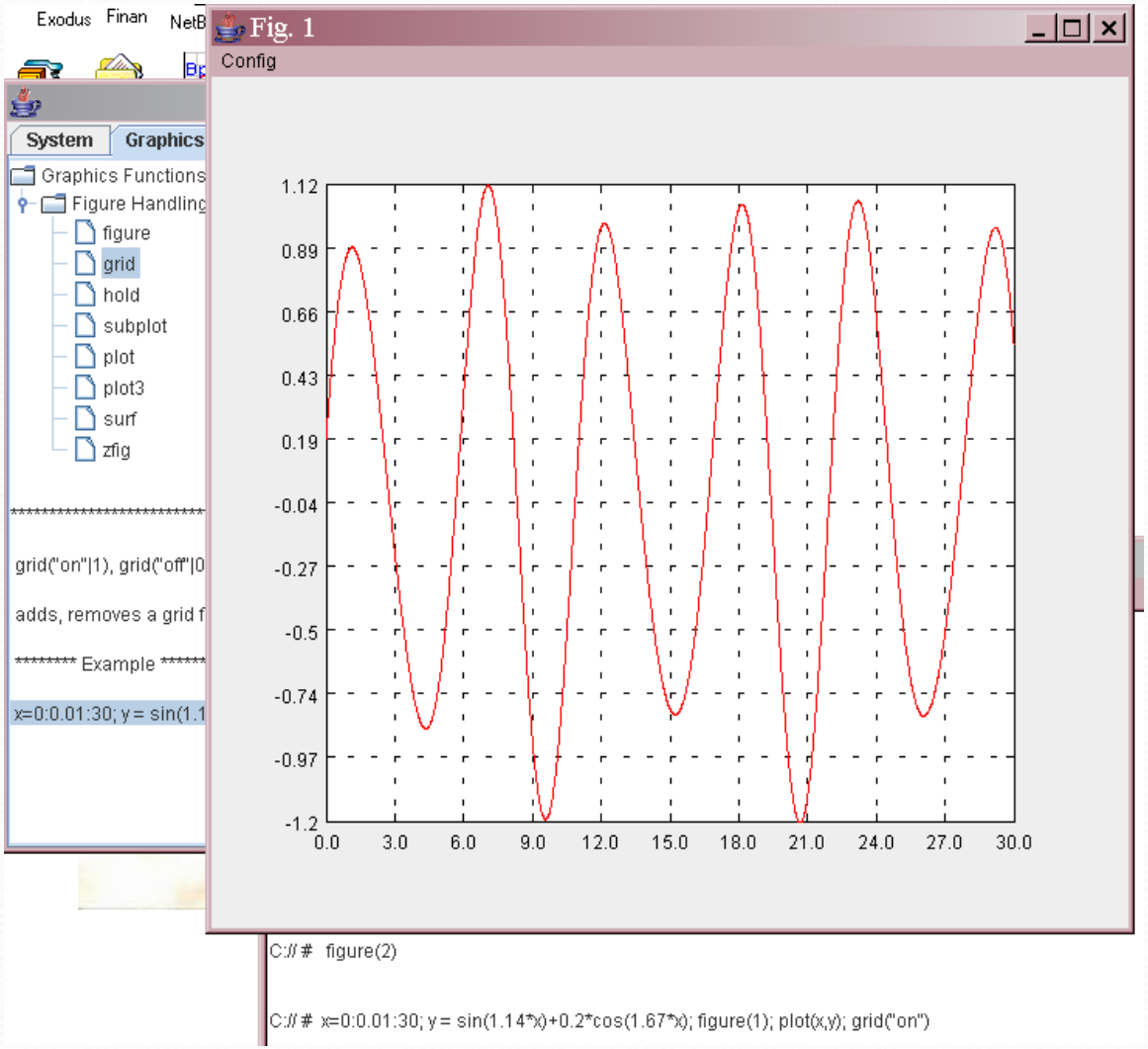
- environment ~ Matlab/Scilab like scripting language that is executed by an interpreter implemented in the Java language.
- This language will support all the basic programming constructs and an extensive set of built in mathematical routines that cover all the basic numerical analysis tasks.
- Moreover, the toolboxes of jLab can be easily implemented in Java and the corresponding classes can be dynamically integrated to the system.
- The efficiency of the Java compiled code can be directly utilized for any computationally intensive operations.
- Since jLab will be coded in pure Java the build from source process is much cleaner, faster, platform independent and less error prone than similar C/C++/Fortran based open source environments (e.g. Scilab, Octave).
- Also the facilities of the Java language for distributed computation will be explored to speed up scientific computations.

User Interface



User Interface




Exodus
Finan
NetB
System
Graphics
Graphics Functions
Figure Handling
figure
grid
hold
subplot
plot
plot3
surf
zfig
grid("on"|1), grid("off"|0
adds, removes a grid f
******** Example ******
x=0:0.01:30; y = sin(1.1
Fig. 1
Config
1.12
0.89
0.66
0.43
0.19
-0.04
-0.27
-0.5
-0.74
-0.97
-1.2
0.0
3.0
6.0
9.0
12.0
15.0
18.0
21.0
24.0
27.0
30.0
C:// # figure(2)
C:// # x=0:0.01:30; y = sin(1.14*x)+0.2*cos(1.67*x); figure(1); plot(x,y); grid("on")

Classes…

Approximate source code size:

- Main project 500+ classes
- Toolbox 130+ classes

Short description of our planned contribution

- atan2, IEEEremainder, max, min, pow, random, rint, toDegrees, toRadians
- first, second (Degree Equations)
  - MathFunction
  - Equationsj
  - NumberToken
  - FunctionManager
  - ExecObject
  - OperandToken
  - AboutGUIDialog

Ευχαριστούμε....