

ECE I55B Project, IDEs

ECE I55B – Spring 2012

Discussion Section 1.4

These are the tools that would be useful for not only our class but any Java programming project you will be required to do.

Ant

<http://ant.apache.org/>

Same as make file, more advanced and better handling. We will use to compile, deploy, execute and backup our projects.

Netbeans

<http://www.netbeans.org/>

Free Java development environment, which is/will be installed on ECI computers. Requires little effort to warm up with the IDE, will ease the programming task for you.

Cygwin (optional)

<http://www.cygwin.com/>

I would advise all windows users to install cygwin. Ant tool has linux and windows versions, it is not necessary to install cygwin.

Ant

We will use *ant* to compile, organize, backup, and deploy class projects. A template for class projects will be provided and students will continue developing the actual project.

Ant is different than other make tools. Instead of a model where it is extended with shell-based commands, Ant is extended using Java classes. Instead of writing shell commands, the configuration files are XML-based, calling out a target tree where various tasks get executed. Each task is run by an object that implements a particular Task interface.

Following is example ant script that has several targets:

- **init**: Create necessary directories
- **clean**: Clean unnecessary files (.class)
- **compile**: Compile java files
- **jar**: Create executable jar file
- **run**: Run the project

Ant scripts work both on windows and Linux platforms. Once you have the full script, you can compile, run your program anywhere. Most common ant tasks that we will use during the project are:

- **javac**: <http://ant.apache.org/manual/CoreTasks/javac.html>
- **java**: <http://ant.apache.org/manual/CoreTasks/java.html>
- **jar**: <http://ant.apache.org/manual/CoreTasks/jar.html>

You can Google search for more ant tasks with keywords “ant taskname task”.

build.xml	
<project name="Applet project" default="jar" basedir=".">	
<description>Builds, tests, and runs the project</description> <property name="src" location="src" /> <property name="dist" location="dist" /> <property name="build" location="build" />	Descriptions
<target name="clean"> <delete dir="\${build}"/> </target>	Clean target, delete directories of class files or old files
<target name="init"> <mkdir dir="\${dist}" /> <mkdir dir="\${build}" /> </target>	Create necessary directories for compilation and deployment
<target name="compile" depends="init"> <javac srcdir="\${src}" destdir="\${build}"/> </target>	Compile java source files under src directory defined, then put class files into destdir directory
<target name="jar" depends="compile"> <jar destfile="\${dist}/Project.jar" basedir="\${build}"> <fileset dir="\${build}"> </fileset> </jar> </target>	Compress all class files into jar file, which is standalone executable java format.
<target name="run" depends="jar"> <java jar="\${dist}/Project.jar" fork="true"/> </target>	Run the project
</project>	

Usage:

> ant targetname (Ex. ant run, ant compile)

Note: Dependency provides recursive execution of targets. For example, you do not need to type

> ant init

> ant compile

> ant jar

> ant run

in order to run the project. “ant run” will run previous commands if necessary since we have defined dependency to jar which has dependency on compile, etc.

From class website, you will be given a build.xml file which will help you to start up with the project. During the discussion TA will provide instructions how to use these resources and get going on the projects.

For installation of ant, refer to website: <http://ant.apache.org/>

For further information about ant tool, refer to website. Their documentation is good enough to solve problems.

Netbeans

The NetBeans IDE is a free, open-source Integrated Development Environment for software developers. The IDE runs on many platforms including Windows, Linux, Solaris, and the MacOS. It is easy to install and use straight out of the box. The NetBeans IDE provides developers with all the tools they need to create professional cross-platform desktop, enterprise, web and mobile applications.

Netbeans provides [from <http://www.netbeans.org/products/ide/>]

- Swing GUI Builder
- Web Application Development
- Enterprise Development
- Web Services and Application Servers
- Version Control
- Developer Collaboration
- Advanced Source Code Editor
 - Code completion
 - Syntax highlighting for Java, XML, HTML, CSS, JSP and IDL
 - Live parsing and live error marking including Java hints
 - Automatic indentation with customizable indentation engines
 - Debugging, etc.

Advanced source code editor will help you write necessary Java projects with ease.

Existing project wizards will help you to start with the new project.