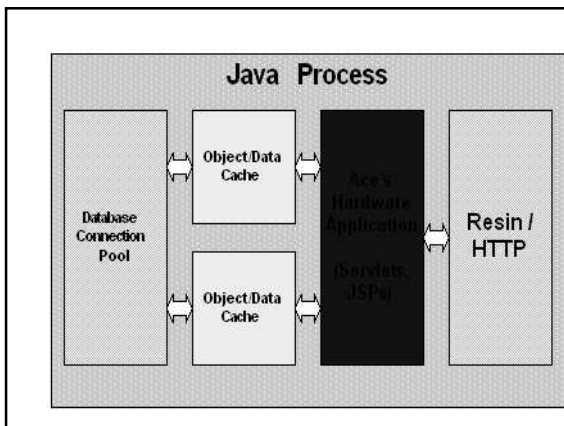


What is ant?

- History
 - Originally develop for tomcat.
- Description
 - It is basically a “java-base” build tools.
 - It describes the build process.



The advantage of ant over using an ide process.

- It is not tie in with the user setting thus easier to reproduce build on almost any computer.



- It does not waste 80+ megabyte of space and does not require ide for build.

The advantage of ant over using javac.

- Ant automatically manages your classpath.
- For example: specifying the location of the required library.
- Think of ant as “enhancement for javac”.

Benefits of ant.

- It uses xml syntax which is consider “easy” to understand.
- It is much easier to extend ant
- Ant does not fork a new process.
- Debug option

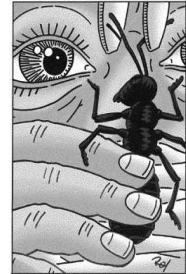


Benefits of make.

- It will run anywhere shell will run.
- You get the “power” of command line interface.

Disadvantage of ant.

- Overhead learning curve.
- Isolation of new task.
- It is old school (1972).



Disadvantage of make.

- It forks a new process for every javac.
- It is shell based.

Which one to choose.

- Use make for c++.
- Use ant for java.

Installing ant.

- Go to <http://apache.matrixau.net/ant/binaries/apache-ant-1.6.2-bin.zip>.
- Unzip it to any file for example, we would unzip it into a folder called d:/data/
- To simplify the process rename the folder to d:/data/ant/

Setting the path for windows.

- Set ANT_HOME=ant directory. In this case D:\data\ant
- Set JAVA_HOME=java directory.
- Set PATH=%PATH%; %ANT_HOME%\bin

Setting the path for Unix (bash).

- Export ANT_HOME=ant directory.
- Export JAVA_HOME=java directory
- Export `${PATH}:${ANT_HOME}/bin`

Setting the path for Unix (csh).

- `setenv ANT_HOME ant directory`
- `setenv JAVA_HOME java directory`
- `set path=($path $ANT_HOME/bin)`

Part 1 structure of ant (Basic).

- `<?xml version="1.0">`
- `<!-- termination is "dist" and name is "project cs491" -->`
- `<project default="dist" name="Project cs491">`
- `<description>A simple ant build file</description>`
- `</project>`

Part II (Property).

- Property in ant are immutable.
- Some properties are predefined.
- `<-- property name="srcdir" location="src" -->`
- `"${src}" <!-- to use a property type "${property name} " -->`

Part III (Defining dependencies).

- You use the word "target" to define the target that is being dependent and "depends" to define what it depends on.
- `<target name="init"/>`
- `<target name="preprocess" depends="init"/>`
- `<target name="compile" depends="init, preprocess"/>`
- `<target name="package" depends="compile"/>`