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Java Application Development using Eclipse Part I

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Abstract

- Learn how to use the powerful features of Eclipse to aid software development.
  - 'Ease-of-use' features such as code generation, automatic syntactic checking and code completion reduce the time needed to write software
  - Debugging options including, step through execution, breakpoints, display of variable values, memory, registers, ... make finding those algorithmic bugs easier
  - Remote debugging facilities will leave you open mouthed.

Objectives

- Presentation 1
  - An overview of Eclipse and its Architecture
- Presentation 2
  - The Debugger
  - Plugin's

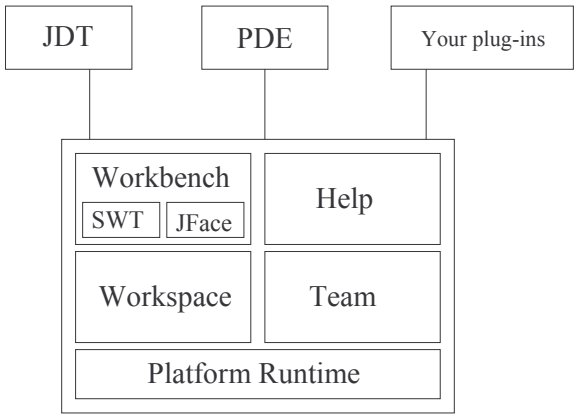
Agenda

- Introduction
  - Eclipse Overview and History
  - Eclipse Architecture
  - Perspectives
- The Resource Perspective
  - Editing and syntax checking
  - Running Programs

Eclipse Overview and History

- Eclipse is an extensible software development framework based on a plug-in architecture.
- Eclipse is open source, released under a common public license (CPL).
- Originally developed by IBM, version 1.0 being released in November 2001, Eclipse is now under the stewardship of an independent consortium including: IBM, SAP, Sybase, Fujitsu, HP, BEA…

Eclipse Architecture



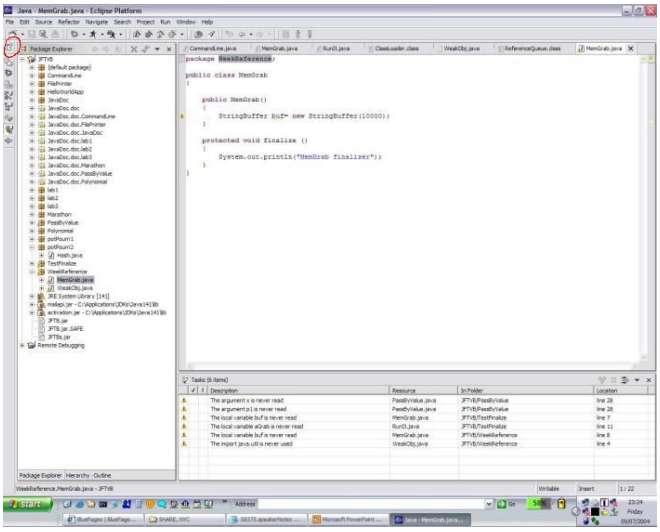
Eclipse Architecture explained

Platform runtime
Primary job is to discover the available plug-ins. Each plug-in has an XML manifest file which lists the connections the plug-in requires.
The workspace
Manages the user's resources which are organised into projects. The workspace maintains a history of changes to resources.
The workbench
Eclipse's Graphical User Interface, menus, toolbars and perspectives.Perspectives provide a GUI for specific areas of functionality such as debugging, plug-in development,...
The Standard Widget Toolkit (SWT) are graphics toolkits which map directly to the OS native graphics.
JFace is a toolkit built on SWT.
Team Support
Version control. Eclipse provides a client for Concurrent Version System (CVS)
Help
An extensible help component
Java Development Toolkit (JDT)
Toolkit for the writing and debugging of Java programs. C Development Toolkit is the equivalent plug-in for C development.
Plug-in Development Environment (PDE)
Developing plug-ins for extending ECLIPSE.

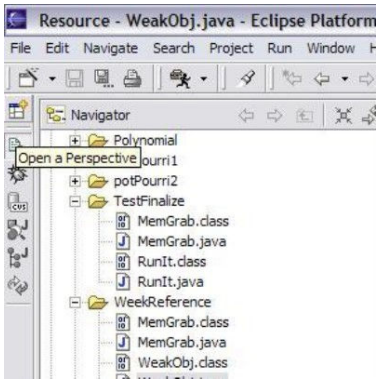
Perspectives

- An Eclipse perspective is a pre-selected set of views arranged in a predetermined way.
- These presentations are structured around describing functionality of the following perspectives:
  - Resource
  - Debug

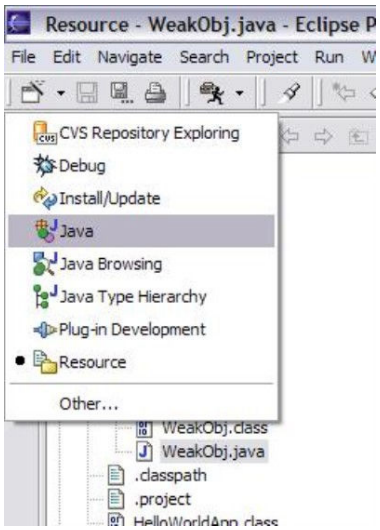
Perspectives and Eclipse 1



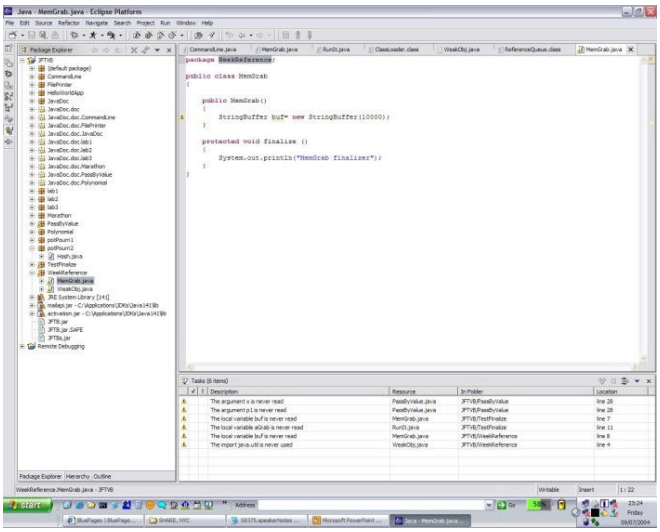
Perspectives and Eclipse 2



Perspectives and Eclipse 3

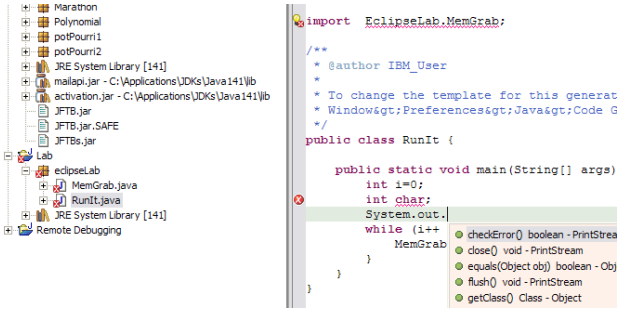


Resource perspective



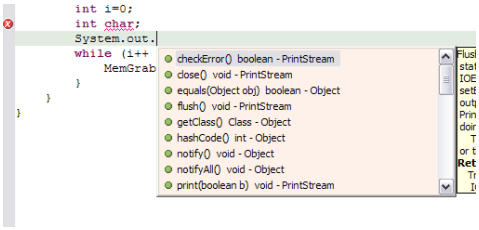
Lab 1 (1)

- Create a project, package and java classes: RunIt.java and MemGrab.java
- Syntax errors and typos are in the code to demonstrate:
  - Icons used to identify errors and warnings
  - Incremental compilation (on file save)



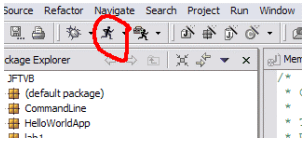
Lab 1 (2)

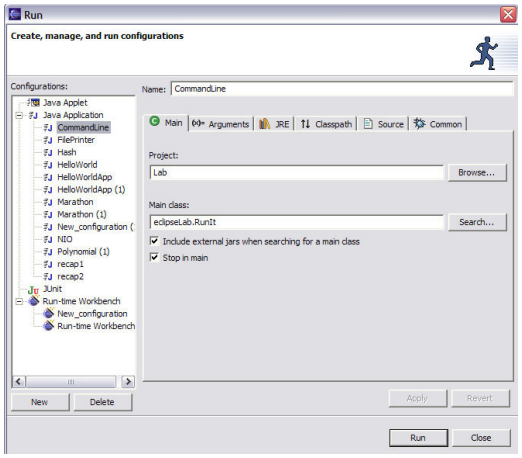
- code completion



Lab 1 (3)

- The application can be run from either the 'run icon' on the tool bar or from the menubar Run>Run





Lab 1 (4)

- Passing arguments to the JVM, for example -verbosegc