coding {the} architecture

An introduction to the Java platform for .NET developers

www.codingthearchitecture.com

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C5 alliance

coding {the} architecture

My background is

predominantly

Java

(client-server, websites, distributed systems, messaging, SOA, etc, etc)

I've been using

.NET for 6 months

(Internet banking platform; ASP.NET, C#, Windows Communication Foundation, SQL Server, etc)

All technologies have benefits

All technologies have trade-offs

... your project context will determine their importance

More and more systems seem to be heterogeneous

Java projects are introducing .NET

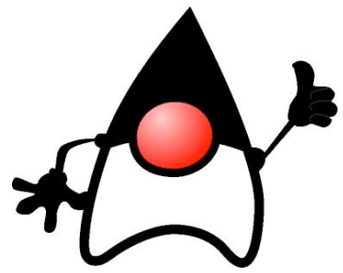
.NET projects are introducing Java

Heterogeneous architectures are becoming more common...

Rich Desktop Application

Web Services, REST or Messaging

Middle Tier



The credit crunch is less choosey about technology

Stakeholders need business benefit

And they want it **faster** and **cheaper** than ever

As an industry, we have an odd tendency to be dogmatic about technology decisions

In the current economic climate,
we need to be
pragmatic and open
to change

The goal of this session is
to provide you with a
jump-start
into the Java platform

This isn't a session about how Java is better than .NET

(case in point; Silverlight vs JavaFX!)

The first part of this session is

presentation and demos,

the second part is an opportunity for

discussion

What is Java? Where do I get it from? How do I install and run it? How do I write apps? What development tools are available? How do I build a website? Where can I find more information?

Overview of Java

Like C#, Java is a high-level programming language that gets compiled down to an intermediate representation called bytecode

That bytecode is run on a

Java virtual machine (JVM)

that just-in-time compiles it into

native executable instructions

(similar to the CLR; this is why and how Java can run “anywhere”)

Different editions, depending on runtime environment

Java Platform,
Standard Edition
(Java SE)

Desktop and server applications

Java Platform, Enterprise Edition

(Java EE, formerly J2EE)

“Enterprise-class” server-side applications

Java Platform, Micro Edition

(Java ME, formerly J2ME)

Applications for mobile and embedded devices

JavaFX

(the new boy in town)

Rich user interfaces across desktops and mobile devices

ASP.NET,
ASP.NET MVC
SharePoint

Web applications

Java EE

.NET Remoting,
Messaging, BizTalk, SQL
Server

Server-side "enterprise" applications

Windows Forms, Windows Presentation
Foundation, Silverlight

Rich applications

Windows
Mobile/.NET
Compact
Framework

Java ME

The JVM can run more languages than just Java

Groovy, Scala, JRuby, Jython, JavaFX Script

(... plus implementations for lots of other programming languages)

Getting Java

Java SE Downloads – Sun Developer Network (SDN)

http://java.sun.com/javase/downloads/index.jsp

Google

Java SE Downloads

It's time

Download the complete platform and runtime environment

» Get the JDK download

Java SE Runtime Environment (JRE)

JRE 6 Update 12

This release includes the highly anticipated 64-bit Java Plug-In (for 64-bit browsers only), Windows Server 2008 support, and performance improvements of Java and JavaFX applications. » Learn more

Download

Docs ▾

Java SE Development Kit (JDK)

JDK 6 Update 12

This JDK includes the JRE and command-line development tools that are useful for developing applets and applications. » Learn more

Download

Docs ▾

Java SE Development Kit (JDK) Bundles

JDK 6 Update 12 with Java EE

This distribution of the JDK is included in the Java EE 5 SDK, which contains the newly updated GlassFish v2.1 application server and provides web services, component-model, management, and communications APIs that make it the industry standard for implementing enterprise-class service-oriented architecture (SOA) and Web 2.0 applications. » Learn more

Download

» Java SE Site Map

Regional Downloads
Japanese
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Java EE SDK Fuels Efficiency

Related Resources
» Java SE for Business
» Compatibility
» Performance
» Timezone Updates

Related Downloads
» XML and Web Services
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Popular Topics
» JDK 6 Adoption Guide
» Java Platform Migration Guide
» Garbage Collection Tuning
» Troubleshooting Java SE

[+] FEEDBACK

Java SE Development Kit 6u12

https://cds.sun.com/is-bin/INTERSHOP.enfinity/WFS/CDS-CDS_Developer-Site/en_US/-/

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Sun microsystems Downloads

Java SE Development Kit 6u12

Provide Information, then Continue to Download

Please note that the 64-bit JRE only works with the 64-bit browser plug-in, while the 32-bit JRE only works with 32-bit browser plug-in. If you use both 32-bit and 64-bit browsers interchangeably, you will need to have both 32-bit and 64-bit JRE's installed on your machine.

Select Platform and Language for your download:

Platform: ✓ Select...
Language:
- Linux
- Linux Intel Itanium
- Linux x64
- Solaris SPARC
- Solaris x64
- Solaris x86
- Windows
- Windows Intel Itanium
- Windows x64

I agree to the Java SE Development Kit 6 License Agreement

Getting Started?
» New to Java Center
» New to Solaris Center
» Sun Studio

Download Resources
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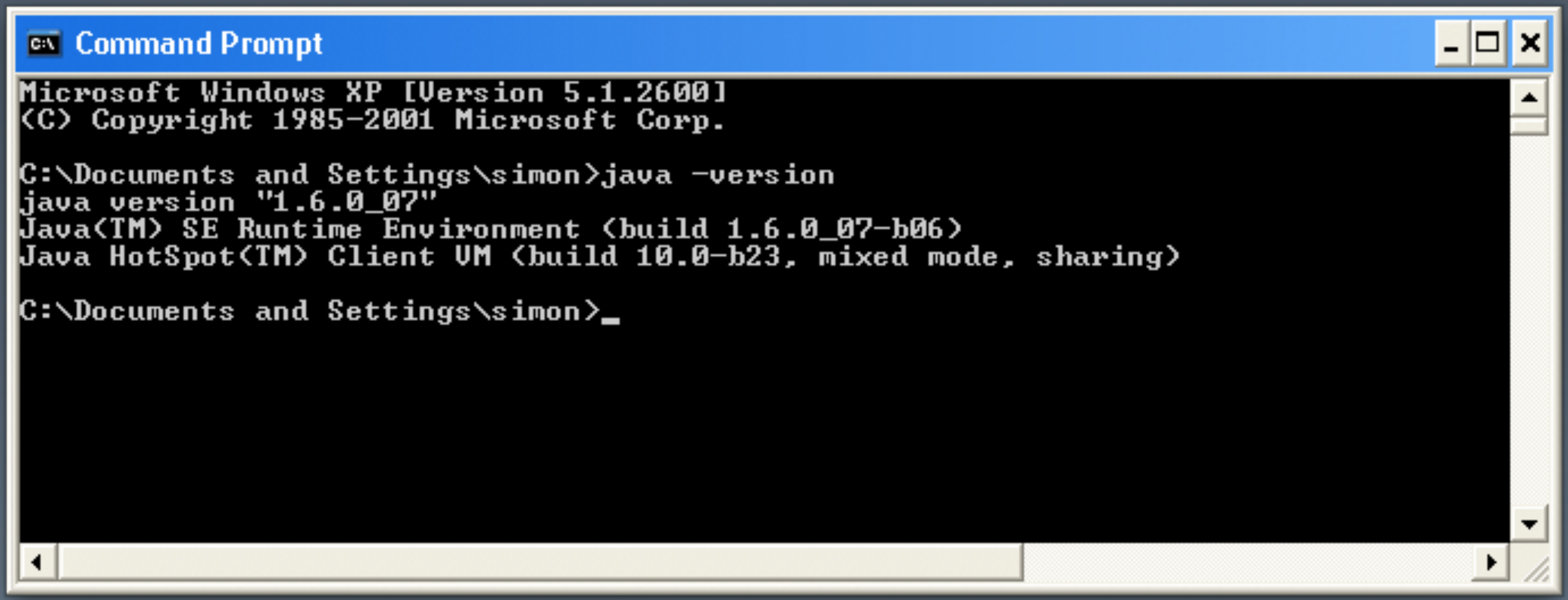
Related Resources
» Java.sun.com
» Solaris Developer Center
» JavaFX
» Web Developer Resource Center
» Developer Services
» JavaOne Online
» Sun Student Developer Program
» SunSolve
» Sun Microsystems Press

Testing the installation



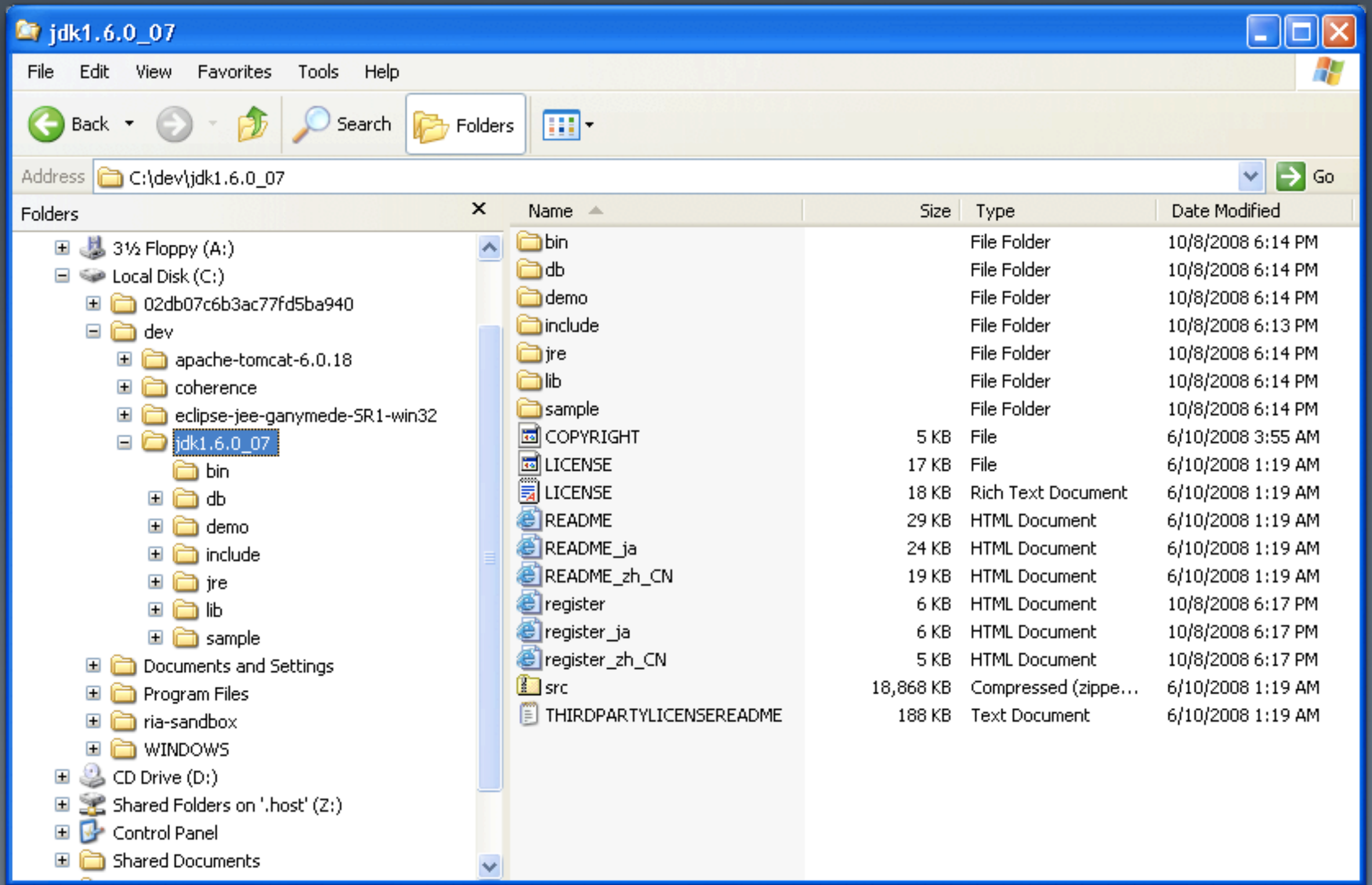
Like the .NET Framework, it is possible to install multiple versions of Java

Unfortunately, each overwrites the Java registry settings

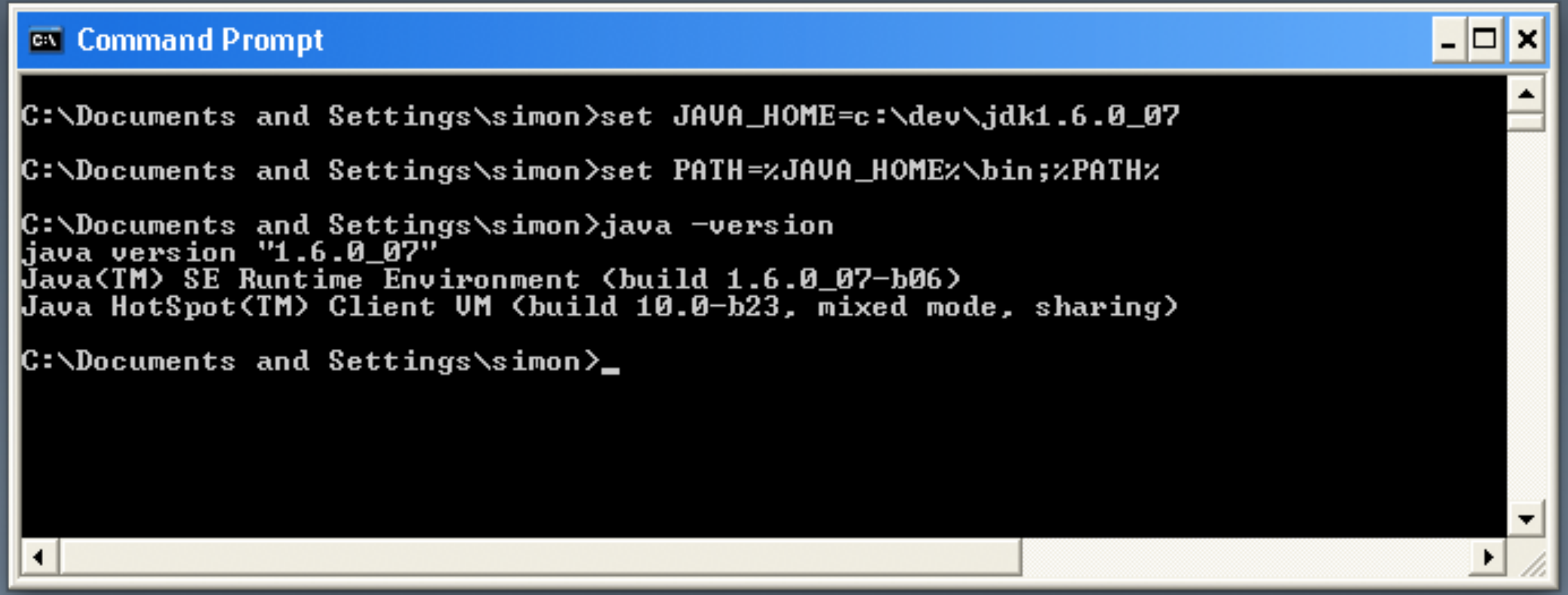
(this sometimes happens when you install applications that rely on Java)

Set the JAVA_HOME environment variable to point to the version you need

Where is JAVA_HOME?



Set the JAVA_HOME environment variable to point to the version you need



A quick Java console application

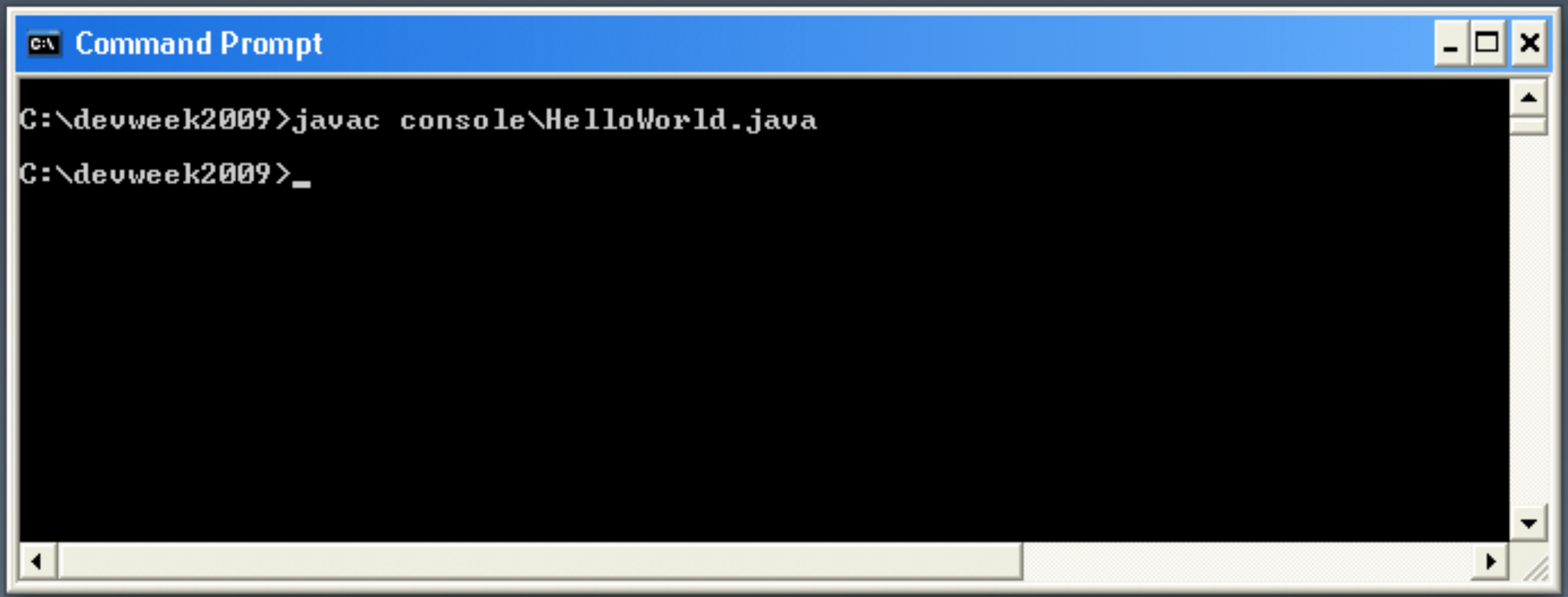
Writing Java code

HelloWorld - Notepad

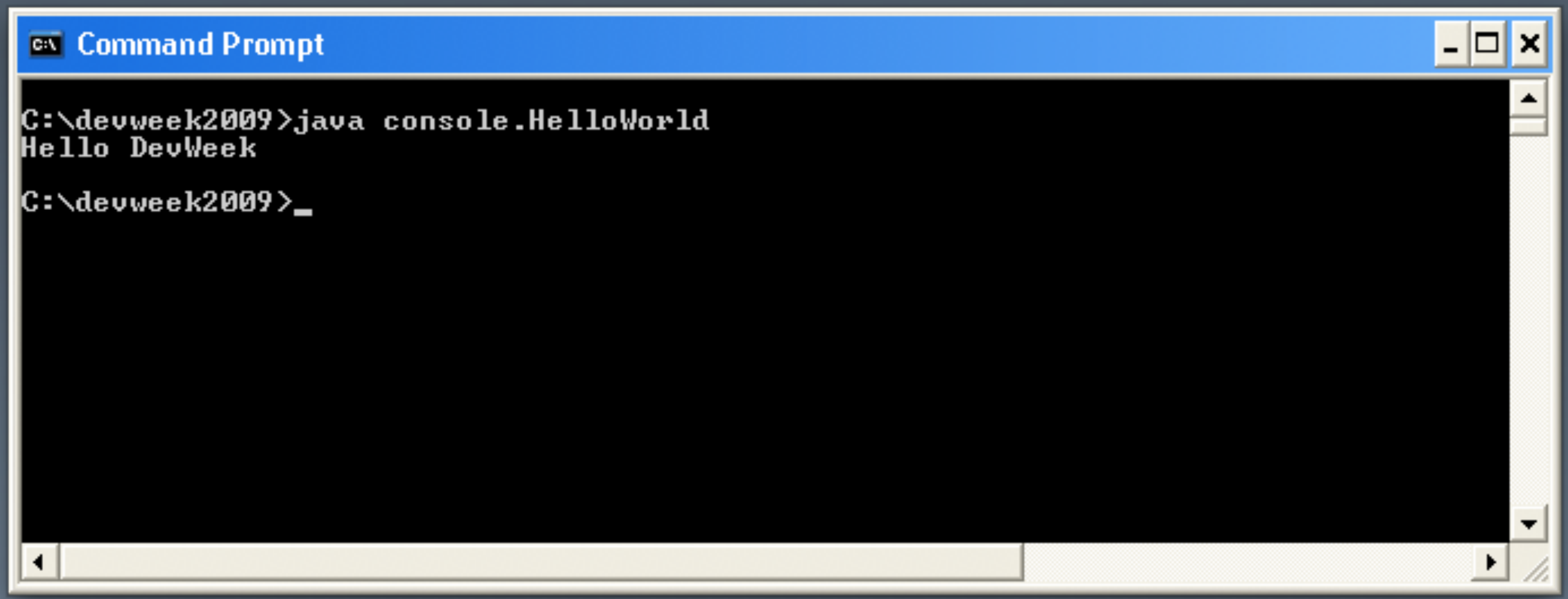
File Edit Format View Help

```
package console;

public class Helloworld {

  public static void main(String args[]) {
    System.out.println("Hello DevWeek");
  }

}
```

Compiling Java code



Running Java code



Java code is typically packaged in a JAR file for deployment

In a similar way to adding assembly references to .NET projects, you add JAR files to the

classpath

for Java projects

Development tools

You have a choice

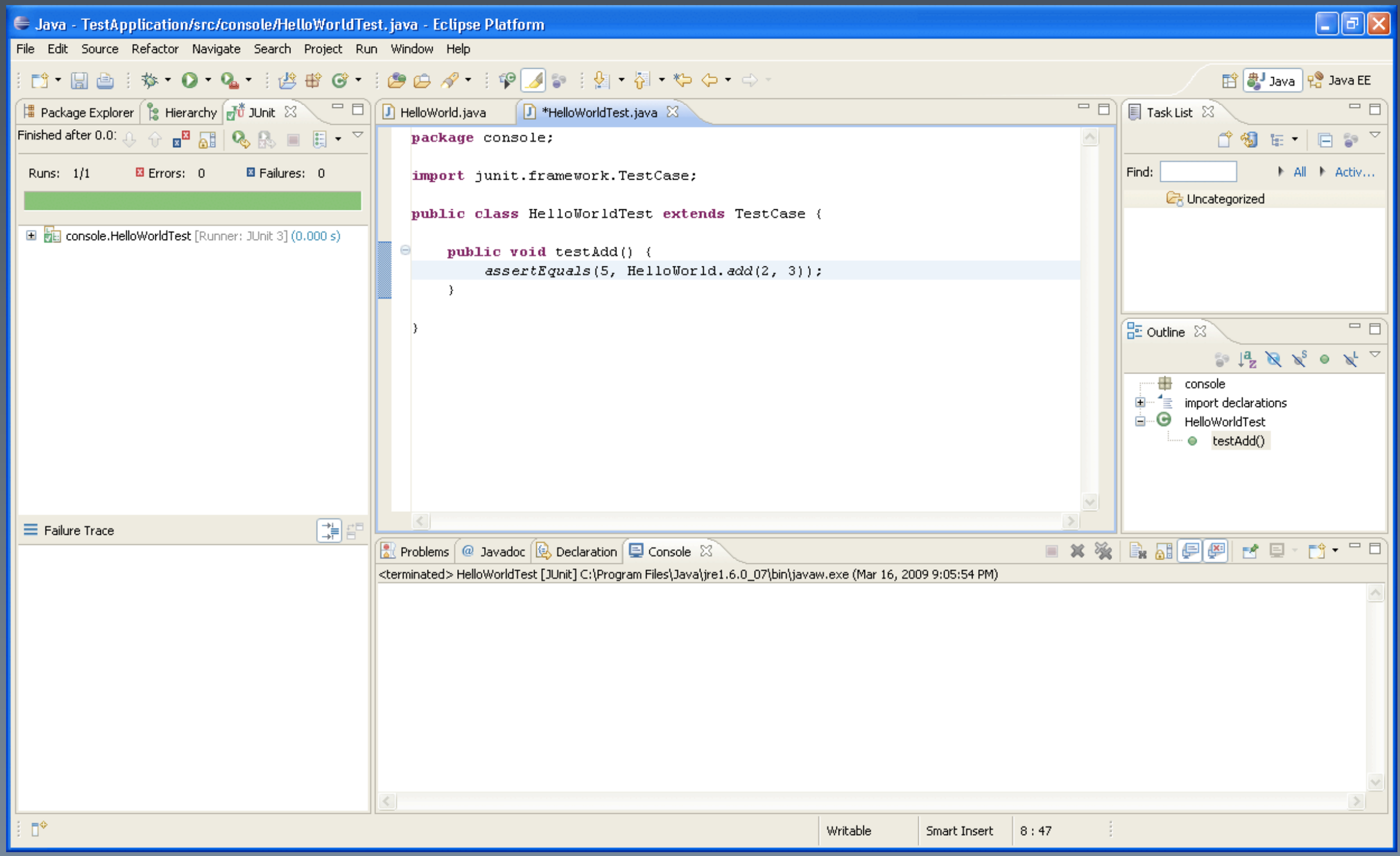
Multiple IDEs, both open source and commercial

(Eclipse, IntelliJ IDEA and NetBeans)

Supporting tools

MSBuild, NAnt		Ant, Maven
NUnit, TestDriven.Net		JUnit, TestNG
NCover		Clover, Cobertura, Emma
CruiseControl.NET		CruiseControl, Continuum, Bamboo, Hudson

A quick Eclipse demo



Java web applications

Java EE web applications are

comparable

to ASP.NET web applications

With the exception that Java EE applications are

portable

(Tomcat, Jetty, Resin, Glassfish, JBoss AS, Oracle AS, WebLogic, WebSphere, etc)

Dynamic content through

JSP pages

rather than ASP pages

Scripting syntax,
special XML tags
and an
expression language
are available to invoke Java code

There are

no code-behinds

though

There are (too) many

MVC frameworks

available to build more modular applications
(Struts 2, Spring MVC, Stripes, ...)

There are component frameworks

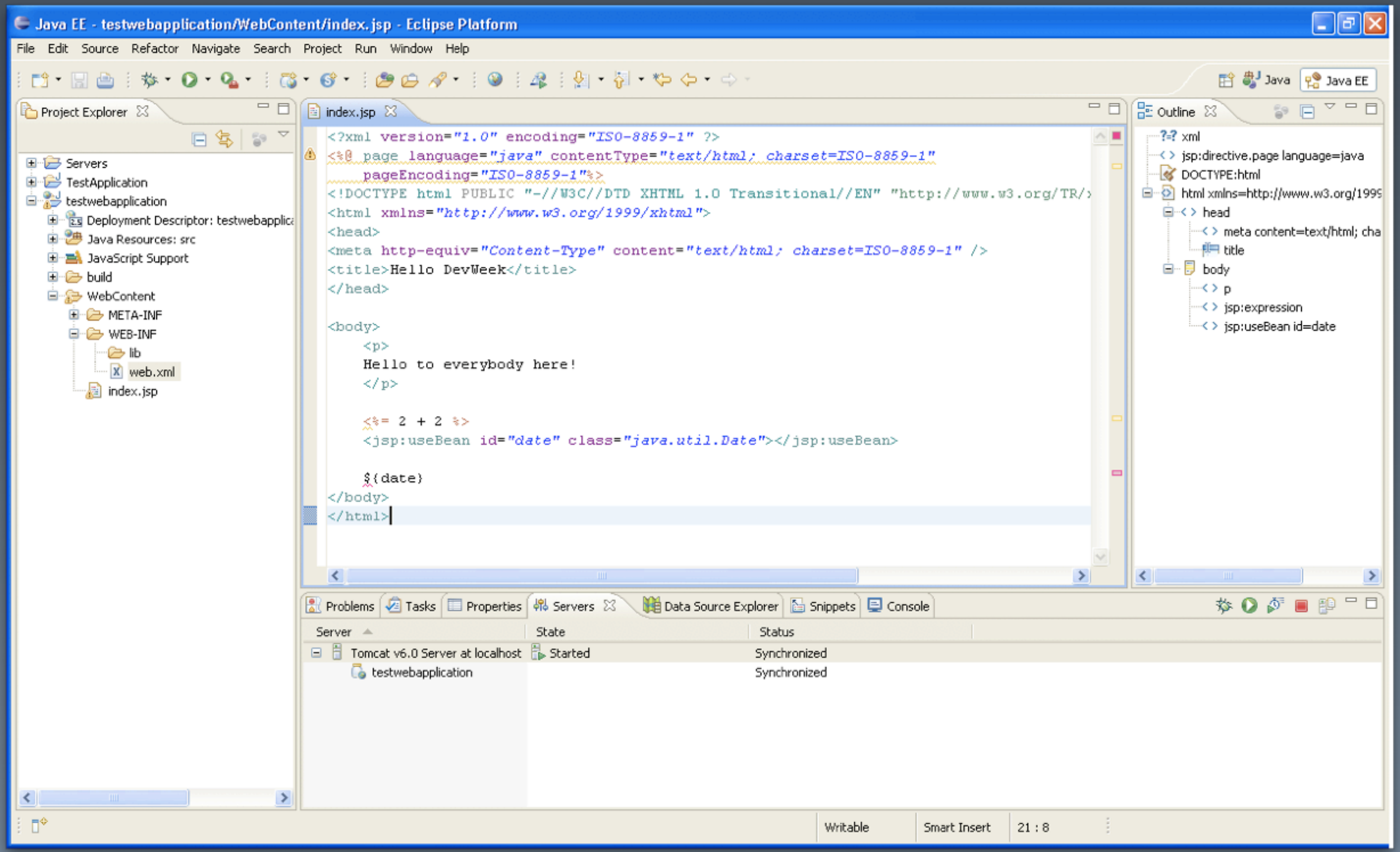
that provide data-bound controls,
AJAX controls, etc
(JSF, Tapestry)

Java EE web applications can be further configured through a

`web.xml` file

(similar to `Web.config`)

Another quick Eclipse demo



Beyond the basics

Each Java Virtual Machine runs as a separate process

(every time you run java.exe)

Each Java Virtual Machine has its own runtime options

-server and -client

-Xms and -Xmx

Garbage collection tuning

(serial/stop-the-world, concurrent, etc)

You have a

choice

of Java Virtual Machine

Java Virtual Machines can be monitored using JConsole

J2SE 5.0 Monitoring & Management Console: service:jmx:rmi:///jndi/rmi://[redacted]9922/jmxrmi

Connection

Summary | Memory | Threads | Classes | MBeans | VM

MBeans

Tree
- JMImplementation
- [redacted]
  - BatchPoller.2
  - ConfigurationSe
  - LaredoTradeEv
  - Log4JManager
  - RotConfiguratio
  - RotObservation
  - RuntimeContai
  - fRiskServiceRe
- java.lang
- java.util.logging

Attributes | Operations | Notifications[74] | Info

TimeStamp	Type	...	Se...	Message	Event	Source
13:13:18:390	lcm.batchpoller.polled		112	Didn't find batch, poll took 145ms	javax.manage...	
13:13:18:245	lcm.batchpoller.published		111	Batch 13538 published	javax.manage...	
13:13:17:708	lcm.batchpoller.polled		110	Found batch 13538, poll took 175ms	javax.manage...	
13:13:07:522	lcm.batchpoller.polled		109	Didn't find batch, poll took 9ms	javax.manage...	
13:12:57:503	lcm.batchpoller.polled		108	Didn't find batch, poll took 141ms	javax.manage...	
13:12:57:361	lcm.batchpoller.published		107	Batch 13532 published	javax.manage...	
13:12:56:575	lcm.batchpoller.polled		106	Found batch 13532, poll took 346ms	javax.manage...	
13:12:56:228	lcm.batchpoller.published		105	Batch 13530 published	javax.manage...	
13:12:56:077	lcm.batchpoller.polled		104	Found batch 13530, poll took 67ms	javax.manage...	
13:12:46:002	lcm.batchpoller.polled		103	Didn't find batch, poll took 10ms	javax.manage...	
13:12:35:968	lcm.batchpoller.polled		102	Didn't find batch, poll took 10ms	javax.manage...	
13:12:35:958	lcm.batchpoller.published		101	Batch 13528 published	javax.manage...	
13:12:35:816	lcm.batchpoller.polled		100	Found batch 13528, poll took 334ms	javax.manage...	
13:12:25:477	lcm.batchpoller.polled		99	Didn't find batch, poll took 21ms	javax.manage...	
13:12:25:455	lcm.batchpoller.published		98	Batch 13522 published	javax.manage...	
13:12:24:846	lcm.batchpoller.polled		97	Found batch 13522, poll took 501ms	javax.manage...	
13:12:24:344	lcm.batchpoller.published		96	Batch 13519 published	javax.manage...	
13:12:24:090	lcm.batchpoller.polled		95	Found batch 13519, poll took 134ms	javax.manage...	
13:12:23:956	lcm.batchpoller.published		94	Batch 13518 published	javax.manage...	
13:12:23:842	lcm.batchpoller.polled		93	Found batch 13518, poll took 80ms	javax.manage...	
13:12:13:754	lcm.batchpoller.polled		92	Didn't find batch, poll took 92ms	javax.manage...	
13:12:03:624	lcm.batchpoller.polled		91	Didn't find batch, poll took 324ms	javax.manage...	
13:12:03:299	lcm.batchpoller.published		90	Batch 13511 published	javax.manage...	
13:12:02:672	lcm.batchpoller.polled		89	Found batch 13511, poll took 627ms	javax.manage...	
13:11:52:034	lcm.batchpoller.polled		88	Didn't find batch, poll took 102ms	javax.manage...	
13:11:51:930	lcm.batchpoller.published		87	Batch 13506 published	javax.manage...	
13:11:51:378	lcm.batchpoller.polled		86	Found batch 13506, poll took 1861ms	javax.manage...	
13:11:49:517	lcm.batchpoller.published		85	Batch 13501 published	javax.manage...	
13:11:49:386	lcm.batchpoller.polled		84	Found batch 13501, poll took 85ms	javax.manage...	
13:11:39:297	lcm.batchpoller.polled		83	Didn't find batch, poll took 13ms	javax.manage...	
13:11:39:283	lcm.batchpoller.published		82	Batch 13498 published	javax.manage...	
13:11:39:053	lcm.batchpoller.polled		81	Found batch 13498, poll took 148ms	javax.manage...	
13:11:38:905	lcm.batchpoller.published		80	Batch 13496 published	javax.manage...	
13:11:38:771	lcm.batchpoller.polled		79	Found batch 13496, poll took 80ms	javax.manage...	

Subscribe | Unsubscribe | Clear

LCM and ROT management console - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http:// /management/index.html Go

LCM and ROT management console

Process	Component	Restart all
Container lcm/1 (8534@) started Tue Jan 30 13:00:16 GMT 2007 JMX URL : service:jmx:rmi:///jndi/rmi:// :9921/jmxrmi Version : v1.0-b9; built 30 January 2007 09:18:55 +0000 Memory : Using 18.9MB of 100.3MB (max is 910.2MB)		Stop | Restart
	ProblemPoller, instance 1	Stop
	BatchPoller, instance 1	Stop
	Batcher, instance 1	Stop
Container lcm/2 (8533@) started Tue Jan 30 13:00:24 GMT 2007 JMX URL : service:jmx:rmi:///jndi/rmi:// :9922/jmxrmi Version : v1.0-b9; built 30 January 2007 09:18:55 +0000 Memory : Using 16.3MB of 85.9MB (max is 910.2MB)		Stop | Restart
	fRiskServiceRequestResultHandler, instance 1	Stop
	BatchPoller, instance 2	Stop
	RotObservationNotificationHandler, instance 3	Stop
	LaredoTradeEventScheduleHandler, instance 1	Stop
	RotConfigurationNotificationHandler, instance 2	Stop
Container lcm/3 (8532@) started Tue Jan 30 13:00:37 GMT 2007 JMX URL : service:jmx:rmi:///jndi/rmi:// :9928/jmxrmi Version : v1.0-b9; built 30 January 2007 09:18:55 +0000 Memory : Using 18.6MB of 89.1MB (max is 910.2MB)		Stop | Restart
	BatchPoller, instance 3	Stop
	fRisk.ServiceRequestHandler, instance 1	Stop
	Laredo.ResultNotificationHandler, instance 1	Stop
	fRisk.RotObservationNotificationHandler, instance 4	Stop
Container lcm/4 (8535@) started Tue Jan 30 13:00:25 GMT 2007 JMX URL : service:jmx:rmi:///jndi/rmi:// :9929/jmxrmi Version : v1.0-b9; built 30 January 2007 09:18:55 +0000 Memory : Using 16.0MB of 80.9MB (max is 910.2MB)		Stop | Restart
	BatchPoller, instance 4	Stop

Local intranet

If JVMs are separate processes, why do you need ClassLoaders?

Like AppDomains, ClassLoaders allow multiple applications to be run in

isolation

within a single process

Where next?

It depends

If you're looking at Java generic development...

Java SE tutorials
JDBC
Spring Framework
Ant/JUnit/CruiseControl

If you're looking at Java

web development...

Java EE (JSP and Servlets)

Struts 2 and Spring MVC (a couple MVC frameworks)

Grails and JSF

Apache Tomcat or Glassfish

If you're looking at

enterprise

Java development...

Java EE (JMS, EJB, Web Services)

Spring Framework

Hibernate

If you're looking at Java

client

development...

Swing
SWT
JavaFX
(make sure the technology decision is justified)

Some good resources are...

InfoQ.com

TheServerSide.com

JavaBlogs.com

To finish…

.NET and Java;

the same but

different

They can be used in isolation and in harmony

They can be used to solve the same and different problems

As technologists we need to be

pragmatic,

choosing the right technology for the context

coding {the} architecture

Website

http://www.codingthearchitecture.com

Google Group

http://groups.google.com/codingthearchitecture