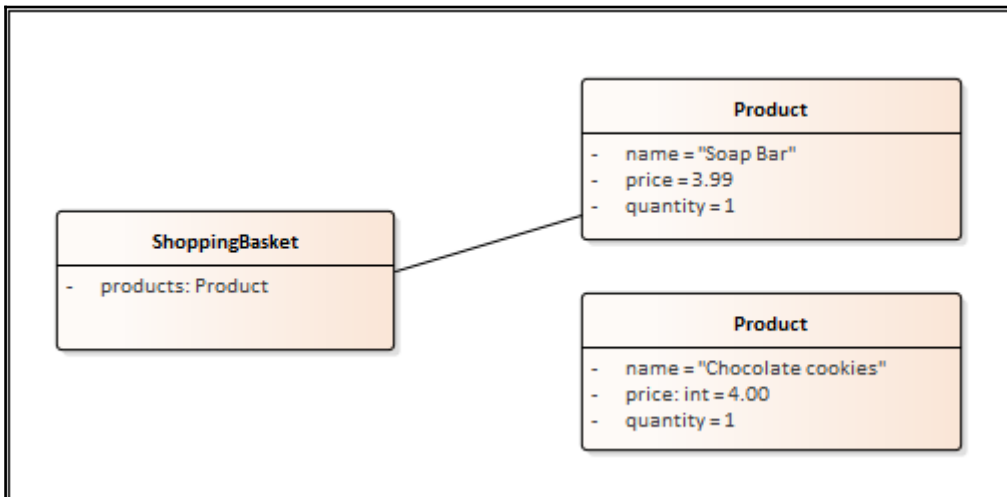
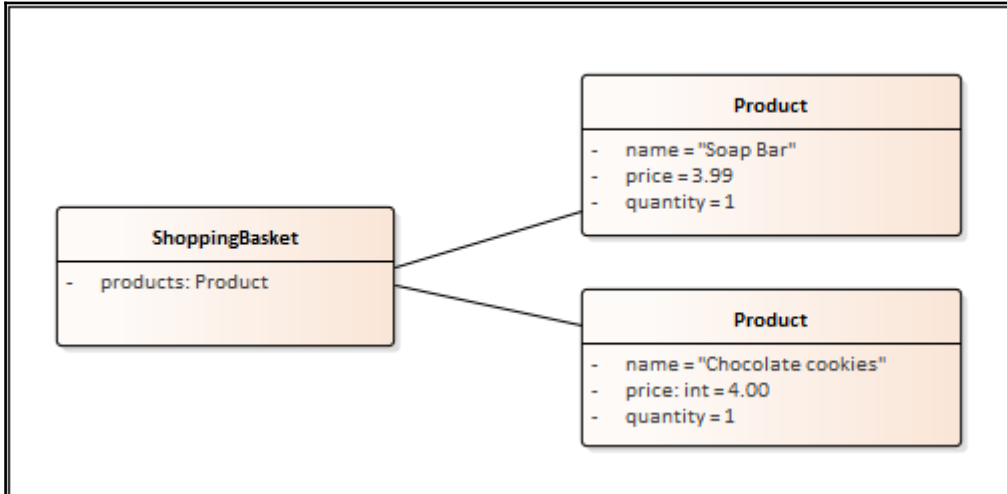
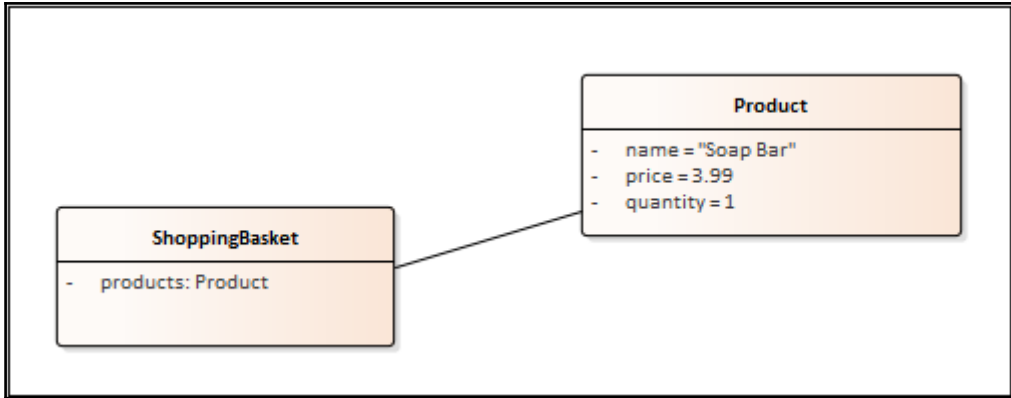
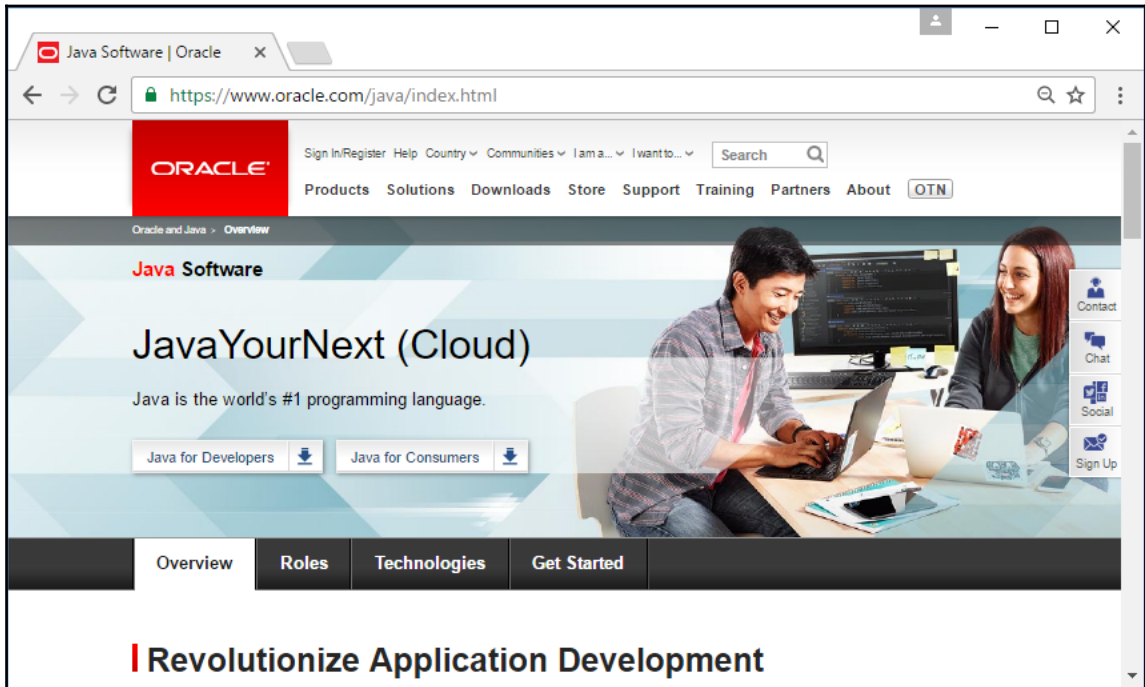


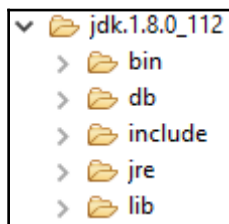
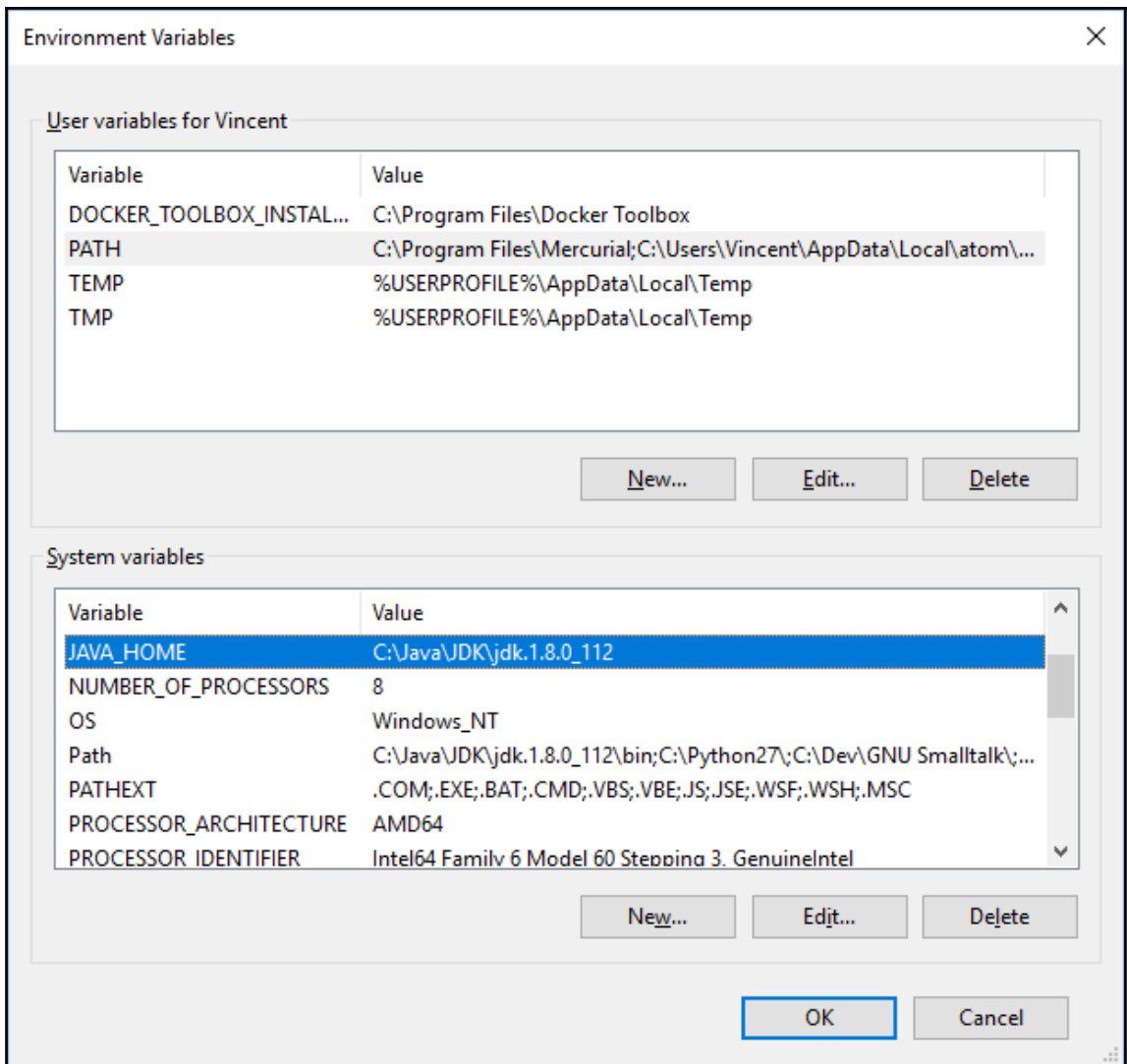
Chapter 1: Java Virtual Machine

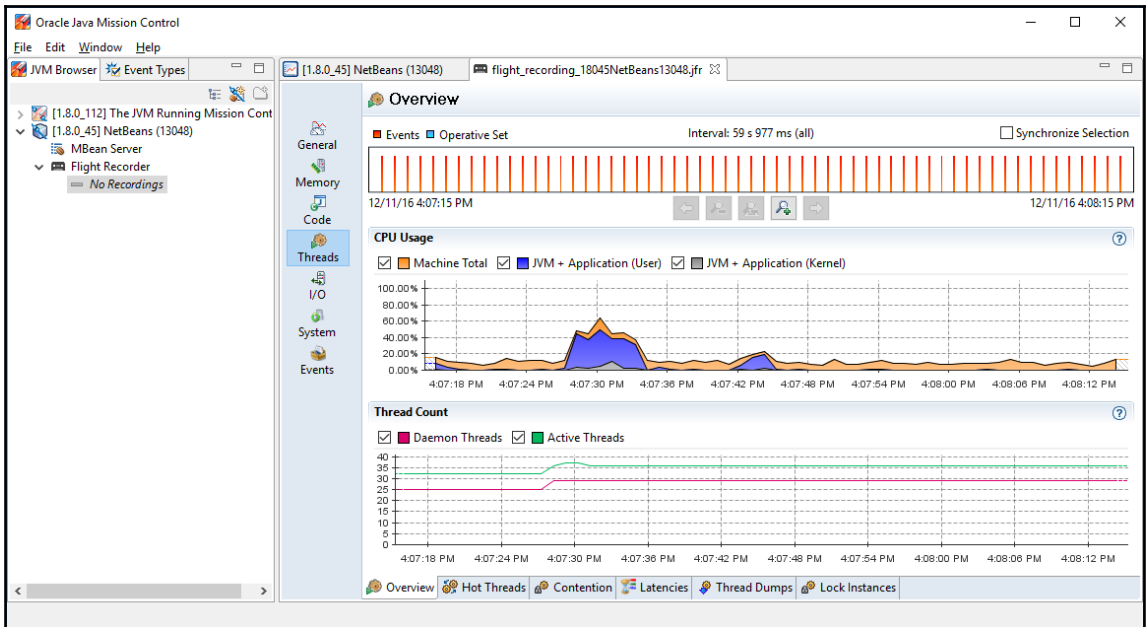
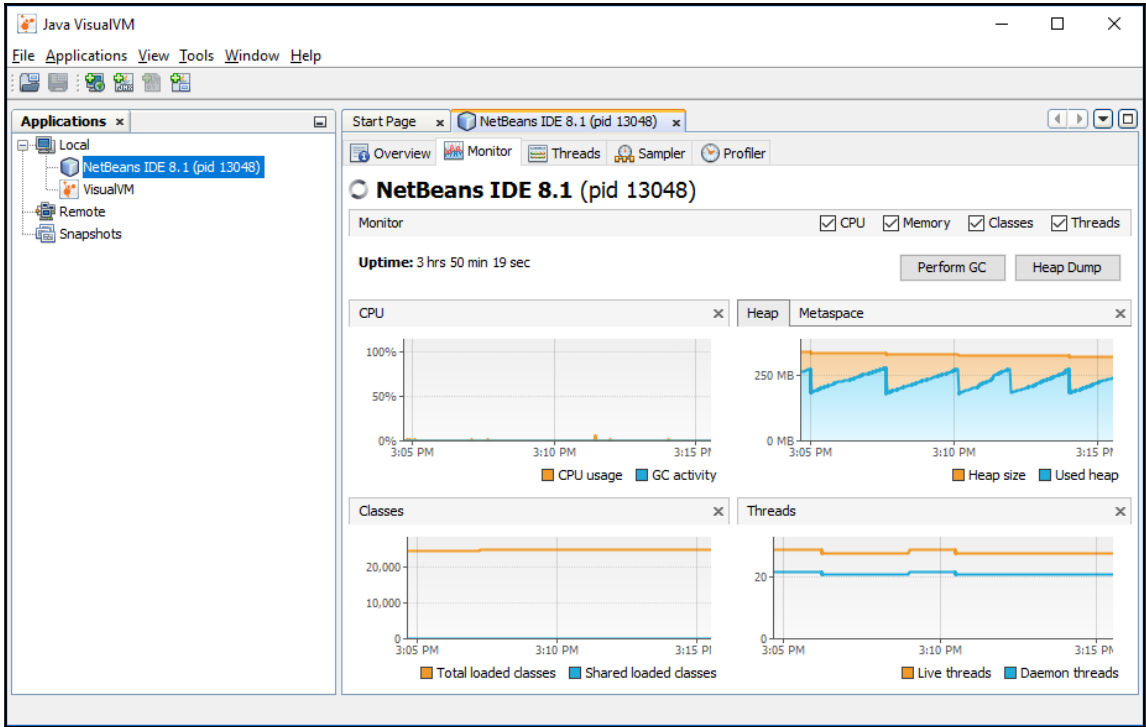


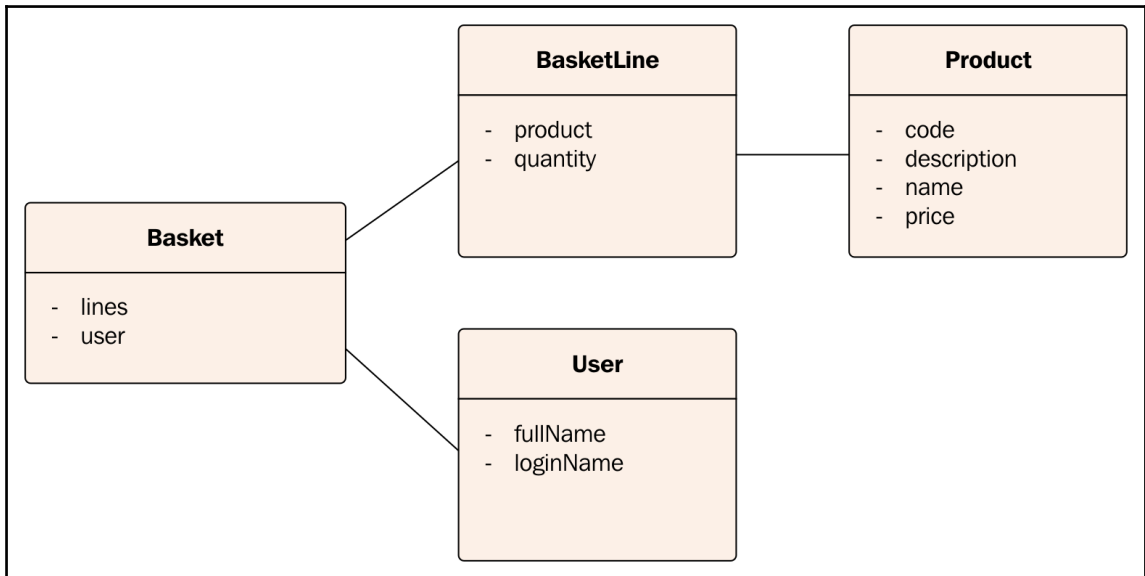


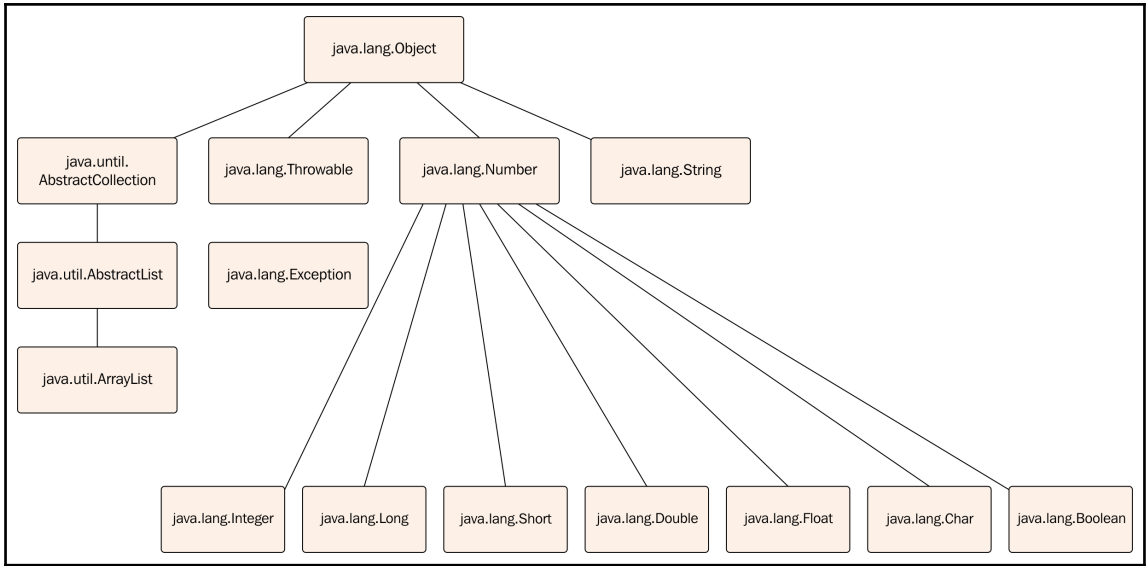
Chapter 2: Developing on the Java Virtual Machine











Key Hash

Key/Value pair

123

"key1" / "value1"

234

"key2" / "value2"

Key Hash

Key/Value pair

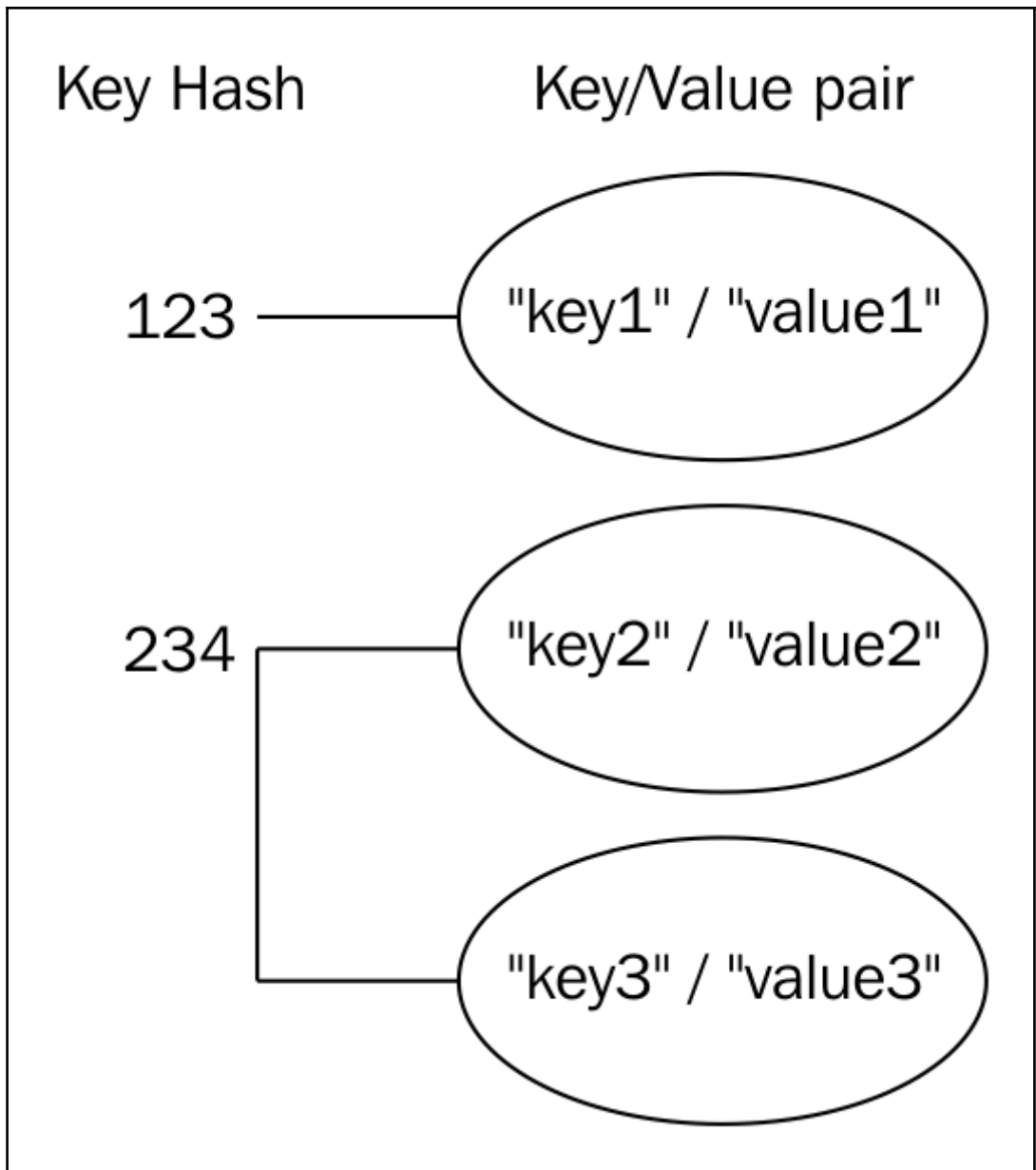
123

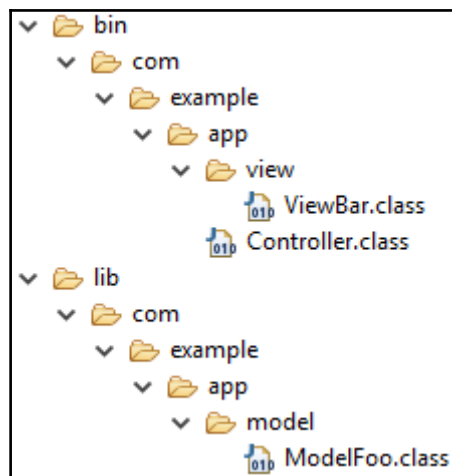
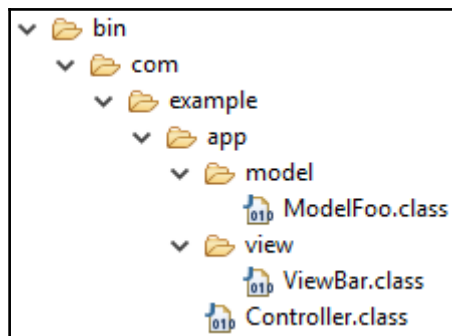
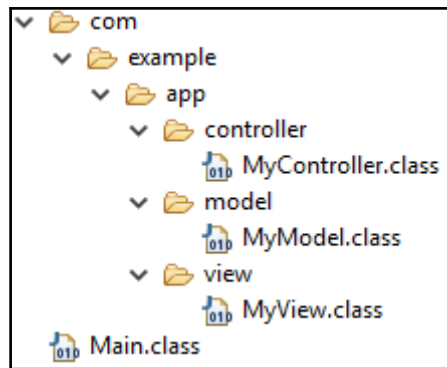
"key1" / "value1"

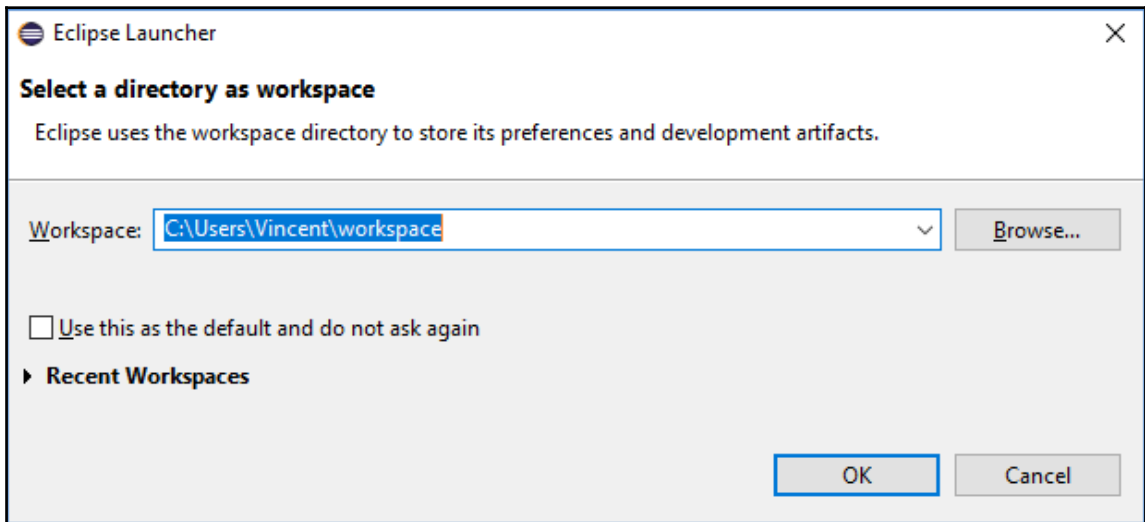
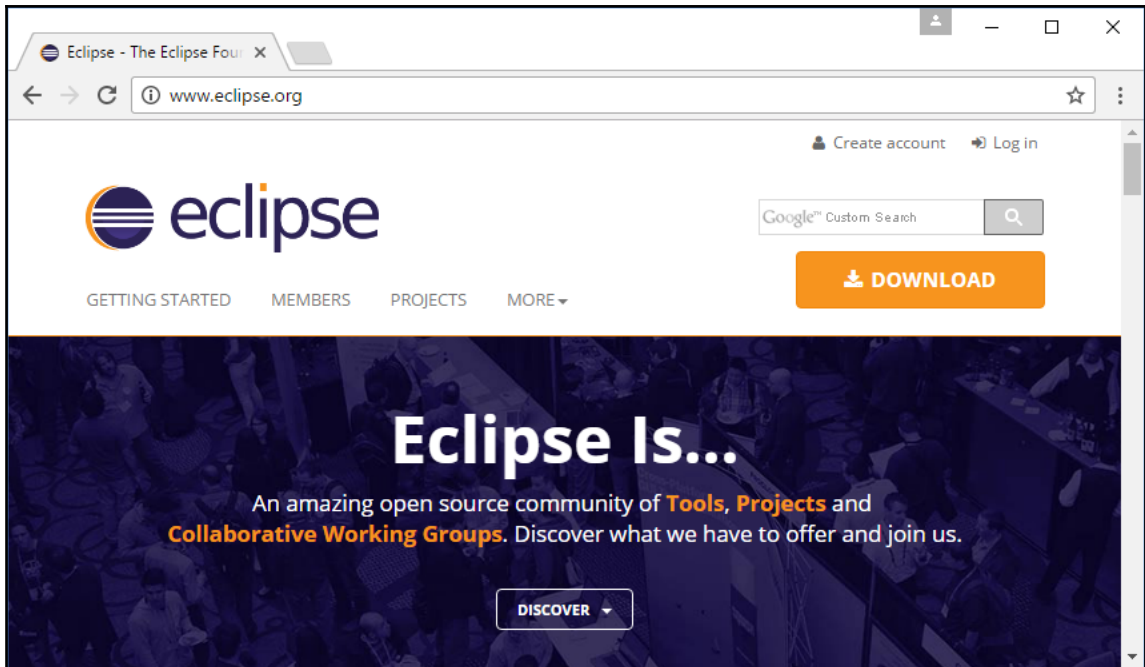
234

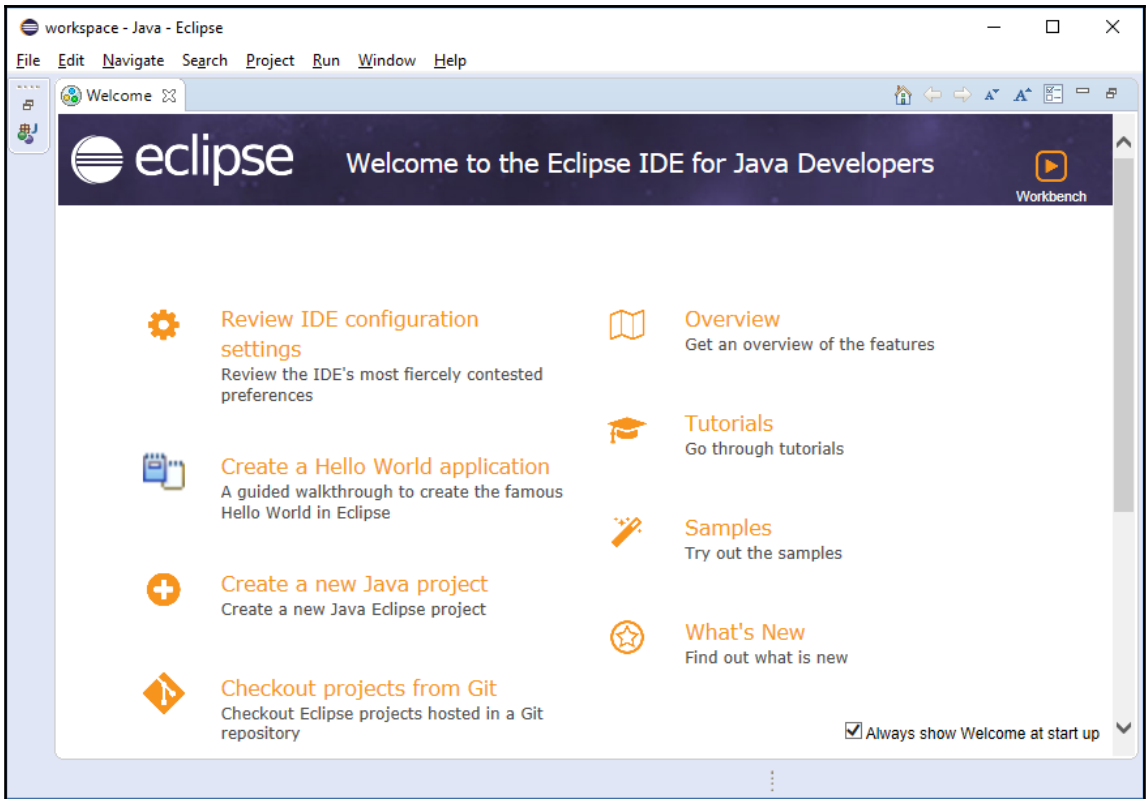
"key2" / "value2"

"key3" / "value3"

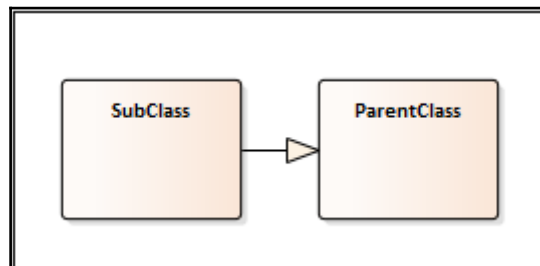
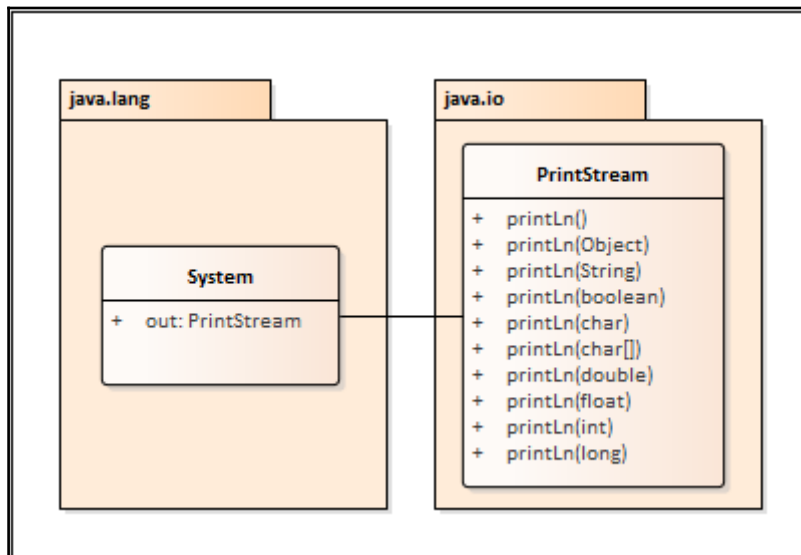
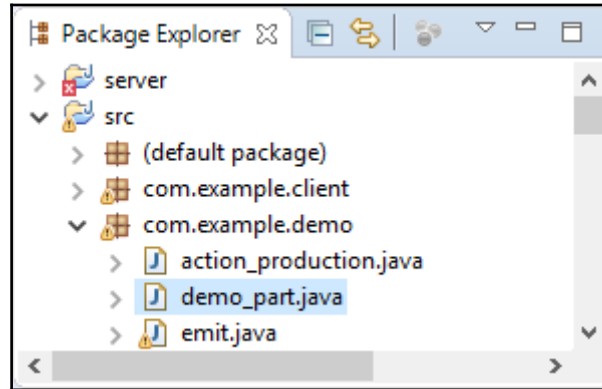


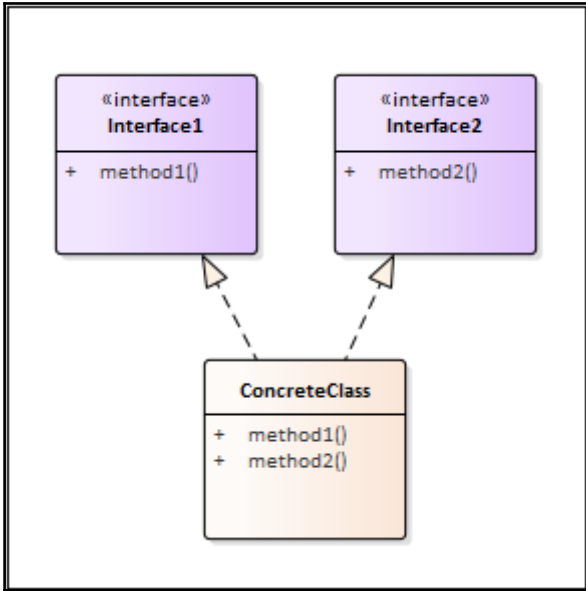
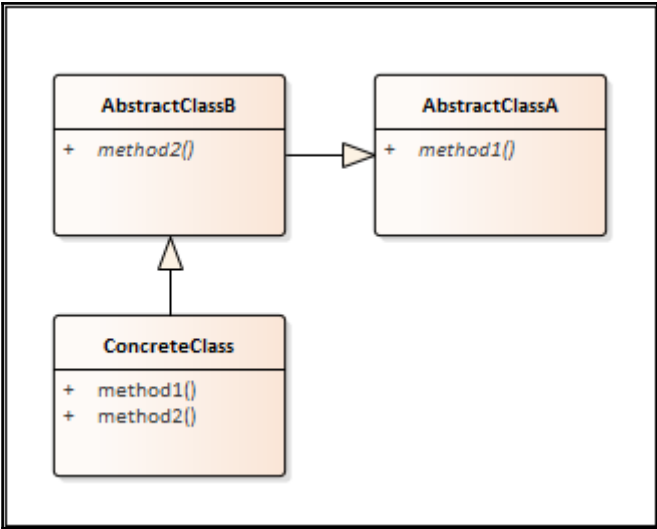


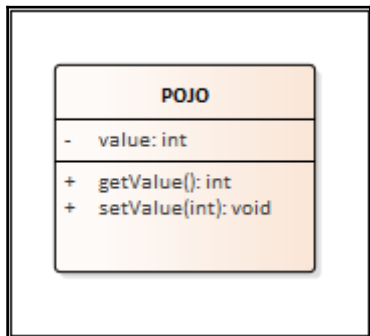
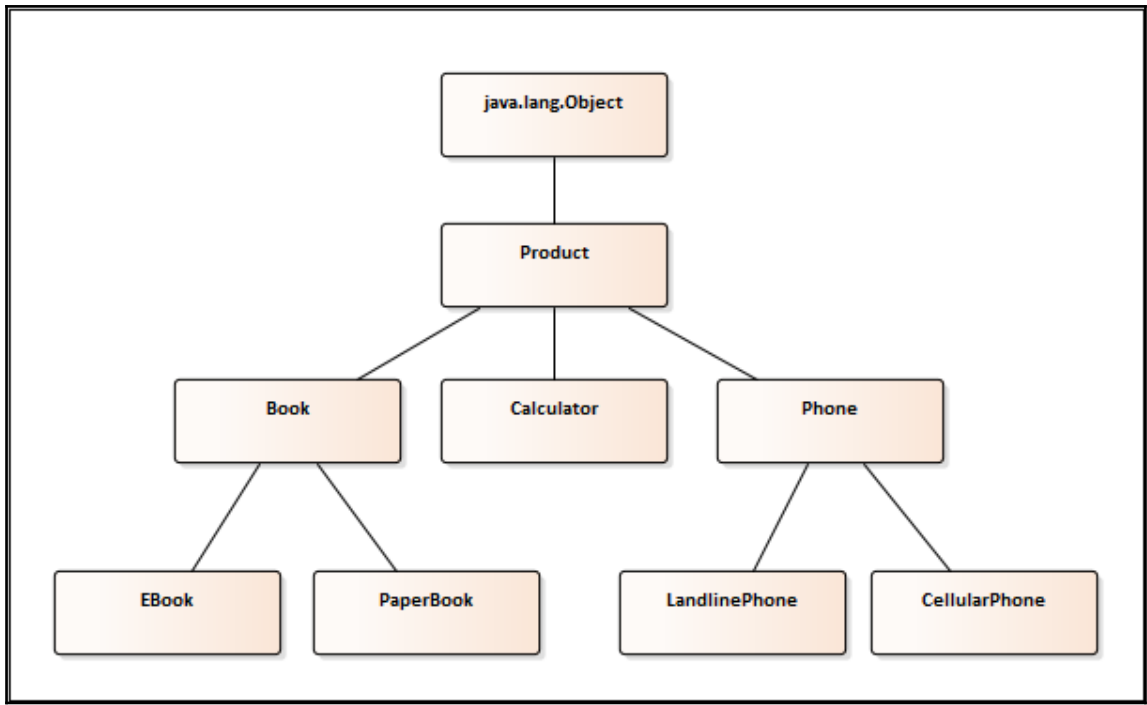


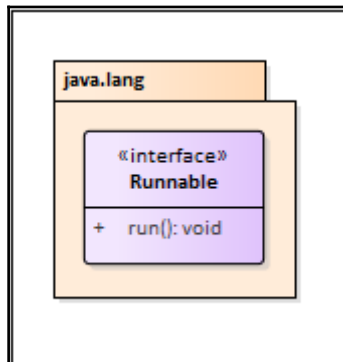
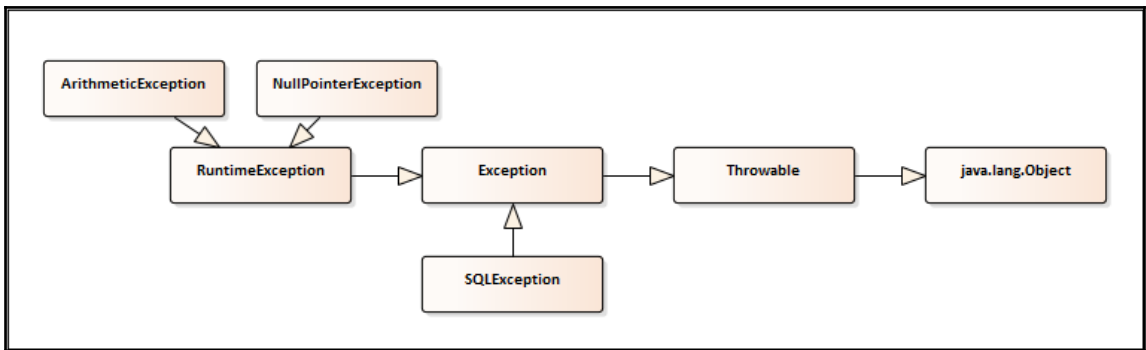
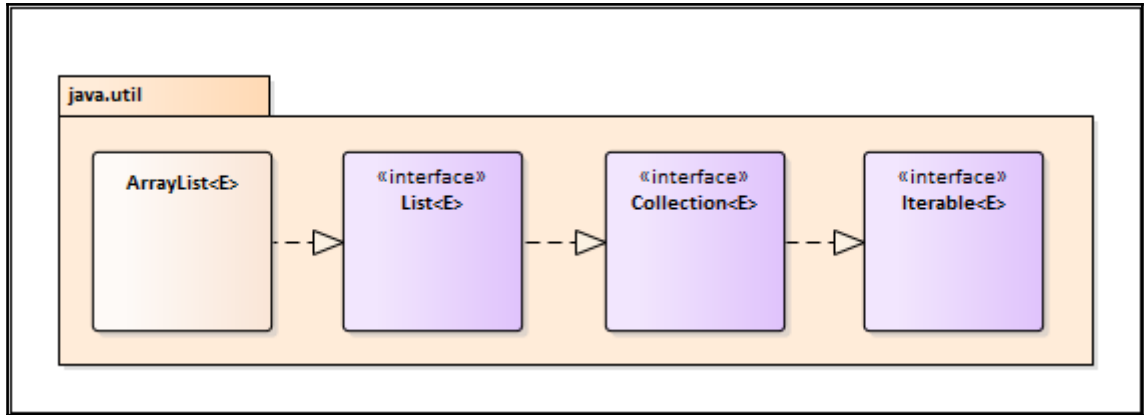


Chapter 3: Java

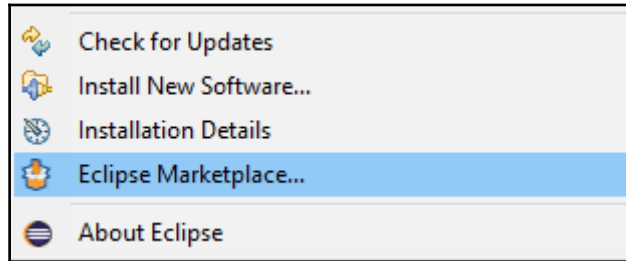








Chapter 4: Java Programming




Eclipse Marketplace

Eclipse Marketplace

Select solutions to install. Press Install Now to proceed with installation. Press the "more info" link to learn more about a solution.

Search Recent Popular Favorites Installed December Newsletter (Ready, Se

Find: gradle All Markets All Categories Go




Buildship Gradle Integration 2.0

Extend your Eclipse IDE to support building software using Gradle. This solution is provided by the Eclipse Foundation. [more info](#)

by [Eclipse Buildship Project](#), EPL
[fileExtension_gradle](#)

★ 121 Installs: **138K** (12,717 last month) **Install**

Marketplaces

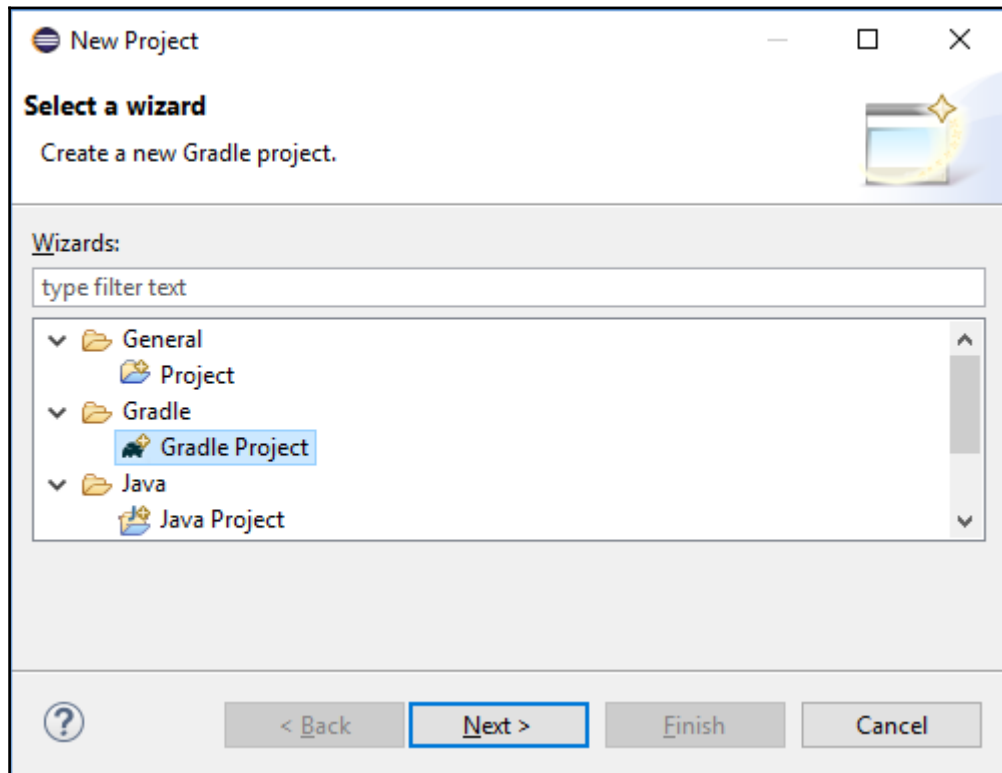
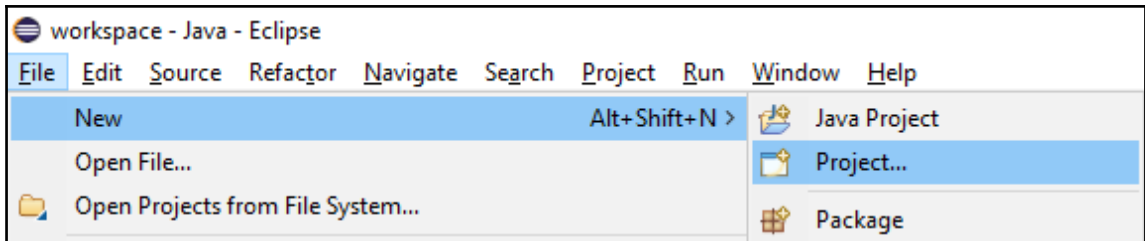


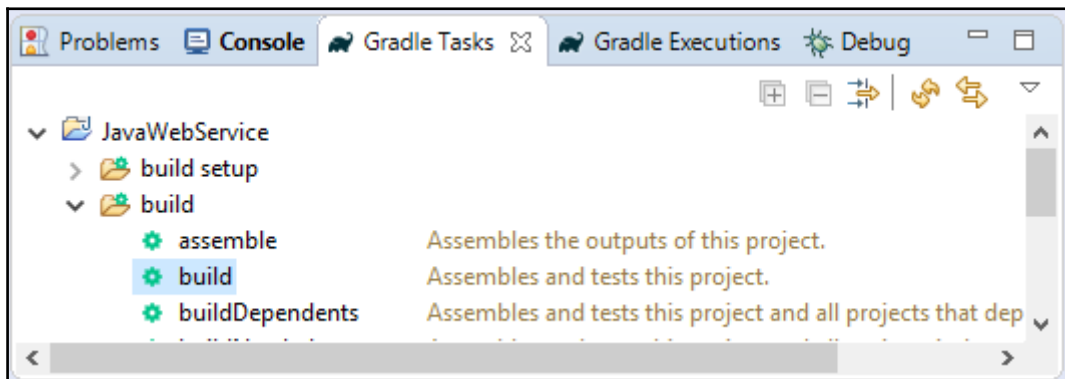
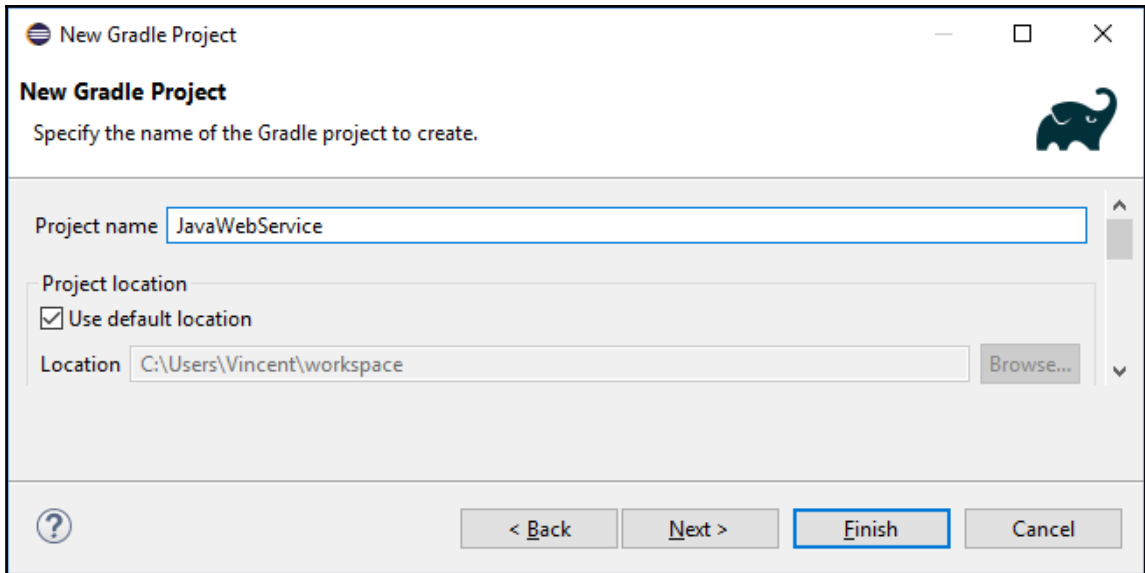
? < Back Install Now > Finish Cancel

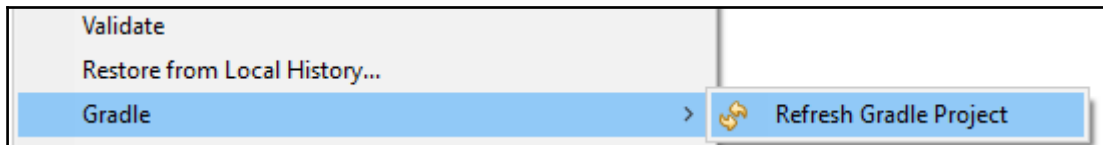
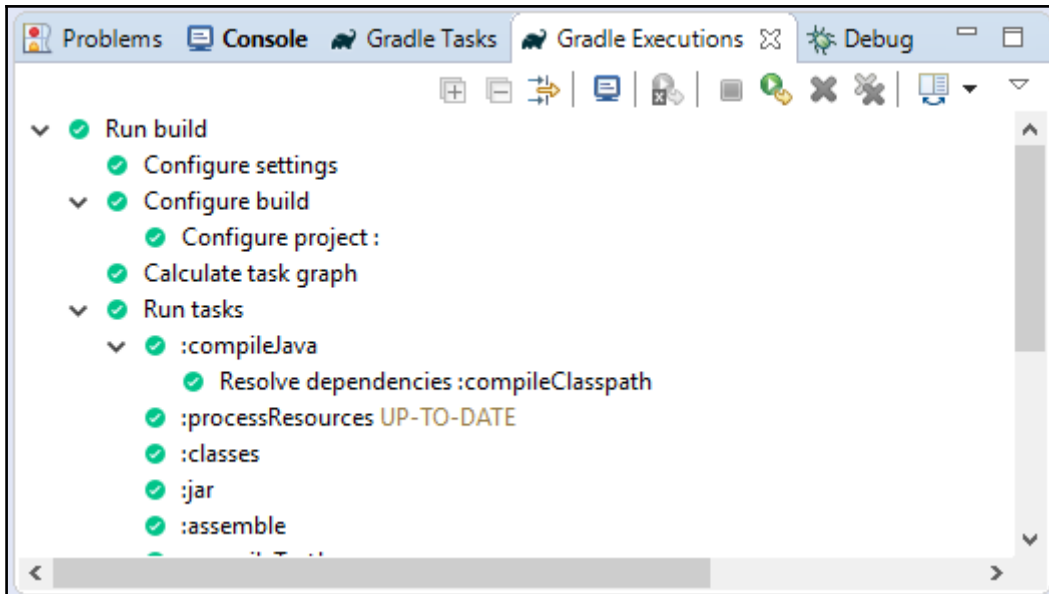
workspace - Java - Eclipse

File Edit Source Refactor Navigate Search Project Run Window Help

- New Alt+Shift+N >
 - Java Project
 - Project...
 - Package
- Open File...
- Open Projects from File System...







New Java Class

Java Class

Create a new Java class.

Source folder:

Package:

Enclosing type:

Name:

Modifiers: public package private protected
 abstract final static

Superclass:

```
public class CharacterCounter {  
    public static Map  
}
```

- Map - java.util
- MapDeserializer - com.fasterxml.jackson.dat
- MapEntryDeserializer - com.fasterxml.jackso

Press 'Ctrl+Space' to show Template Proposals

```
public class CharacterCounter {
    public static Map<Character, Integer>
}
```

CharacterCounter - chapter03.backend
Character - java.lang
CharSequence - java.lang

Press 'Ctrl+Space' to show Template Proposals

```
public class CharacterCounter {
    public static Map<Character, Integer>
}
```

Integer - java.lang
InternalError - java.lang
InterruptedException - java.lang

Press 'Ctrl+Space' to show Template Proposals

This method must return a result of type Map<Character,Integer>

2 quick fixes available:

- [Add return statement](#)
- [Change return type to 'void'](#)

Press 'F2' for focus

```
@Test
public void testNullInput() {
    fail("Not yet implemented");
}
```

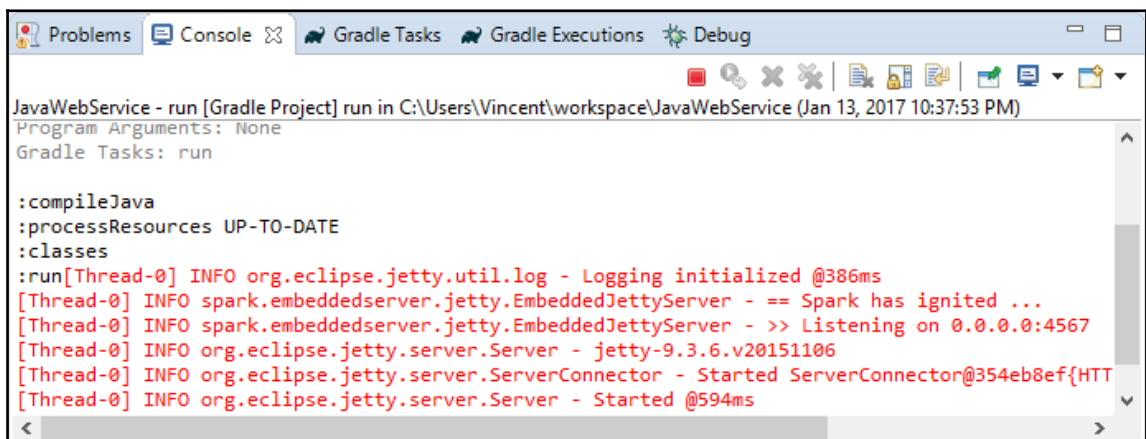
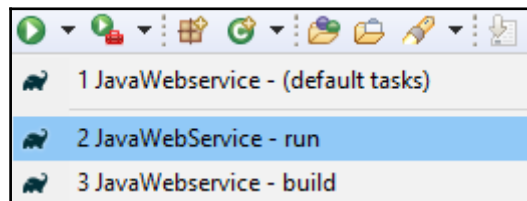
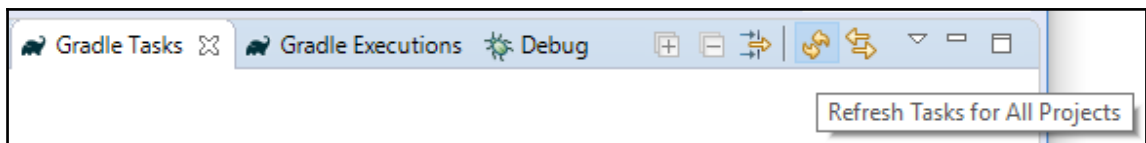
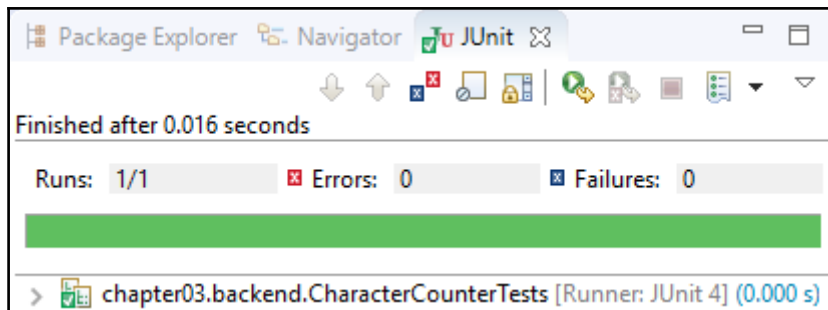
Press Enter to refactor. Options...

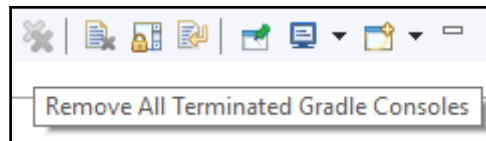
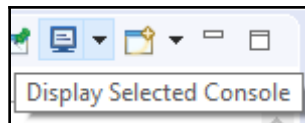
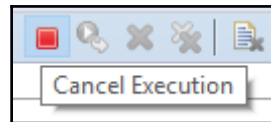
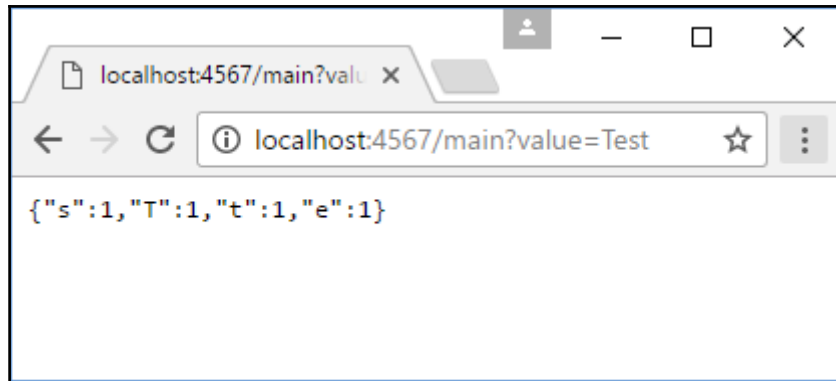
Package Explorer Navigator JUnit

Finished after 0.057 seconds

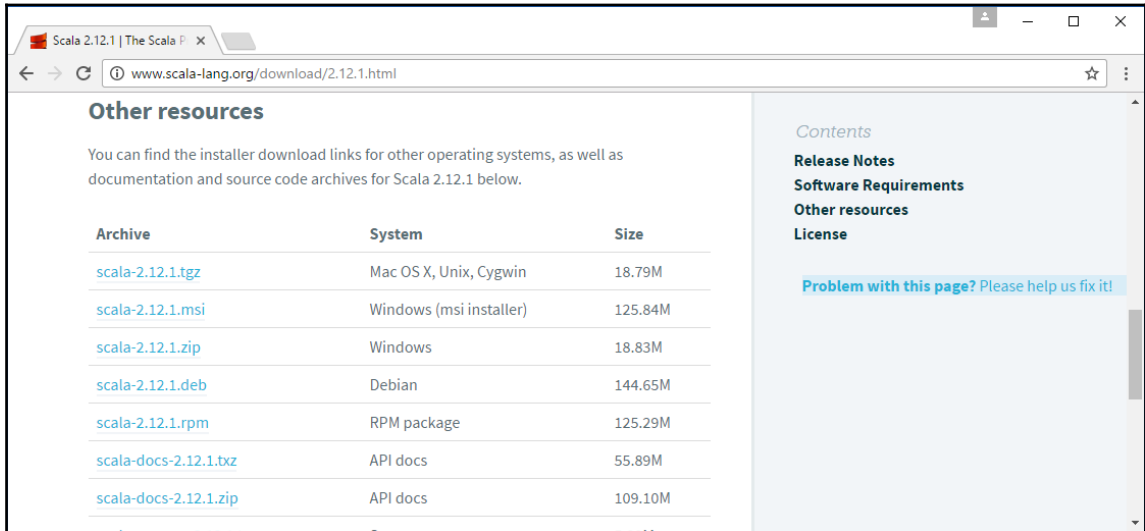
Runs: 1/1 Errors: 0 Failures: 1

chapter03.backend.CharacterCounterTests [Runner: JUnit 4] (0.001 s)
testNullInput (0.001 s)





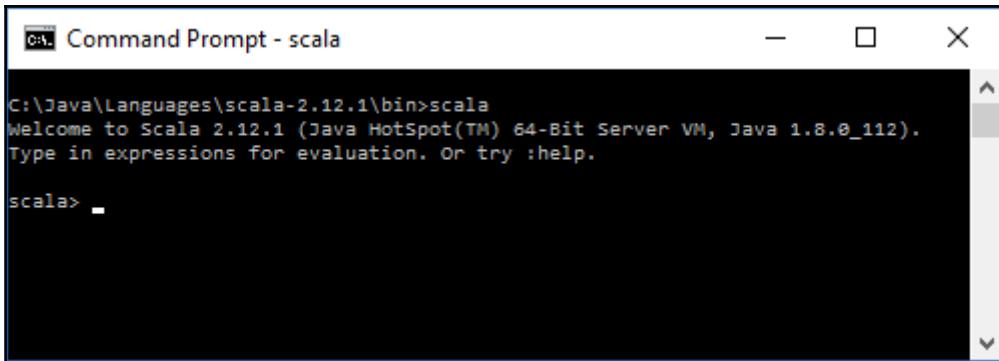
Chapter 5: Scala



The screenshot shows a web browser window with the address bar displaying `www.scala-lang.org/download/2.12.1.html`. The page title is "Scala 2.12.1 | The Scala Project". The main content area is titled "Other resources" and contains a paragraph: "You can find the installer download links for other operating systems, as well as documentation and source code archives for Scala 2.12.1 below." Below this is a table with three columns: "Archive", "System", and "Size".

Archive	System	Size
scala-2.12.1.tgz	Mac OS X, Unix, Cygwin	18.79M
scala-2.12.1.msi	Windows (msi installer)	125.84M
scala-2.12.1.zip	Windows	18.83M
scala-2.12.1.deb	Debian	144.65M
scala-2.12.1.rpm	RPM package	125.29M
scala-docs-2.12.1.tgz	API docs	55.89M
scala-docs-2.12.1.zip	API docs	109.10M

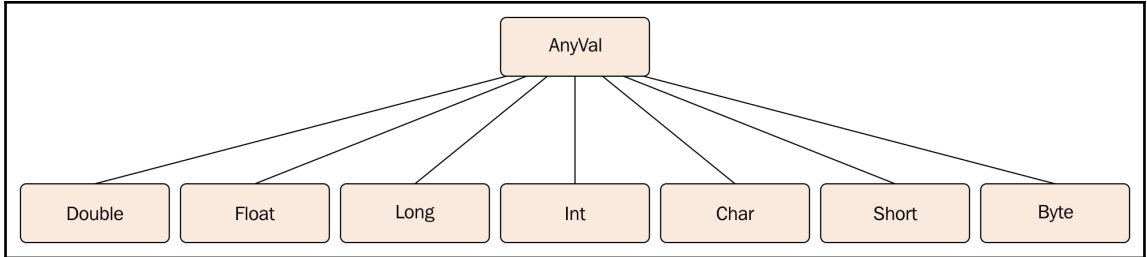
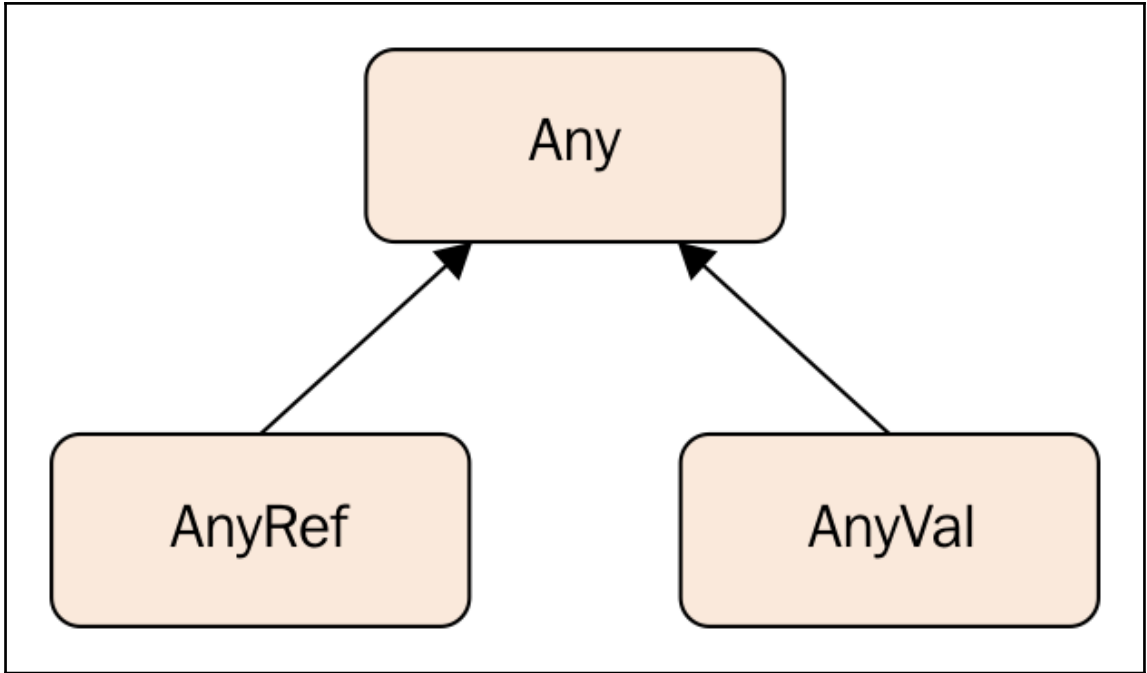
On the right side of the page, there is a "Contents" sidebar with links for "Release Notes", "Software Requirements", "Other resources", and "License". At the bottom of the sidebar, there is a link: "Problem with this page? Please help us fix it!".

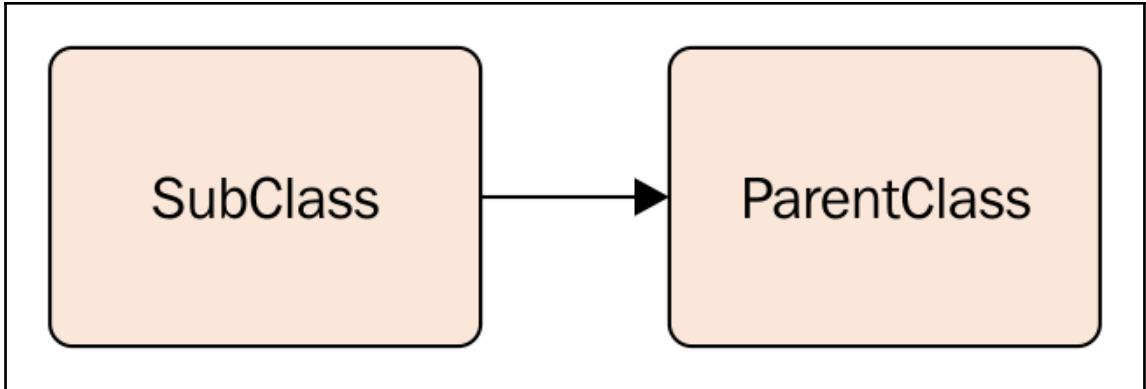
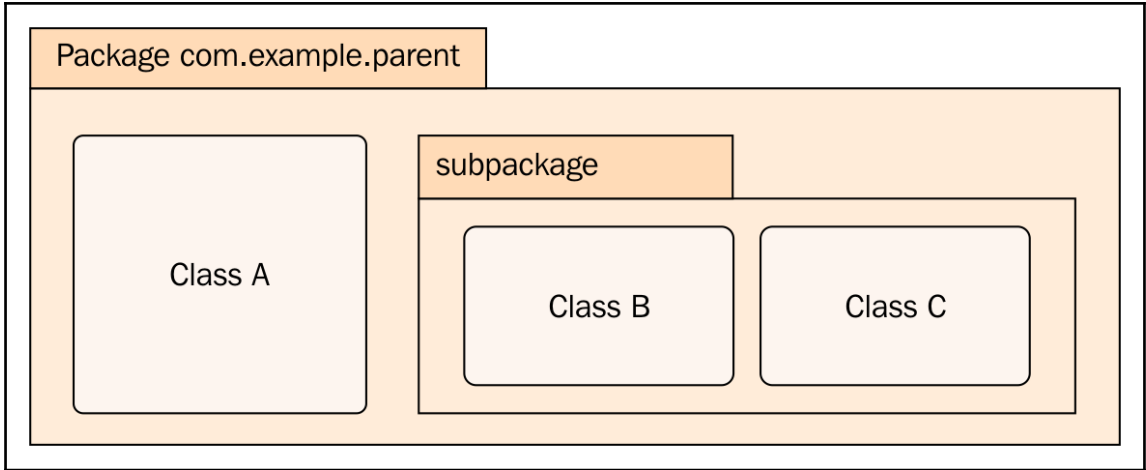


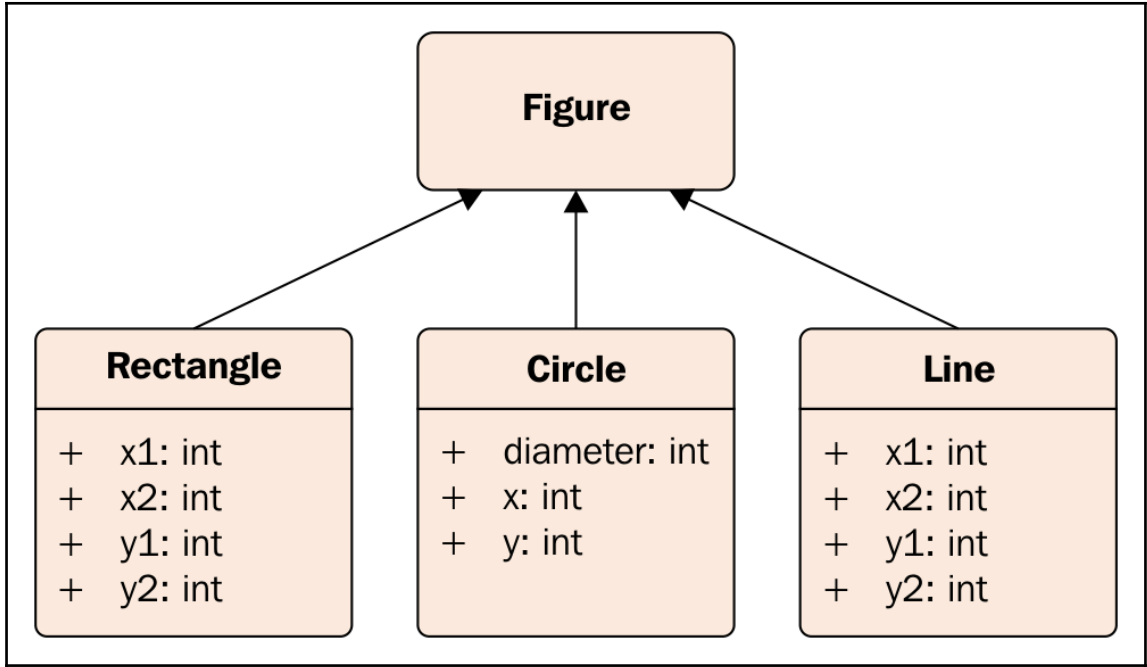
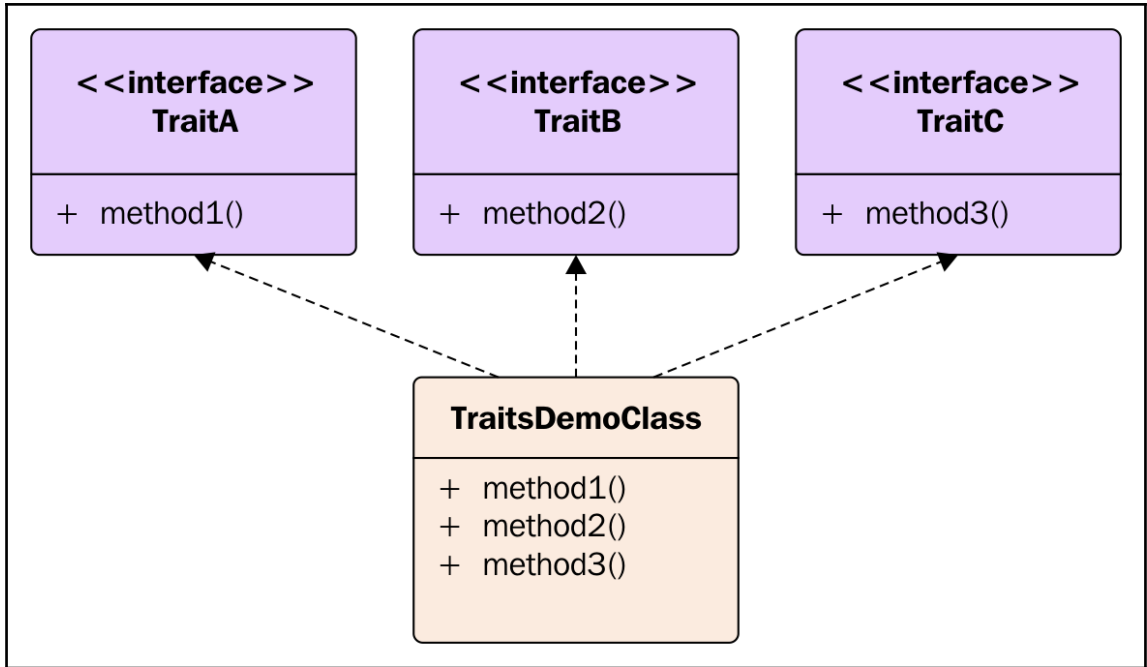
The screenshot shows a Command Prompt window titled "Command Prompt - scala". The prompt is at the directory `C:\Java\Languages\scala-2.12.1\bin`. The user has entered the command `scala`, which has started the Scala REPL. The output shows the Scala version and the Java HotSpot VM information: "Welcome to Scala 2.12.1 (Java HotSpot(TM) 64-Bit Server VM, Java 1.8.0_112). Type in expressions for evaluation. Or try :help." The prompt is now `scala> _`.

```
C:\Java\Languages\scala-2.12.1\bin>scala
Welcome to Scala 2.12.1 (Java HotSpot(TM) 64-Bit Server VM, Java 1.8.0_112).
Type in expressions for evaluation. Or try :help.

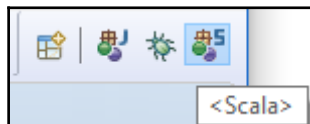
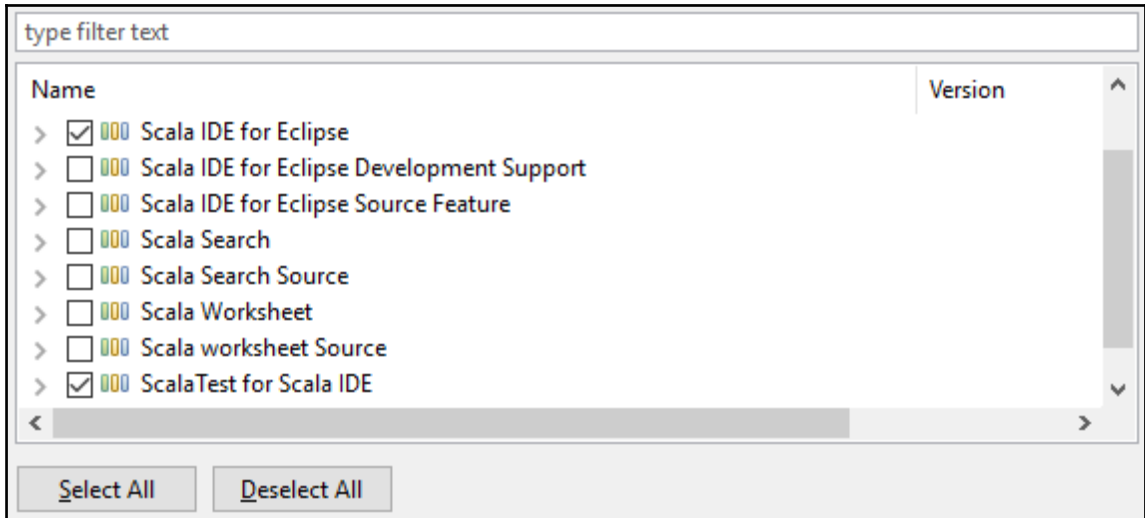
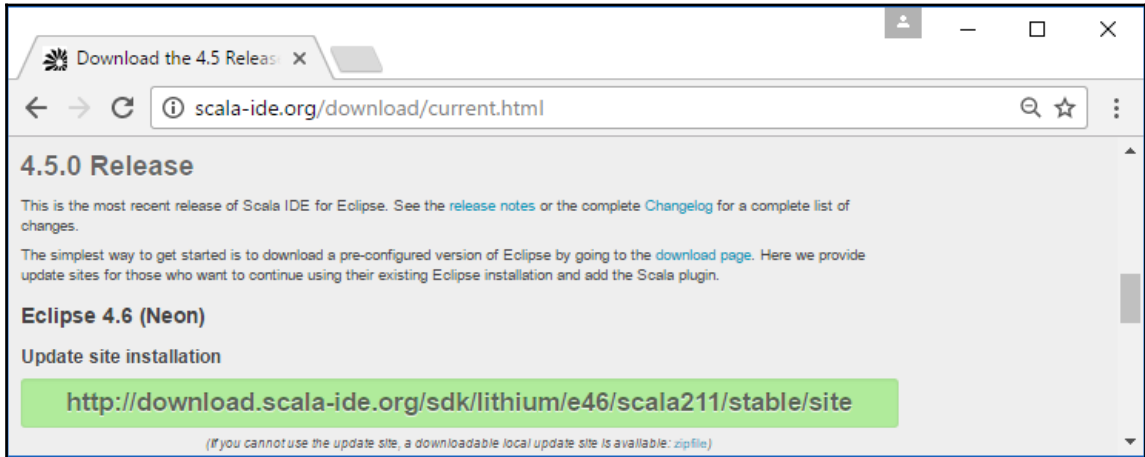
scala> _
```







Chapter 6: Scala Programming



```
Command Prompt - sbt
C:\Users\Vincent\workspace\akka-quotes>sbt
Java HotSpot(TM) 64-Bit Server VM warning: ignoring option MaxPermSize=256m; support was removed in 8.0
[info] Loading project definition from C:\Users\Vincent\workspace\akka-quotes\project
[info] Updating {file:/C:/Users/Vincent/workspace/akka-quotes/project/}akka-quotes-build...
[info] Resolving org.scala-sbt.ivy#ivy;2.3.0-sbt-2cf13e211b2cb51f0d3b317289dca70[info] Resolving org.fusesource.jansi#jansi;1.4 ...
[info] Done updating.
[info] Compiling 1 Scala source to C:\Users\Vincent\workspace\akka-quotes\project\target\scala-2.10\sbt-0.13\classes...
[info] Set current project to Hello (in build file:/C:/Users/Vincent/workspace/akka-quotes/)
> run
[info] Updating {file:/C:/Users/Vincent/workspace/akka-quotes/}root...
[info] Resolving jline#jline;2.14.1 ...
[info] Done updating.
[info] Compiling 1 Scala source to C:\Users\Vincent\workspace\akka-quotes\target\scala-2.12\classes...
[info] Running example.Hello
hello
[success] Total time: 20 s, completed Feb 8, 2017 10:21:27 PM
>
```

GitHub - typesafehub/sb

Veilig | <https://github.com/typesafehub/sbteclipse>

For sbt 0.13 and up

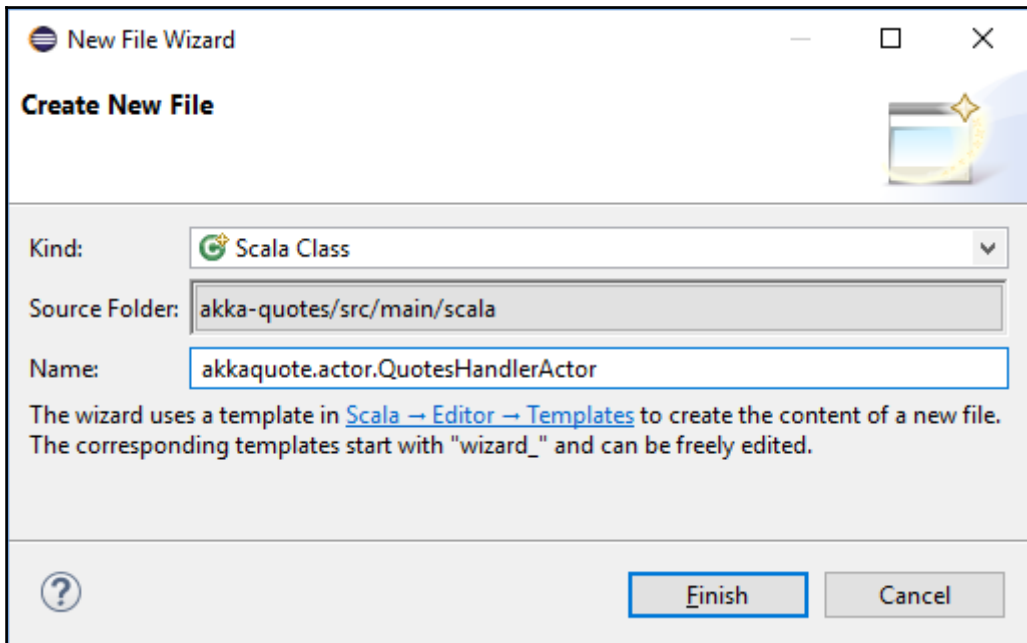
- Add sbteclipse to your plugin definition file (or create one if doesn't exist). You can use either:
 - the global file (for version 0.13 and up) at `~/sbt/0.13/plugins/plugins.sbt`
 - the project-specific file at `PROJECT_DIR/project/plugins.sbt`

For the latest version:

```
addSbtPlugin("com.typesafe.sbteclipse" % "sbteclipse-plugin" % "5.1.0")
```

Problems Tasks Console ScalaTest

```
<terminated> Hello$ (1) [Scala Application] C:\Program Files\Java\jre1.8.0_101\bin\javaw.exe (Feb 8, 2017, 11:00:40 PM)
hello
```




```
1 package akkaquote.actor
2
3 class QuotesHandlerActor extends Actor {
4
5 }
```

- Actor - akka.actor
- ActorDSL - akka.actor
- ActorRef - akka.actor
- ActorCell - akka.actor

Press 'Ctrl+Space' to show Template Proposals

```
val quotes = new ListB
```

- ListBuffer - scala.collection.mutable
- ListBinding - javafx.beans.binding
- app - application object
- arr - Array[T](..)

Press 'Ctrl+Space' to show Template Proposals

```
val quotes = new ListBuffer
```

Implement def 'receive(): Actor.Receive'

Problems Tasks Console ScalaTest

Tests:	1/1	Succeeded:	0	Failed:	1
Ignored:	0	Pending:	0	Canceled:	0
Suites:	1	Aborted:	0		

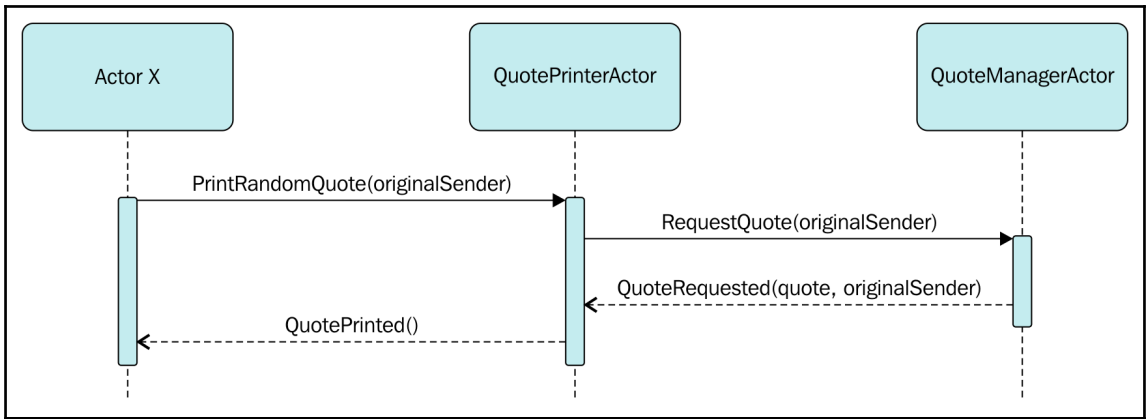
Stack Trace

Message:
assertion failed: timeout (3 seconds) during expectMsg while waiting for Qu
scala.Predef\$.assert(Predef.scala:170)

Problems Tasks Console ScalaTest

Tests: 1/1 Succeeded: 1 Failed: 0
 Ignored: 0 Pending: 0 Canceled: 0
 Suites: 1 Aborted: 0

> QuotesHandlerActorTests (0.050 s) Stack Trace

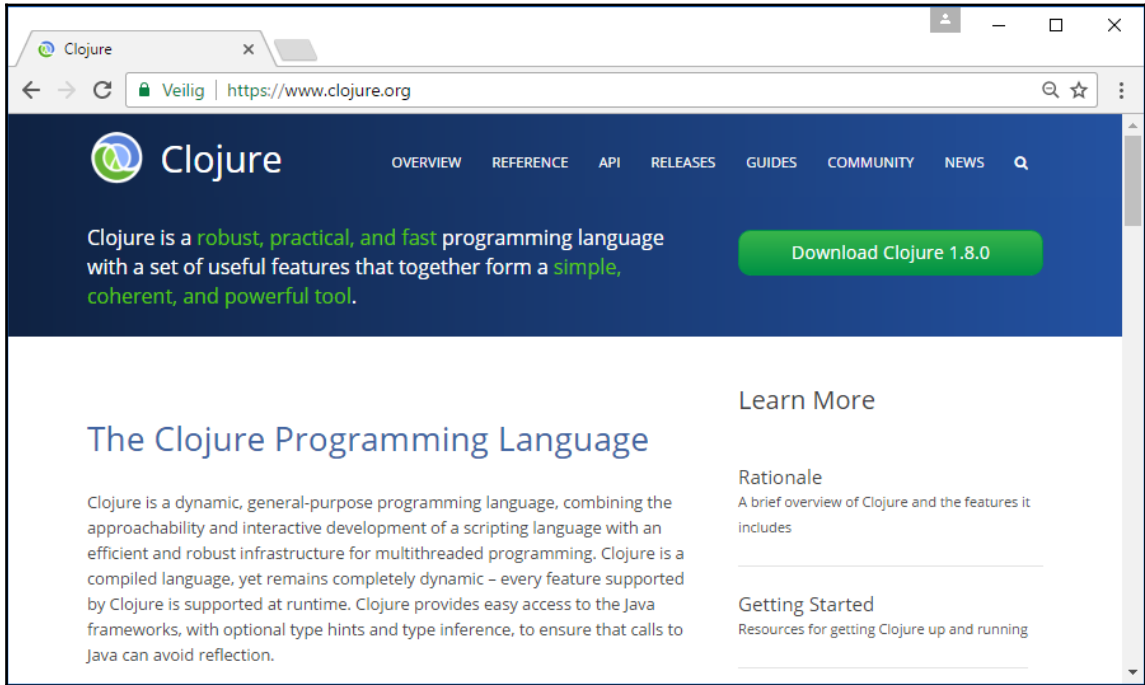


Problems Tasks Console

```

<terminated> Main$ (2) [Scala Application] C:\Program Files\Java\jre1.8.0_101\bin\jav
"Hello world"
-- Various book authors
  
```

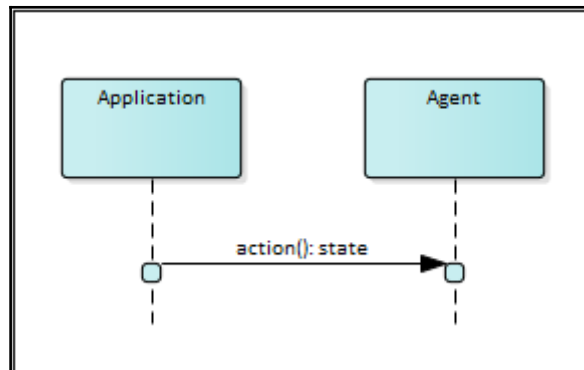
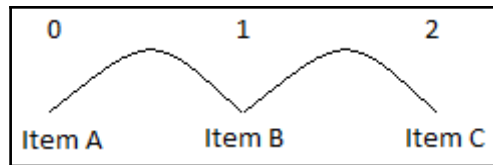
Chapter 7: Clojure

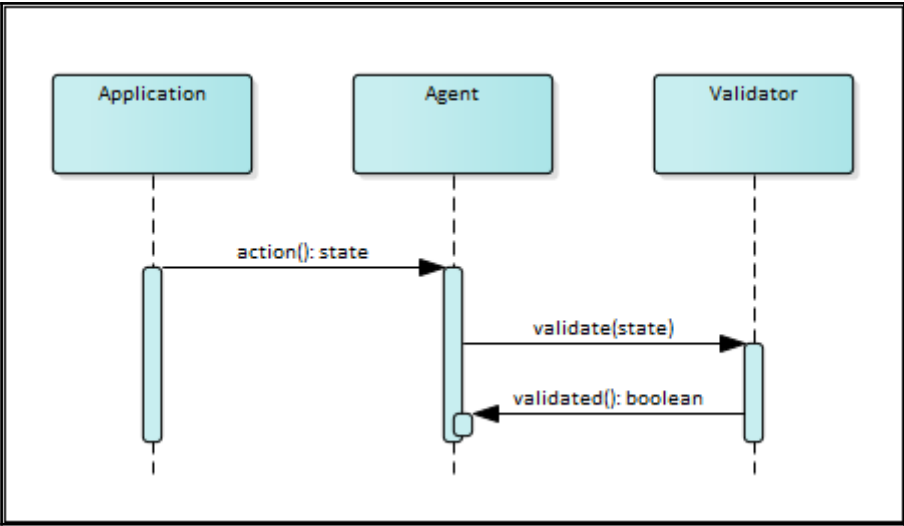


```
C:\Java\Languages\clojure-1.8.0>java -cp clojure-1.8.0.jar clojure.main
Clojure 1.8.0
user=> (println "hello")
hello
nil
user=> (System/exit 0)
C:\Java\Languages\clojure-1.8.0>
```

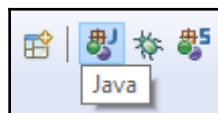
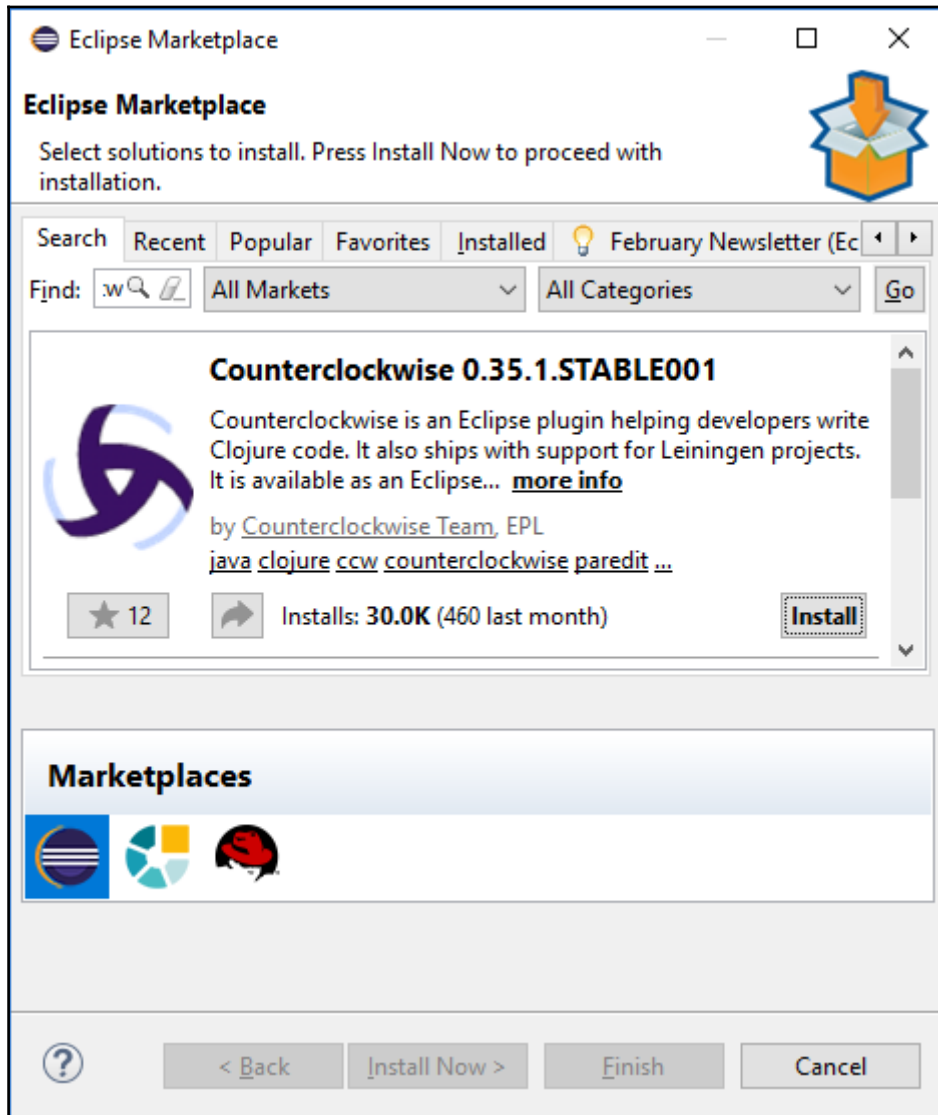
Original list
Item 1
Item 2
Item 3
Item 4

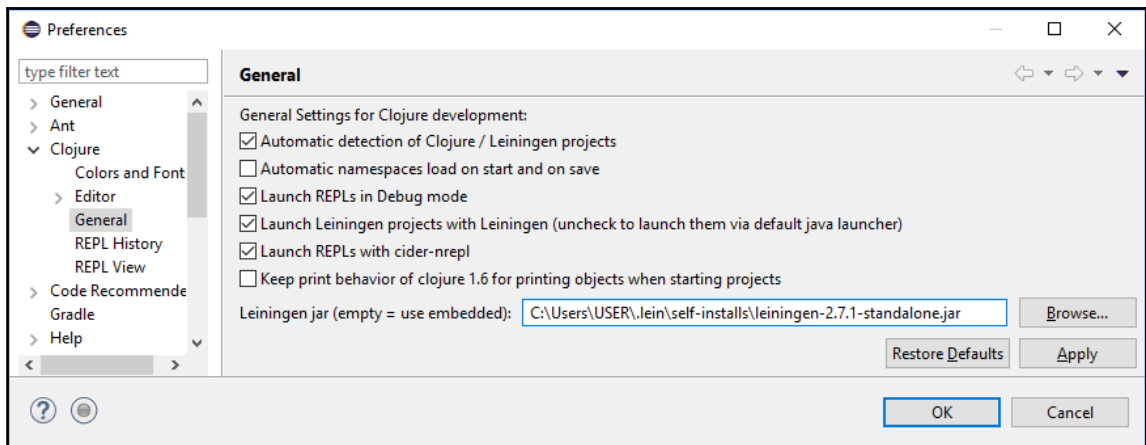
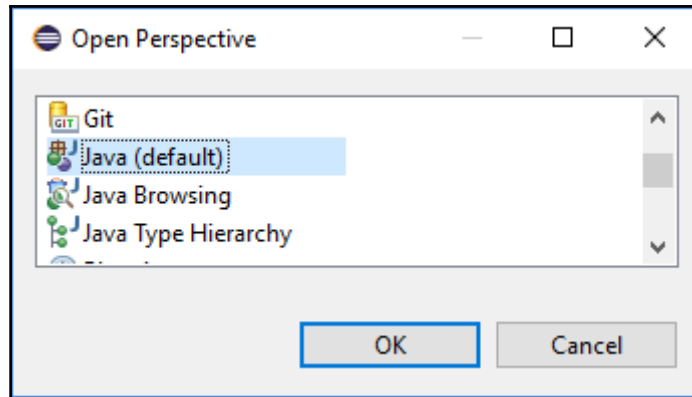
Updated List	Original list
_____	→ Item 1
Updated item 2	Item 2
_____	→ Item 3
_____	→ Item 4





Chapter 8: Clojure Programming





New Clojure project

Clojure project

Leverages Leiningen 2.0, the recommended project management tool for Clojure.
(Don't wanna use Leiningen? Then simply create a maven/gradle/whatever java project, and add Clojure)

Project name: e.g. my-project, or com.my-company/my-project

Create in: same location as previous wizard run

Leiningen template:
specify template name. You can use template options, e.g.: luminus + cljs + http-kit

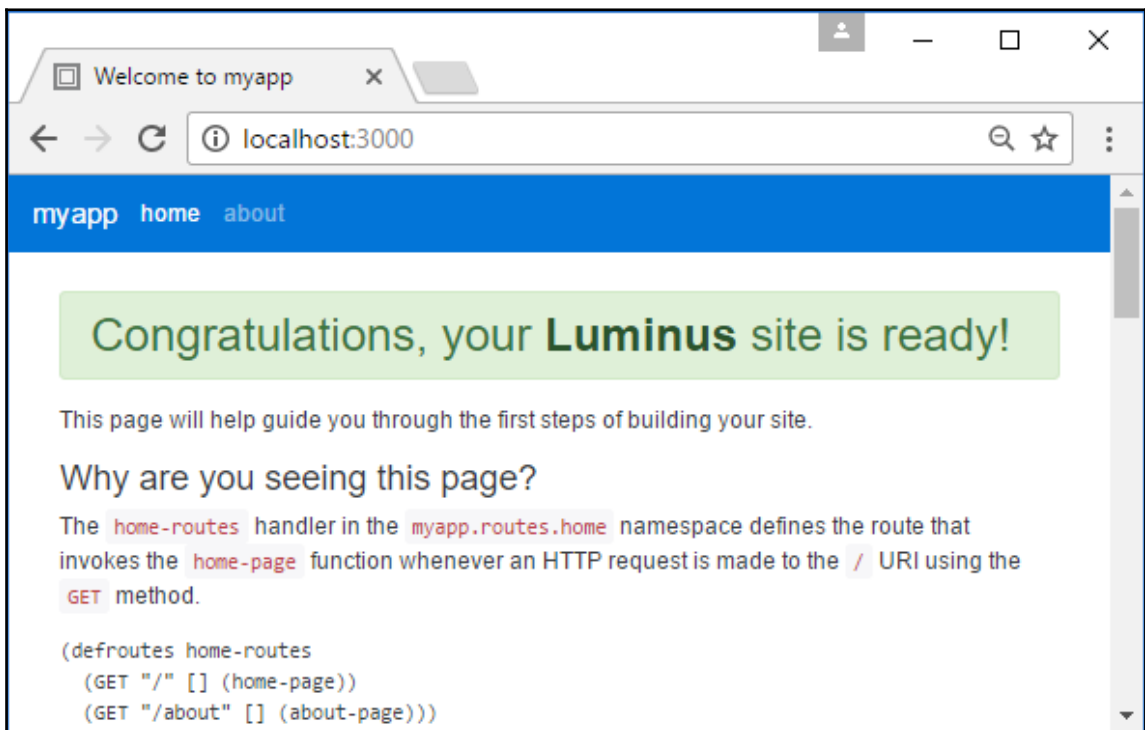
Run As

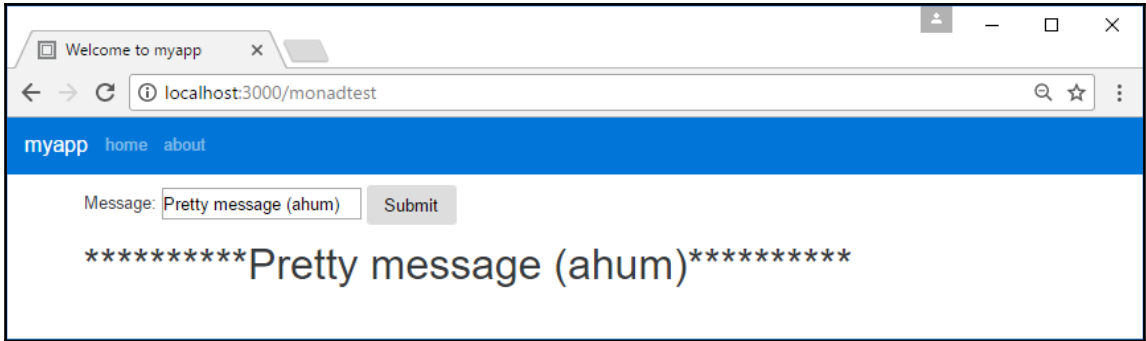
Select a way to run 'exploring-monads':

- Clojure Application
- Java Applet
- Java Application

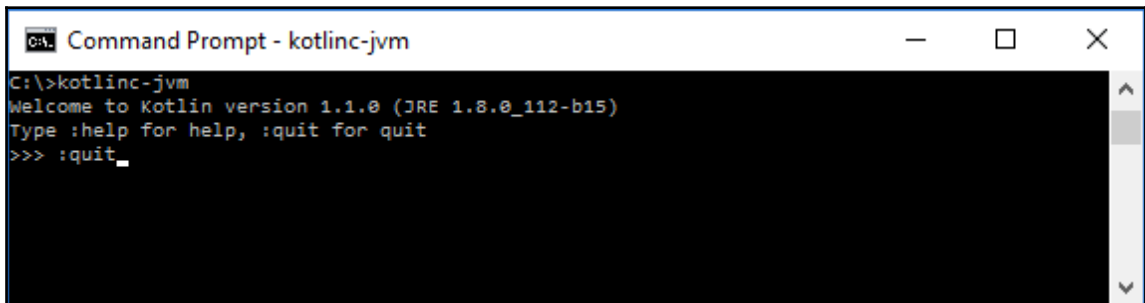
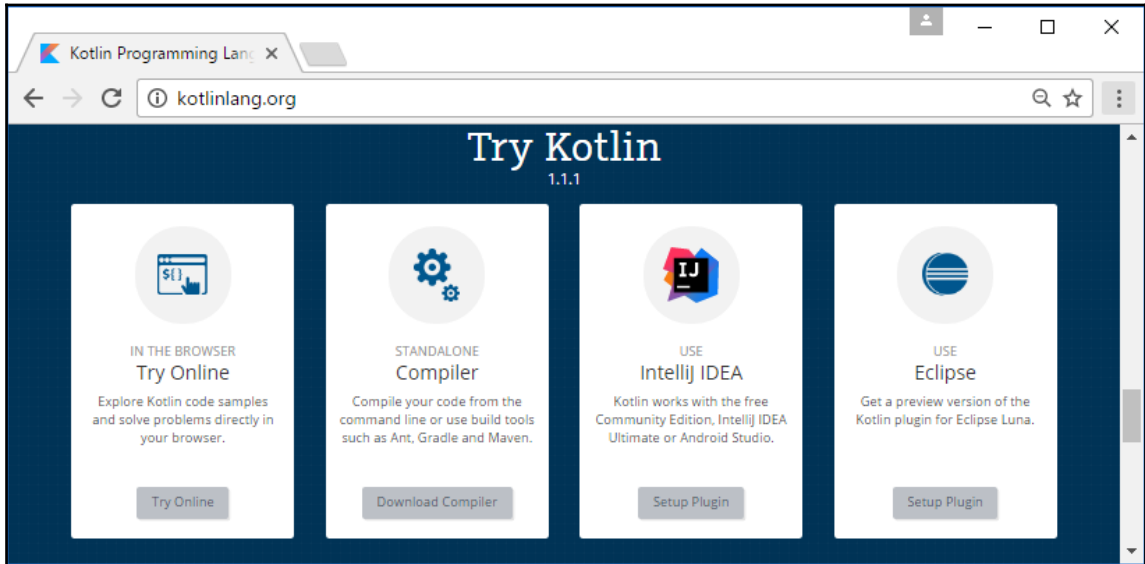

```
REPL @ nrepl://127.0.0.1:61980 (user)
=> (+ 40 2)
42
[(+ 500 55)]
```

- Leiningen dependencies
 - algo.monads-0.1.6.jar
 - clojure-1.8.0.jar
 - clojure-complete-0.2.3.jar
 - tools.macro-0.1.0.jar
 - tools.nrepl-0.2.6.jar





Chapter 9: Kotlin



C:\Java\Languages\test\c\test.kt - Notepad++

File Edit Search View Encoding Language Settings Macro Run Plugins Window ?

```
1 class PropertyDemo1 {
2     var mutableProperty: Int = 0
3 }
4
5 val p1 = PropertyDemo1()
6 println(p1.mutableProperty)
7 p1.mutableProperty = 24
8 println(p1.mutableProperty)
```

length: 160 lines: 8 Ln: 1 Col: 2 Sel: 0|0 Unix (LF) UTF-8 INS

Comment/Uncomment >
Auto-Completion >
EOL Conversion > Windows (CR LF)
Blank Operations > Unix (LF)
Paste Special > Macintosh (CR)
On Selection >


```
classDiagram
    class Computer {
        - brand: String
        - cpu: String
        - harddiskSizeGB: Int
        - memoryGB: Int
        + copy(): Computer
        + equals(Object): boolean
        + getBrand(): String
        + getCpu(): String
        + getHarddiskSizeGB(): Int
        + getMemoryGB(): Int
        + hashCode(): String
        + setHarddiskSize(Int): void
        + setMemoryGB(Int): void
        + toString(): String
    }
```

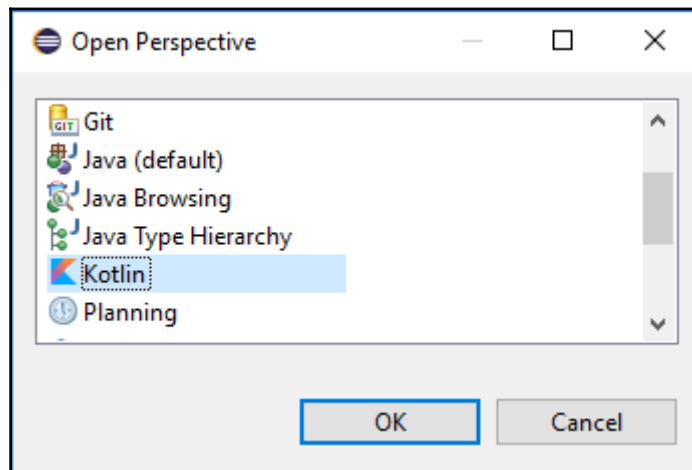
Chapter 10: Kotlin Programming

Kotlin Plugin for Eclipse 0.8.2

 The Kotlin Plugin for Eclipse helps you write, run, debug and test programs in Kotlin language. [more info](#)

by [JetBrains](#), Apache 2.0
[kotlin jetbrains jvm java fileExtension kt](#)

★ 9  Installs: **8.07K** (691 last month) **Install**



```
Command Prompt
C:\>mvn --help

usage: mvn [options] [<goal(s)>] [<phase(s)>]

Options:
  -am,--also-make                If project list is specified, also
                                build projects required by the
                                list
  -amd,--also-make-dependents    If project list is specified, also
                                build projects that depend on
                                projects on the list
  -B,--batch-mode                Run in non-interactive (batch)
                                mode
  -b,--builder <arg>            The id of the build strategy to
                                use.
  -C,--strict-checksums          Fail the build if checksums don't
                                match
  -c,--lax-checksums             Warn if checksums don't match
```

Find file Clone or download

Clone with HTTPS

Use Git or checkout with SVN using the web URL.

Open in Desktop Download ZIP

```
Command Prompt
[INFO] -----
[INFO] Building hello-world 1.0-SNAPSHOT
[INFO] -----
[INFO]
[INFO] >>> exec-maven-plugin:1.2.1:java (default-cli) > validate @ hello-world >>>
[INFO]
[INFO] <<< exec-maven-plugin:1.2.1:java (default-cli) < validate @ hello-world <<<
[INFO]
[INFO] --- exec-maven-plugin:1.2.1:java (default-cli) @ hello-world ---
Hello, world!
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 1.270 s
[INFO] Finished at: 2017-03-29T00:28:31+02:00
[INFO] Final Memory: 5M/184M
[INFO] -----
C:\Kotlin\kotlin-examples\maven\hello-world>
```



```
Hello.kt  hello-world/pom.xml ✕
1 <?xml version="1.0" encoding="UTF-8"?>
2 <project
3   xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd"
4   xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
5
6   <modelVersion>4.0.0</modelVersion>
7
8   <groupId>org.jetbrains.kotlin.examples</groupId>
```

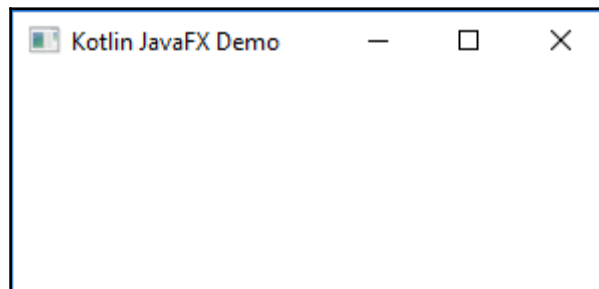
Overview | Dependencies | Dependency Hierarchy | Effective POM | pom.xml

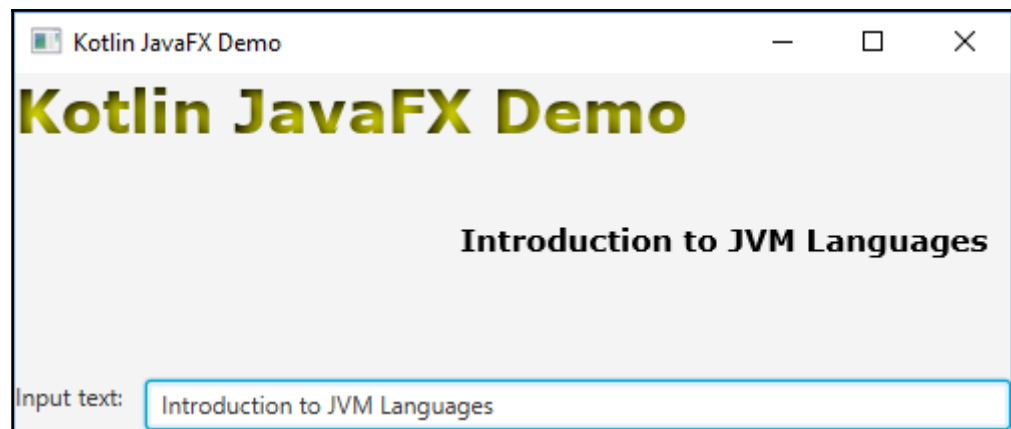
```
4
5 class KotlinJavaFXDemo : Appl {
6
7 }
8
```

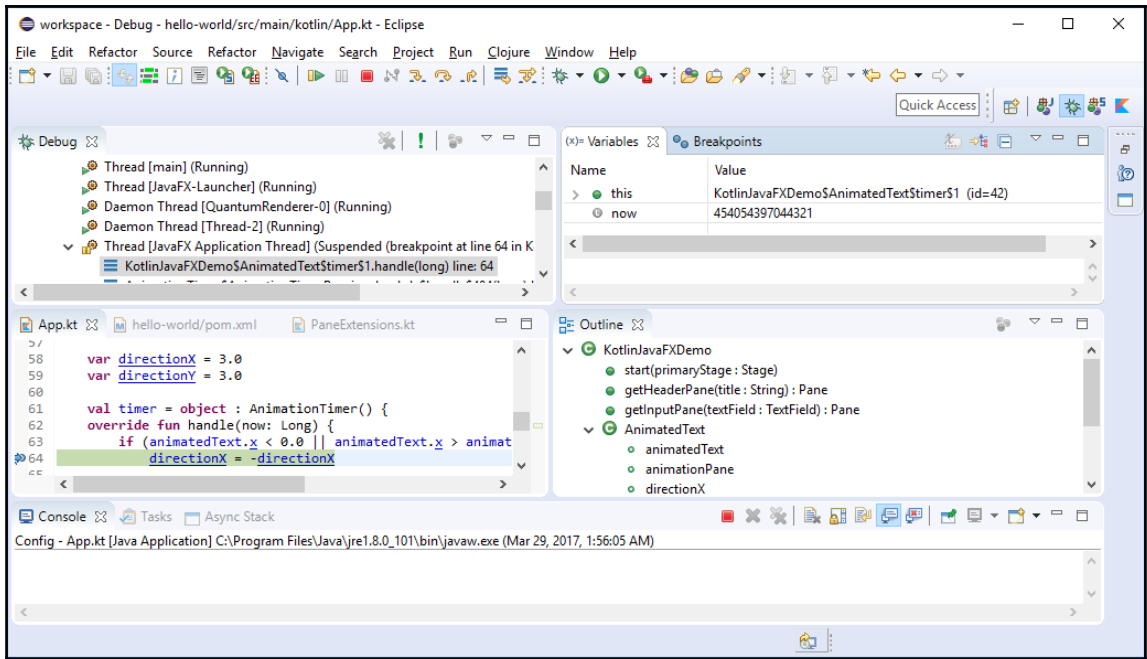
- Application - javafx.application
- Applet - java.applet

```
5 class KotlinJavaFXDemo : Application() {
6
7 }
8
9 fun m
```

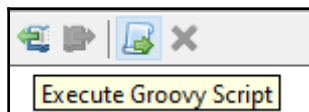
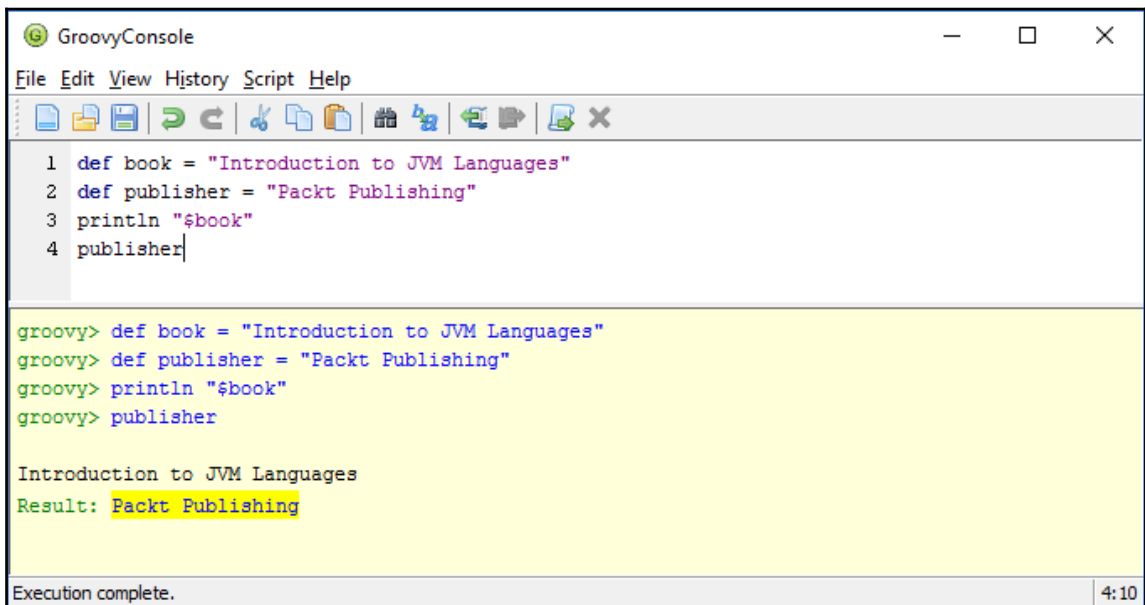
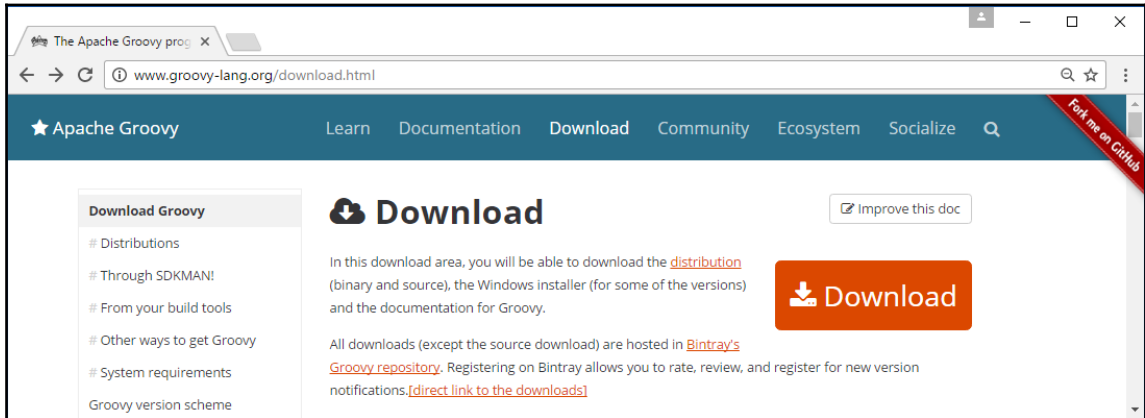
- Make 'KotlinJavaFXDemo' abstract
- Implement Members



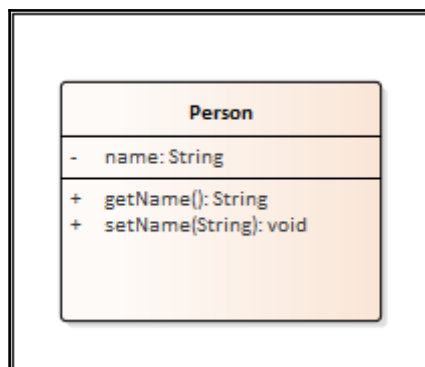




Chapter 11: Groovy



```
Command Prompt - groovysh.bat
Groovy Shell (2.4.10, JVM: 1.8.0_112)
Type ':help' or ':h' for help.
-----
groovy:000> i = 40
==> 40
groovy:000> j = i + 2
==> 42
groovy:000> :show variables
Variables:
  i = 40
  _ = 42
  j = 42
==> [i:40, _:42, j:42]
groovy:000> _
```

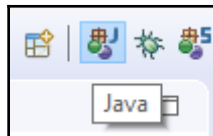
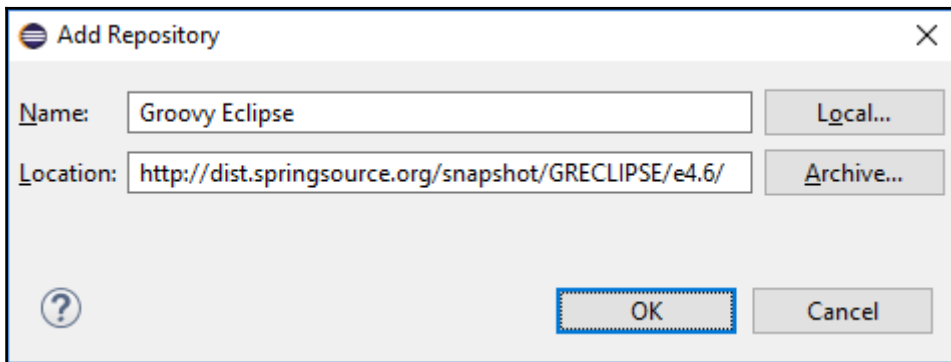
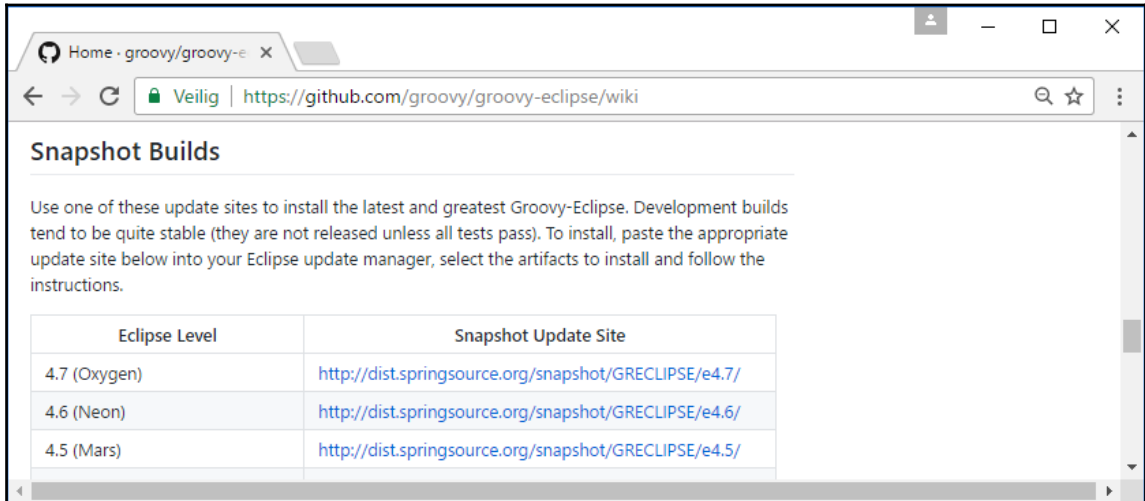


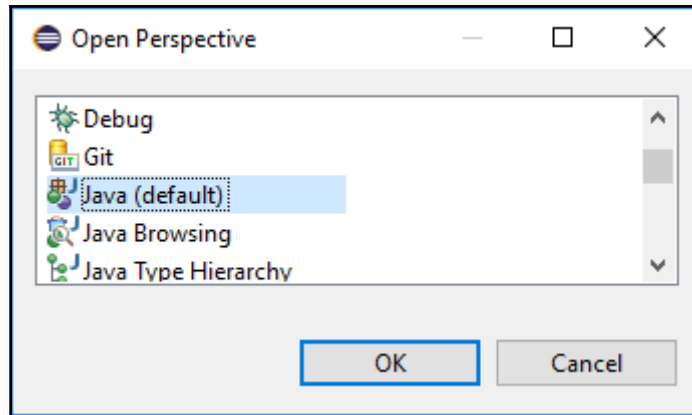
CanonicalDemo


- property1: Object
- property2: Object
- property3: Object

- + equals(Object): boolean
- + getProperty1(): Object
- + getProperty2(): Object
- + getProperty3(): Object
- + hashCode(): int
- + setProperty1(Object): void
- + setProperty2(Object): void
- + setProperty3(Object): void
- + toString(): String

Chapter 12: Groovy Programming







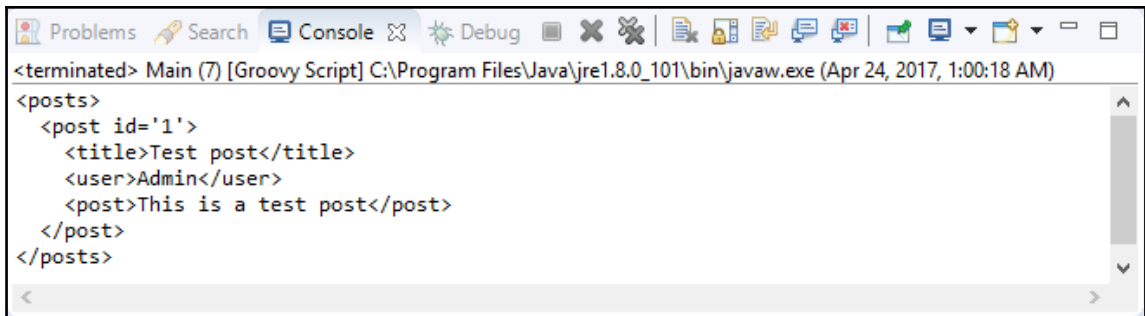
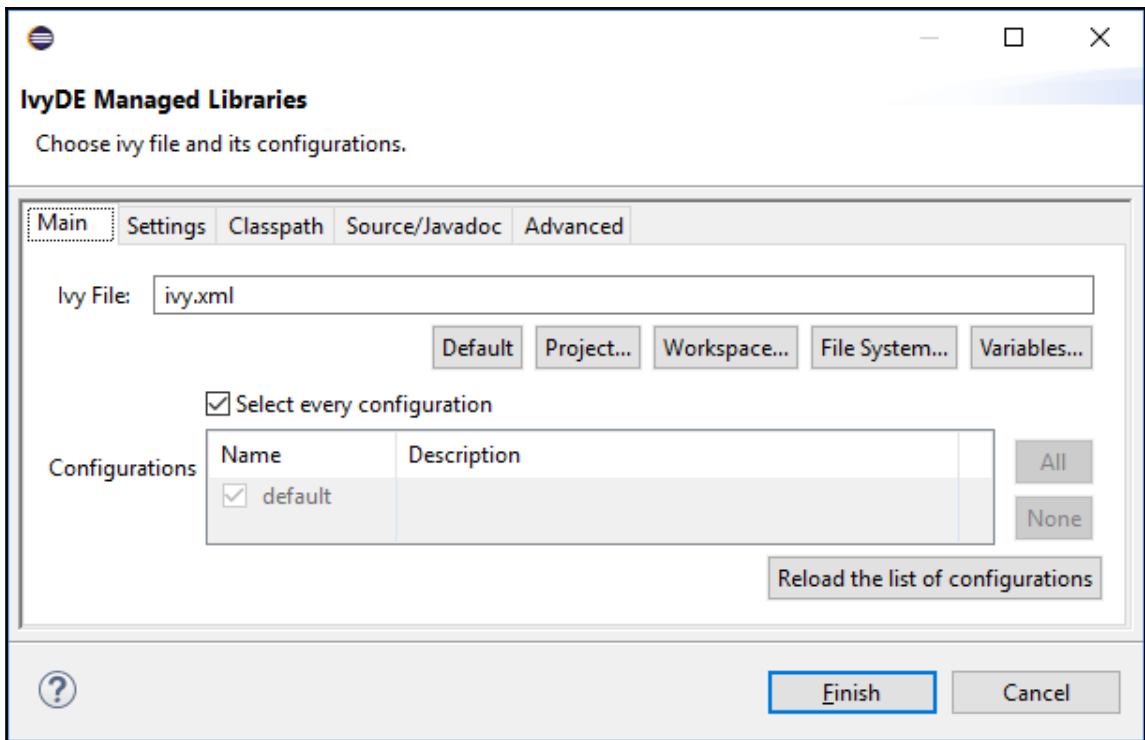
Apache IvyDE™

Apache IvyDE™ is the Eclipse plugin which integrates Apache Ivy's dependency management into Eclipse. It lets you manage your dependencies declared in an ivy.xml... [more info](#)

by [Apache Software Foundation](#), Apache 2.0
[apache](#) [ivy](#) [ivyde](#)

The screenshot shows the Maven Central Repository search results for the artifact 'h2'. The search results table is as follows:

GroupId	ArtifactId	Latest Version	Updated	Download
com.h2database	h2	1.4.195 all (123)	23-Apr-2017	pom jar javadoc.jar sources.jar
com.speedment.connector	h2	3.0.6 all (4)	19-Apr-2017	pom jar



Project Information

GroupId:
ArtifactId:
Version:

Dependency Information

Apache Maven
Apache Buildr
Apache Ivy
`<dependency org="io.vertx" name="vertx-core" rev`
Apache Groovy
Groovy Grape

localhost:8080/blogs/

localhost:8080/blogs/

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<posts>
  <post id="1">
    <title>Test post</title>
    <user>Admin</user>
    <post>This is a test post</post>
  </post>
</posts>
```

localhost:8080

localhost:8080

404

