Eclipse installation, configuration and operation

This document aims to walk through the procedures to setup eclipse on different platforms for java programming and to load in the course libraries for the course Introduction to Java Programming.

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1. Setting up eclipse

Installing eclipse will require several steps, including installation of a java virtual machine (JVM), downloading the correct version of eclipse and doing some configurations.

1.1 Operating system requirements

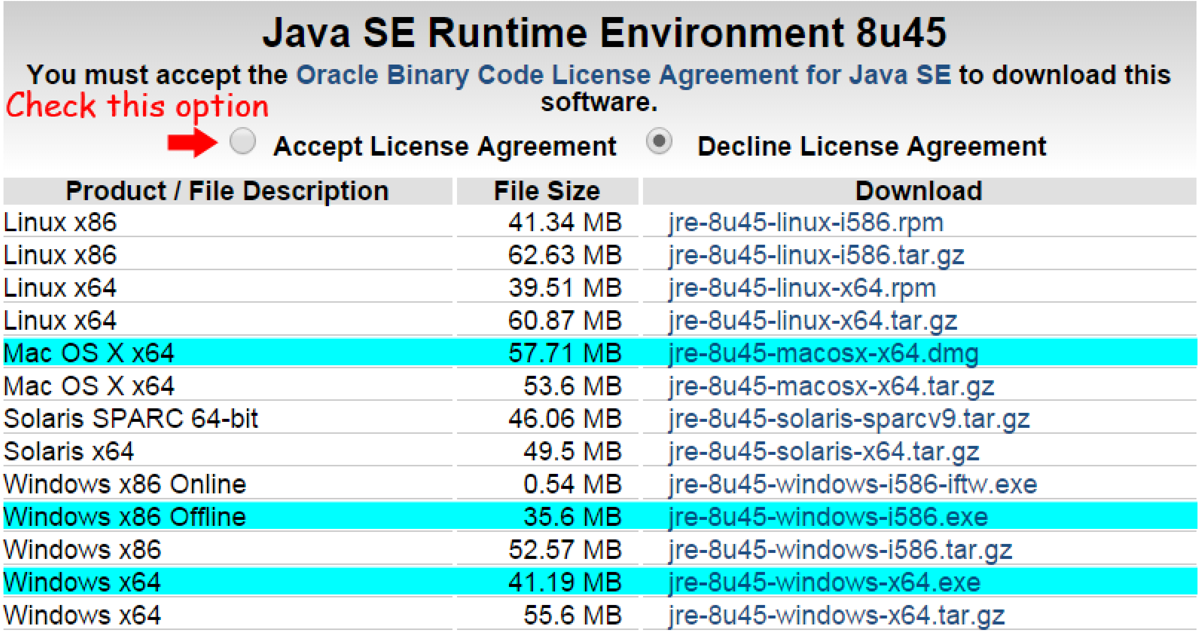
Microsoft Windows XP or later; Linux; Mac OS X 10.8 (Mountain Lion) or later

1.2. Installing the java virtual machine (JVM)

A java virtual machine (JVM) is required to run any java program. Eclipse, which is also a java program, also runs on a java virtual machine. To obtain a JVM, you can install either a Java runtime environment (JRE) or a Java development toolkit (JDK). JDK is recommended as it provides additional resources and tools for developing java programs. For Linux users, you can install OpenJDK instead of JDK to avoid the various steps of setting up JDK on your machine. You can jump to the next step if you have already installed JRE or JDK on your machine.

You can download JRE from:

http://www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html



Java SE Runtime Environment 8u45

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Product / File Description	File Size	Download
Linux x86	41.34 MB	jre-8u45-linux-i586.rpm
Linux x86	62.63 MB	jre-8u45-linux-i586.tar.gz
Linux x64	39.51 MB	jre-8u45-linux-x64.rpm
Linux x64	60.87 MB	jre-8u45-linux-x64.tar.gz
Mac OS X x64	57.71 MB	jre-8u45-macosx-x64.dmg
Mac OS X x64	53.6 MB	jre-8u45-macosx-x64.tar.gz
Solaris SPARC 64-bit	46.06 MB	jre-8u45-solaris-sparcv9.tar.gz
Solaris x64	49.5 MB	jre-8u45-solaris-x64.tar.gz
Windows x86 Online	0.54 MB	jre-8u45-windows-i586-iftw.exe
Windows x86 Offline	35.6 MB	jre-8u45-windows-i586.exe
Windows x86	52.57 MB	jre-8u45-windows-i586.tar.gz
Windows x64	41.19 MB	jre-8u45-windows-x64.exe
Windows x64	55.6 MB	jre-8u45-windows-x64.tar.gz

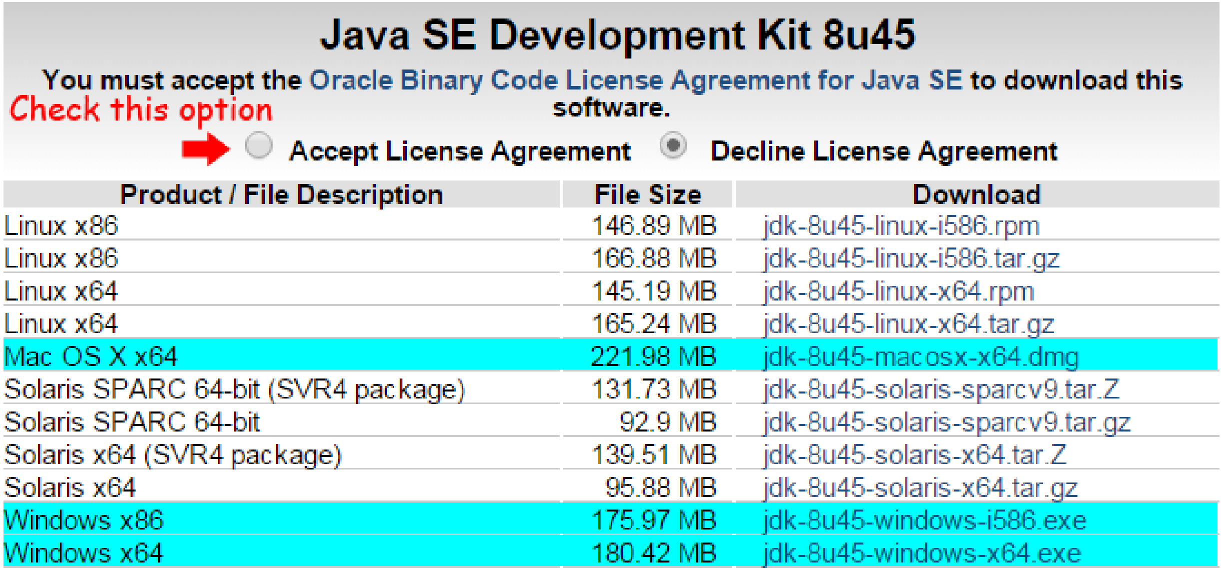
For installer of JRE 7, please refer to here.

Disclaimer:

Oracle has announced the end of public updates for JRE 7. Future updates for JRE 7 might not be available.

or JDK from:

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html



Java SE Development Kit 8u45

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Product / File Description	File Size	Download
Linux x86	146.89 MB	jdk-8u45-linux-i586.rpm
Linux x86	166.88 MB	jdk-8u45-linux-i586.tar.gz
Linux x64	145.19 MB	jdk-8u45-linux-x64.rpm
Linux x64	165.24 MB	jdk-8u45-linux-x64.tar.gz
Mac OS X x64	221.98 MB	jdk-8u45-macosx-x64.dmg
Solaris SPARC 64-bit (SVR4 package)	131.73 MB	jdk-8u45-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	92.9 MB	jdk-8u45-solaris-sparcv9.tar.gz
Solaris x64 (SVR4 package)	139.51 MB	jdk-8u45-solaris-x64.tar.Z
Solaris x64	95.88 MB	jdk-8u45-solaris-x64.tar.gz
Windows x86	175.97 MB	jdk-8u45-windows-i586.exe
Windows x64	180.42 MB	jdk-8u45-windows-x64.exe

For installer of JDK 7, please refer to here.

Disclaimer:

Oracle has announced the end of public updates for JDK 7. Future updates for JDK 7 might not be available.

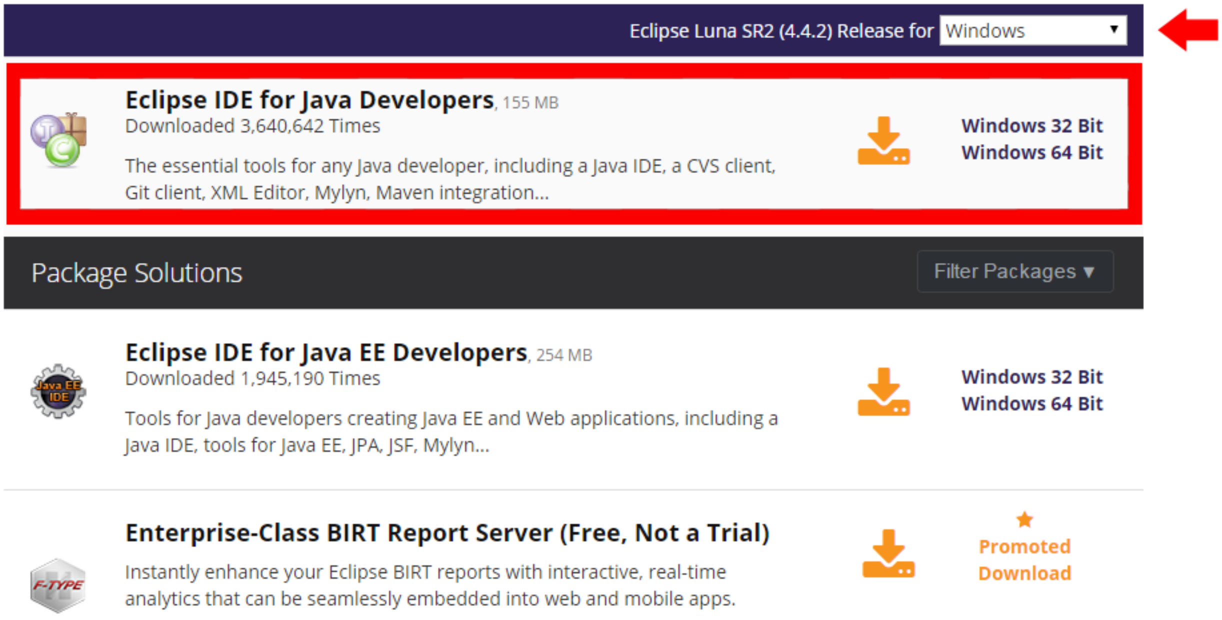
Please check "Accept License Agreement" before downloading. You will then need to choose which version to download according to your platform. A 32 bit JRE/JDK is required for 32 bit operating system while a 64 bit JRE/JDK is required for 64 bit operating systems. For Mac users, you will need to have Mac OS X 10.8 (Mountain Lion) or later on your machine and you can only download 64 bit JRE/JDK.

1.3. Downloading eclipse

After installing the correction of JRE/JDK, you can download eclipse by choosing "Eclipse IDE for Java Developers" from the following website:

https://www.eclipse.org/downloads/

Again, you will need to choose the download according the type and architecture of your platform.



Eclipse Luna SR2 (4.4.2) Release for Windows

Eclipse IDE for Java Developers, 155 MB
Downloaded 3,640,642 Times

The essential tools for any Java developer, including a Java IDE, a CVS client, Git client, XML Editor, Mylyn, Maven integration...

Windows 32 Bit
Windows 64 Bit

Package Solutions

Eclipse IDE for Java EE Developers, 254 MB
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Tools for Java developers creating Java EE and Web applications, including a Java IDE, tools for Java EE, JPA, JSF, Mylyn...

Windows 32 Bit
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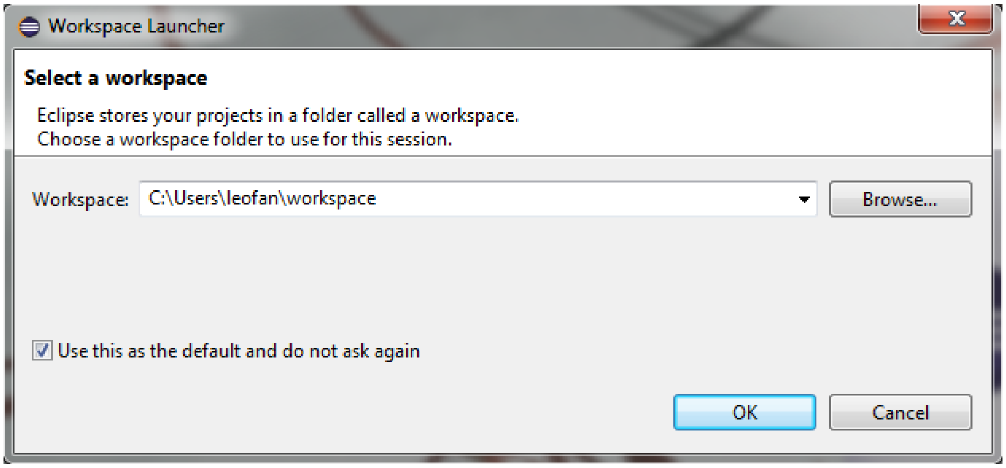
Enterprise-Class BIRT Report Server (Free, Not a Trial)

Instantly enhance your Eclipse BIRT reports with interactive, real-time analytics that can be seamlessly embedded into web and mobile apps.

Promoted Download

After downloading, you can decompress the downloaded file to a location of your choice. Eclipse can then be launched by executing “eclipse.exe” in the decompressed folder. You will be prompted to choose a workspace for saving your java projects on the first run. Browse a directory of your choice and check “Use this as the default and do not ask again”. After eclipse has started up, close the welcome screen.



Workspace Launcher

Select a workspace

Eclipse stores your projects in a folder called a workspace.
Choose a workspace folder to use for this session.

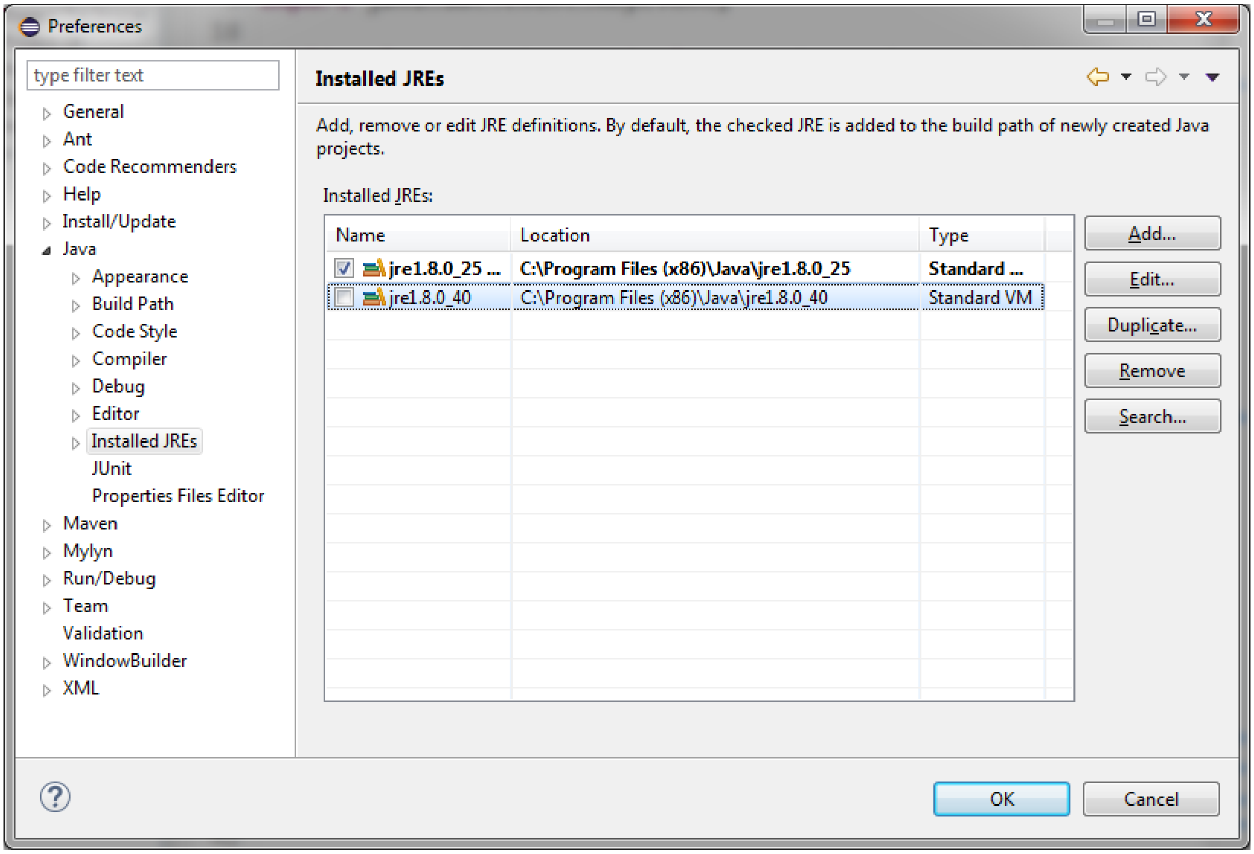
Workspace: C:\Users\leofan\workspace

☑ Use this as the default and do not ask again

1.4. Advanced configuration (Optional)

1.4.1. Having multiple JRE/JDKs

If multiple versions of JRE/JDK are installed on the computer, eclipse would not be able to decide which version to use. To select a desire version, Click on “Windows “ -> “Preferences” -> Expand the “Java” node, and click on “Installed JREs”. If the list is not showing the JRE/JDK you wish to use, you can add it by clicking “Add” -> “Standard VM” and specify the JRE home folder. After that, click “Finish”. After checking the added JRE/JDK in the list of “Installed JREs”, restart eclipse. The configuration on JRE/JDK is then done.



Installed JREs

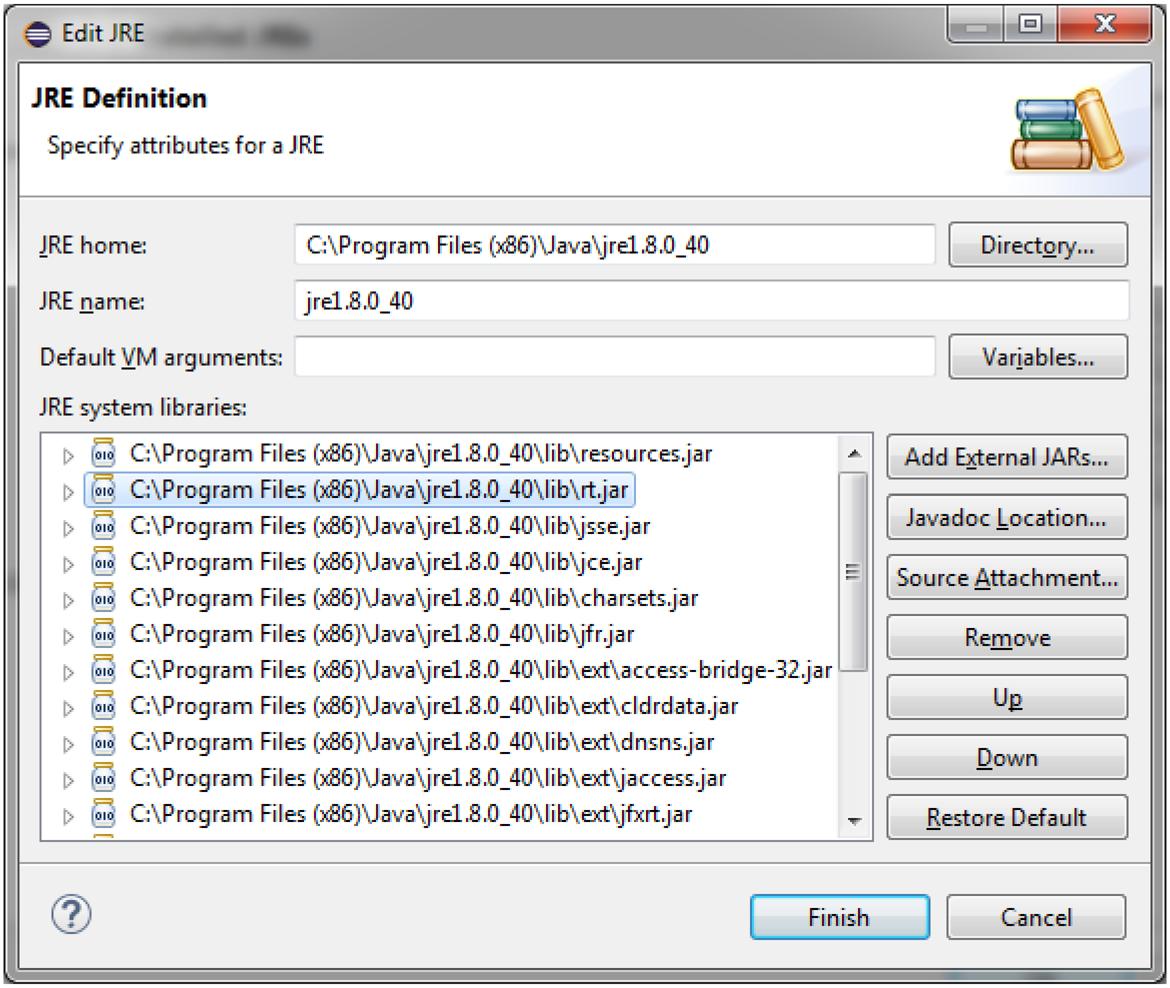
Add, remove or edit JRE definitions. By default, the checked JRE is added to the build path of newly created Java projects.

Installed JREs:

	Name	Location	Type
☑	**jre1.8.0_25 ...**	**C:\Program Files (x86)\Java\jre1.8.0_25**	**Standard ...**
□	jre1.8.0_40	C:\Program Files (x86)\Java\jre1.8.0_40	Standard VM

1.4.2 Viewing source code (JDK required)

Sometimes it would be useful to view the source code of java classes. To do this, we need to attach the source code to the JRE/JDK that we are using. Click on “Windows” -> “Preferences” -> Expand the “Java” node, and click on “Installed JREs”. Select the JRE/JDK that you are using and click “Edit”. A dialog pops up showing a list of JRE system libraries. Select “rt.jar” and click “Source Attachment”.



JRE Definition

Specify attributes for a JRE

JRE home: C:\Program Files (x86)\Java\jre1.8.0_40

JRE name: jre1.8.0_40

Default VM arguments:

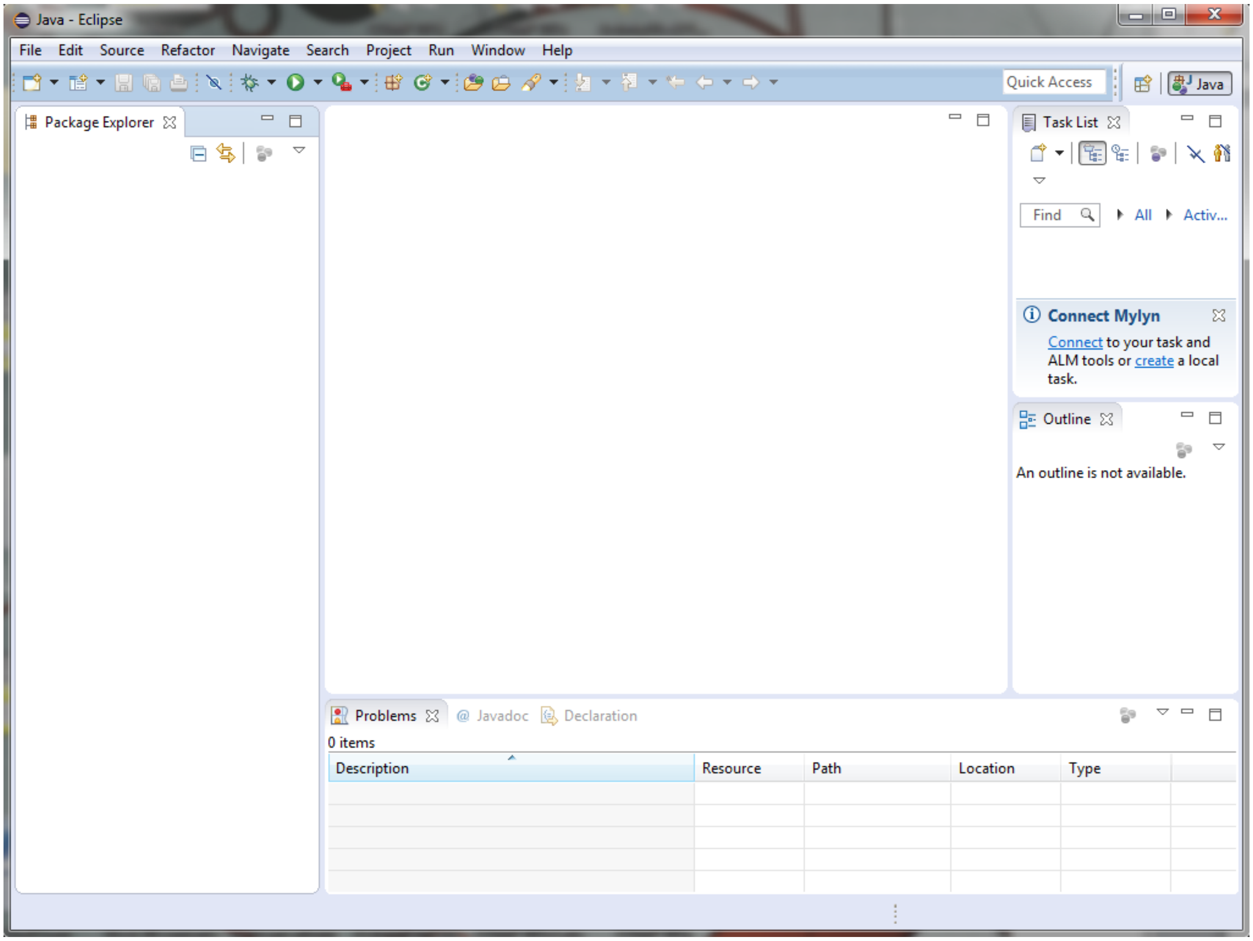
JRE system libraries:

C:\Program Files (x86)\Java\jre1.8.0_40\lib\resources.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\rt.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\jsse.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\jce.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\charsets.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\jfr.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\ext\access-bridge-32.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\ext\cldrdata.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\ext\dnsns.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\ext\jaccess.jar
C:\Program Files (x86)\Java\jre1.8.0_40\lib\ext\jfxrt.jar

Check “External location” and browse to the JDK folder. (e.g. jdk1.8.0_XX). There should be a compressed file named “src.zip”. Close all the dialogs by confirming them. Later, you will be able to view the source code of java classes by highlighting them, right click, and choose “Open Declaration”.

2. Working environment setup

There are three frequently used components in the eclipse work space. The blank area in the center is the coding area where you type your code. You can start typing code on it after you have created a project and the source files, which will be explained later. The second component is the Console where you can do standard input and output. If you do not see it, you can click “Window” -> “Show View” -> “Console” to bring it up. The “Package Explorer” is also important for managing the java projects in your workspace. Again, if you cannot see it, you can bring it up by clicking “Window” -> “Show View” -> “Package Explorer”.



Connect to your task and ALM tools or create a local task.

An outline is not available.

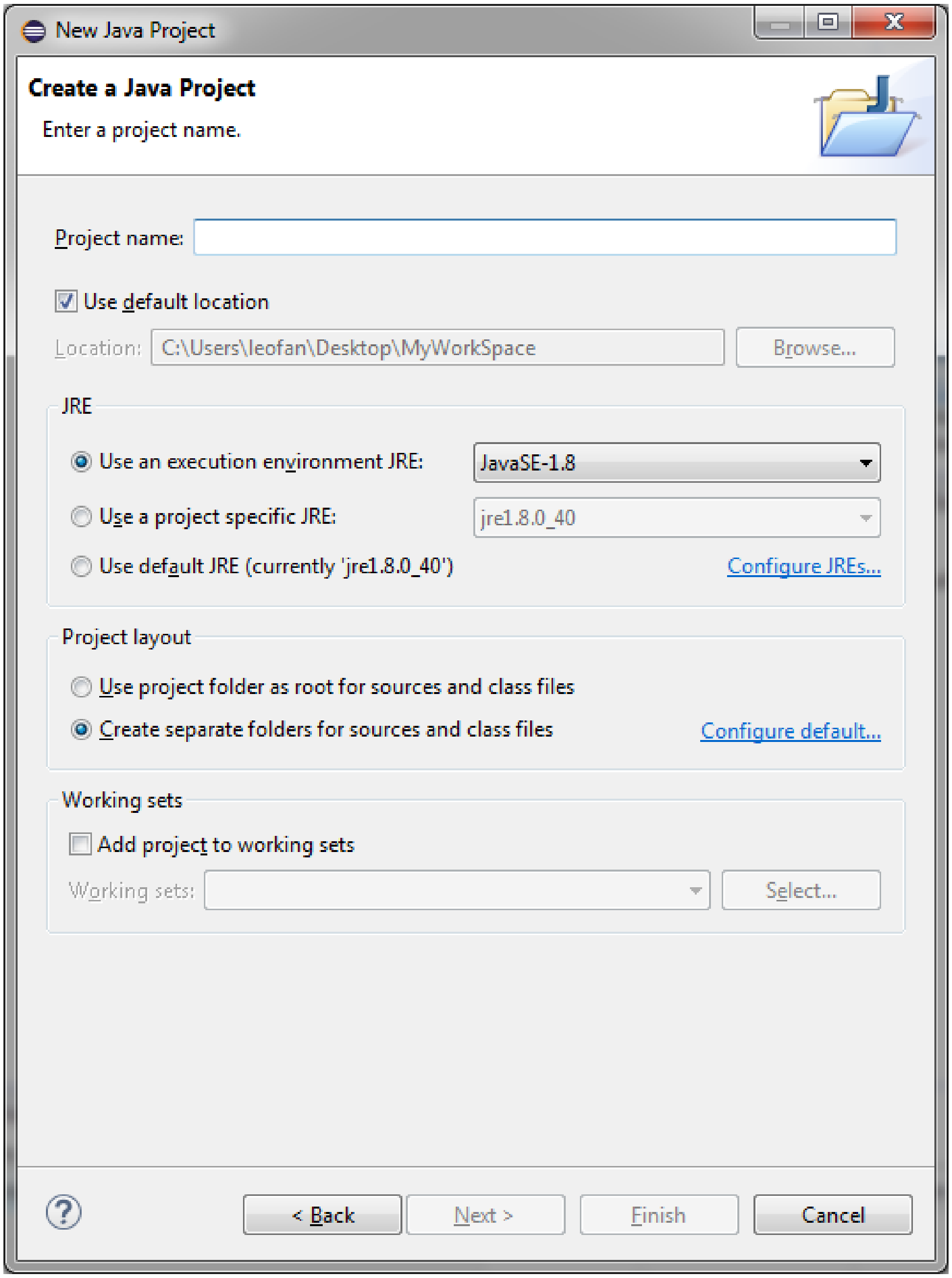
0 items

Description	Resource	Path	Location	Type

3. Basic operations

3.1 Creating java projects and source files

To create a java project, click “File” -> “New” -> “Java Project”. A dialog will show up asking you for the name of the project. After inputting a name, you can keep the other settings as default and click “Finish”.



New Java Project

Create a Java Project

Enter a project name.

Project name:

☑ Use default location

Location: C:\Users\leofan\Desktop\MyWorkSpace

JRE

● Use an execution environment JRE: JavaSE-1.8

○ Use a project specific JRE: jre1.8.0_40

○ Use default JRE (currently 'jre1.8.0_40')

Project layout

○ Use project folder as root for sources and class files

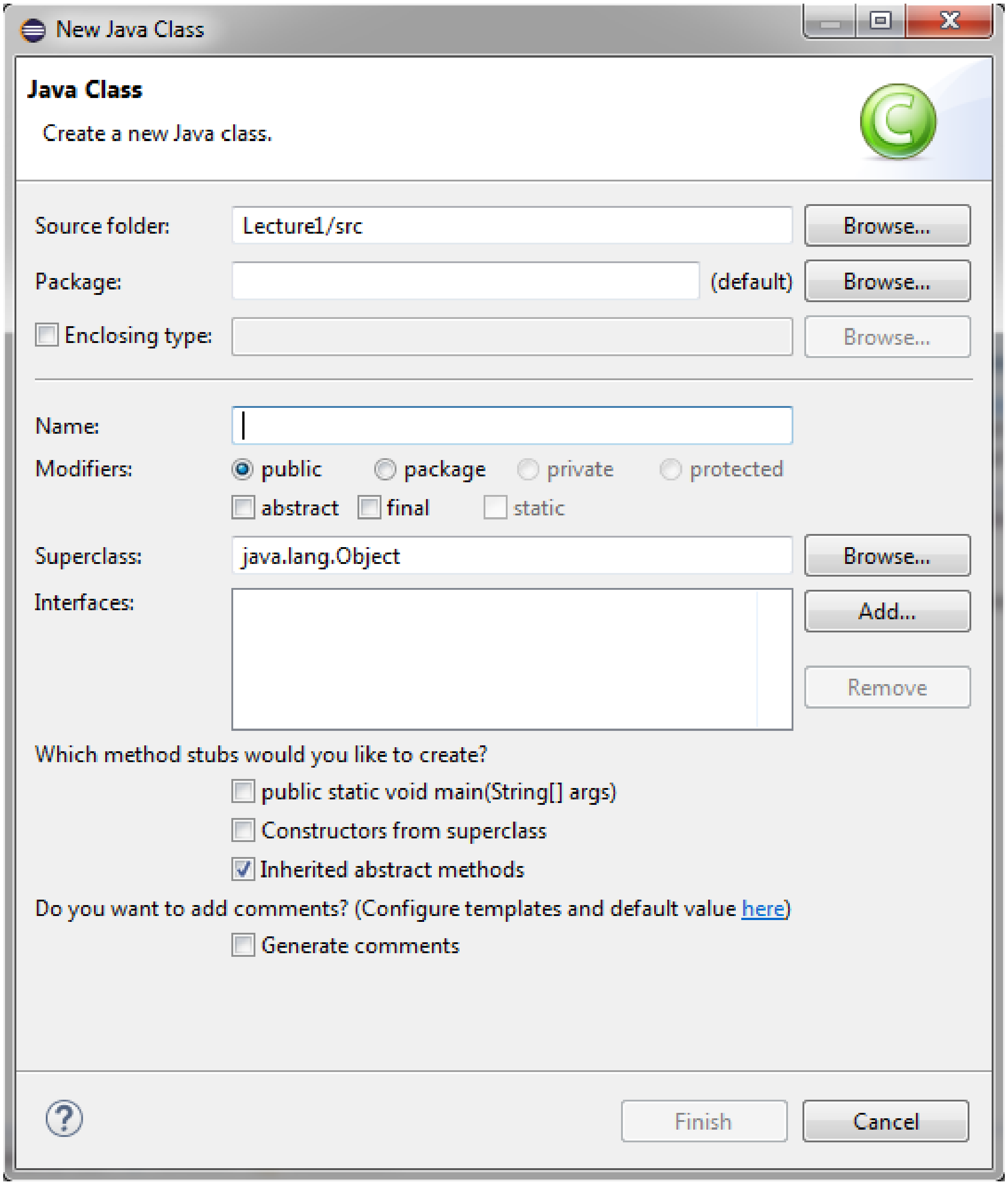
● Create separate folders for sources and class files

Working sets

□ Add project to working sets

Working sets:

To create a source file for the project, you can select the project on the “Package Explorer” and click “File” -> “New” -> “Class”. A dialog will show up asking you for the name of the class. After inputting a name, you can keep the other settings as default and click “Finish”.



Java Class

Create a new Java class.

Source folder: Lecture1/src

Package: (default)

□ Enclosing type:

Name:

Modifiers: ● public ○ package ○ private ○ protected

□ abstract □ final □ static

Superclass: java.lang.Object

Interfaces:

Which method stubs would you like to create?

□ public static void main(String[] args)

□ Constructors from superclass

☑ Inherited abstract methods

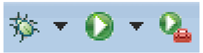
Do you want to add comments? (Configure templates and default value here)

□ Generate comments

You can then start coding.

3.2 Executing a program

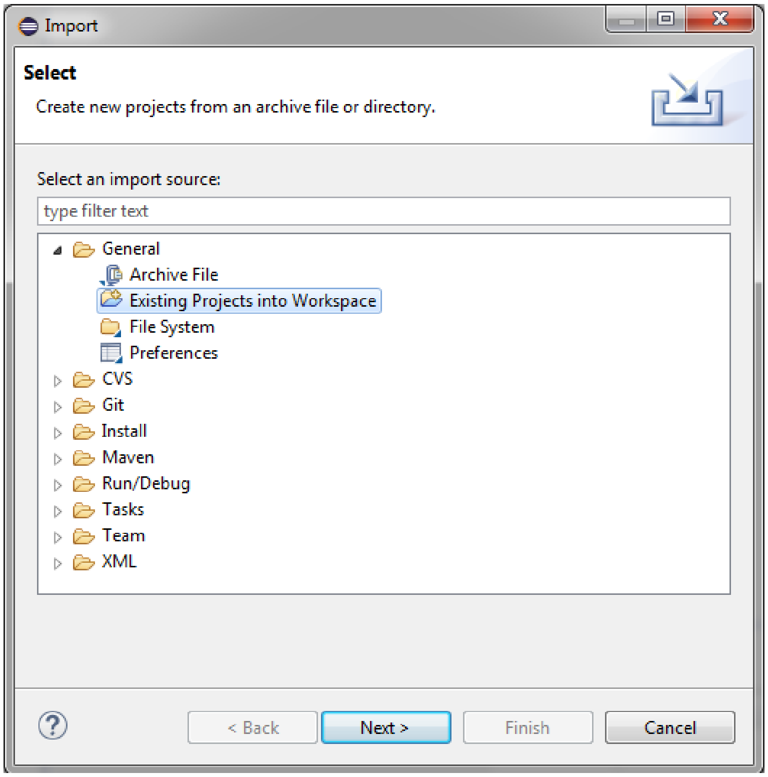
Suppose we have code up a program and we want to run it. To do this, we can select the source file in the “Package Explorer” and click “Run” -> “Run”. Alternatively, you can select the source file and then hit the green “play” button just under the menu bar to run the program.



Notice that it is required to have a main method in the source file that you are running. Otherwise, eclipse will run the last source file with a main method it has run or it will complain that it cannot find a main method.

3.3 Importing java project

Suppose that you wish to work on another computer. You will then need to copy the project folder in the workspace that you are working on in the original computer, transfer it to another computer and import it using eclipse. To import the transferred project, you can click “File” -> “Import” -> expand “General” -> select “Existing Projects into Workspace” and click “Next”. You can then select the root directory of the project by browsing. After selecting, you can keep the other settings as default and click “Finish”. The project is then imported.



Import

Select

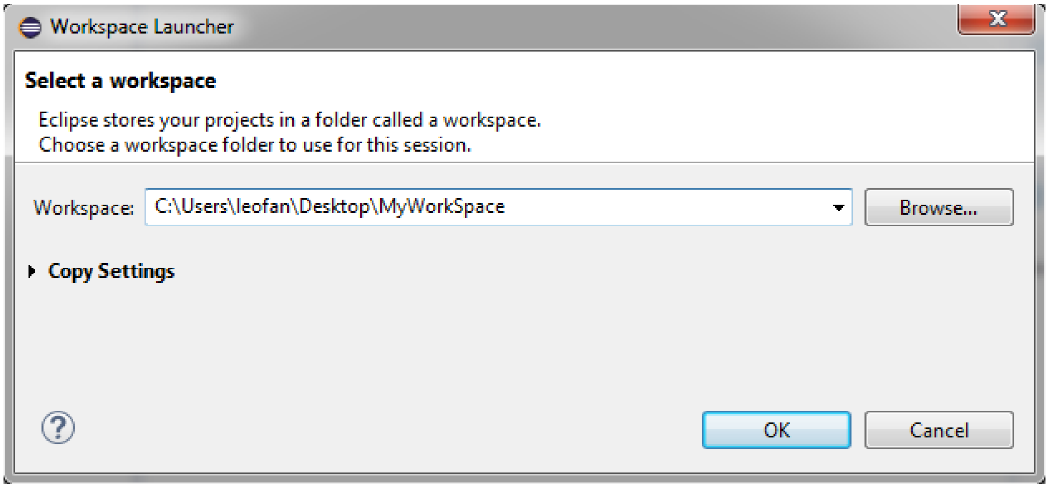
Create new projects from an archive file or directory.

Select an import source:

type filter text

3.4 Switching workspace

Sometimes, you would like to switch between different workspace for better management of the projects. To do this, you can click “File” -> “Switch Workspace” -> “Other”. Then you can browse to your desire workspace and click “OK”. Eclipse will then restart. After restarting, it will operate in the new workspace. Notice that the working environment will also be changed according to the workspace, some of the previously hide panels might re-appear.



Workspace Launcher

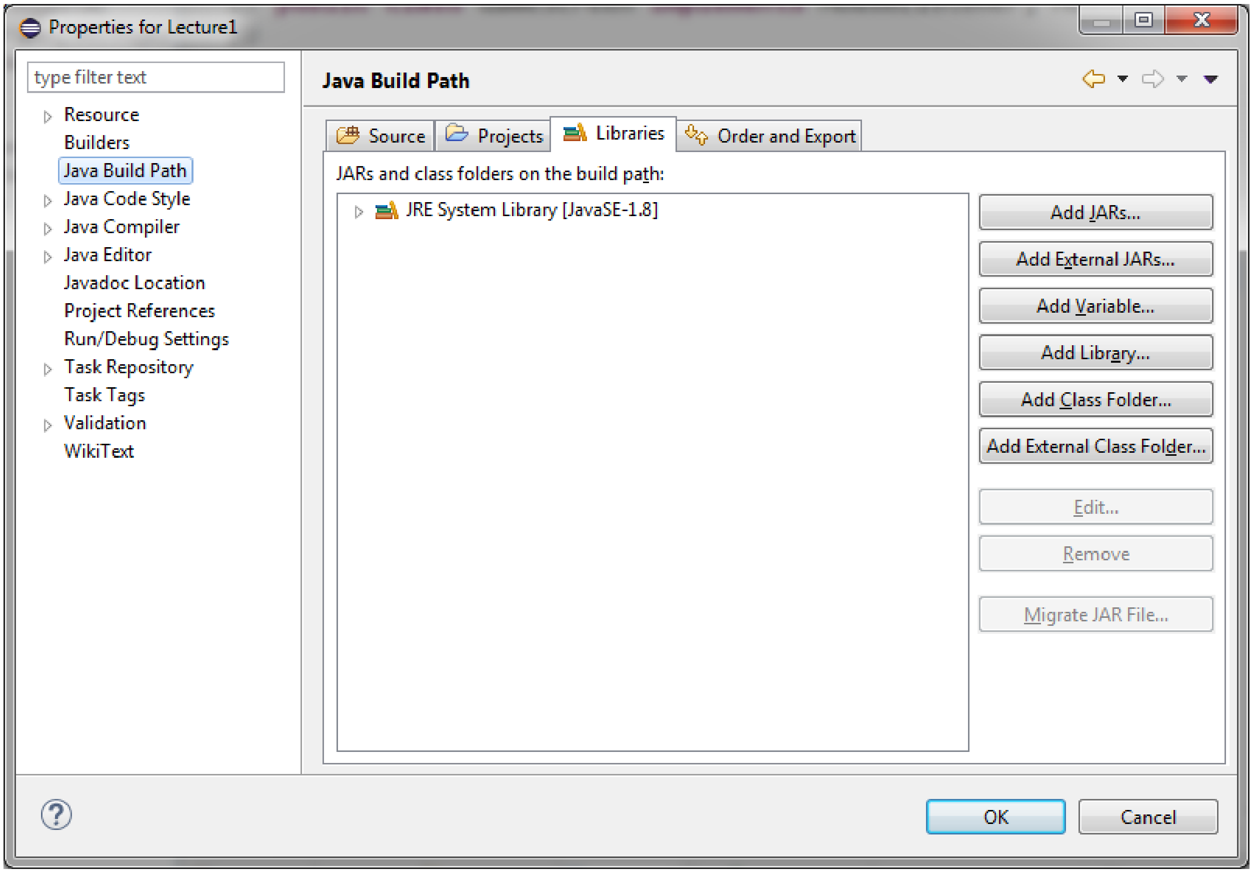
Select a workspace

Eclipse stores your projects in a folder called a workspace.
Choose a workspace folder to use for this session.

Workspace: C:\Users\leofan\Desktop\MyWorkSpace

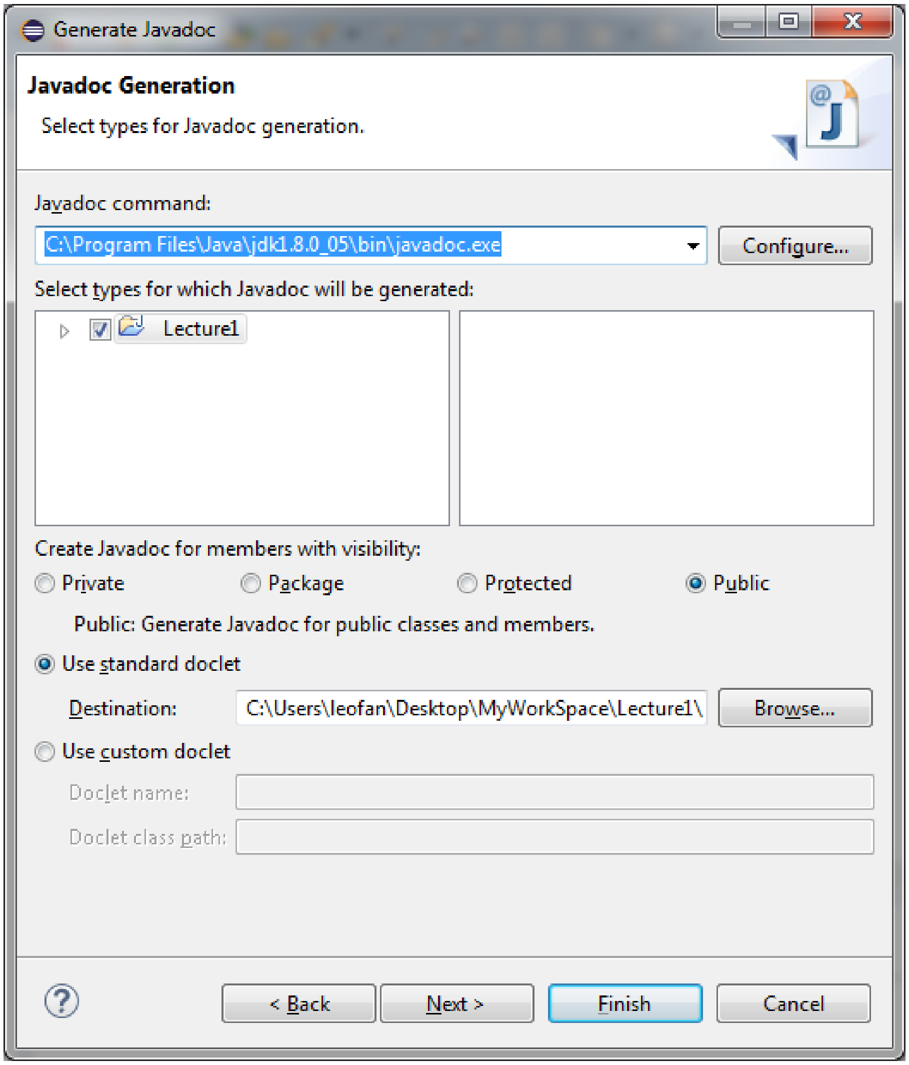
4. Using libraries

It is often that we need to use functions provided by third party libraries to complete our goal. To use a library in a specific project, we first need to copy the library to the project folder in the workspace. A good practice would be to create a subfolder in the project folder named “lib” and put all the required third party libraries inside. We will then need to confirm if the added libraries are visible to eclipse by checking the project in the “Package Explorer”. If you cannot see the libraries, try right clicking on the project in the click “Refresh”. Select the project in the “Package Explorer” and then click “Project” -> “Properties” -> select the “Java Build Path” node -> select the “Libraries” tab. Click “Add JARs” and browse for the libraries you would like to use. After hitting “OK” to confirm the dialogs, the libraries are imported successfully.



5. Javadoc generation (JDK required)

It is always a good practice to generate the documentation of the programs we have written so that others can understand how to use it properly. After coding our program with javadoc style comments, we can generate a corresponding web page as the documentation of the program. To do so, select the program in the "Package Explorer", click "File" -> "Export" -> expand the "Java" node -> select "Javadoc" and click "Next". If the "Javadoc command" is empty, you will need to configure the location of the command by browsing to the folder where the jdk is installed: e.g." C:\Program Files\Java\jdk1.8.0_XX\bin\javadoc.exe". After this time, eclipse will remember the location of the command and you don't need to configure it again. You can then select a desire location for exporting the documentation and click "Finish". The default is a folder named "doc" in the project folder in the work space. If you encounter a dialog on "Update Javadoc Location", click "Yes To All".



Generate Javadoc

Javadoc Generation

Select types for Javadoc generation.

Javadoc command: C:\Program Files\Java\jdk1.8.0_05\bin\javadoc.exe

Select types for which Javadoc will be generated:

☑ Lecture1

Create Javadoc for members with visibility:

○ Private ○ Package ○ Protected ● Public

Public: Generate Javadoc for public classes and members.

● Use standard doclet

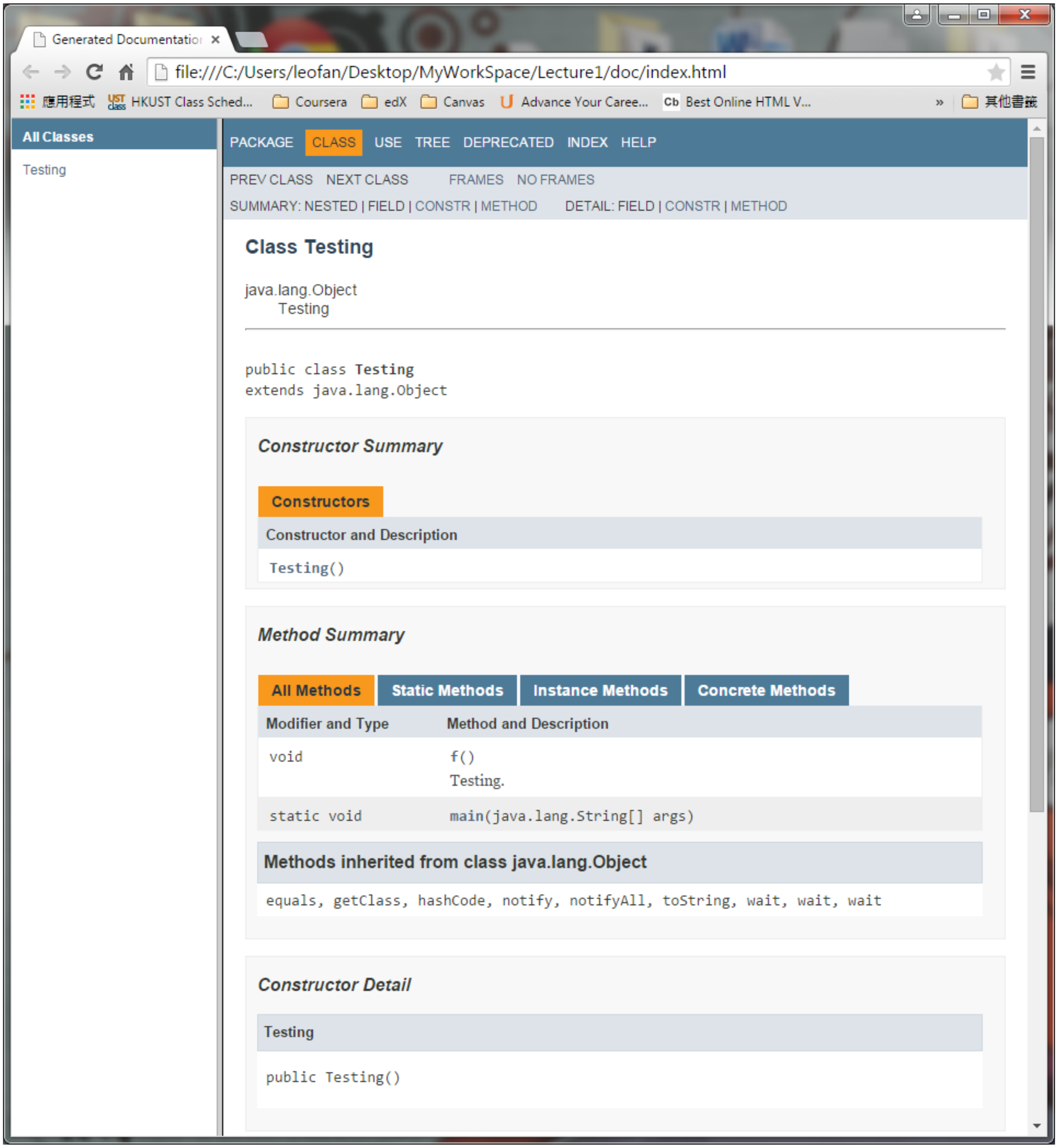
Destination: C:\Users\leofan\Desktop\MyWorkSpace\Lecture1\

○ Use custom doclet

Doclet name:

Doclet class path:

After that you can browse to the “doc” folder in the project folder in the workspace and open “index.html” to view the documentation.


Generated Documentatio
file:///C:/Users/leofan/Desktop/MyWorkSpace/Lecture1/doc/index.html
應用程式
HKUST Class Sched...
Coursera
edX
Canvas
Advance Your Caree...
Best Online HTML V...
其他書籤
All Classes
Testing
PACKAGE CLASS USE TREE DEPRECATED INDEX HELP
PREV CLASS NEXT CLASS FRAMES NO FRAMES
SUMMARY: NESTED | FIELD | CONSTR | METHOD DETAIL: FIELD | CONSTR | METHOD

Class Testing

java.lang.Object
    Testing

```
public class Testing
extends java.lang.Object
```

Constructor Summary

Constructors

Constructor and Description
`Testing()`

Method Summary

All Methods | Static Methods | Instance Methods | Concrete Methods

Modifier and Type	Method and Description
`void`	`f()` Testing.
`static void`	`main(java.lang.String[] args)`

Methods inherited from class java.lang.Object

`equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait`

Constructor Detail

Testing

```
public Testing()
```