**Eclipse Basics**

* Basic Project structure
* System and User Libraries
* Runtime and Lunch configurations
* How to configure one (and many) JDKs

**Java Projects in Eclipse**

Create a new project:

achine generated alternative text:
Eclipse 
O 
pac 
ORT 
Source 
File 
Edit 
New 
Open File... 
Close 
Close All 
Refactor 
Navigate 
Search 
oxw 
Project Run 
Java Project 
Project... 
Package 
Class 
Window 

achine generated alternative text:
Create a Java Project 
Create a Java project in the workspace or in an external location. 
Project name: CSClE63_VerySimplel 
Use default location 
Location: 
/Users/marinapopova/Marina/CSClE63/Projects/CSClE63_VerySir 
New Java Project 
Browse... 
JRE 
O 
Use an execution environment JRE: 
O 
Use a project specific JRE: 
JavaSE-1.7 
JDK1.7.0 71 
Configure JREs... 
Configure default... 
Select... 
O 
Use default JRE (currently 'JDKI .7.0_71 
Project layout 
O 
Use project folder as root for sources and class files 
O 
Create separate folders for sources and class files 
Working sets 
n 
Add project to working sets 
Working sets: 
The default compiler compliance level for the current workspace is 1.8. The new project 
will use a project specific compiler compliance level of 1.7. 
Back 
Next 
Cancel 

achine generated alternative text:
Java Settings 
Define the Java build settings. 
E Source 
CSClE63_VerySimple 
src 
Details 
New Java Project 
Projects 
Libraries 
0 
Order and Export 
Create new source folder : use this if you want to add a new source folder to your 
project. 
Link additional source : use this if you have a folder in the file system that should be 
used as additional source folder. 
Add proiect 'CSClE63 VerySimple' to build path : Add the project to the build path if 
the project is the root of packages and source files. Entries on the build path are 
visible to the compiler and used for building. 
Cancel 
Browse... 
n 
Allow output folders for source folders 
Default output folder: 
CSClE63_VerySimple/bin 
Back 
Next 

achine generated alternative text:
Package Explorer E 
CSClE63_MRv1 
CSClE63 MRv2 
CSClE63_VerySimple 
JRE System Library 
IJavaSE-1.71 
Java - 

Create a New --> Package

achine generated alternative text:
Package Explorer E 
CSClE63_MRv1 
CSClE63 MRv2 
CSClE6 
New 
Go Into 
S,JRE 
Open in New Window 
Open Type Hierarchy 
Show In 
Copy 
Java Project 
Project... 
Package 
G Class 
G Interface 
G Enum 

achine generated alternative text:
Java Package 
Create a new Java package. 
Creates folders corresponding to packages. 
Source folder: CSClE63_VerySimple/src 
New Java Package 
Browse... 
Name: 
cscie63.very.simple 
n 
Create package-info.java 

Click "Finish"

achine generated alternative text:
Package Explorer E 
CSClE63_MRv1 
CSClE63_MRv2 
CSClE63_VerySimple 
src 
cscie63.very.simple 
JRE System Library 
'JavaSE-1.71 

Create a new Java Class:

achine generated alternative text:
CSClE63_VerySimple 
New 
src 
# cscie63.very.simp 
Open in New Window 
JRE System Library 
Open Type Hierarchy 
Show In 
Copy 
Copy Qualified Name 
Paste 
Delete 
Java Project 
Project... 
Package 
G Class 
G Interface 
G Enum 
@Annotation 
Source Folder 

achine generated alternative text:
Java Class 
Create a new Java class. 
New Java Class 
Source folder: 
Package: 
n 
Enclosing type: 
Name: 
Modifiers: 
Superclass: 
Interfaces: 
protected 
Browse... 
Browse... 
Browse... 
Browse... 
Add... 
Remove 
CSClE63_VerySimple/src 
cscie63.very.simple 
SimpleParse 
O 
O 
public 
package 
private 
n 
n 
abstract 
final 
java. lang .0bject 
DI static 
Which method stubs would you like to create? 
public static void main(String0 args) 
n 
Constructors from superclass 
Inherited abstract methods 
Do you want to add comments? (Configure templates and default value here) 
n 
Generate comments 
Cancel 

achine generated alternative text:
Package Explorer E 
CSClE63_MRv1 
CSClE63_MRv2 
CSClE63_VerySimple 
V 
src 
cscie63.very.simple 
D SimpleParser.java 
JRE System Library IJavaSE- 
1.71 
SimpleParser.java B 
1 
package cscie63.very.simple; 
2 
public class SimpleParser 
3 
public static void main(StringLJ 
args) 
// TODO Auto-generated method stub 
4 
7 
8 
9 
10 
11 

Add code to print current date and time

achine generated alternative text:
SimpleParser.java E 
+ now); 
1 
2 
3 
4 
5 
6 
8 
9 
11 
12 
13 
14 
16 
17 
18 
19 
20 
21 
package cscie63.very.simple; 
import java. util. Date; 
public class SimpleParser 
public SimpleParser() 
public void print TodaysDate() 
Date now new Date(); 
System. out. print Inc "Time now is: 
public static void main(StringLJ 
args) 
SimpleParser simpleParser 
new SimpleParser(); 
simpleParser . print TodaysDate() •l 

**Create a new Run Configuration**

Right-click on your Project or Java class and go to Run As … --> Run Configurations

achine generated alternative text:
Package Explorer E 
CSClE63_MRv1 
CSClE63 MRv2 
CSCIE 
New 
LYSimple' 
Go Into 
Open in New Window 
Open Type Hierarchy 
Show In 
Copy 
Copy Qualified Name 
Paste 
Delete 
Remove from Context 
SimpleParser.java B 
1 
package cscie63.very.simple; 
2 
import java. util. Date; 
ublic class SimpleParser 
sec 
public SimpleParser() 
public void print TodaysDate() 
Date now new Date(); 
System. out. print Inc "Time now is: 
public static void main(StringLJ 
args) 
SimpleParser simpleParser 
— new Sim 
simpleParser . print TodaysDate() ; 
1 Java Applet A 
2 Java Application J 
Run Configurations... 
sole 
Build Path 
Source 
Refactor 
Import... 
Export... 
Refresh 
Close Project 
x ses 
Close Unrelated Projects 
Assign Working Sets... 
Debug As 
Run As 
Validate 
Team 
Compare With 
Restore from Local History... 
Configure 
Properties 

If you do not have one already created for your project/class - double-click the 'Java Application' one and a new configuration will be created.

Name it whatever you want and, most importantly, pick the Main class to run - it has to be a Java class that has the main() method. In our case it is SimpleParser.java:

achine generated alternative text:
Create, manage, and run configurations 
Run a Java application 
Name: SimpleParser 
Run Configurations 
Environment 
Common 
00 
Classpath 
type filter text 
Java Applet 
Java Application 
SimpleParser 
JUnit 
Maven Build 
Task Context Test 
Filter matched 6 of 6 items 
Main 
Arguments 
Project: 
CSClE63_VerySimple 
Main class: 
cscie63.very.simple.SimpleParser 
Apply 
Close 
Browse... 
Search... 
Revert 
n 
Include system libraries when searching for a main class 
n 
Include inherited mains when searching for a main class 
n 
Stop in main 

Run it

achine generated alternative text:
Problems @ Javadoc 
Declaration Console B 
«terminateb SimpleParser (Java Application) /Library/Java/JavaVirtualMachines/jdk1.7.0_71 .jdk/Contents/Home/bin/java (Mar 7, 201 5, 1 AM) 
Time now is: Sat Mar Ø7 EST 2Ø15 

**System vs User Libraries**

System Library:

This is your Java Runtime Env libraries - they are created automatically based on the installed JDK on your machine - do not modify them [unless you really know what you are doing!]

You can see them as part of your Project structure:

achine generated alternative text:
Java - CSClE63_MRv2/test/c 
Package Explorer JUnit 
CSClE63_MRv2 
cscie63.section1 
LogParsingUtil.java 
cscie63.section1 .agg 
EclipseLogAggDriver.java 
LogAggregatorByHour.java 
cscie63.section1.mrv2 
cscie63 .sectionl . secondary 
edu.hu.bgd 
test 
cscie63.section1 .agg 
LogParsingUtilTest.java 
v *JRE System Library 
[Java SE 7 [1.7.0_71]] 
resources.jar - /Library/Java/JavaVirtualMac 
rt Jar - /Library/Java/JavaVirtualMachines/jdI 
jsse.jar - [Library/Java/JavaVirtualMachines/jdk1. 
[G jce jar - /Library/Java/JavaVirtualMachines/j 
charsets.jar - /Library/Java/JavaVirtualMach 
[G Jfr Jar - [Library/Java/JavaVirtualMachines/jd 
dnsns.jar - /Library/Java/JavaVirtualMachinc 
localedata.jar 
- /Library/Java/JavaVirtualMac 
sunec.jar - /Library/Java/JavaVirtualMachinc 
sunjce_provider.jar - /Library/Java/JavaVirtu 
sunpkcsl 1 .jar - /Library/Java/JavaVirtualMa 
zipfs.jar - [Library/Java/JavaVirtualMachines 
MRJToolkit.jar - /System/Library/Java/Exten 

User libraries:

You define them yourself and add all libs needed for your application.

Go to : Eclipse --> Preferences --> Java --> Build Path --> User Libraries to create/edit them:

achine generated alternative text:
Eclipse 
type filter text 
General 
Ant 
Code Recommenders 
Help 
Install/Update 
v Java 
Appearance 
V Build Path 
Classpath Variables 
User Libraries 
Code Style 
Compiler 
Debug 
Editor 
Installed JREs 
JUnit 
Properties Files Editor 
Maven 
Mylyn 
Oomph 
Run/Debug 
Team 
Validation 
WindowBuilder 
> XML 
Preferences 
User Libraries 
User libraries can be added to a Java Build path and bundle a number of external archives. System libraries will be 
added to the boot class path when launched. 
Defined user libraries: 
V *CDH5.5 mrv2 full 
hadoop-common-2.6.O-cdh5.5.1 .jar - /Users/marinapopova/Marina/Tools/ha 
hadoop-mapreduce-client-core-2.6.O-cdh5.5.1 .jar - /Users/marinapopova/M 
commons-cli-l .2.jar - /Users/marinapopova/Marina/Tools/hadoop-2.6.O-cdh 
commons-logging-I .1 .3.jar - /Users/marinapopova/Marina/Tools/hadoop-2.E 
guava-11.0.2.jar - /Users/marinapopova/Marina/Tools/hadoop-2.6.O-cdh5.5. 
commons-collections-3.2.2.jar - /Users/marinapopova/Marina/Tools/hadoop 
activation-I . 1 .jar - /Users/marinapopova/Marina/Tools/hadoop-2.6.O-cdh5.5 
apacheds-il 8n-2 .O.O-MI 5.jar - /Users/marinapopova/Marina/Tools/hadoop-Z 
apacheds-kerberos-codec-2.O.O-M15.jar - /Users/marinapopova/Marina/Too 
api-asnl -api-l .0.O-M20.jar - /Users/marinapopova/Marina/Tools/hadoop-2.6 
api-util-l .0.O-M20.jar - /Users/marinapopova/Marina/Tools/hadoop-2.6.O-cdl 
asm-3.2.jar - /Users/marinapopova/Marina/Tools/hadoop-2.6.O-cdh5.5.1/shE 
avro-l .7.6-cdh5.5.1 .jar - /Users/marinapopova/Marina/Tools/hadoop-2.6.O-c 
commons-beanutils-l .7.0.jar - /Users/marinapopova/Marina/Tools/hadoop-2 
commons-beanutils-core-l .8.O.jar - /Users/marinapopova/Marina/Tools/had( 
commons-codec-I .4.jar - /Users/marinapopova/Marina/Tools/hadoop-2.6.O- 
commons-compress-I .4.1 .Jar - /Users/marinapopova/Marina/Tools/hadoop-: 
commons-configuration-I .6.jar - /Users/marinapopova/Marina/Tools/hadoop 
commons-digester-I .8.jar - /Users/marinapopova/Marina/Tools/hadoop-2.6.l 
Cancel 
New... 
Edit... 
Add JARs... 
Add External JARs... 
Remove 
Up 
Down 
Import... 
Export... 

**Configuring JDK/JRE in Eclipse**

Go to Eclipse --> Preferences --> Java --> Installed JREs:

achine generated alternative text:
Eclipse 
type filter text 
General 
Ant 
Code Recommenders 
Help 
Install/Update 
v Java 
Appearance 
Build Path 
Code Style 
Compiler 
Debug 
Editor 
Installed JREs 
JUnit 
Properties Files Editor 
Maven 
Mylyn 
Oomph 
Run/Debug 
Team 
Validation 
WindowBuilder 
> XML 
Preferences 
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 
C) *Java SE 7 [1.7.0_71] 
0 S, Java 8 [1 
.8.o 
2... 
Location 
/Library/Java/JavaVirtualMachi nes/jdkl .7.0_71 .jdk/Contents/Home 
[Library/Java/JavaVirtualMachines/jdk1.8.O_25.jdWContents/Home 
Add... 
Edit... 
Duplicate... 
Remove 
Search... 

You can add/remove new JDKs and JREs here (I always pick JDK - as I always do development, but if you are just running something you might be Ok with only a JRE env)