CSC 204 - Lab 3: Learning a Real IDE - Eclipse

Most computer programmers use an Integrated Development Environment (IDE) to develop their programs. An IDE is a program that allows you to edit, compile, and run your program all in one 'place.' Eclipse is an 'open source' IDE that is very powerful and has a great following. It is available for free for most operating systems.

Goals:

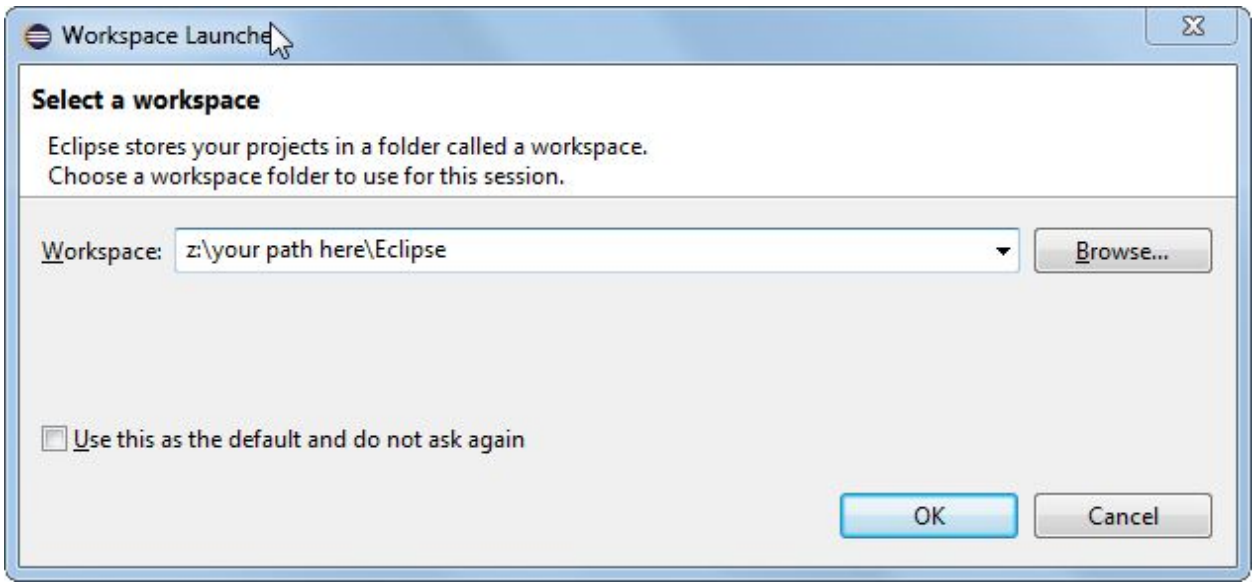
After this lab you should be able to open and use Eclipse to: edit programs, compile programs, and run Java programs. You will also be able to print ASCII Art using Java.

Lab Setup:

You have already been saving things in folders on Orion. You might want to organize all those folders into a CSC204 folder. For our Java work in Eclipse, you should make another folder named "Eclipse", inside your CSC204 folder on Orion.

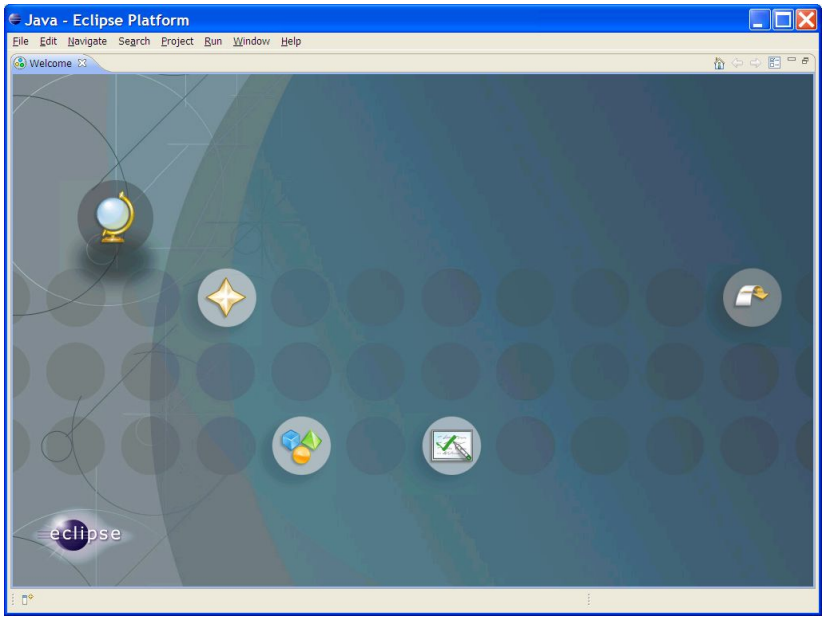
Once this is done, you can open the Eclipse IDE.

- Start Eclipse by double clicking the "eclipse.exe" shortcut icon in the Shortcuts folder on your desktop.
- When prompted for a workspace, Browse to your Orion folder named Eclipse. DO NOT check the "Use this as the default..." checkbox. Your dialog box should look something like the following:

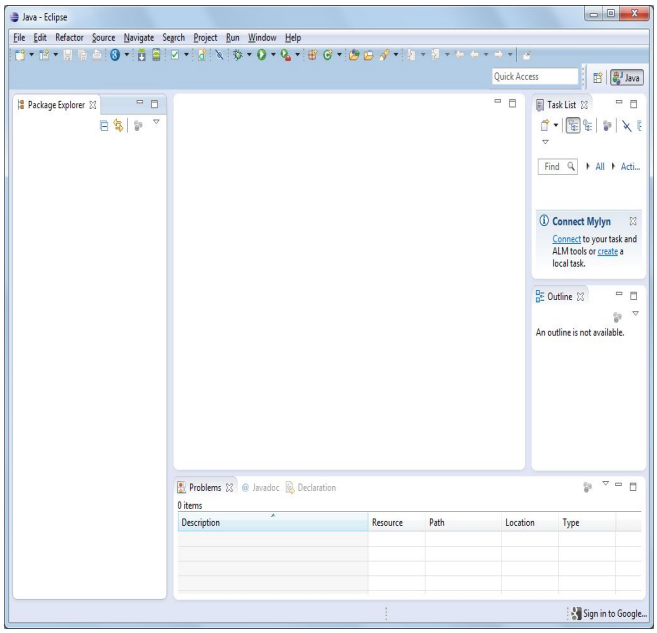


Some of the images in this text may appear a bit small. You can zoom in on them with Control +

- If you get the Welcome screen (shown below) you may go into the tutorials by clicking the check icon. To enter the workbench, which is where we will do our work, click the rightmost icon.

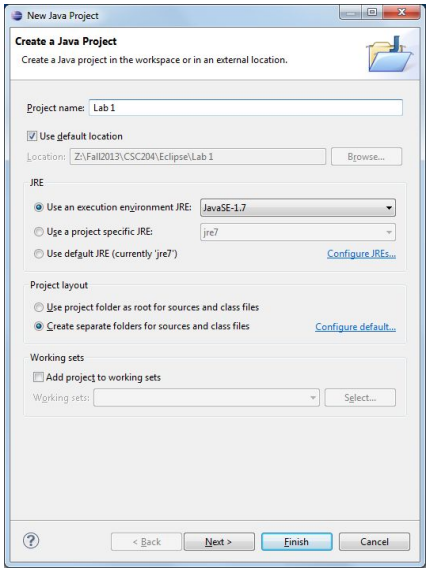


- You may get warnings that some software isn't installed. Click past them now. Eclipse can be used for many different languages and these errors apply to other languages.
- You should now have the Eclipse IDE interface opened and you are all set up to begin programming in Java (or many other languages).

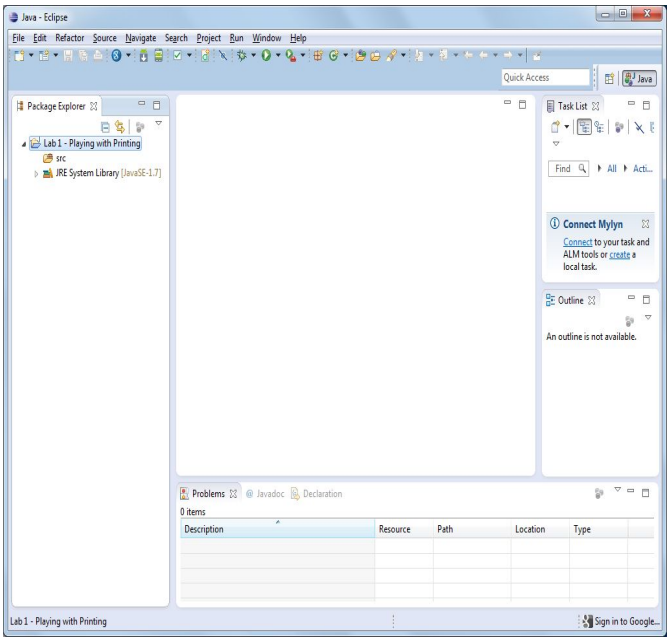


Part 1: HelloPrinter.java

- Right click in the “Package Explorer” pane. Select “New” and then “Java Project.” Give your project the name “Lab3” and then click Finish.

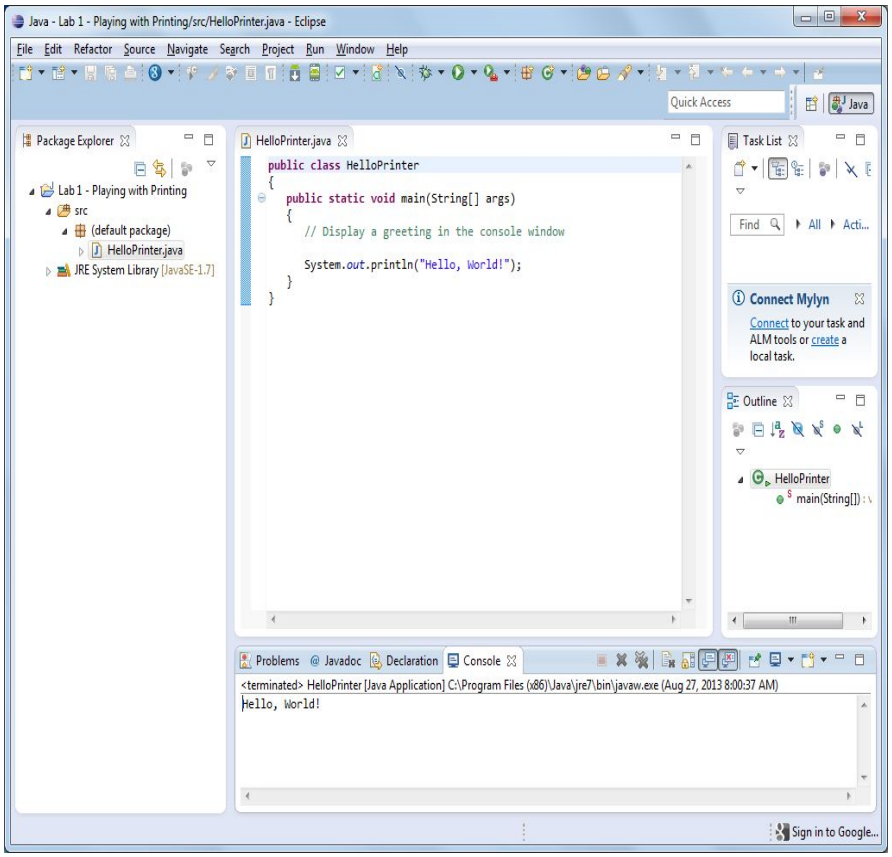


- If you get a warning message or two “EGit does not…” and/or something about missing HOME environment variable, click the “Do not warn again…” checkbox and then click OK.
- You should now have one project in your Package Explorer pane. Click the little triangle next to “Lab3” and you should see (old picture, different wording, but should look like this):



For our first Eclipse Java program, we are going to copy an existing Java program into our project in Eclipse. You can find a copy of `HelloPrinter.java` in our Lab3 folder in Courses on Blackhawk.

- Browse on your computer to our Courses folder, Labs folder, Lab3 folder. You should see one Java program, and one picture.
- Drag the `HelloPrinter.java` file from the Lab3 folder and drop it on the "src" folder in our project on Eclipse. Select "Copy" for the option given for your drag and drop.
- This is an exact copy of a program that came from our textbook.
- To see, and ultimately to edit, the code, click the triangle next to the src folder. Then click the triangle next to the default package icon. Double click HelloPrinter.java.
- Run the program: you should see an icon at the top of the Eclipse interface that looks like a green circle with a white right-facing triangle. Click it. If prompted for Applet or Application, select Application. You should see your program's output in the console pane at the bottom of the Eclipse interface.



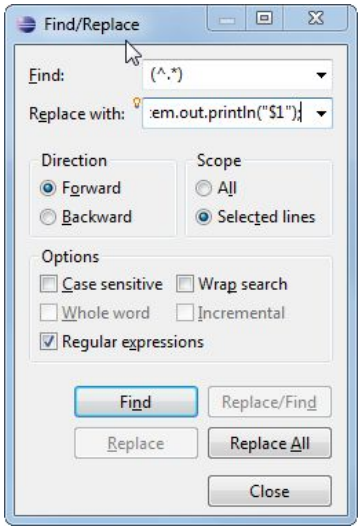
You have now just run your first Java program in Eclipse and are set up and ready to begin writing your own programs for this lab.

Part 2: MUbear.java

Ascii Art is the process of rendering a photograph as a sequence of characters. If you submit this picture to http://www.glassgiant.com/ascii/, it will generate:

```
,8ZZZZZZZZZZZZZZZZZZZZZZZZZ8. ..                 . 8ZZZZZZZZZZZZZZZZZZZZZZZZZ8:.
:Z .,,,,,,,,,,,,,,,,,,,,,,,. Z...               .$..,,,,,,,,,,,,,,,,,,,,,,,,..Z~
:Z.D777777777777777777777OO~8..                  O=+D77777777777777777777D:Z~.
:Z.8I77777777777I7777IIIII7I$.O.          .  .   Z.~7I7IIII7777777777777777778:Z~
:Z.8I7777777777IIZ8NNND$7I$8I8ZOONNO. .ONNOOZ87I8I7$DNNN8OII77777777777778:Z~
:Z.8I777777777778NNNNDNDDNNDO7~ ...NDNNNDN,...~7ODNNDDDDNNNNDI7777777777778:Z~
:Z.8I77777777777INN..NDDDNZ.  . . DD =DDD+ 8N       .$NDDDN, NNI7I77777777I8:Z~
:Z.8IIII77777777IDDOODDNZNNN~ .  ..7N8NDN8NZ.      :NNN$NDD8ODNI7777777II7II8:Z~
:Z.:~~~OI77777777$NDDDN.  +N=.   . ~DDDDDDD+ . .  ~NI   NDDDN$77777777I8~~~~.Z~.
.~~~=8 ZI7777777777OND,  DND7~NNNNNDDD+ =DDDNNNNN=?DND ..8NOI77777777IO.8+~~~.
    .O ZI77777777I8N. =DDDDDNNNDDDDDDO.ZDDDDDDNNNNDDDN+ .ND7777I77777IO O,
    .O ZI7777777777IND  NDDDNND..N$NDDDZ $DDDN$N..DNNDDDN..DNII77777777IO O,
    .O ZI77777777I7NN .NDNI:=7$.M8N8DN  .ND8D8M.7$=:?NDN, ND$I77777777IO O,
    .O ZI7777777777IDN IDD8..MN OZI?$NNDZDNN$??$8 DM. ODD$.NNII77777777IO O,
    .O ZI7777777I7INN ODDN~.NDZ:NDDN ., .. DNDD~$DN,,DDD8.NNI77777777IO O,
    .O ZI7777777777INN $DDN~.NDDNDDN+,D8,OD:=NDDNDDD:,DDDZ.NNI77777777IO O,
    .O ZI7777777777I8N7.NDND,ONDDDDNDINDNDN$8NDDDDN8.8NDN IDDI77777777IO O,
    .O ZI77777777777ZNNONDND:7NDDNDONDODDD88N88NDDN$,DNDN$NNO77777777IO O,
    .O ZI77777777778NDNDDND:ZNDDI DNND$$$DNND +DDNO,DNDDNDN8I77777777IO O,
    .O ZI7777777777I7NN=NDN8$NDN,:$ 7 NDN.I I= NDNZZNDN?DN7I77III77777IO O,
    .O ZI77777777777INN. NNDDDDN,.N+DNDDDNN~N:.NDDDDDN  NNI77777777777IO O,
    .O ZI77777777I777ONN$,ONDDDD+ NNDDDDDDDNN.=NDDDN8:7NN8I77777777777IO O,
    .O ZI777777777777778DN87?NDDN8.8NDDDDDDD,ONDDN7I8ND8I777777777777IO O,
    .O ZI777777777777778+DNDNDDDDD=IINDDDN7$~DDDDDNDDN~D777I77777777777IO O,
    .O ZI777777777777778+?O8NDNDDDD8:,IM$:,88DDDDDN8O7=D777777777777777IO O,
    .O ZI777777777777778+?I ,?NNN8DNDZ???$8NN8NNN?, +7=D777777777777777IO O,
    .O ZI777777777777778+?I    Z?NZ:NDDDDDN:$N7O.   +7=D777777777777777IO O,
,OOOO8 ZI777777777777778++8ZOZZ.=~N=NNDDDNN~N+:,$OOZ8I=D777777777777777IO.OOOOO:
:Z.....ZI777777777777778+. .. O,O+=N  :~:  N+~O.Z.....=D777777777777777IO... .Z~
:Z,8IIII77777777777777777IIIII8.Z,.= =NDDDDDD+ + .O.OIIIII77777777777777777IIII8:Z~
:Z,8I7777I77777777777777777I8.O, .O.7NDDDN$.Z  .O.OI77777777777777777777I777I8:Z~
:Z.8I77777777777777777777777I8.O,  =O 7I7I$ Z+  .O OI77777777777777777777777I8:Z~
:Z.8I77777777777777777777777I8.O, ...+.8ZD.=.   .O OI77777777777777777777777I8:Z~
:Z.8I77777777777777777777777I8.O, .  Z+,O,=O .  .Z OI77777777777777777777777I8:Z~
:Z.8I77777777777777777777777I8.O,     Z  .O.    .O OI77777777777777777777777I8:Z~
:Z.D777777777777777777777778.O,  .   O.O       .O.OI777777777777777777777778:Z~
:Z.:::::::::::::::::::::::::,.O,      ~N~.     .Z ,:::::::::::::::::::::::::.Z~
:8$$$$$$$$$$$$$$$$$$$$$$$$$$$$$8.      .. .    ..O$$$$$$$$$$$$$$$$$$$$$$$$$$$ZD:
```

You are to write the entire program MUbear.java. It should have the appropriate class definition and a main method. Inside the main method you will need to include several 'print' statements that print out the lines of text generated by GlassGiant.com. You do not need to type all of these characters into your Java file! "Copy and paste" is your friend. You can copy the characters from GlassGiant (or this file), paste them into your main method, and add 'System.out.println(“' to the front of each line and '”);' to the end of each line. Compile and run your code making sure it prints the correct image.



Helpful hint with Eclipse: you can do a "Find and Replace" using regular expressions to insert all of your extra code in one click. After you copy the ASCII Art into your Java program, you should:

- highlight the lines of the ASCII Art,
- Open "Find/Replace" (i.e. Ctrl F),
- Use the regular expression (^.*) for the Find: part,
- Use System.out.println("$1"); for the Replace with part.
- Make sure the Selected lines radio button is active,
- Make sure the Regular expression check box is checked,
- Click Replace All.

Compile and run your code.

Part 3: MyPicture.java

Finally, you should find a picture of yourself (or something else you like), send it to GlassGiant.com to create your own image as Ascii Art. Write an entire Java program named MyPicture.java that will print out your Ascii picture. You may want to experiment around with several of your images to find the best one for this assignment.

Deliverables:

Lab work is due by class time on Friday most weeks, but since we had a test yesterday, this work should be finished prior to class next Wednesday. Since you are doing your work through Eclipse, you should be able to browse within your Eclipse folder (on Orion) and find a Lab3 folder, that has a src folder that contains all .java files created for this project. Once you find the source code folder in your Lab3 Eclipse project, you can upload it to your shared Google folder. Once you have uploaded the source code folder from this project, rename it to "Lab3". Make sure your newly named Lab3 folder contains three working Java programs: `HelloPrinter.java`, `MUbear.java`, and `MyPicture.java`.