Setting up Java and Eclipse

This guide will help you set up the programming environment and starter code that you will need for this course. If you've already got Java (since Sept 2015) and Eclipse set up on your machine, you can skip this reading and move on to the next which will tell you how to get and set up the starter code. However, if you run into any mysterious errors you cannot figure out, they could be due to older versions of Java or Eclipse so you'll want to come back and do part 1 to make sure you've got the latest versions.

Part 1: Set up Eclipse (and Java)

In this course we (and you) will be using the Eclipse integrated development environment (IDE) to develop and run our Java code. Eclipse is a powerful, industry-grade IDE. While it might be a little confusing at first because of its power, once you get the hang of it, it will provide for a very pleasant programming experience and you'll wonder how you ever programmed without it! Of course, you are welcome to use any Java development environment you like. You'll be on your own to make sure you have all the libraries and your classpath configured correctly, though I'm sure learners in the forum will be happy to help.

If you already have Eclipse installed do make sure that your Eclipse Version is using JRE1.8.

Optional resources for learning Eclipse

If you have never used Eclipse, here are some optional resources that you might want to check out to help you get started after you have followed the set up instructions below:

- https://www.cis.upenn.edu/~matuszek/cit591-2004/Pages/starting-eclipse.html -- Basic tutorial with example of how to write "Hello World." Includes how to do JUnit test too.
- http://agile.csc.ncsu.edu/SEMaterials/tutorials/eclipse/eclipse_tutorial_3.3.html -- Explanation of Eclipse and things that it has. Instruction on how to create project, Package, Interface, Class, etc.

Step 1: Install the Java JDK, if you don't have it already installed

Unless you have installed Java since September 2015, you must do this step to upgrade your JDK. We are using very new features of Java in this project.

1. Go to http://www.oracle.com/technetwork/java/javase/downloads/index.html

2. Click on one of the buttons to download the latest version of the Java SE JDK (it will be a later version than the screenshot below). The buttons are highlighted in the screenshot below (click either one).

3. Accept the license agreement in the first list of files titled “Java SE Development Kit ...” and then download the file that is right for your operating system.

4. Install the JDK as appropriate for your operating system. If you need instructions, you can find them here:

Windows: http://docs.oracle.com/javase/7/docs/webnotes/install/windows/jdk-installation-windows.html

Mac: https://docs.oracle.com/javase/8/docs/technotes/guides/install/mac_jdk.html

Linux: https://docs.oracle.com/javase/8/docs/technotes/guides/install/linux_jdk.html

That’s it. You’ve got the Java SDK on your machine.

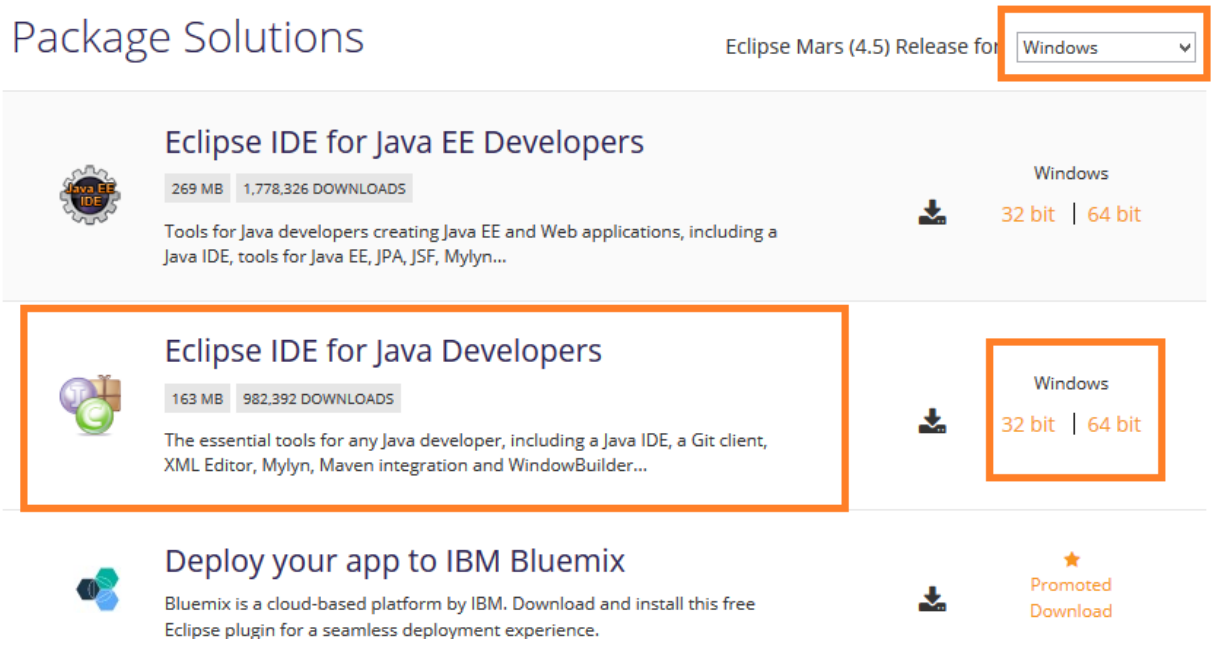
Step 2: Download, “install” and setup eclipse

Next, you will install and setup eclipse. You might find the following guide helpful: https://wiki.eclipse.org/Eclipse/Installation#Download_Eclipse And/or you can follow our instructions here:

1. Go to https://www.eclipse.org/downloads/.

2. Select your operating system from the dropdown menu in the upper right. Then, in the row titled Eclipse IDE for Java Developers, click on 32 or 64-bit as appropriate to go to the download page. Make sure that the version installed is Eclipse Mars or later.

*Linux users: For those using Debian distributions such as Ubuntu, do not use the "apt-get" command to install Eclipse as it will install an outdated version which is incompatible with the latest JDK. Be sure to install from the Eclipse website.



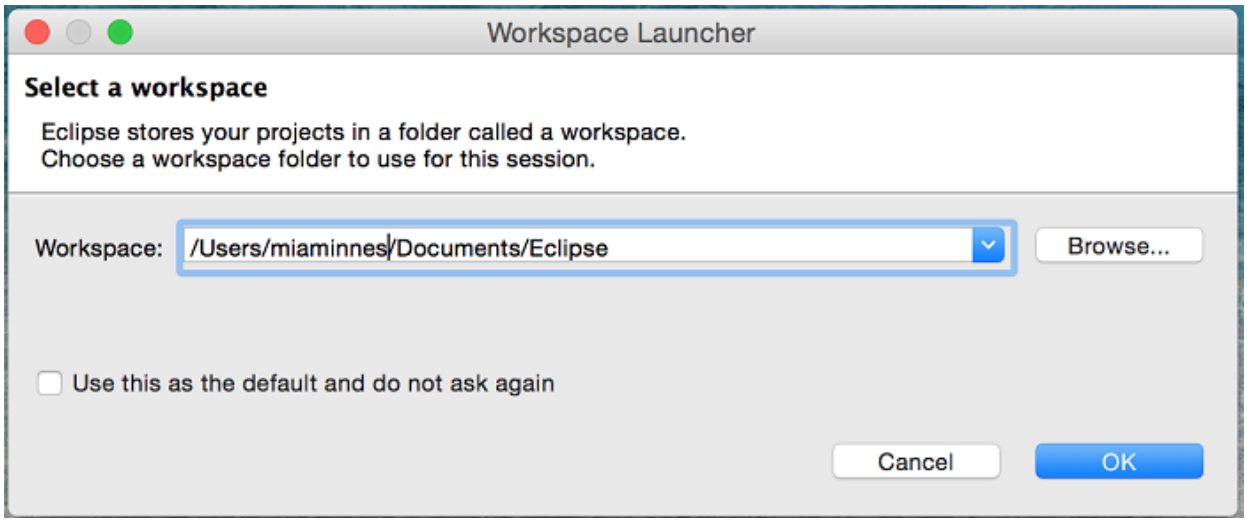
3. Click the Download button to start your download. Save the compressed (.zip or .tar.gz) file wherever you want on your computer.

4. Uncompress the downloaded file to any location on your computer. Note: Eclipse will run from here. There is nothing else you need to do to “install” it. However, Windows users should note the following warning from https://wiki.eclipse.org/Eclipse/Installation#Download_Eclipse

“Note that there is a known problem with the built-in decompression utility on all current versions of Windows. We recommend that you use a more robust decompression utility such as the open source 7zip when decompressing an Eclipse download. Some people report success when initially decompressing Eclipse into a root directory (e.g. c:\) and then moving it to a more appropriate home (e.g. c:\Program Files\Eclipse)”

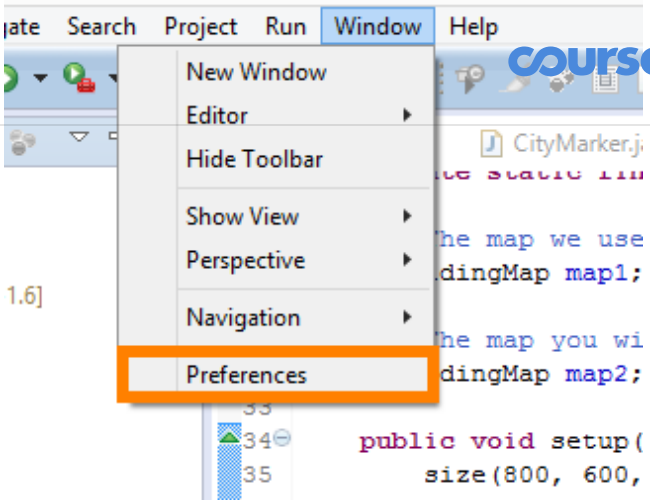
5. Once Eclipse is unzipped, run it by either double-clicking on eclipse.exe (Windows and Mac) or typing eclipse at the command line (Linux, if you've set it is on your path).

6. Eclipse will ask you to select your workspace. This is where eclipse will store all of your code and project files. We recommend you choose a directory that gets backed up regularly (e.g. on Google Drive, for example). Optionally, make this the default workspace (so Eclipse will not ask you every time).

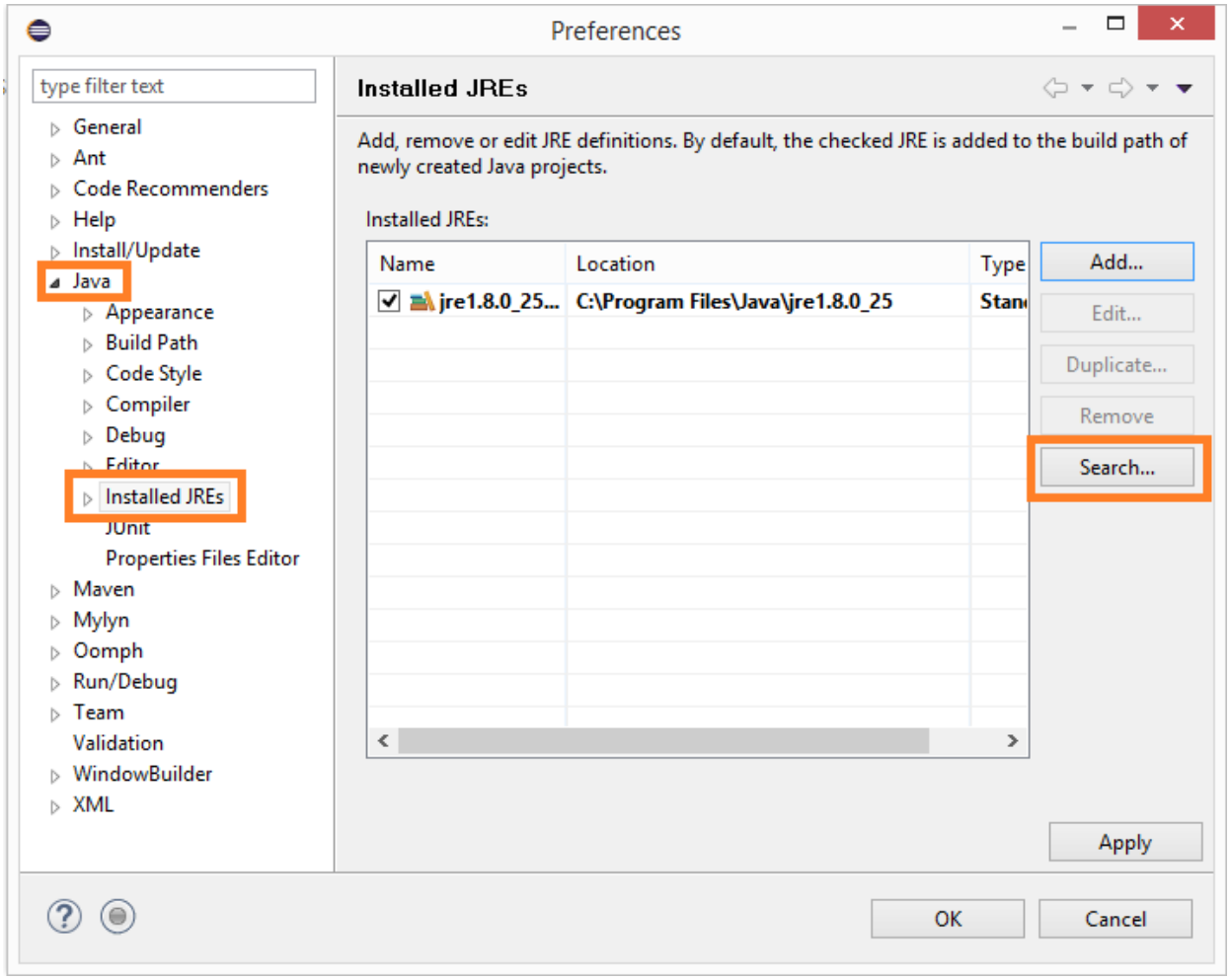


7. Then you will see a welcome screen that has links to a bunch of information including tutorials and overviews. We encourage you to try out some of these, but if you just want to dive in and get started, click the Workbench icon in the top right corner.

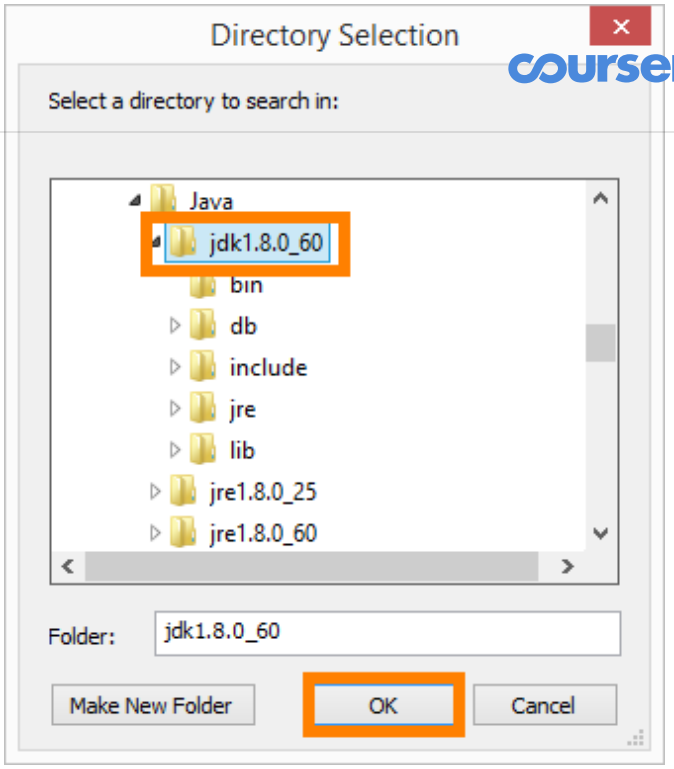
8. **(Required for Mac Users.** Otherwise Optional.) Finally, set Eclipse to use the JDK you installed in step 1. Go to Window->Preferences:



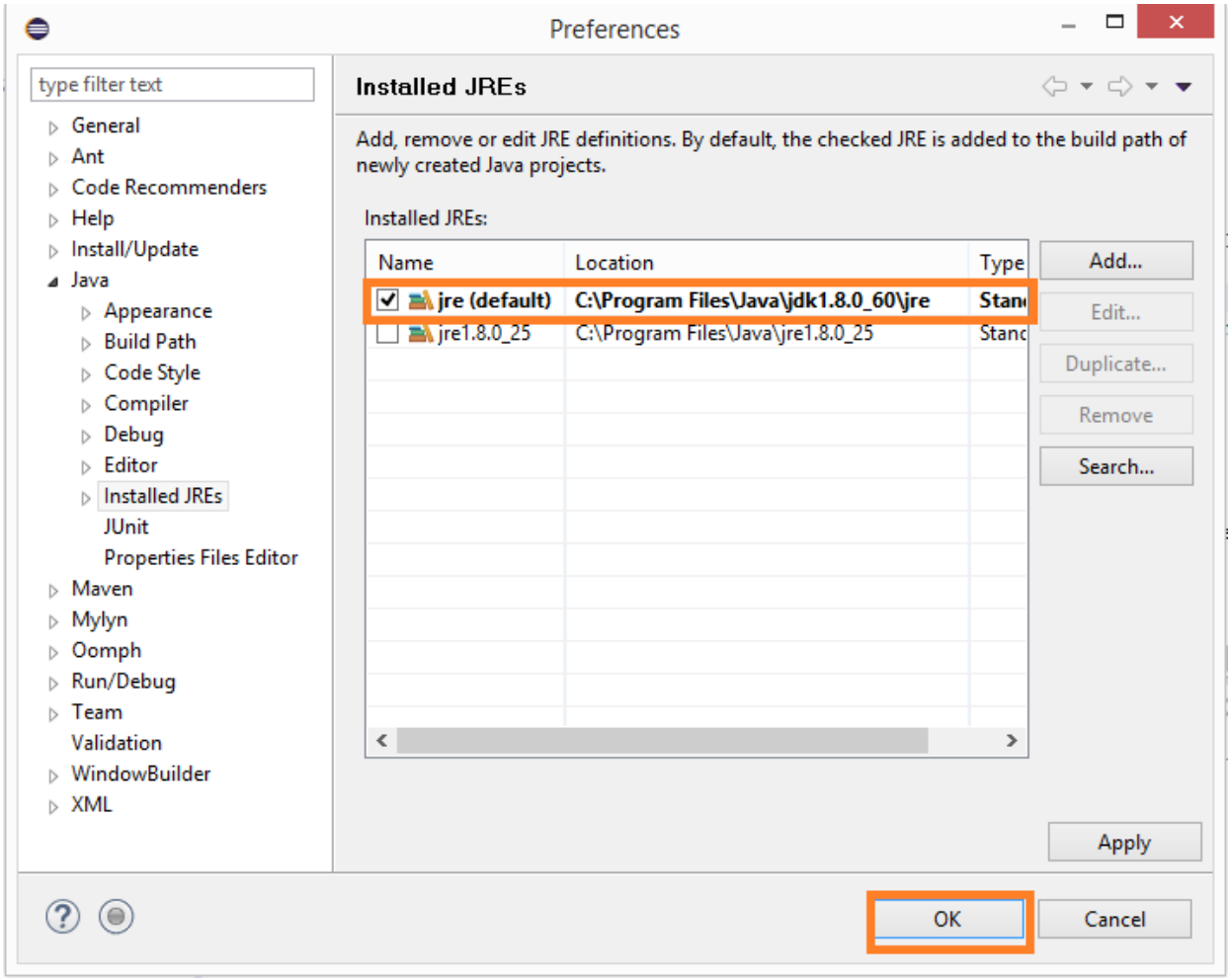
Then, in the window that opens select Java->Installed JREs in the menu on the left, then click Search:



Navigate to where you installed the JDK in step 1. Make sure you select the JDK directory and not the newly installed JRE directory! Then click OK.



After a moment, eclipse should list a second JRE in the Java->Installed JREs window. Select the JRE in the newly installed JDK folder, and click OK:



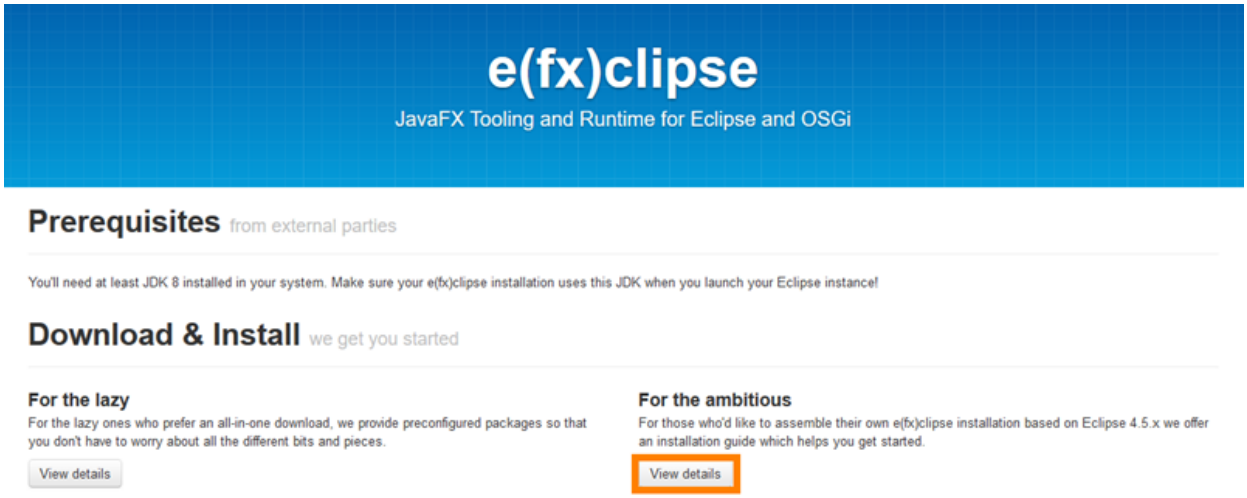
9. Troubleshooting: If you get strange compile errors at any time during this course, check to ensure that both your compiler and your run time Java versions are set to at least 1.8 or above.

Step 3: Install e(fx)clipse

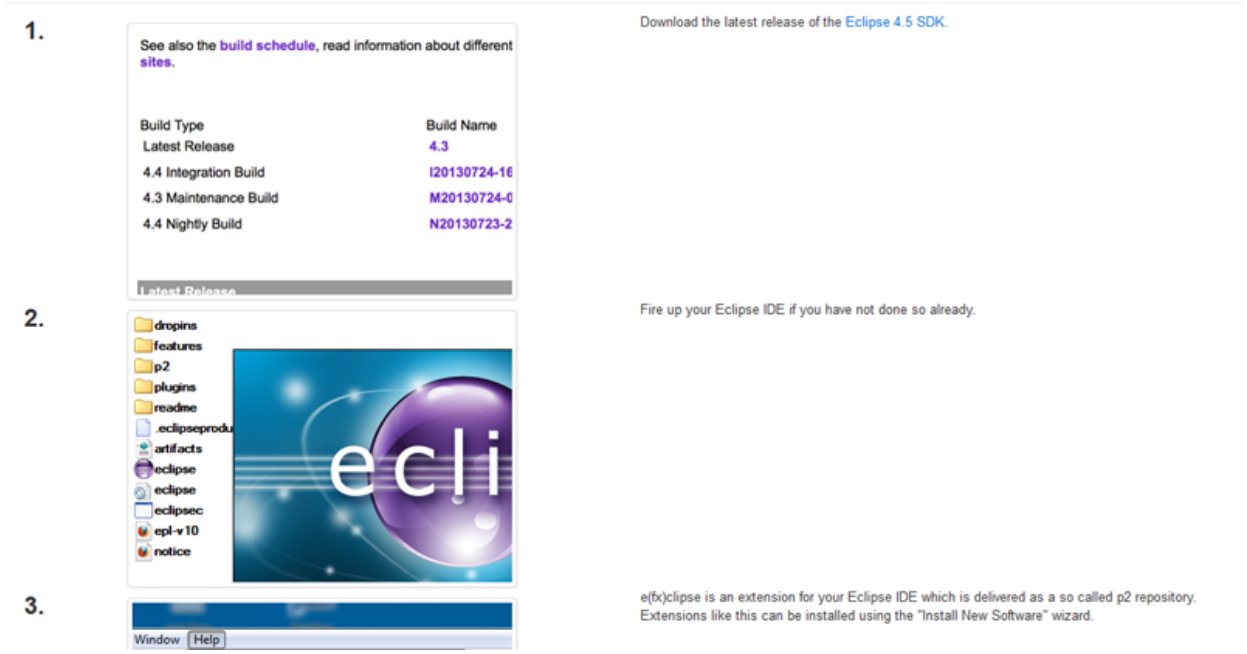
In this course the GUI you will be using is written using the Java FX libraries, and to use these libraries in Eclipse you must install the e(fx)clipse extension for Eclipse.

1. Go to www.eclipse.org/efxclipse/install.html

2. Next to "For the Ambitious" click on "View details" as highlighted in the screenshot below:



3. Follow the instructions on that page, starting at step 2 or 3, as appropriate (you've already done step 1, and probably have already done step 2 also:



Note, for step 4, after you select "Install New Software", you will want to click the "Add..." button in the upper right to add the repository.

That's it! You're ready to start working with the project code.

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