# Lab0 - Getting Started

Reminder: You must first have your completed lab checked off by your TA (either in-person or by e-mail). Afterwards, you must submit your lab via Brightspace. Failure to do either will result in a grade of 0.

## Goals

In this Lab you will:

1. Install (or confirm) a `Java 8 JDK`.
2. Install (or confirm) the `NetBeans 12 Integrated Development Environment (IDE)`.
3. Create a very simple program in `NetBeans`.

## Resources

To complete this Lab you only need this handout, a Windows or Mac computer (and its administrator password, if installing), and access to the internet.

## What To Do, And How

This section tells you what you need to do, step by step. Ask a TA if you run into any trouble or confusion. These instructions are for `JDK 8` and `NetBeans 12`, and assume you are on a Windows or Macintosh computer. If you want to deviate from any of that, you're on your own, both now and later :).

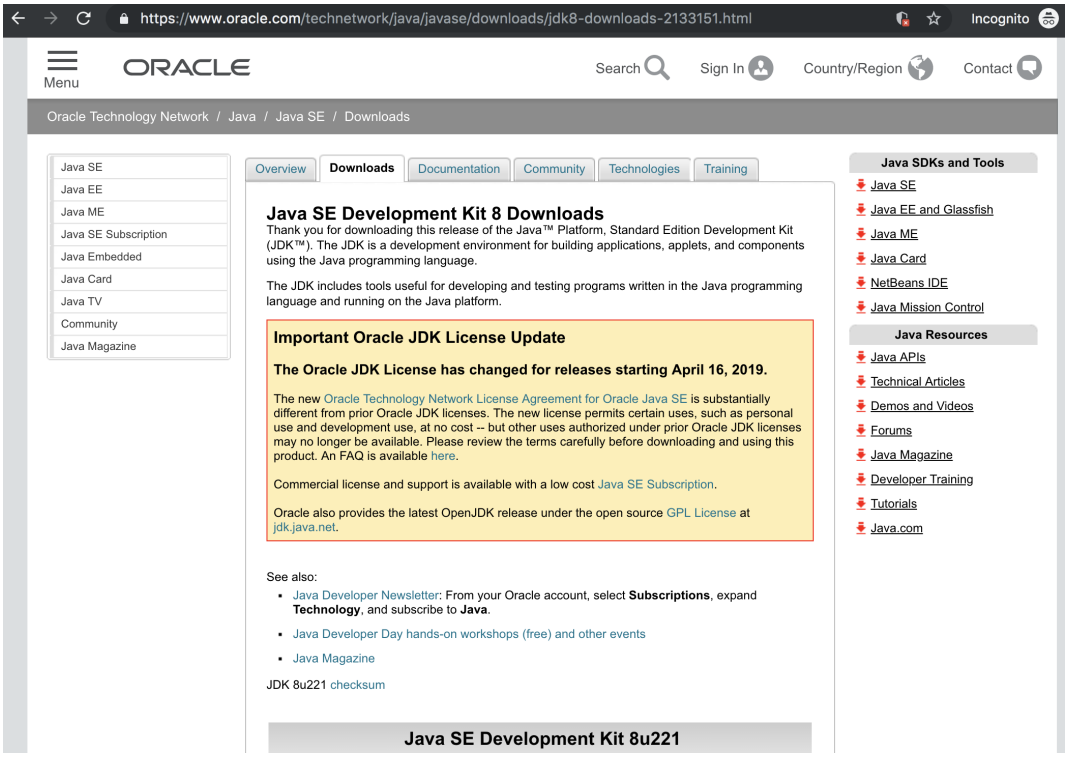
### First, Install `JDK 8` and `NetBeans 12` (if necessary)

If you are using lab computers, they are all equipped with the required tools and there is no need for any other installations; you may skip this section.

However, if you prefer to work on your personal computers and laptops, you may need to install a `Java JDK`, and/or `NetBeans`. Below we treat two different ways to install a `JDK`, as well as installing `NetBeans`.

Downloading `JDK 8` from
`www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html`

The canonical "Java Developer Kit", or `JDK`, can be downloaded from Oracle at the above url. Make sure you're on the page for `JDK 8`, which is a few versions below the latest that is available. Then click the link for your Operating System and Computer (probably "Mac OS X x64" or "Windows x64"):



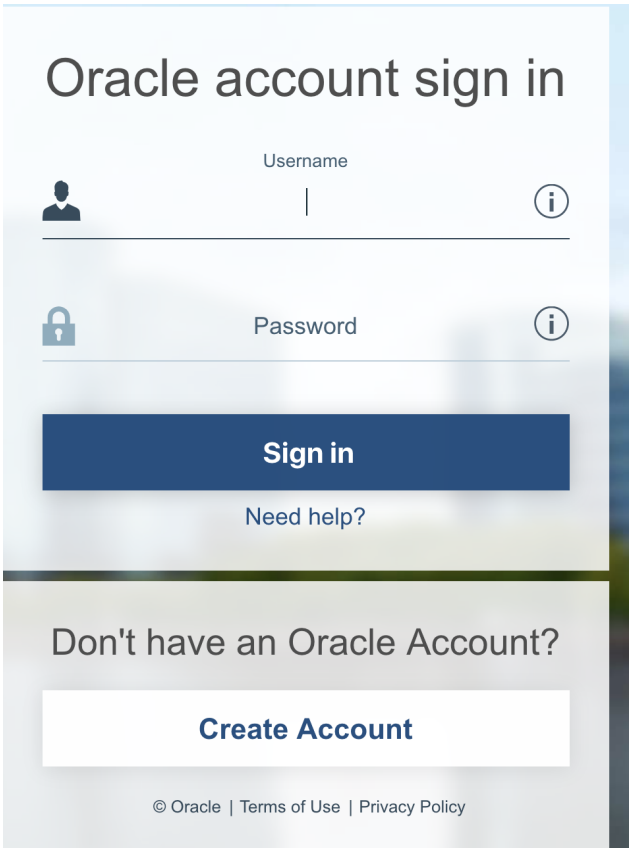

## Java SE Development Kit 8u221

**You must accept the Oracle Technology Network License Agreement for Oracle Java SE to download this software.**

○ Accept License Agreement ◉ Decline License Agreement

| Product / File Description | File Size | Download |
|---|---|---|
| Linux ARM 32 Hard Float ABI | 72.9 MB | jdk-8u221-linux-arm32-vfp-hflt.tar.gz |
| Linux ARM 64 Hard Float ABI | 69.81 MB | jdk-8u221-linux-arm64-vfp-hflt.tar.gz |
| Linux x86 | 174.18 MB | jdk-8u221-linux-i586.rpm |
| Linux x86 | 189.03 MB | jdk-8u221-linux-i586.tar.gz |
| Linux x64 | 171.19 MB | jdk-8u221-linux-x64.rpm |
| Linux x64 | 186.06 MB | jdk-8u221-linux-x64.tar.gz |
| Mac OS X x64 | 252.52 MB | jdk-8u221-macosx-x64.dmg |
| Solaris SPARC 64-bit (SVR4 package) | 132.99 MB | jdk-8u221-solaris-sparcv9.tar.Z |
| Solaris SPARC 64-bit | 94.23 MB | jdk-8u221-solaris-sparcv9.tar.gz |
| Solaris x64 (SVR4 package) | 133.66 MB | jdk-8u221-solaris-x64.tar.Z |
| Solaris x64 | 91.95 MB | jdk-8u221-solaris-x64.tar.gz |
| Windows x86 | 202.73 MB | jdk-8u221-windows-i586.exe |
| Windows x64 | 215.35 MB | jdk-8u221-windows-x64.exe |

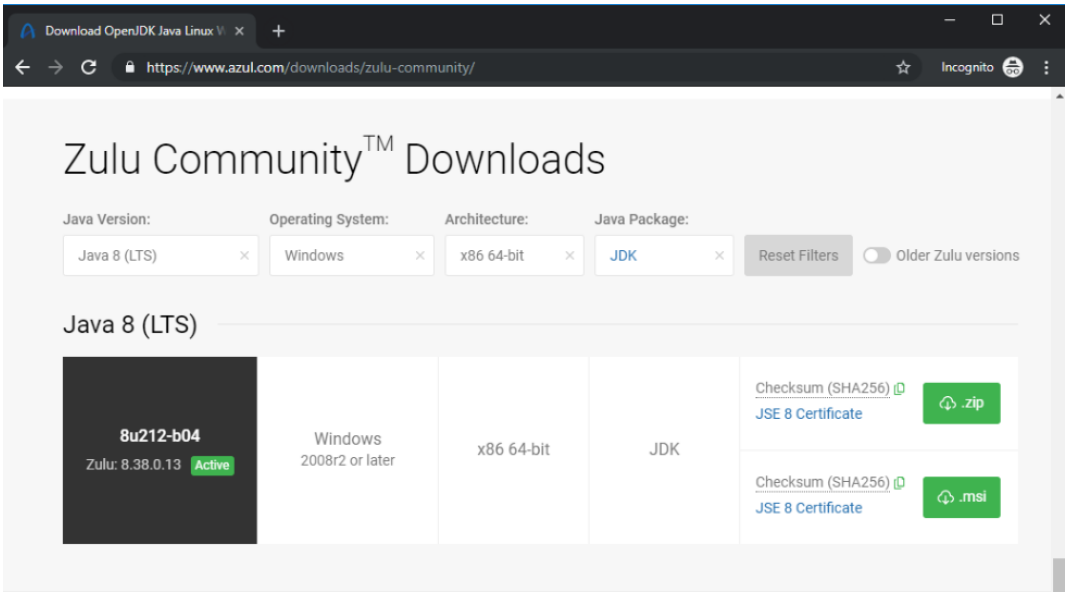
Oracle will require that you "Accept [the] License Agreement", and will require you to create an account if you have not before, in order to download the `JDK`:




Once signed in, your download should start automatically. When it finishes, find it in your Downloads folder, double click it to begin installation, and accept the defaults on each install screen.

Downloading `JDK 8` from `http://azul.com/downloads/zulu-community/`

Oracle, who owns the canonical "Java Developer Kit", or `JDK`, is rumored to be charging for it soon. So, alternatively, we are promoting a lesser known open source version of the `JDK`, provided by Zulu (this also doesn't require registering for an Oracle account, which the above section required):




1. Scroll down until you can see the drop down menus in the screen capture.
2. For "Java Version", select "Java 8 LTS"
3. For "Java Package", select "JDK" (not "JDK FX")
4. For "Architecture", pick 64 bit, unless someone has told you you're on a 32 bit machine.
5. Windows users, pick "Windows" and select the .msi download (green button).
6. Mac users, pick "macOS" and choose the .dmg download (green button).

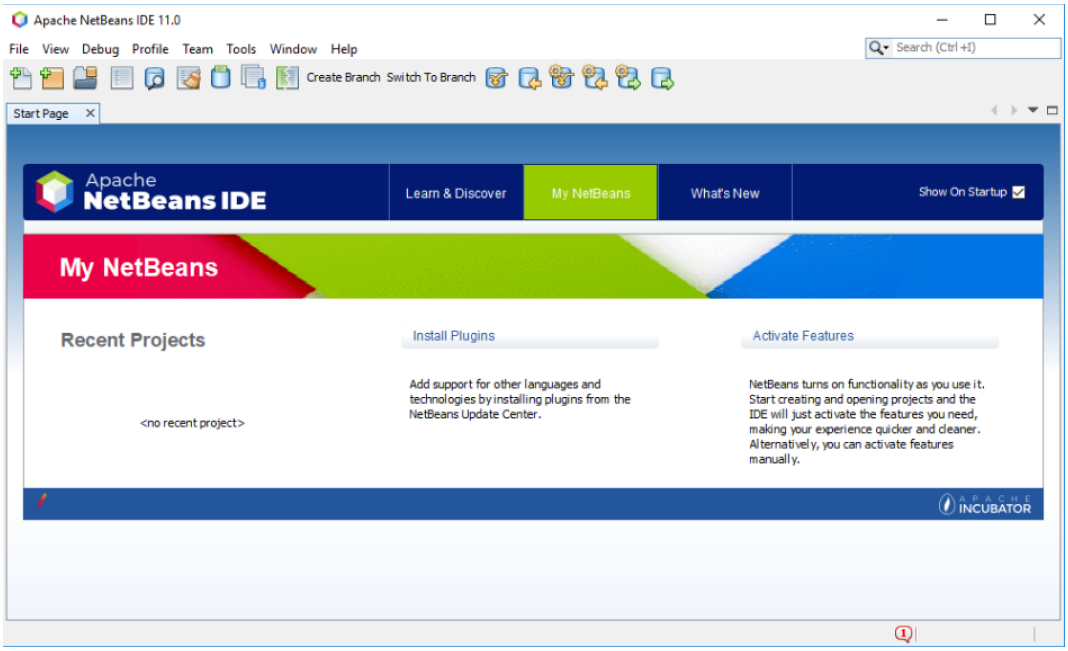
Once the file is downloaded, double click the result and follow the install instructions. Get help if the installer is not successful. Note that the Zulu JDK installs to a different location than some are used to.

Downloading `NetBeans 12` from `https://netbeans.apache.org/download/`

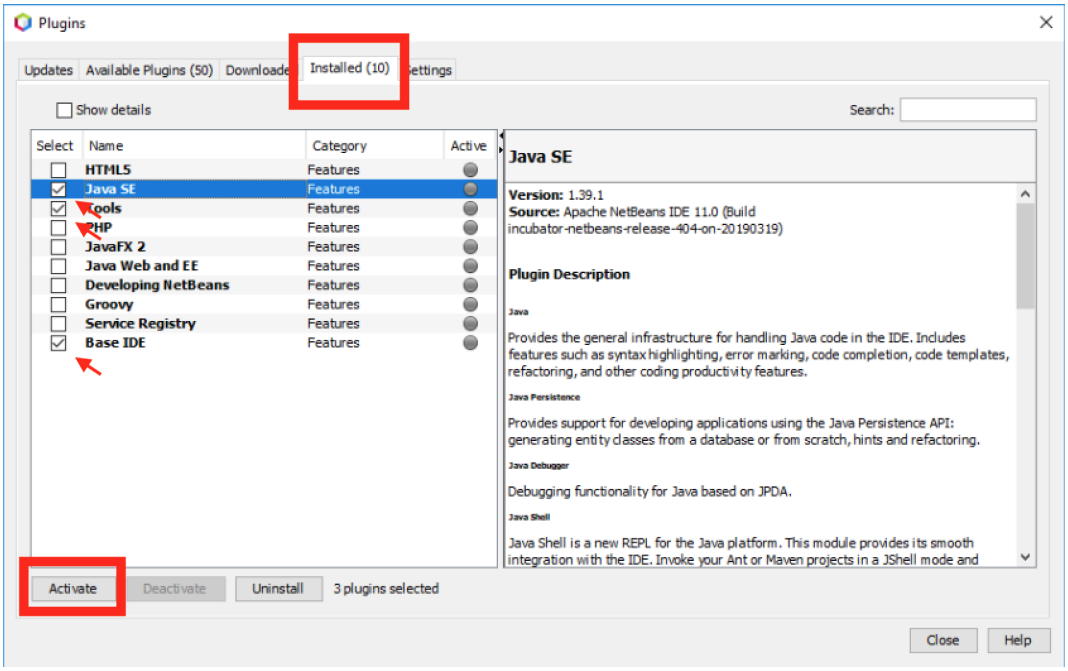
To get `NetBeans 12`, visit the above link, and find the Download link for "NetBeans 12.0." Download and install NetBeans.

## Creating a Program in `NetBeans`

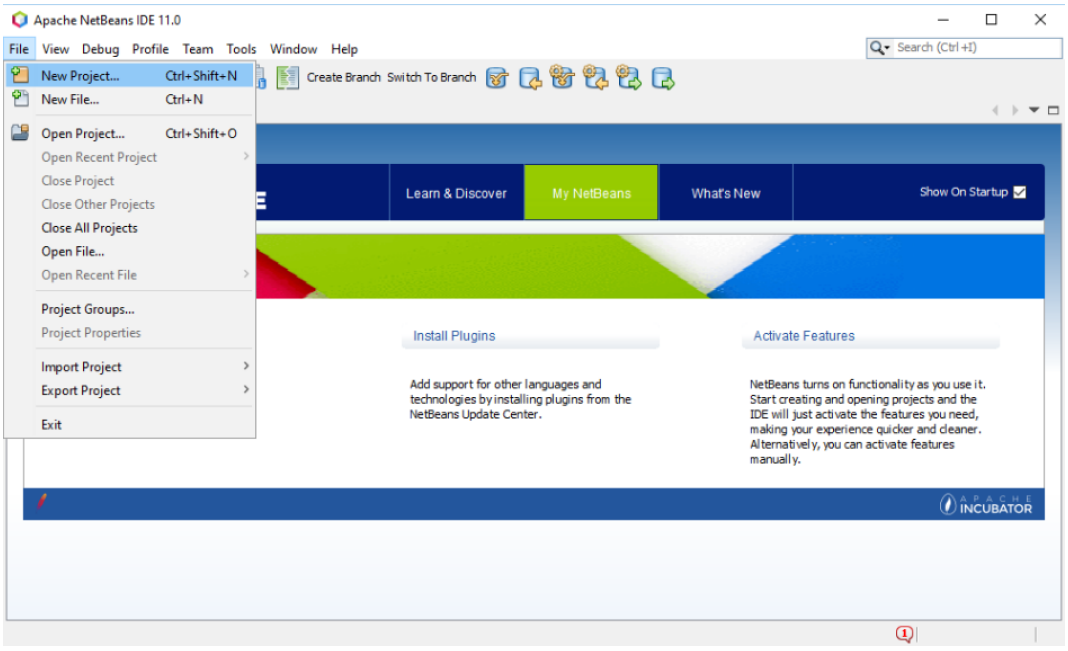
1. Start `NetBeans`. You should see something that looks like this:



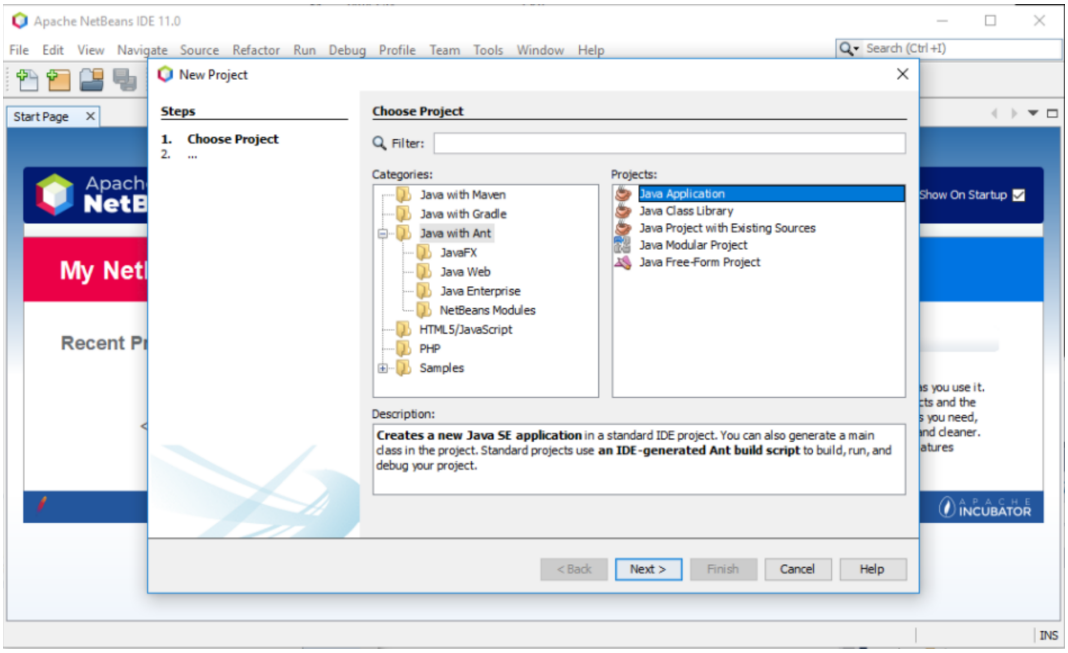

2. If you just downloaded `NetBeans` as a .zip folder, you may have to activate some plugins before it will work properly. On the start screen, find where it says "Install Plugins," then go to the "Installed" tab, select these plugins, and click "Activate":




3. From the `File` menu, select `New Project`. All work in `NetBeans` is organized by `Project`, of which you may have multiple. Generally you will have one `Project` per Lab.




4. In the new window that pops up, select `Java with Ant` as the category, and `Java Application` as the project. Then click on the Next button.




5. On the next screen we tell `NetBeans` about our project.

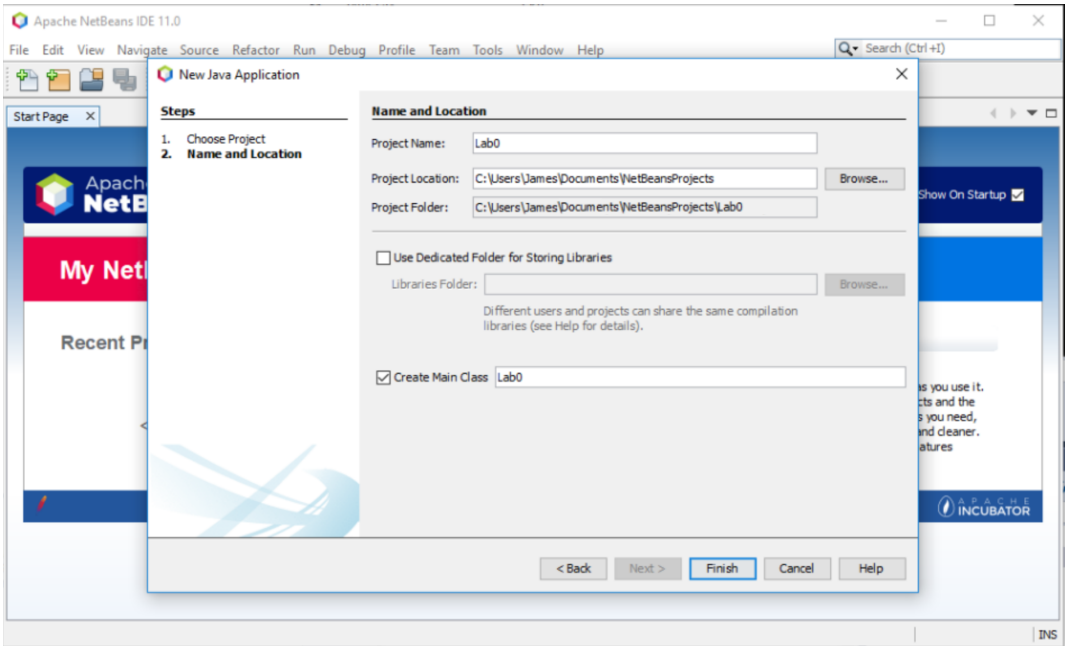
Set the `Project Name` as Lab0. The name actually doesn't matter too much, but you're going to have several of these throughout the course, and you don't want to get confused later.

You probably want to leave `Project Location` and `Project Folder` at their defaults, though you can move them elsewhere on your filesystem if you prefer. **Please note** the location that's chosen here - you will need to visit this folder later, in order to get your files and turn them in and get graded.

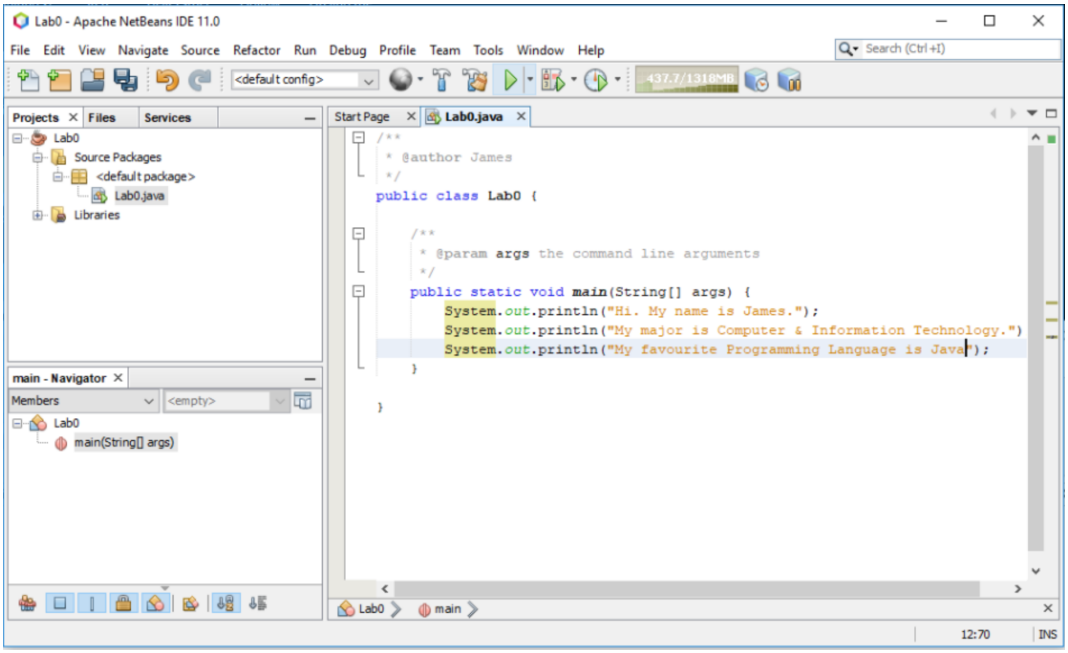
Leave `Use Dedicated Folder` ... unchecked. You will not need it throughout this course.

Check the `Create Main Class` option and set the name to Lab0 (with no spaces). This names both the first (and in this case, only) file in the project, and some of the names inside that file. It will also auto-populate a little bit of code and some comments for you. Each Lab has particular filenames it wants you to use, and note that names are case sensitive.

Finally, click on the Finish button.

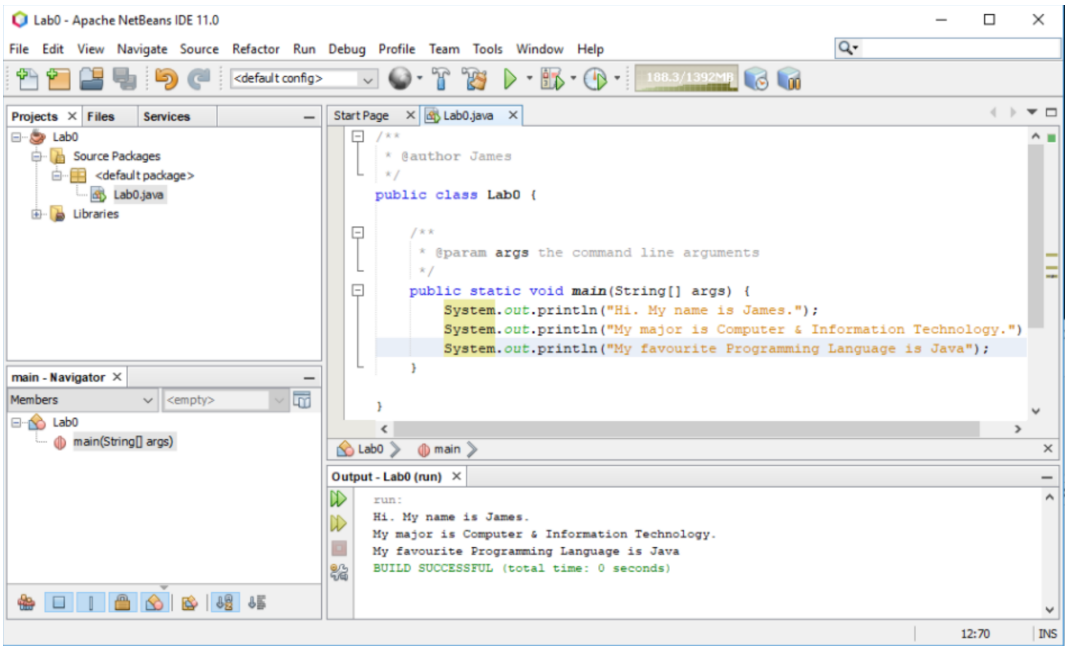



6. Congratulations! You just created your first Java project in `NetBeans`, though it does not do anything yet. Please write some statements in the `main()` method of `Lab0.java` that print out some information about you. This includes your name, major, and favorite programming language, each printed on its own line.



7. Whenever you are ready to run your program, you can either go to the `Run` menu and click on `Run Project`, or otherwise click on the small "Play" Button in the menu bar. This will execute your program, and if everything works well, you will see the information being printed in an output window.

The "Play" button looks like this




Note the program output from clicking the play button, inside `Output - Lab0 (run)`

## Additional Note - About Grading

The top of the first page of each Lab's handout says what to do to get graded. Once your "about you" is printing correctly, get your lab checked off by a TA. Once the TA has checked off your work, submit your lab files via Brightspace.