

## 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](http://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”):

Oracle Technology Network / Java / Java SE / Downloads

**Java SE Development Kit 8 Downloads**

Thank you for downloading this release of the Java™ Platform, Standard Edition Development Kit (JDK™). The JDK is a development environment for building applications, applets, and components using the Java programming language.

The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.

**Important Oracle JDK License Update**

**The Oracle JDK License has changed for releases starting April 16, 2019.**

The new [Oracle Technology Network License Agreement for Oracle Java SE](#) is substantially different from prior Oracle JDK licenses. The new license permits certain uses, such as personal use and development use, at no cost -- but other uses authorized under prior Oracle JDK licenses may no longer be available. Please review the terms carefully before downloading and using this product. An FAQ is available [here](#).

Commercial license and support is available with a low cost [Java SE Subscription](#).

Oracle also provides the latest OpenJDK release under the open source [GPL License](#) at [jdk.java.net](#).

See also:

- [Java Developer Newsletter](#): From your Oracle account, select **Subscriptions**, expand **Technology**, and subscribe to **Java**.
- [Java Developer Day](#) hands-on workshops (free) and other events
- [Java Magazine](#)

JDK 8u221 [checksum](#)

**Java SE Development Kit 8u221**

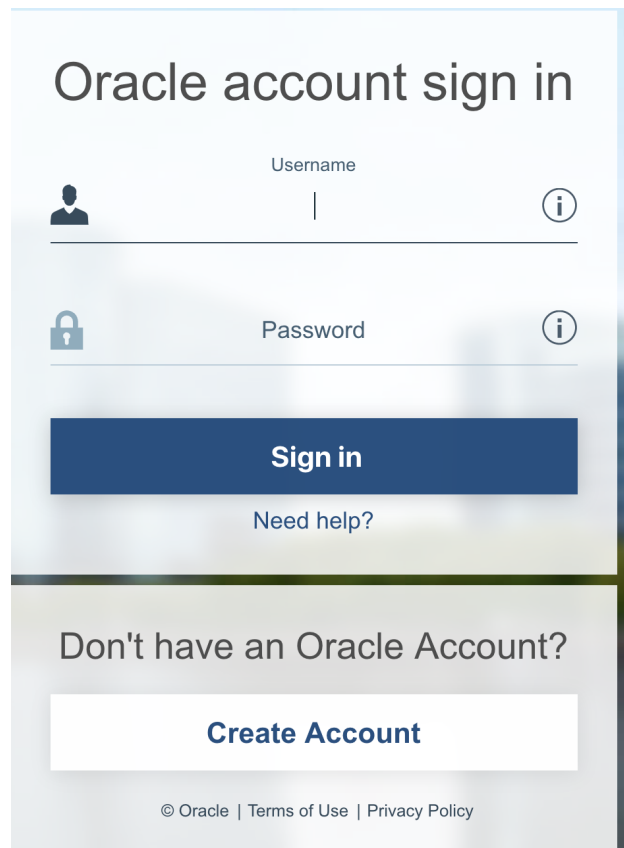
## Java SE Development Kit 8u221

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	<a href="#">jdk-8u221-linux-arm32-vfp-hflt.tar.gz</a>
Linux ARM 64 Hard Float ABI	69.81 MB	<a href="#">jdk-8u221-linux-arm64-vfp-hflt.tar.gz</a>
Linux x86	174.18 MB	<a href="#">jdk-8u221-linux-i586.rpm</a>
Linux x86	189.03 MB	<a href="#">jdk-8u221-linux-i586.tar.gz</a>
Linux x64	171.19 MB	<a href="#">jdk-8u221-linux-x64.rpm</a>
Linux x64	186.06 MB	<a href="#">jdk-8u221-linux-x64.tar.gz</a>
Mac OS X x64	252.52 MB	<a href="#">jdk-8u221-macosx-x64.dmg</a>
Solaris SPARC 64-bit (SVR4 package)	132.99 MB	<a href="#">jdk-8u221-solaris-sparcv9.tar.Z</a>
Solaris SPARC 64-bit	94.23 MB	<a href="#">jdk-8u221-solaris-sparcv9.tar.gz</a>
Solaris x64 (SVR4 package)	133.66 MB	<a href="#">jdk-8u221-solaris-x64.tar.Z</a>
Solaris x64	91.95 MB	<a href="#">jdk-8u221-solaris-x64.tar.gz</a>
Windows x86	202.73 MB	<a href="#">jdk-8u221-windows-i586.exe</a>
Windows x64	215.35 MB	<a href="#">jdk-8u221-windows-x64.exe</a>

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:



The image shows a web form for signing into an Oracle account. The form is titled "Oracle account sign in" in a large, dark font. Below the title, there are two input fields: "Username" and "Password". Each field has a small icon to its left (a person icon for Username and a lock icon for Password) and a small "i" icon to its right. Below the input fields is a large blue button labeled "Sign in". Underneath the "Sign in" button is a link that says "Need help?". Below the "Sign in" section is a section titled "Don't have an Oracle Account?" with a white button labeled "Create Account". At the bottom of the form, there is a small line of text: "© Oracle | Terms of Use | Privacy Policy".

Oracle account sign in

Username

Password

Sign in

Need help?

Don't have an Oracle Account?

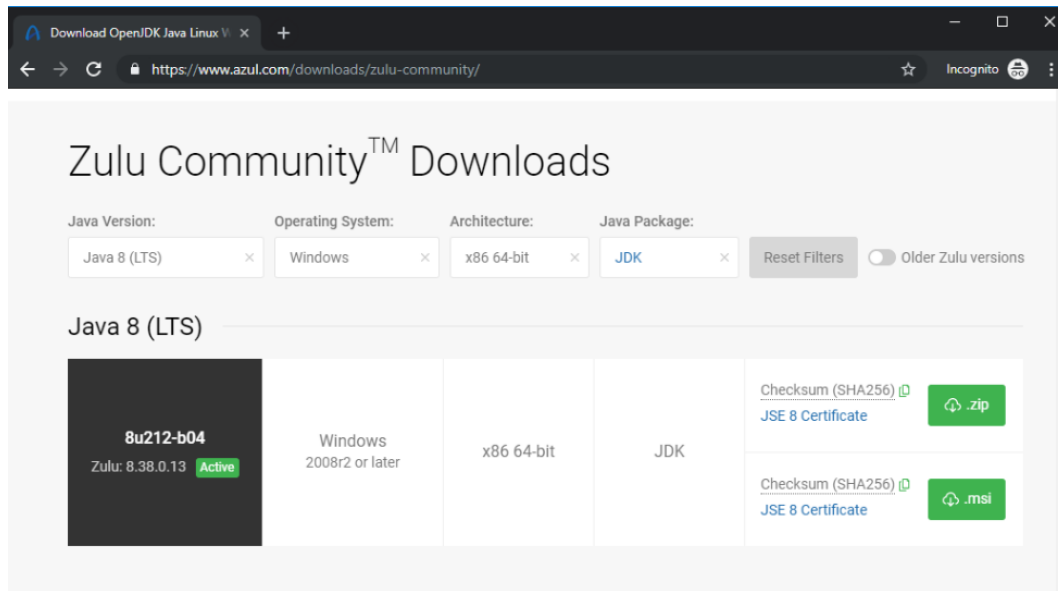
Create Account

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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).

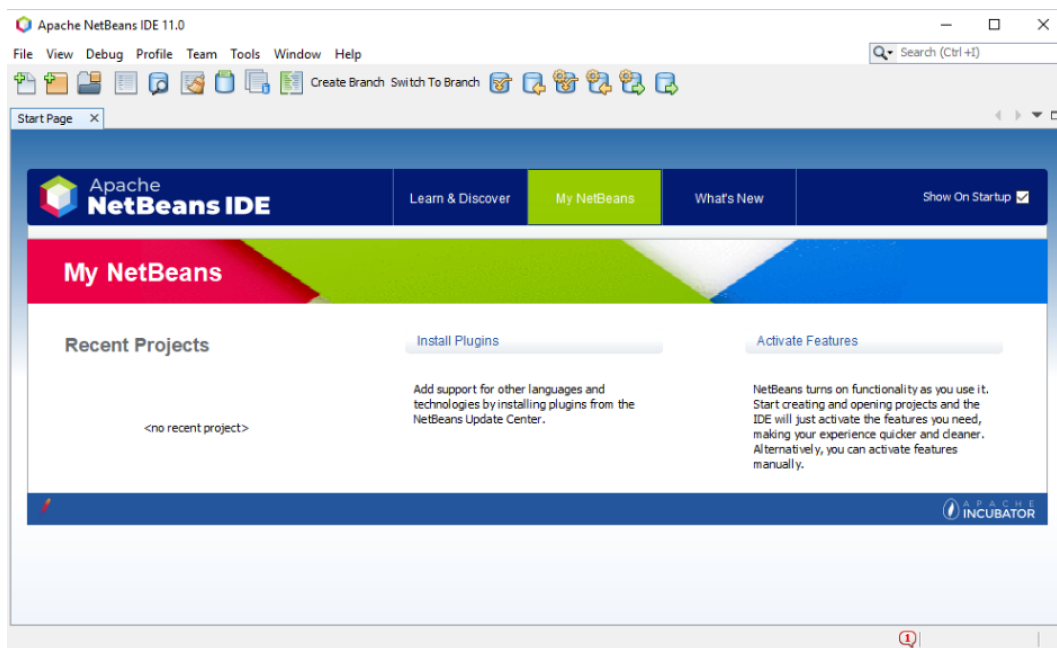
Once the file is downloaded, double click the result and follow the install instructions. Get help if the installer is not successful. Note that the Zulu JDK installs to a different location than some are used to.

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

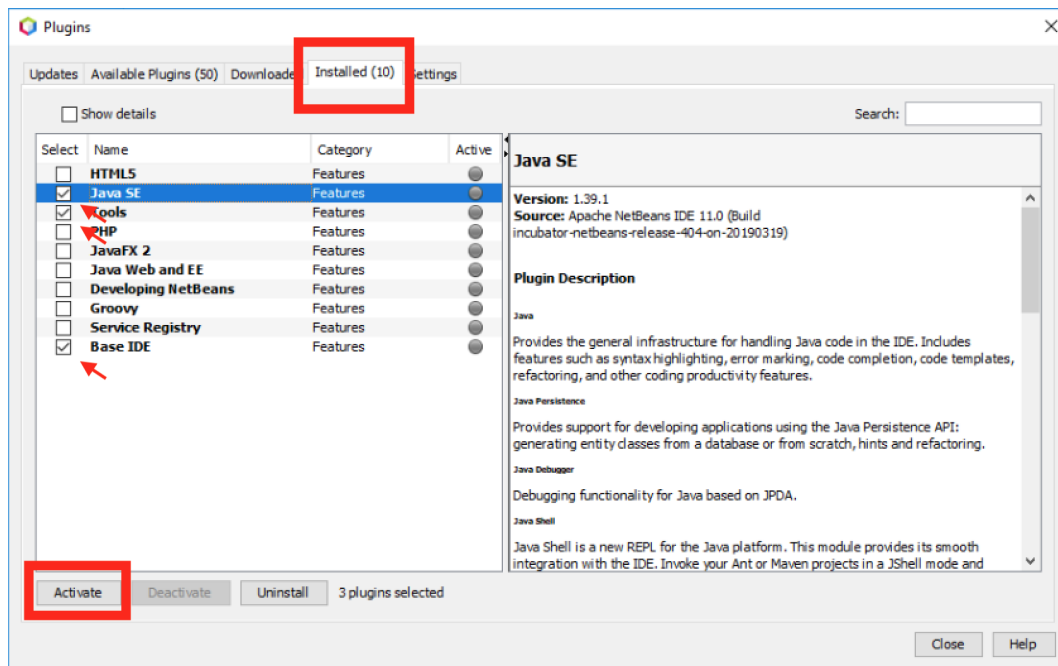
To get NetBeans 12, visit the above link, and find the Download link for “NetBeans 12.0.” Download and install NetBeans.

## Creating a Program in NetBeans

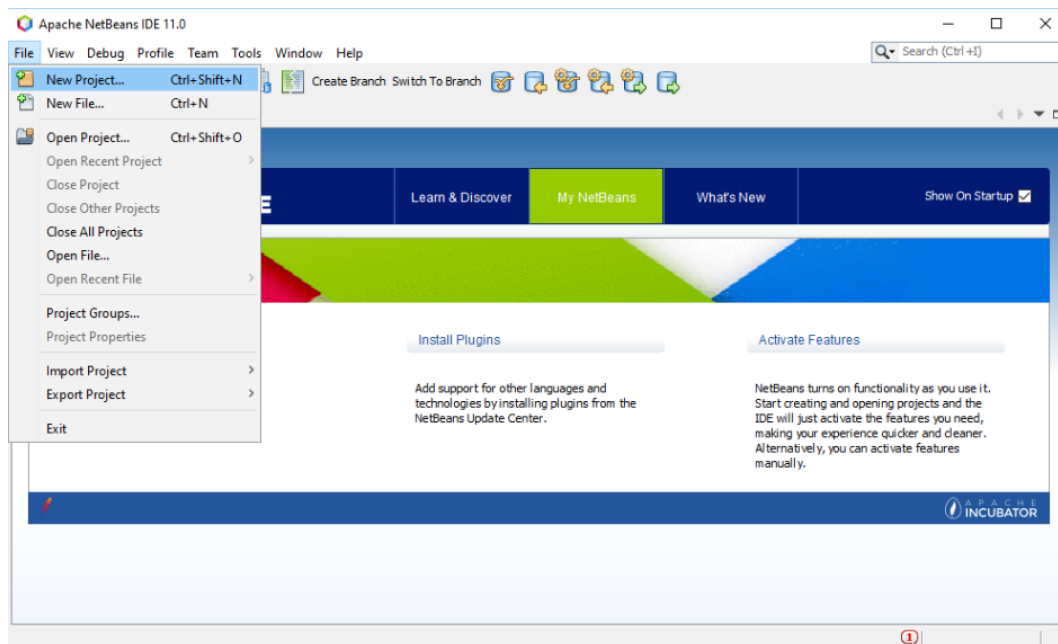
1. Start NetBeans. You should see something that looks like this:



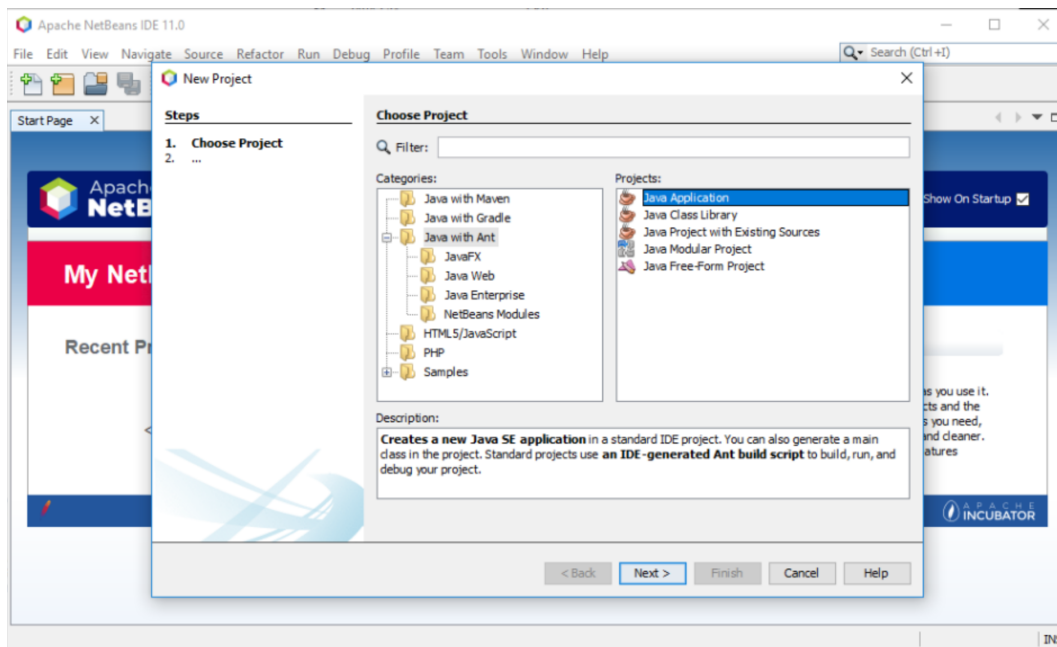
2. If you just downloaded NetBeans as a .zip folder, you may have to activate some plugins before it will work properly. On the start screen, find where it says “Install Plugins,” then go to the “Installed” tab, select these plugins, and click “Activate”:



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.

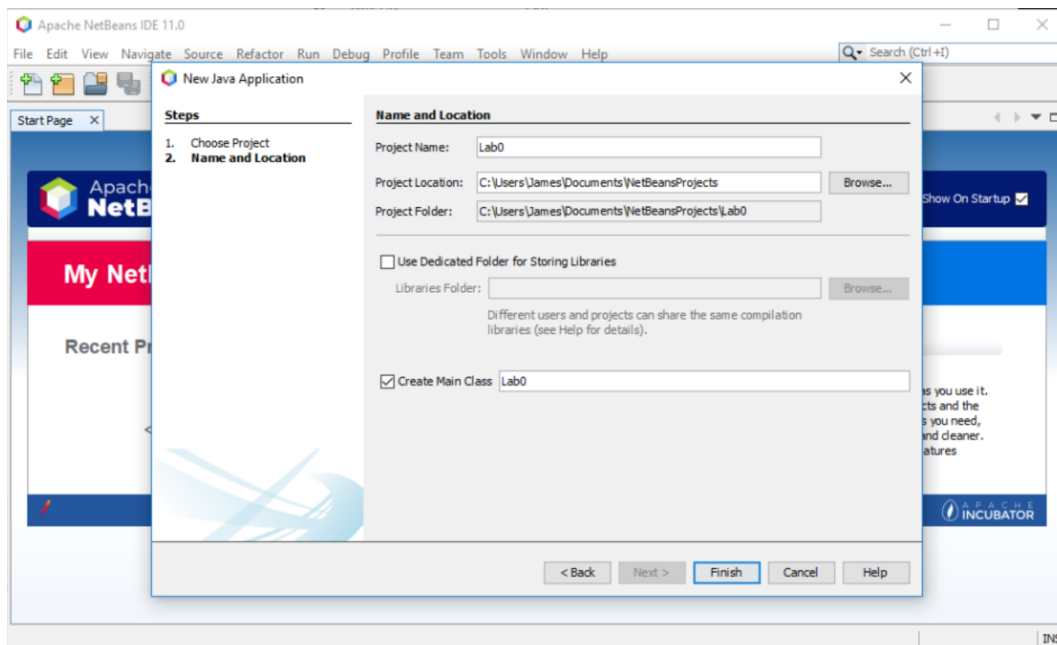
Set the **Project Name** as Lab0. The name actually doesn't matter too much, but you're going to have several of these throughout the course, and you don't want to get confused later.

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.

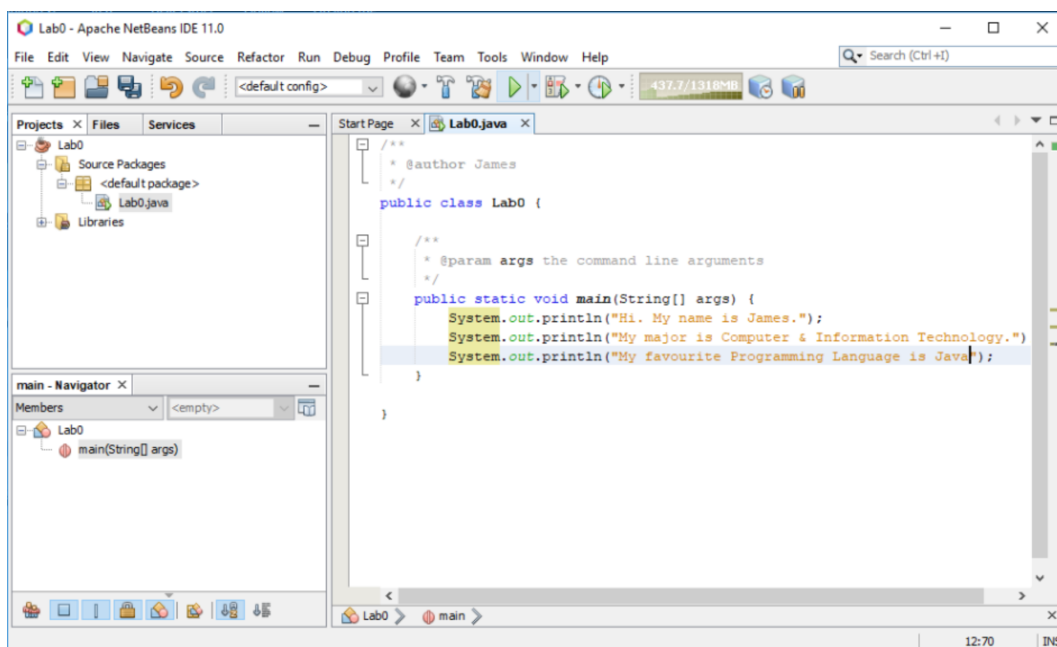
Leave **Use Dedicated Folder ...** unchecked. You will not need it throughout this course.

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.

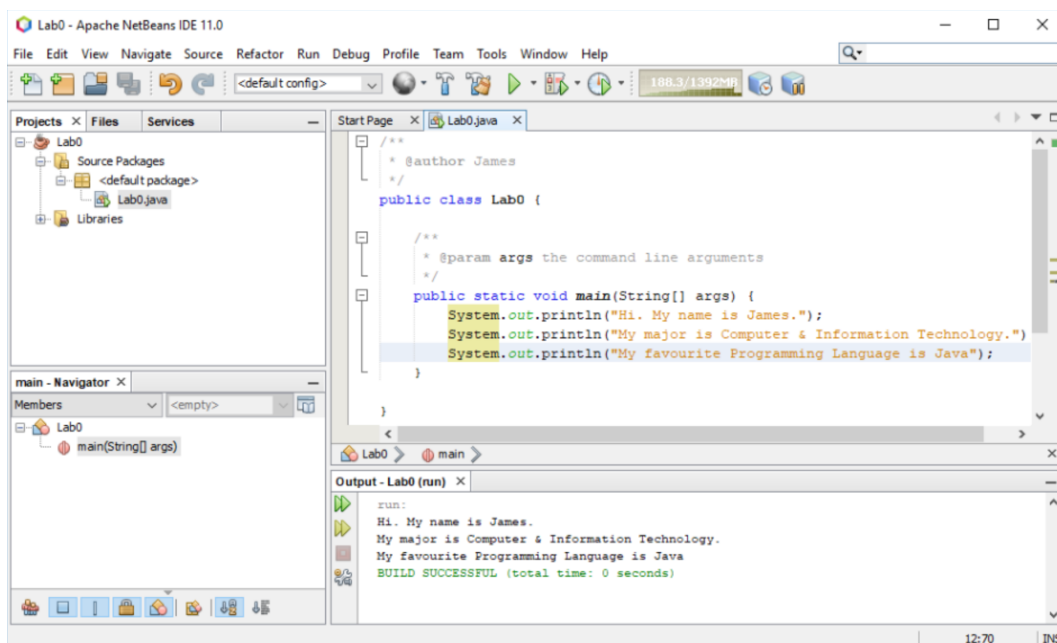




7. Whenever you are ready to run your program, you can either go to the **Run** menu and click on **Run Project**, or otherwise click on the small “Play” Button in the menu bar. This will execute your program, and if everything works well, you will see the information being printed in an output window.



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.