

# EGR 222 — Software Engineering

## Homework #0

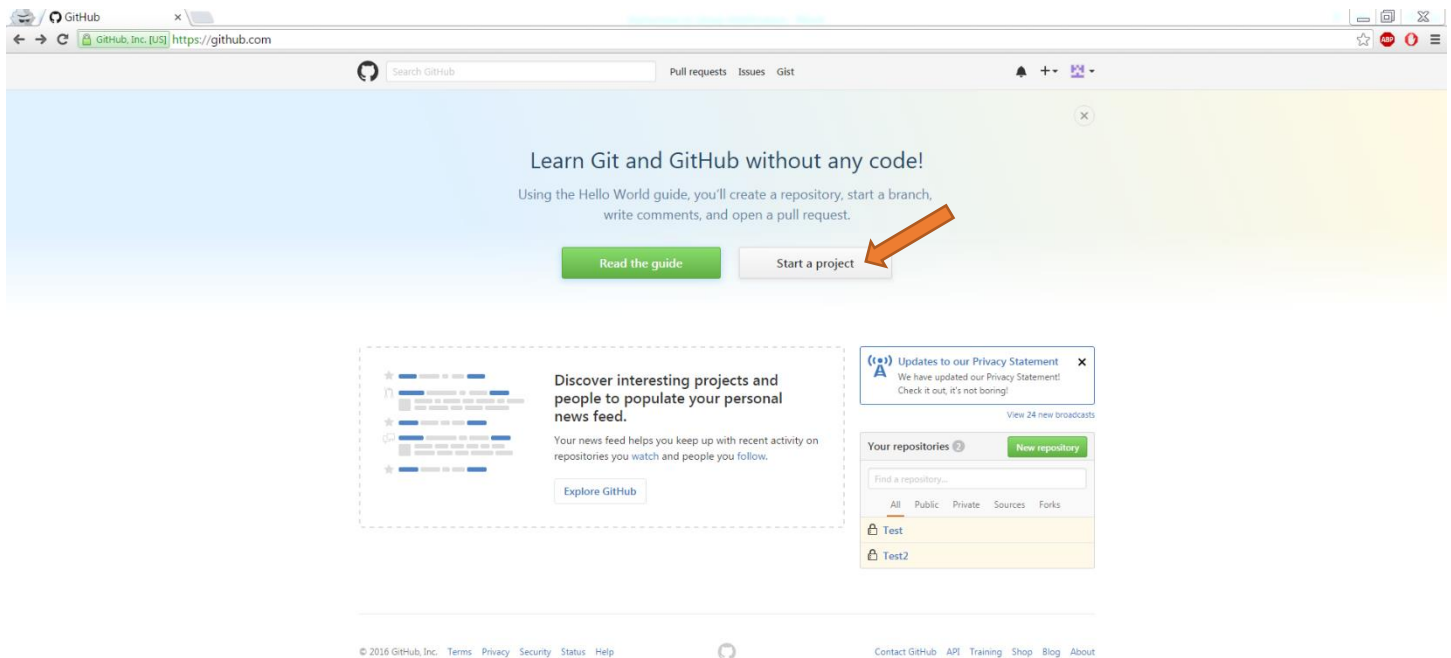
### Set up Your Environment

**Due: Friday, 8/28/20, 11 PM**

## Section 1: Instruction for GitHub

GitHub provides storage for you to put source codes and pretty much any files you want. Think of it as a storage in cloud but with convenient management/sharing features especially for codes. A repository is the unit of storage and management.

1. Go to [Github.com](https://github.com) and sign up with your CBU email. This creates just your regular github account. You must use CBU email in order to get approved for free unlimited private repositories.
2. Go to <https://education.github.com/pack> and request your **student developer pack**
3. **If you do not get the approval within a day or two, then go to <https://github.com/contact> and fill out the form to requesting to expedite the approval.**
4. After signing up, put your account information [HERE](#).
5. Upon logging-in, click “Start a project”



6. Put repository name as “EGR222-MyFirstJavaApp”. Put some description of your choice. Must choose PRIVATE repository. Keep the initializing option unchecked as default. Click “Create repository”

## Create a new repository

A repository contains all the files for your project, including the revision history.

Owner



mikiehan

Repository name

EGR222-MyFirstJavaApp



Great repository names are short and memorable. Need inspiration? How about **redesigned-journey**.

Description (optional)

For EGR222 MyFirstJavaApp project



Public

Anyone can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.



Initialize this repository with a README

This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: None

Add a license: None



Create repository

- You will see the repository created. In the box it should show the URL for this repository. The URL should be [https://github.com/{your\\_username}/{your\\_repository\\_name}.git](https://github.com/{your_username}/{your_repository_name}.git) (so instead of “mikiehan” below, you will see your own username)

### Quick setup — if you've done this kind of thing before



Set up in Desktop

or

HTTPS

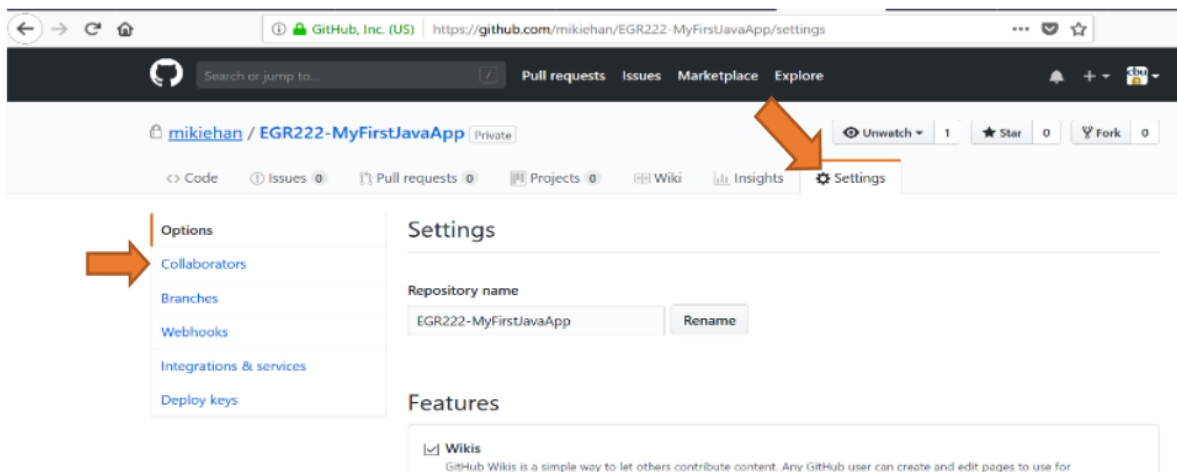
SSH

<https://github.com/mikiehan/EGR222-MyFirstJavaApp.git>

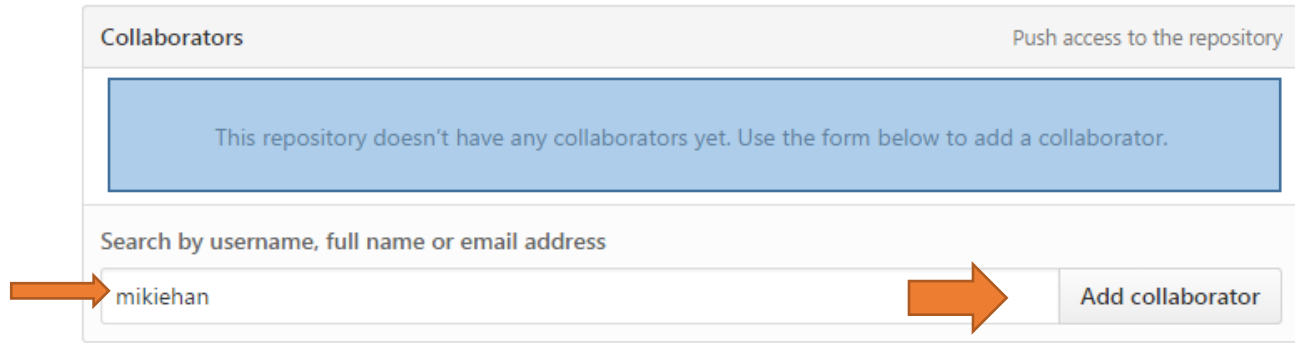


We recommend every repository include a [README](#), [LICENSE](#), and [.gitignore](#).

- Under your repository {your\_account}/EGR222-MyFirstJavaAPP, go to “Settings” and click “Collaborators” or “Manage Access”





9. You will add your instructor as your collaborator. Type “mikiehan” in the box and click “Add Collaborator”, where mikiehan is my username. After this I will be able to access to your repository.



Collaborators [Push access to the repository](#)

This repository doesn't have any collaborators yet. Use the form below to add a collaborator.

Search by username, full name or email address

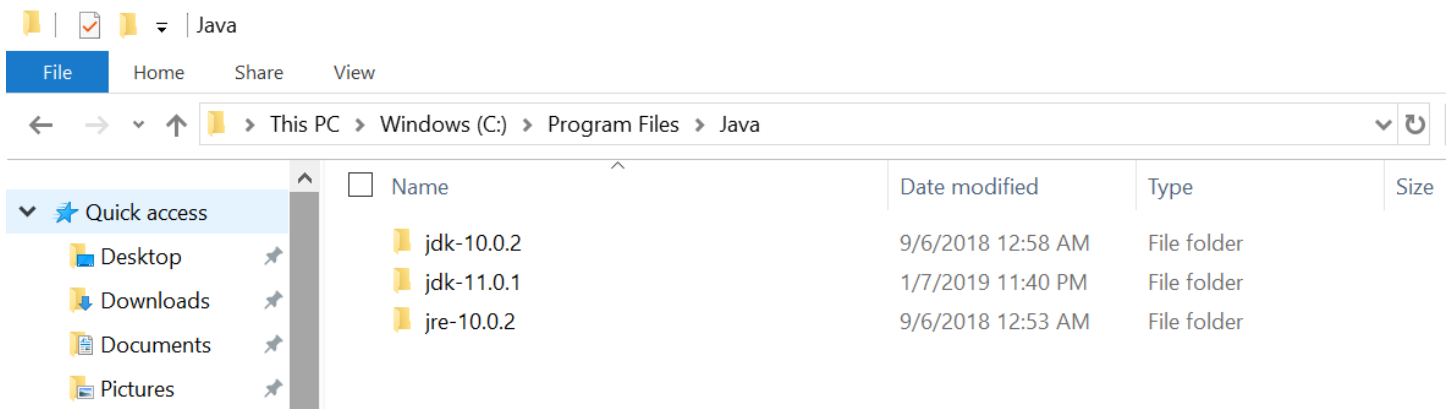
 mikiehan  [Add collaborator](#)

Upon clicking, you should see “mikiehan” appear in the blue area marked above.  
You are now done setting up your first GitHub repository!  
Be excited as your life-long journey with GitHub has just begun! ☺

## Section 2: Instruction to Install the Latest JDK

The **Java Development Kit (JDK)** is a software development environment used for developing Java applications and applets. It includes the Java Runtime Environment (JRE), an interpreter/loader (java), a compiler (javac), an archiver (jar), a documentation generator (javadoc) and other tools needed in developing in Java. We will go over what they are later in the course. For now, you can simply think in order to develop/run/debug programs in Java, you need to install this ☺

1. Follow instructors under BB → Homework → Install JDK8
2. Once the download is complete. Double click (either exe for Windows or dmg for Mac)to install. Follow the install wizard keeping the default.
3. Check where you've installed JDK.
  - 1) **Mac User:** Your JDK will be under /Library/java/JavaVirtualMachines. You can navigate to the location and check whether indeed the jdk is there.
  - 2) **Windows User:** Check the directory you selected and confirm you see jdk-XX.YYY installed where XX is jdk8 and YYY is the sub version number. It is typically under C:\Program Files\Java. For me, looks like below. You may have previous versions installed like I do. If not, no worries. In any case, you can keep it as it is.



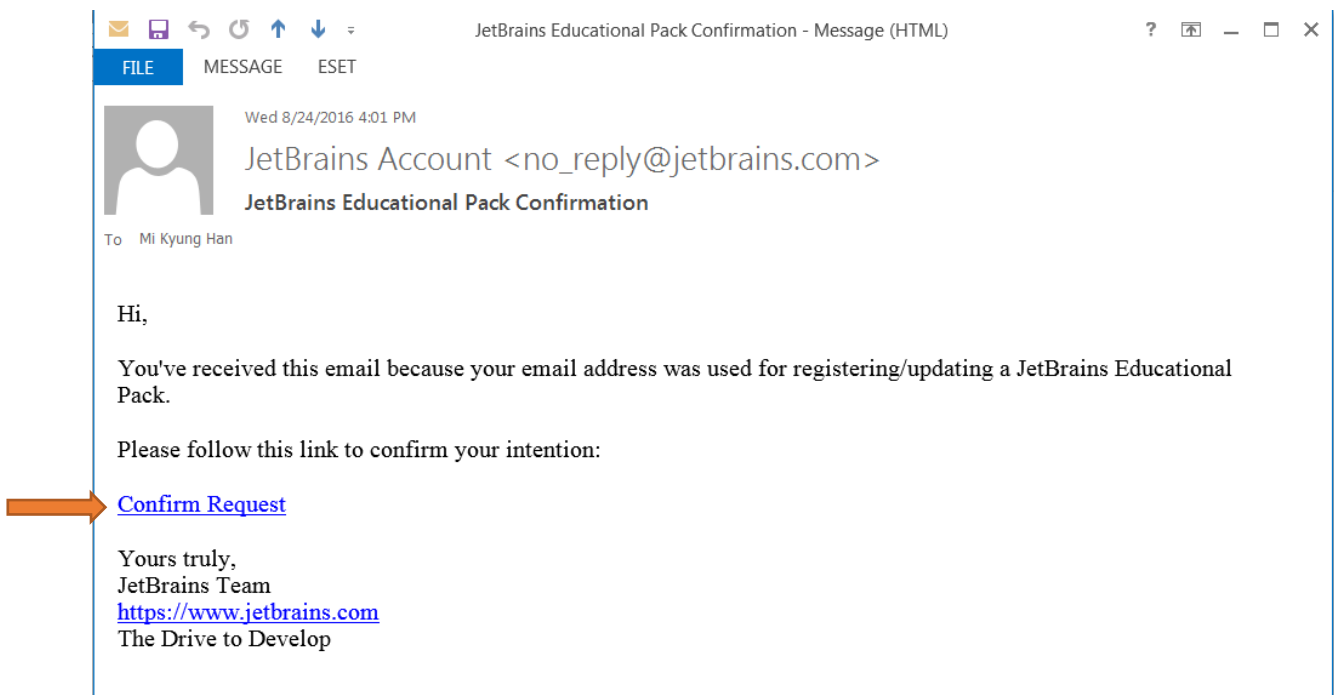
Cool! You are done with Section 2. Making good progress.

## Section 3: Instruction to Install and Setup IntelliJ

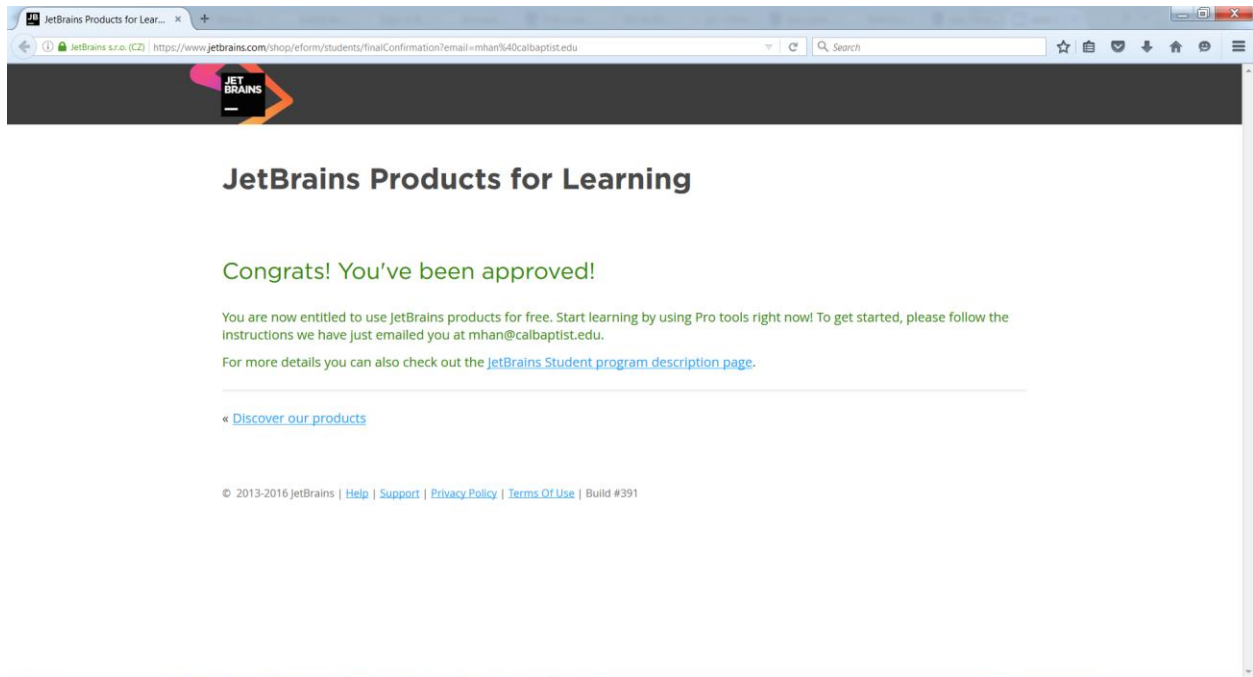
1. IntelliJ is a very popular and powerful IDE for Java. (Just like you used XCode or Visual Studio for C++) IntelliJ supports both Windows and Mac.  
Now let's get it on your machine. Go to <https://www.jetbrains.com/shop/eform/students>
4. Fill out your information. You MUST use CBU email to be approved!

The screenshot shows a web browser window with the URL <https://www.jetbrains.com/shop/eform/students>. The page title is "JetBrains Products for Learning". The form has three tabs: "UNIVERSITY EMAIL ADDRESS" (selected), "ISIC/ITIC MEMBERSHIP", and "OFFICIAL DOCUMENT". The "Status" section has two radio buttons: "I'm a student" (selected) and "I'm a teacher". The "Name" section has two text boxes, both containing "Lancer". Below the name boxes is a note: "Our software will be registered to your real name." The "Email address" section has a text box containing "lancer.lance@calbaptist.edu", which is highlighted with an orange rectangle. Below the email box is a note: "Your valid university email address, e.g. john.smith@mit.edu. We'll send you further instructions." At the bottom of the form is a blue button labeled "APPLY FOR FREE PRODUCTS".

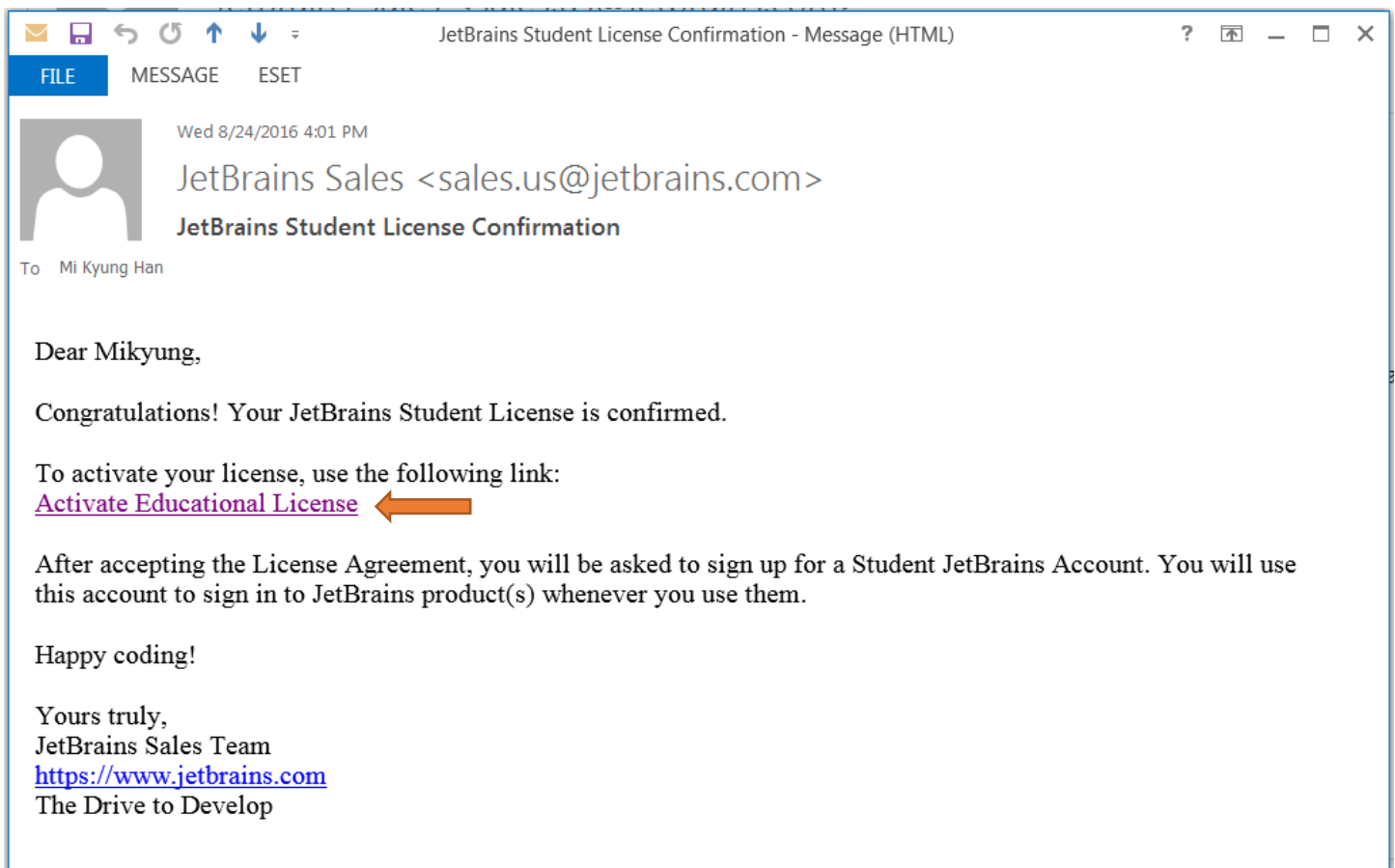
5. You will get the following email to your CBU email with a link. Click “Confirm Request”



6. Upon clicking, you will see the approval as below. Check your CBU email again. You will receive another email.



7. In the new email, click the link “Activate Educational License”. Upon accepting the License Agreement, you will sign up for JetBrains Account. Type in ID and password you want.



8. After signing up you will be see below License page. Click “IntelliJ IDEA Ultimate”.

The screenshot shows the JetBrains account page for Mikyung Han. A green notification bar at the top states: "1 x JetBrains Product Pack for Students Personal license were added." Below this, the "1 License" section displays the "JetBrains Product Pack for Students" with a "Download" link. The license is for Mikyung Han, valid until August 24, 2017. A list of included products is shown: IntelliJ IDEA Ultimate, ReSharper, ReSharper C++, dotTrace, dotMemory, dotCover, AppCode, CLion, PhpStorm, PyCharm, RubyMine, WebStorm, and DataGrip. An orange arrow points to the "Download" link. At the bottom, a footer contains the URL "https://account.jetbrains.com/profile-details" and copyright information "© 2013-2016 JetBrains | Help | Support | Privacy Policy | Terms Of Use | Build #391".

9. Click “Download” in below page. (You can ignore the pop up message in the bottom right corner)

The screenshot shows the IntelliJ IDEA website. The header includes the JetBrains logo and navigation links: ALL TOOLS, IDEs, .NET & VISUAL STUDIO, TEAM TOOLS, LANGUAGES, STORE, SUPPORT, and WE ARE JETBRAINS. The main heading is "IntelliJ IDEA" with the tagline "Capable and Ergonomic Java \* IDE". A large orange arrow points to a black "DOWNLOAD" button. Below the button, it says "\*Actually, much more than just Java". In the bottom right corner, there is a cookie consent pop-up with the text: "Cookies help us improve our web content and deliver a personalized experience. By using this website, you agree to our use of cookies. Type 'man cookies' to learn more or 'exit' to close. ~ root#".

10. Click “Download” for Ultimate.

IntelliJ IDEA the Java IDE

JetBrains s.r.o. (CZ) | https://www.jetbrains.com/idea/#chooseYourEdition


IntelliJ IDEA

What's New Features Learn Buy [Download](#)

	Community	Ultimate
	For JVM and Android development	For web and enterprise development
Java, Kotlin, Groovy, Scala	✓	✓
Android ?	✓	✓
Maven, Gradle, SBT	✓	✓
Git, SVN, Mercurial, CVS	✓	✓
Detecting Duplicates ?		✓
Perforce, ClearCase, TFS		✓
JavaScript, TypeScript ?		✓
Java EE, Spring, GWT, Vaadin, Play, Grails, Other Frameworks ?		✓
Database Tools, SQL		✓

[Compare editions](#)

[DOWNLOAD](#) [.EXE](#) [Free download](#)

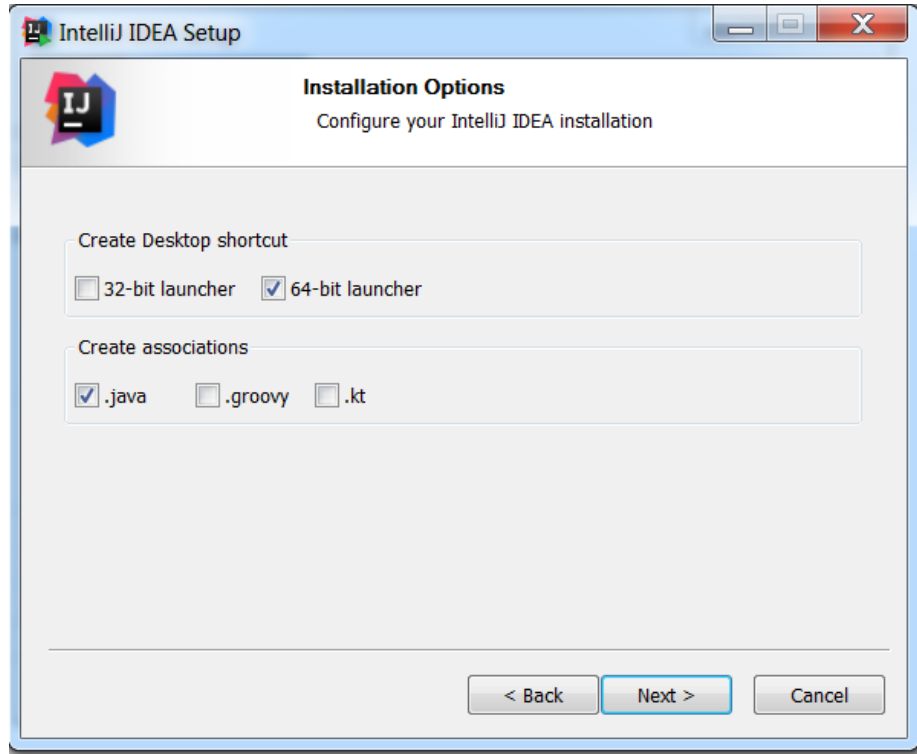
 [DOWNLOAD](#) [.EXE](#) [Free 30-day trial](#)

11. Once download completes, double click the exec to run. You will see this Wizard come up.





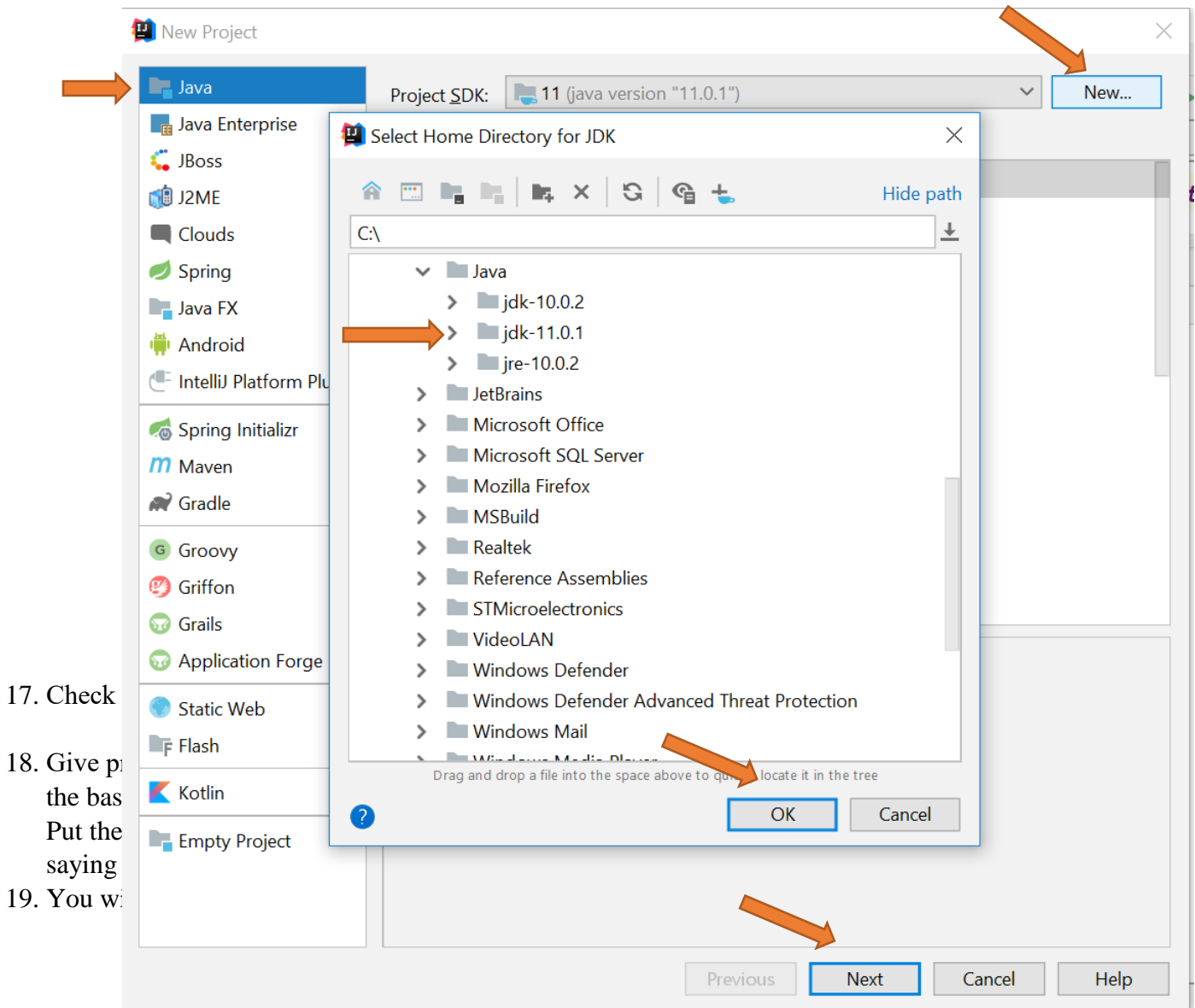
12. Follow the setup wizard to finish set up. Check 64-bit launcher and .java when below Install Options show. For all other options/settings, you can go with the default.

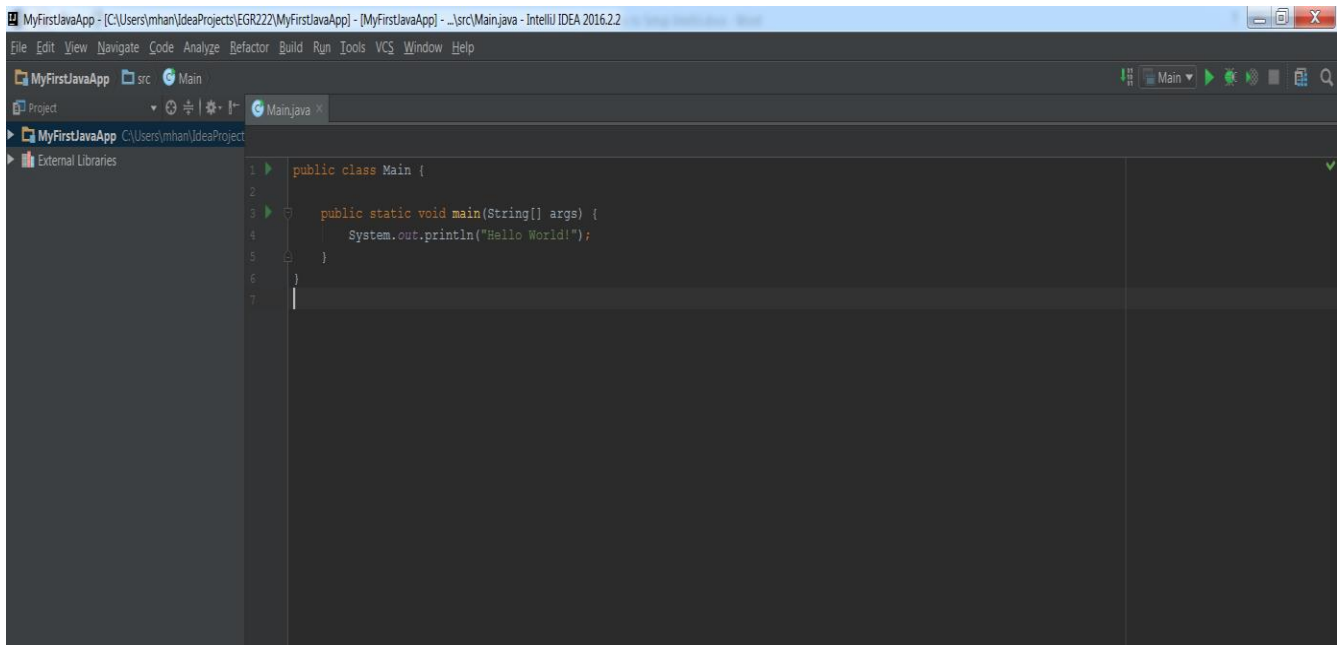


13. Start IntelliJ. In the license window, keep as the default and use your JetBrains account you created in step 8.
14. You can set the UI scheme as you wish (Either dark or light). For all other settings, you can keep the default.
15. Click “Create New Project”

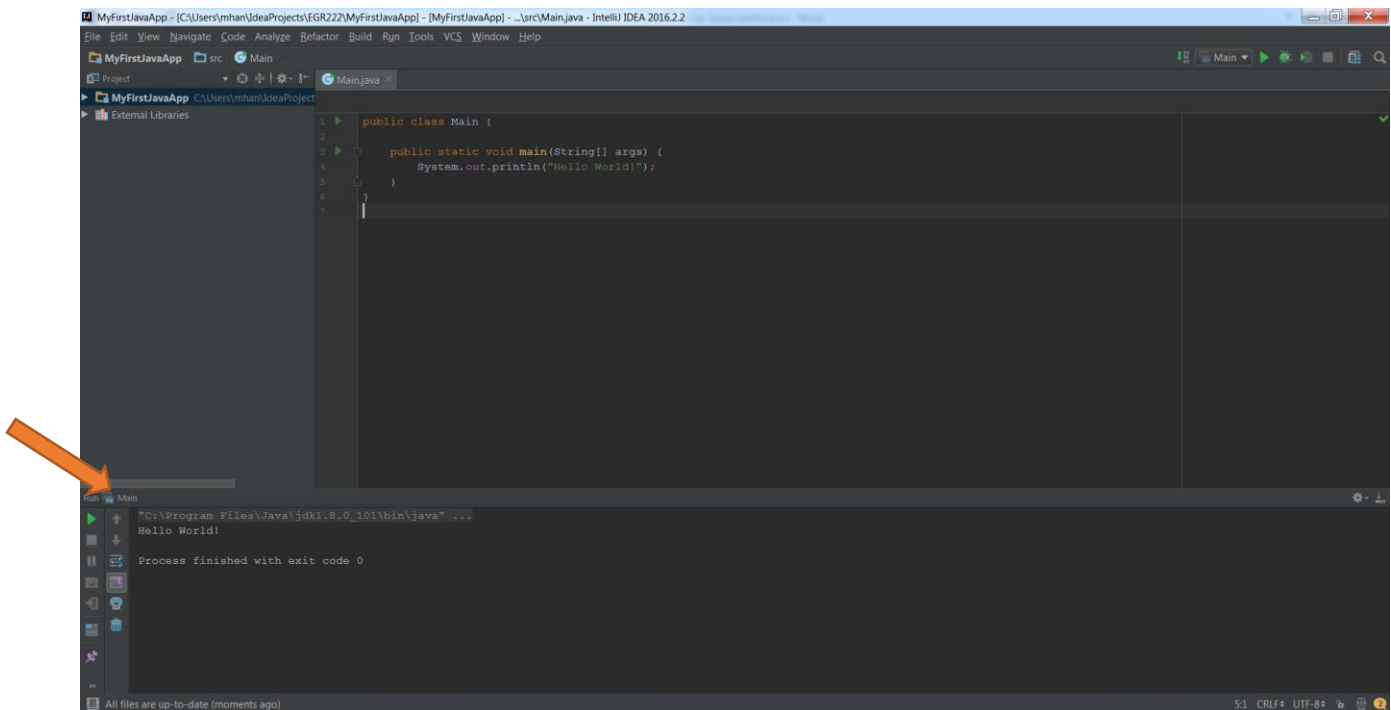


16. Select “Java” on the left column. For Project SDK on top, click “New.” Navigate to the JDK folder you installed previously. **Make sure you choose the most recent version (the highest number).** See Section 2 Step 4. (Such as C:\Program Files\Java\jdkXXX for Windows, or /Library/java/JavaVirtualMachines for Mac). Click “Next”. (Below screenshot chooses 11, but you should choose whatever is the latest instead! Again, I took this screenshot when 11 was the latest)





20. Let's use keyboard shortcut to run. If you are using Mac, do **Ctrl+R**. If you are using Windows, do **Shift+F10**. This will compile and run your program. You will see a new tab opened below and after getting compiled, "Hello World! Message" getting printed in the output console.



Sweeeet. You just created your first Java project called "MyFirstJavaApp" and successfully ran it. Congratulations!

Take a screenshot as above, showing both your program Main.java and the output window. This is your **SCREENSHOT #1**. Save this picture for later use. (You will be submitting a Word doc which contains all the screenshots and upload to BB after you are done with all other sections.

## Section 4: Instruction to Install Git

Don't give up. Keep going! You are almost done!

You can also interact with GitHub through command line or terminal. In order to do that you need to install Git in your computer.

### For Mac

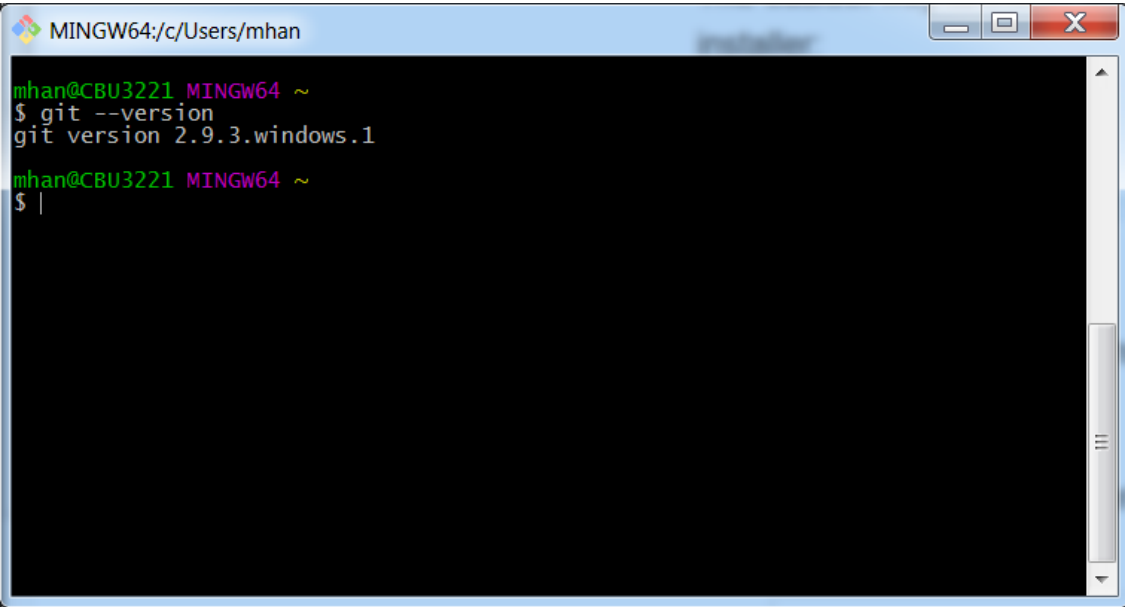
- Relax, do nothing. Git is already installed for you.

### For Windows

- Follow instructions [HERE](#). You need to scroll down where it says “Install Git on Windows.” Just do step 1-4 in the link. **Do NOT do the optional step.** Use default settings for all options during installation.
- When finished, launch git bash (open “git bash” program) and a new terminal will pop up.

### For BOTH Mac and Windows

Type “git --version” in the terminal. You should be able to see the version number of your git. Below is an example for Windows git bash. (Mac should have similar output)

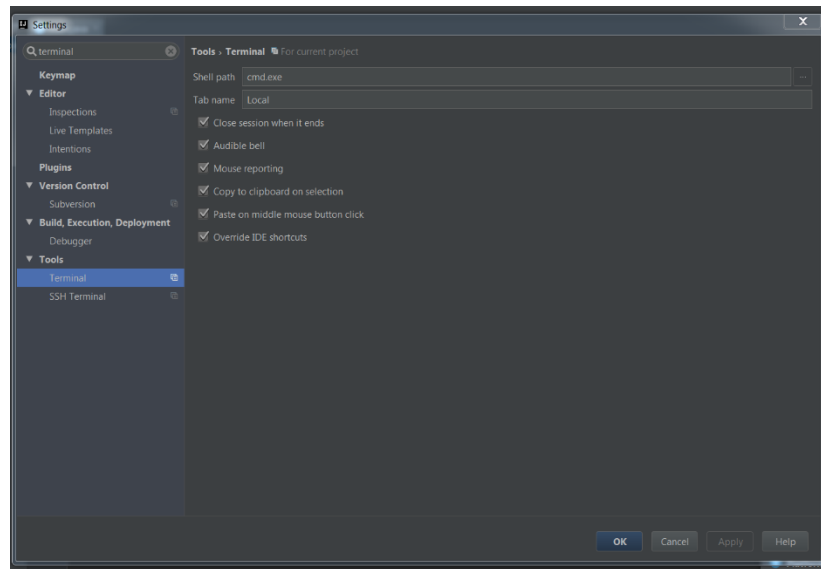


```
MINGW64:/c/Users/mhan  
mhan@CBU3221 MINGW64 ~  
$ git --version  
git version 2.9.3.windows.1  
mhan@CBU3221 MINGW64 ~  
$ |
```

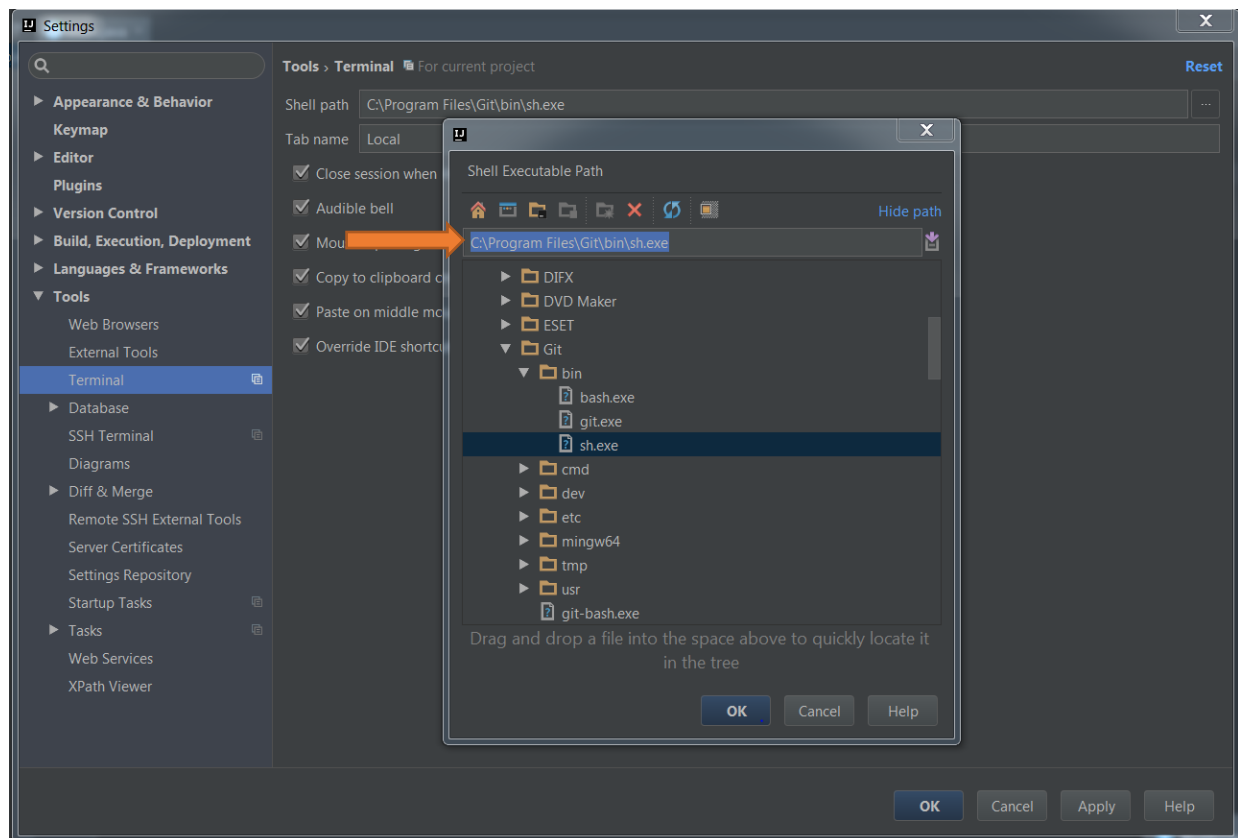
## Section 5: Enabling Git Terminal in IntelliJ

You are now one step closer to finish. **Step 1) and 2) below is for Windows User Only.**  
**If you are using Mac, go to 3) directly.**

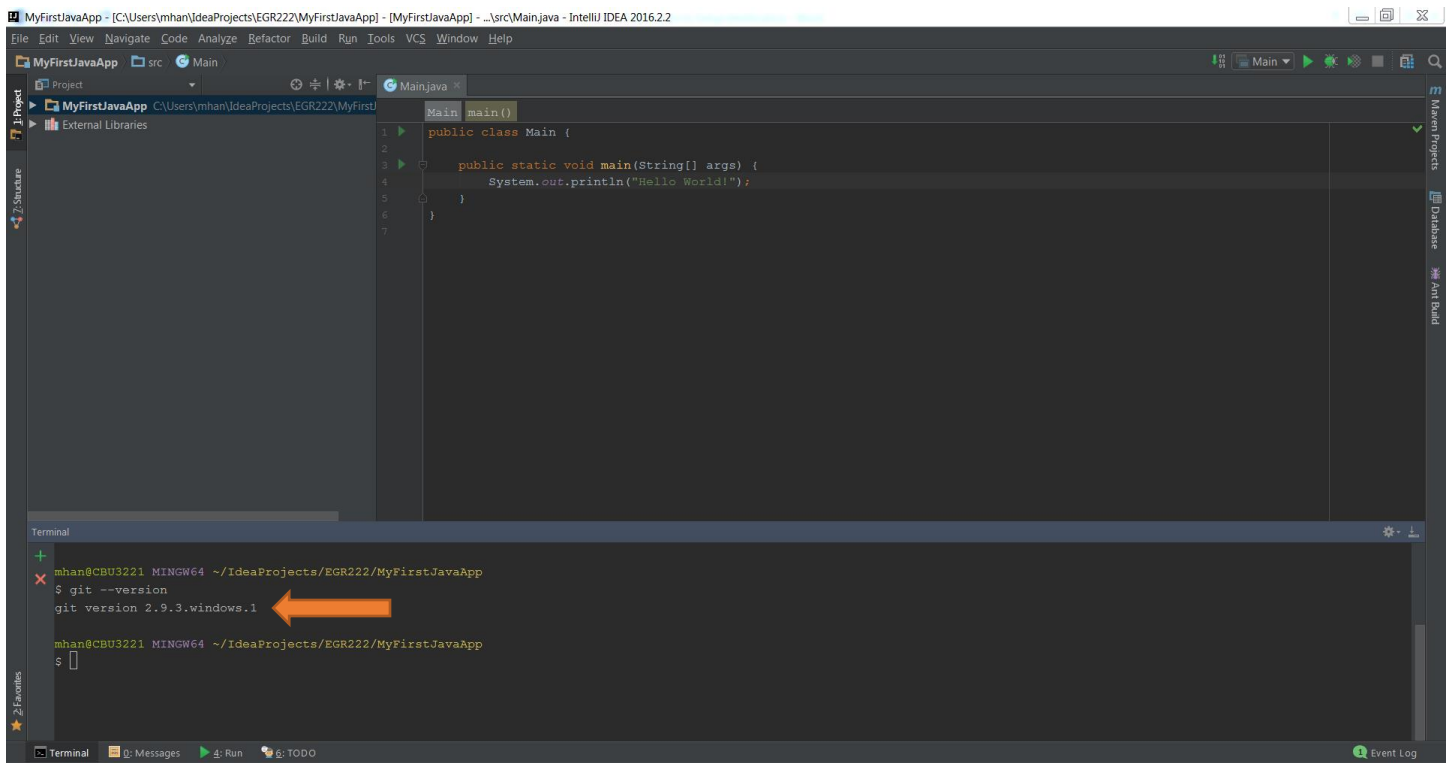
- 1) [Windows User Only] Open up Settings File -> Settings (For keyboard short cut, it is **Ctrl+Alt+S**)



- 2) [Windows User Only] This step is for Windows user only. Set your shell path to "C:\Program Files\Git\bin\sh.exe" (Or the directory you installed Git in Section 5)



- 3) Open terminal within IntelliJ by using the keyboard shortcut. For Windows, it is **Alt + F12**. For Mac, it is **Option + F12**.  
Type "git --version" in the terminal. It should show below the version of git.

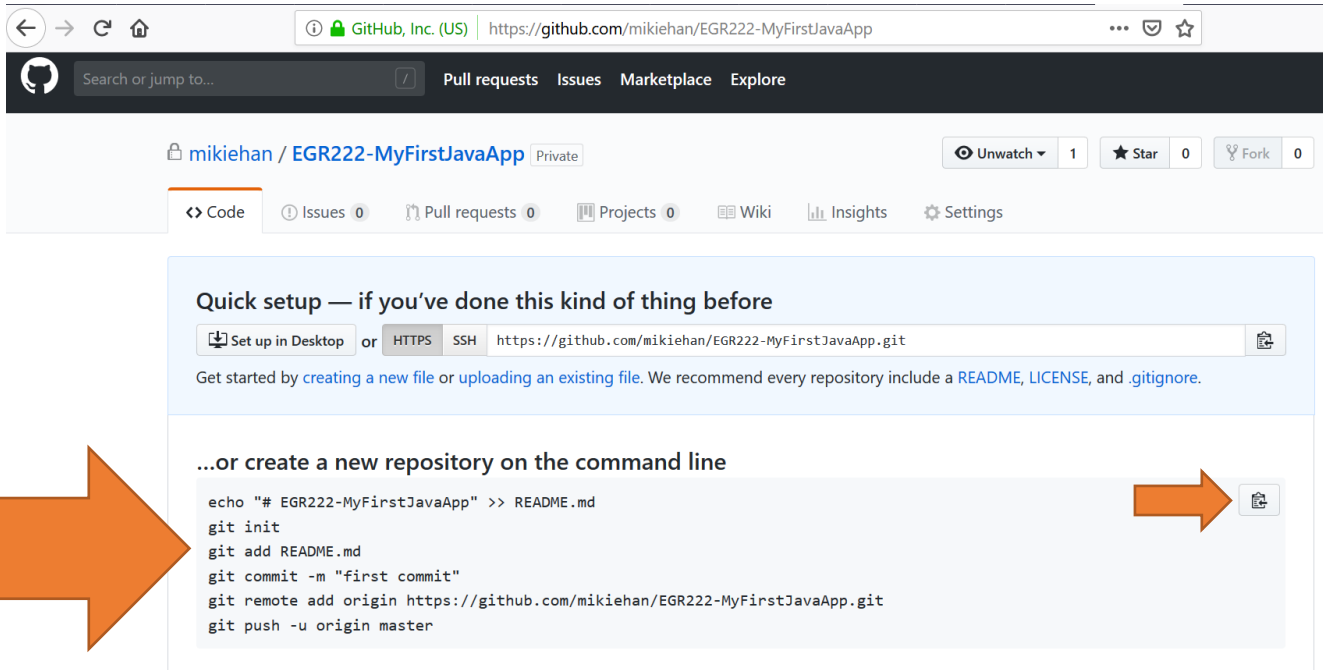


Take a screenshot as above. This is your **SCREENSHOT #2**, which is the last screenshot. Save this picture for later use. (You will be submitting a Word doc which contains all the screenshots and upload to BB after you are done.)

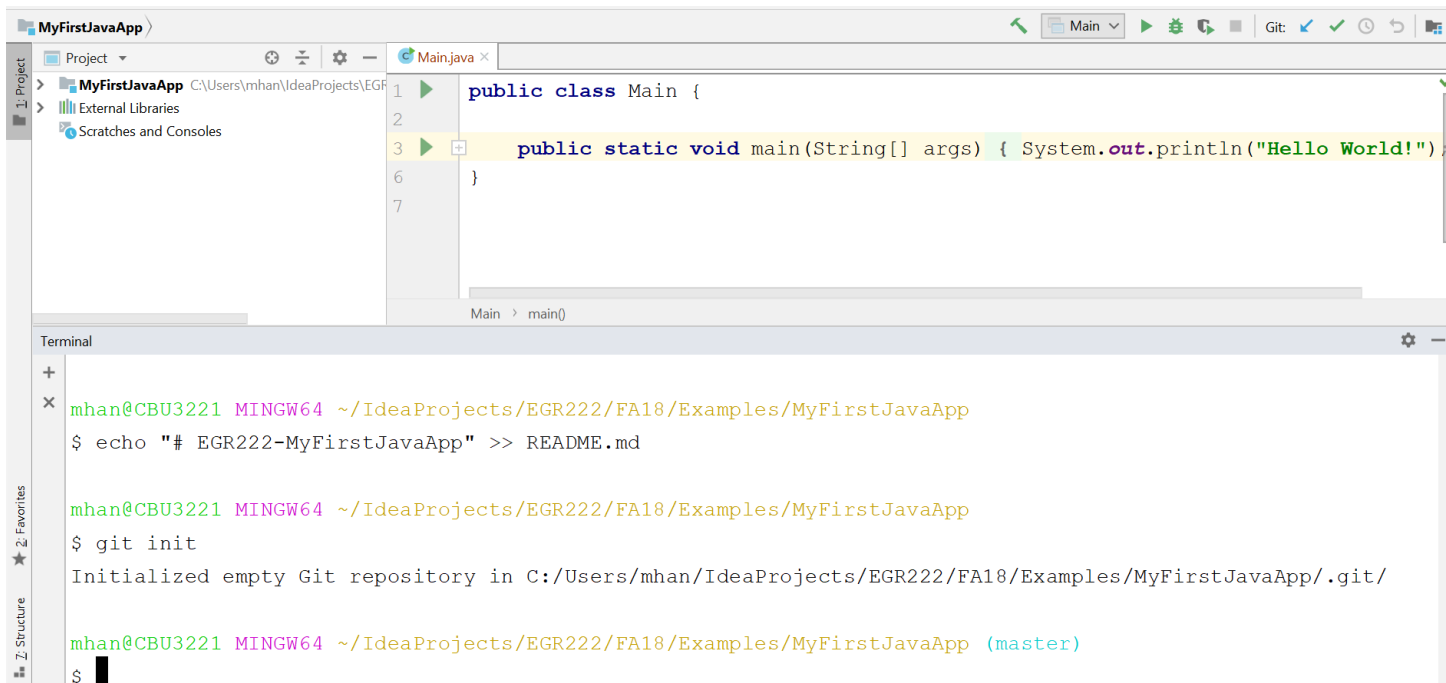
## Section 6: Pushing to GitHub With IntelliJ Terminal

Note that you are still in MyFirstJavaApp project with your terminal open. In this section you will learn not to push your code in your local computer to Github remote repository from your terminal window.

- 1) Go back to your Github remote repository with your web browser. The link would be [https://github.com/{your\\_github\\_ID}/EGR222-MyFirstJavaApp](https://github.com/{your_github_ID}/EGR222-MyFirstJavaApp). It will look like below.



- 2) In your terminal of IntelliJ (Refer to Section 5 – Step 3), the same place you typed “git –version” type the commands shown in 1). You can copy paste using the clipboard icon. Below is after I typed the first two commands.



Below screenshot shows after I finished running all 6 commands. Note that for you, it will not be “mikiehan” but your own github ID.

```

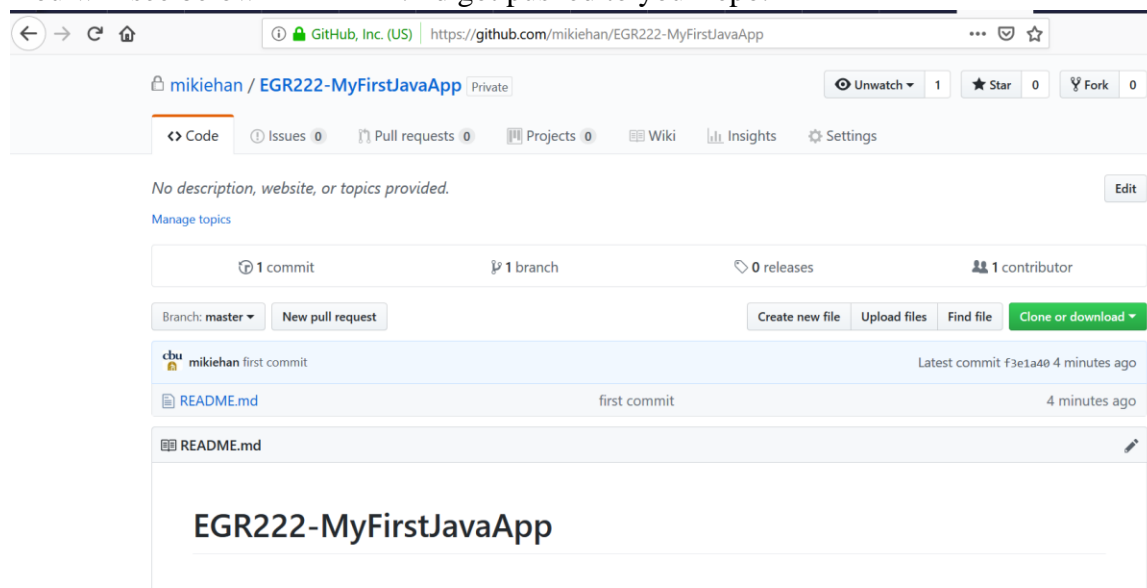
Terminal
+ mhan@CBU3221 MINGW64 ~/IdeaProjects/EGR222/FA18/Examples/MyFirstJavaApp (master)
x $ git remote add origin https://github.com/mikiehan/EGR222-MyFirstJavaApp.git

mhan@CBU3221 MINGW64 ~/IdeaProjects/EGR222/FA18/Examples/MyFirstJavaApp (master)
$ git push -u origin master
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 240 bytes | 30.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/mikiehan/EGR222-MyFirstJavaApp.git
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.

mhan@CBU3221 MINGW64 ~/IdeaProjects/EGR222/FA18/Examples/MyFirstJavaApp (master)

```

- 3) Let's check what happened in your GitHub repository. Refresh your web browser where you opened [https://github.com/{your\\_username}/EGR222-MyFirstJavaApp](https://github.com/{your_username}/EGR222-MyFirstJavaApp). You will see below README.md got pushed to your repo.



- 4) Let's go back to your IntelliJ terminal and type below three commands to push all of your project.
- ```

git add --all
git commit -m "Adding all files"
git push

```

You should see below screen after the last command.

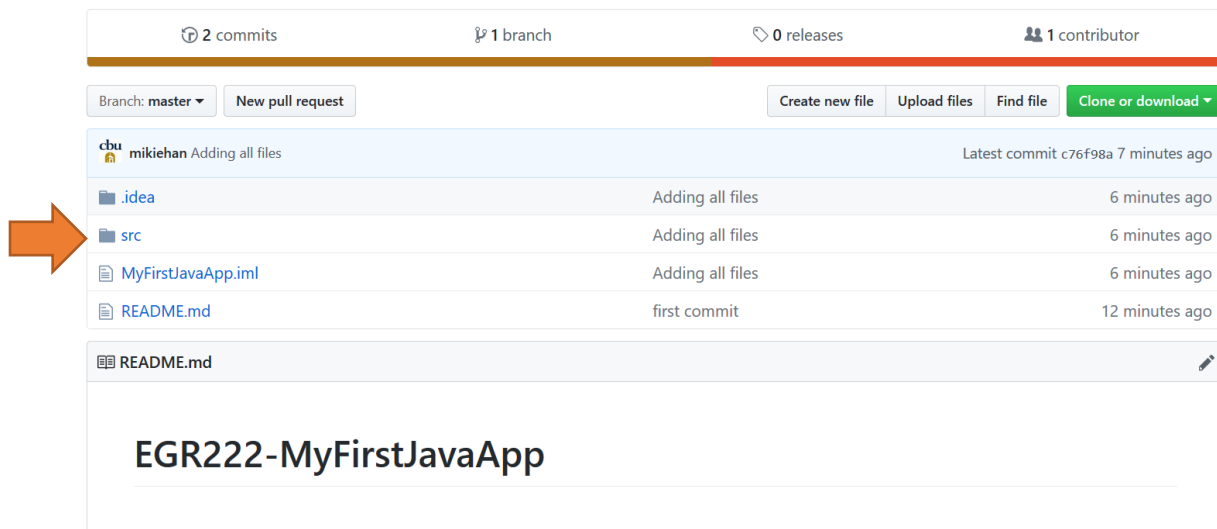
```

mhan@CBU3221 MINGW64 ~/IdeaProjects/EGR222/FA18/Examples/MyFirstJavaApp (master)
$ git push
Enumerating objects: 14, done.
Counting objects: 100% (14/14), done.
Delta compression using up to 4 threads.
Compressing objects: 100% (12/12), done.
Writing objects: 100% (13/13), 4.01 KiB | 117.00 KiB/s, done.
Total 13 (delta 0), reused 0 (delta 0)
To https://github.com/mikiehan/EGR222-MyFirstJavaApp.git
 f3e1a40..c76f98a  master -> master

```

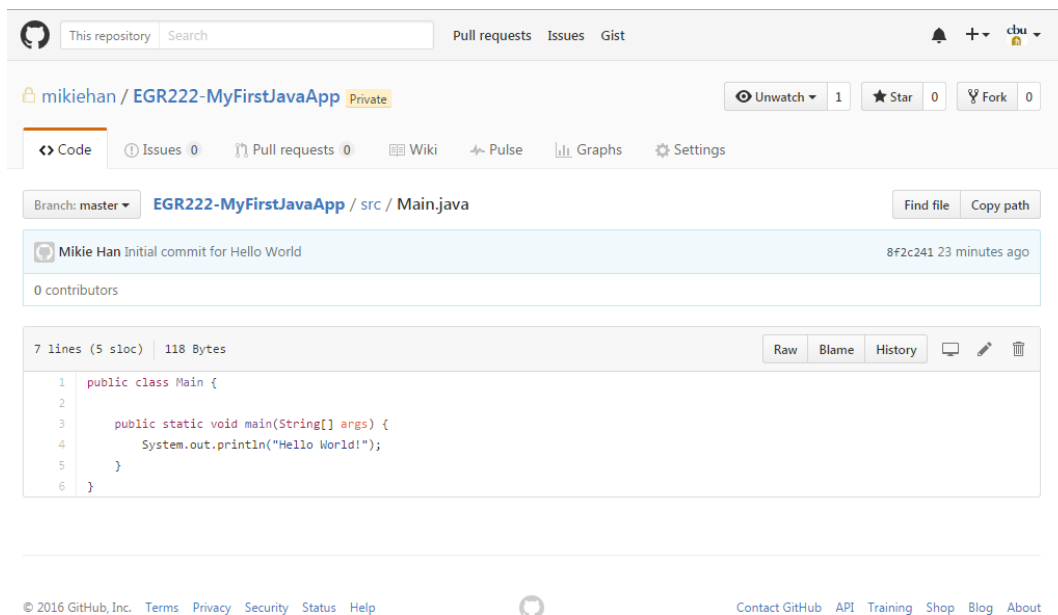
- 5) Refresh your browser once again. Surprise! All files in the project you committed locally is now pushed to your REMOTE repository!!





6) Click src to expand and go to Main.java from your browser.

Take a screenshot as below, showing Main.java, username and repository name. This is your **SCREENSHOT #3**.



**HURRAY!! You made it through!! You are DONE DONE!!**

**Create a Microsoft Word doc and include SCREENSHOT #1 - #3.  
Upload the Word document to BB → Homework → Homework 0.**