

CT60A9600 Discrete Models and Methods 2: Functional Programming



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Scala Environment:

There are a number of things that you need in order to develop using the Scala language.

- **Scala Compiler** (scalac)
- Can be used with Command Line Interface (CLI) or Integrated Development Environment (IDE) for compiling Scala code
- Scala source files (.scala extension)
- Compilation of source file creates byte code files (.class extension)
- Byte code is a compressed version of Scala code which can run on **Scala Virtual Machine** (SVM) without any operating system specification
- SVM is actually a Java Virtual Machine (JVM) allied with the **Scala runtime libraries** that provide support for the various concepts, functionality and frameworks that Scala uses

Scala IDE:

There are a number of IDEs available that can be used for writing Scala code but the most widely used IDE is **IntelliJ**.



The IntelliJ IDE provides full support for Scala (as well as Java). Support for Scala is built into the IntelliJ IDEA Ultimate version; however, an **additional plugin must be installed** to use Scala with the IntelliJ IDEA Community Edition (the free version).

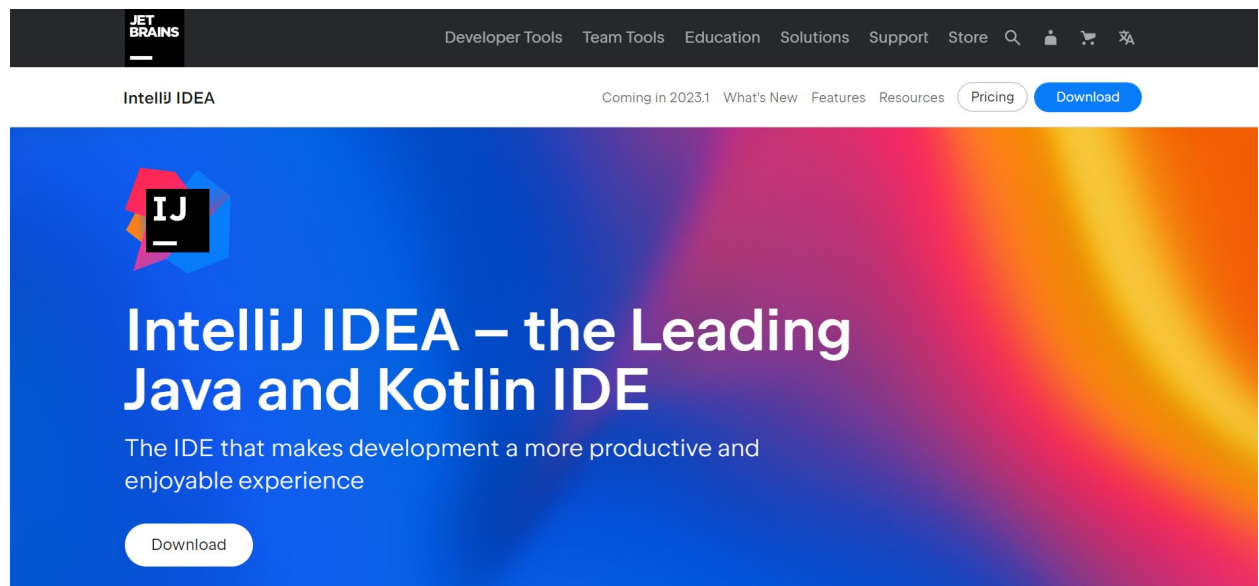
Note: All the codes in this course will be demonstrated using IntelliJ IDE.

IntelliJ IDEA Installation:

1. If you have already installed IntelliJ on your system then follow this guide to install Scala Plugin

<https://www.jetbrains.com/help/idea/discover-intellij-idea-for-scala.html>

2. Download the IntelliJ IDEA from <https://www.jetbrains.com/idea/>
By clicking “**Download**” button.



3. Select the appropriate operating system (i.e. **Windows, macOS, Linux**) for downloading the right version of IDE
4. Make sure to download the “**Community**” edition (as it free)



Version: 2022.3.3
Build: 223.8836.41
8 March 2023
[Release notes](#)

[System requirements](#)
[Installation instructions](#)
[Other versions](#)
[Third-party software](#)

Download IntelliJ IDEA

[Windows](#) [macOS](#) [Linux](#)

Ultimate

The Leading Java and Kotlin IDE

[Download](#) [.exe](#)

Free 30-day trial available

Community Edition

The IDE for pure Java and Kotlin development

[Download](#) [.exe](#)

Free, built on open source

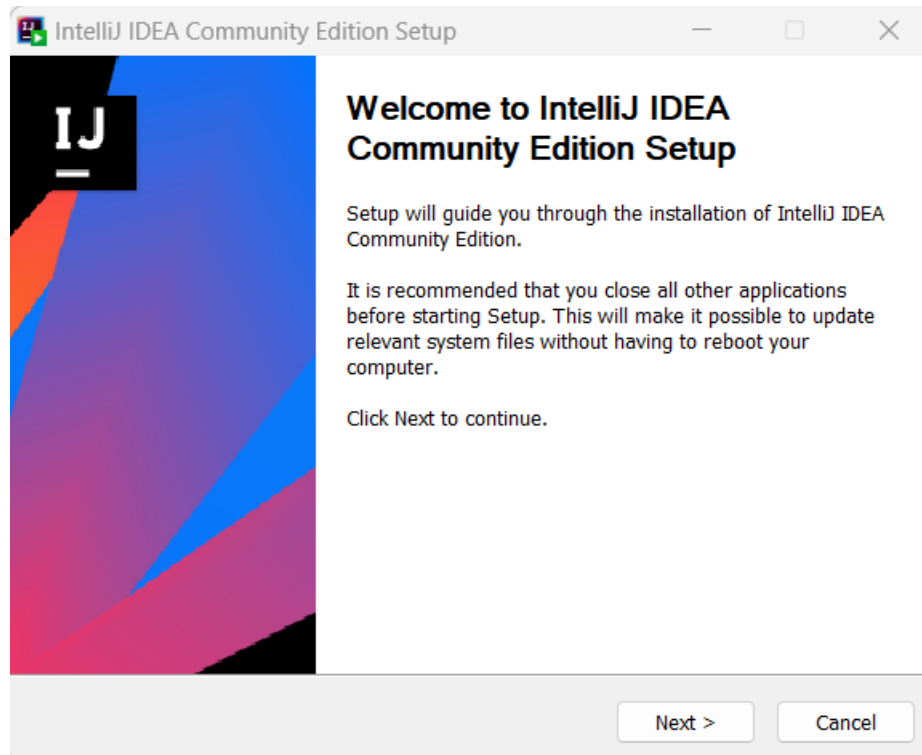
IntelliJ IDEA
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IntelliJ IDEA Community Edition ?

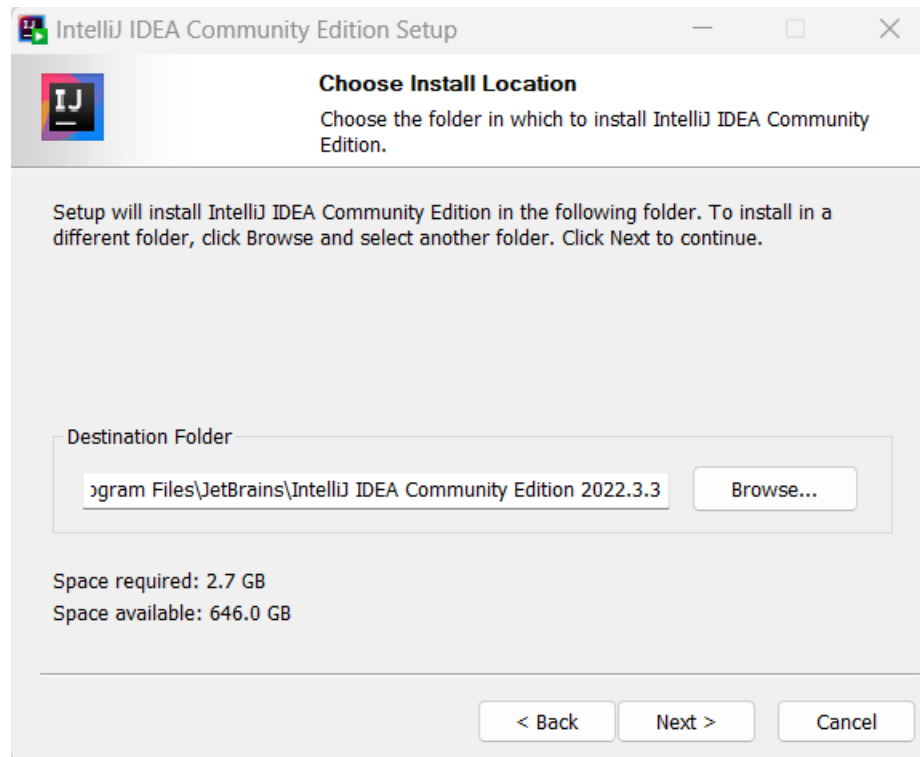
Java, Kotlin, Groovy, Scala



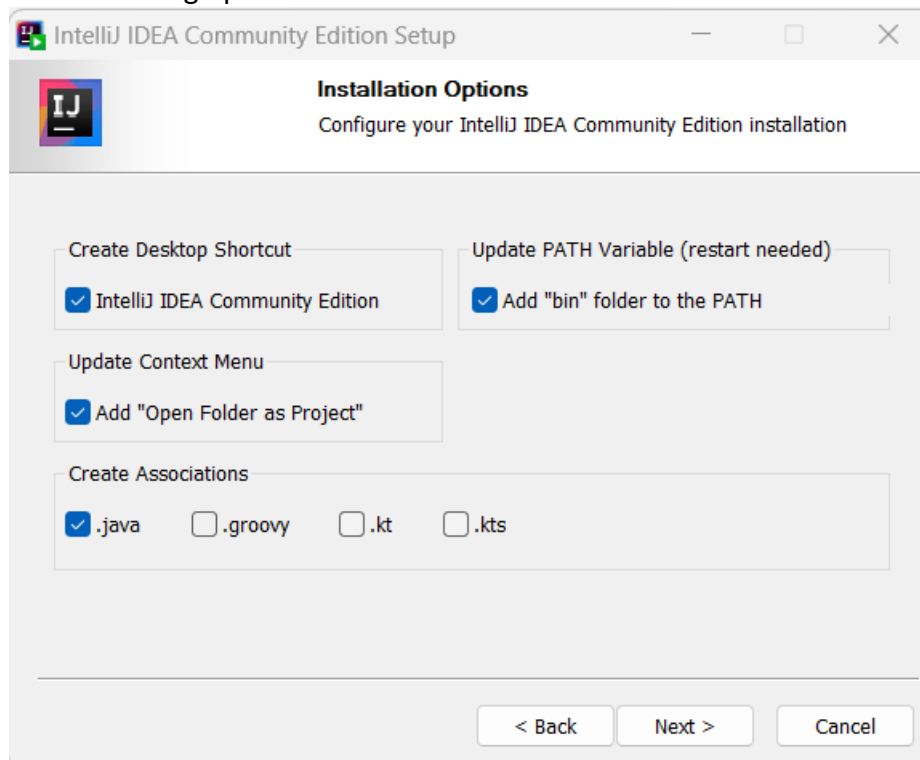
- Once the download is complete, double click the downloaded file to start the installation wizard
- Click **“Next”** to continue



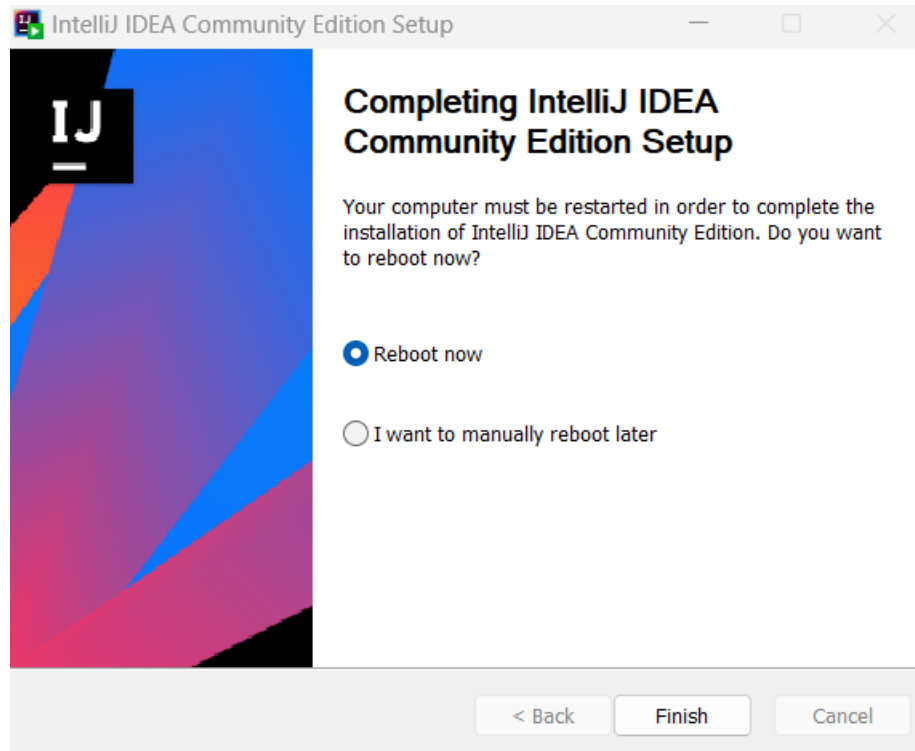
- Select the **“Destination”** folder where you want the IDE to be installed and then click **“Next”**



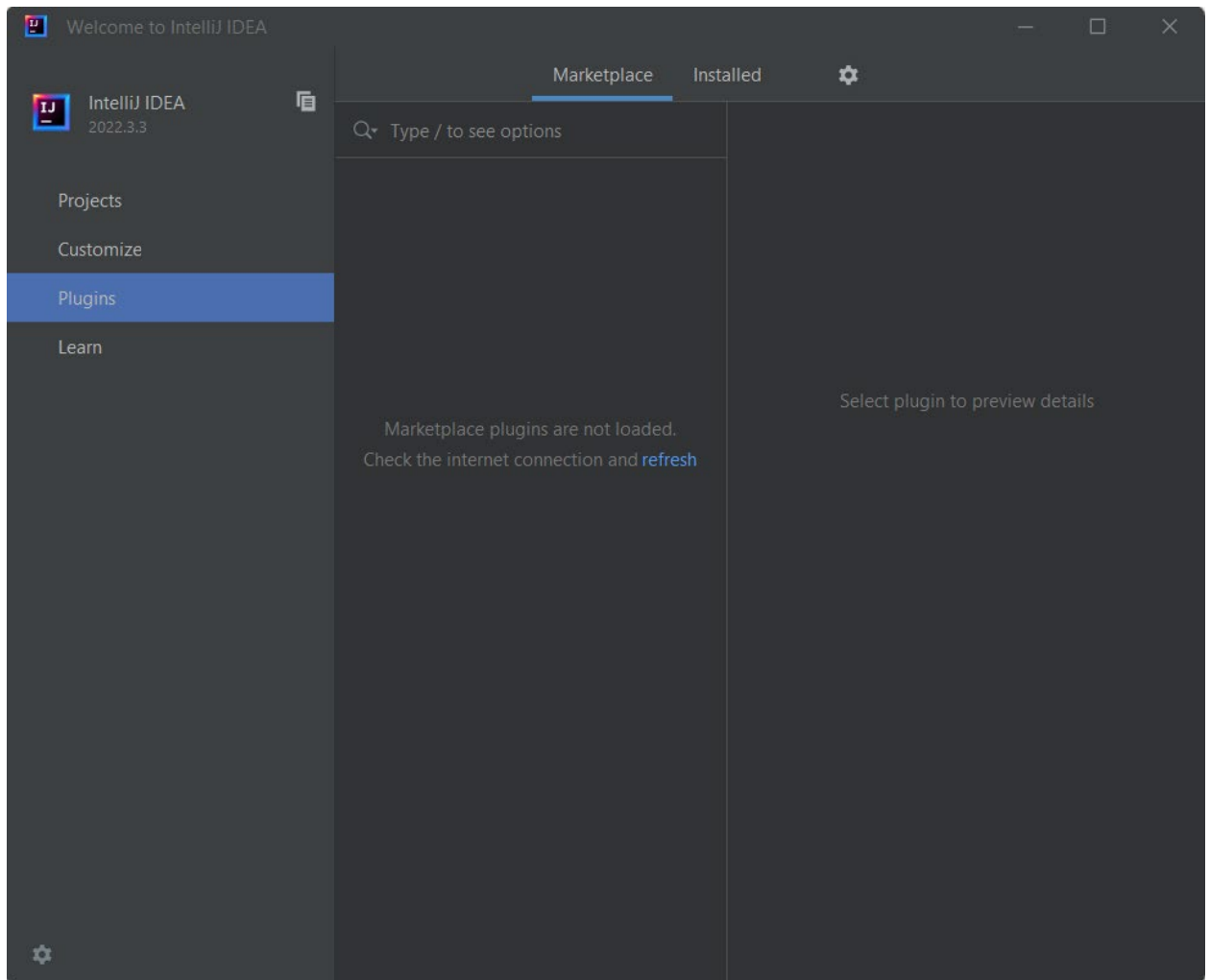
8. Tick mark the following options and click “**Next**”



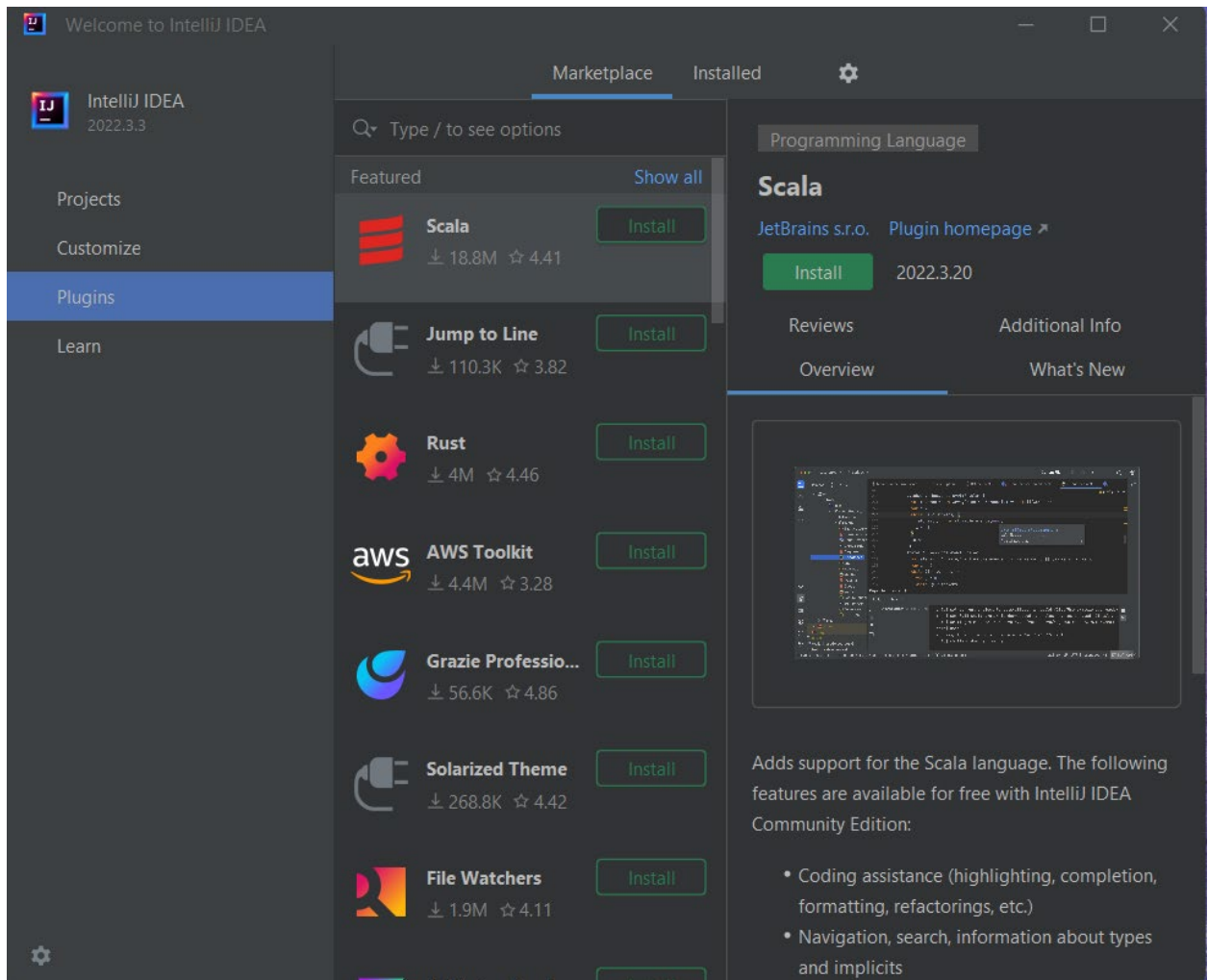
9. Click “**Install**” and after the completion of installation, select “**Reboot now**” to set the PATH the path variables automatically.



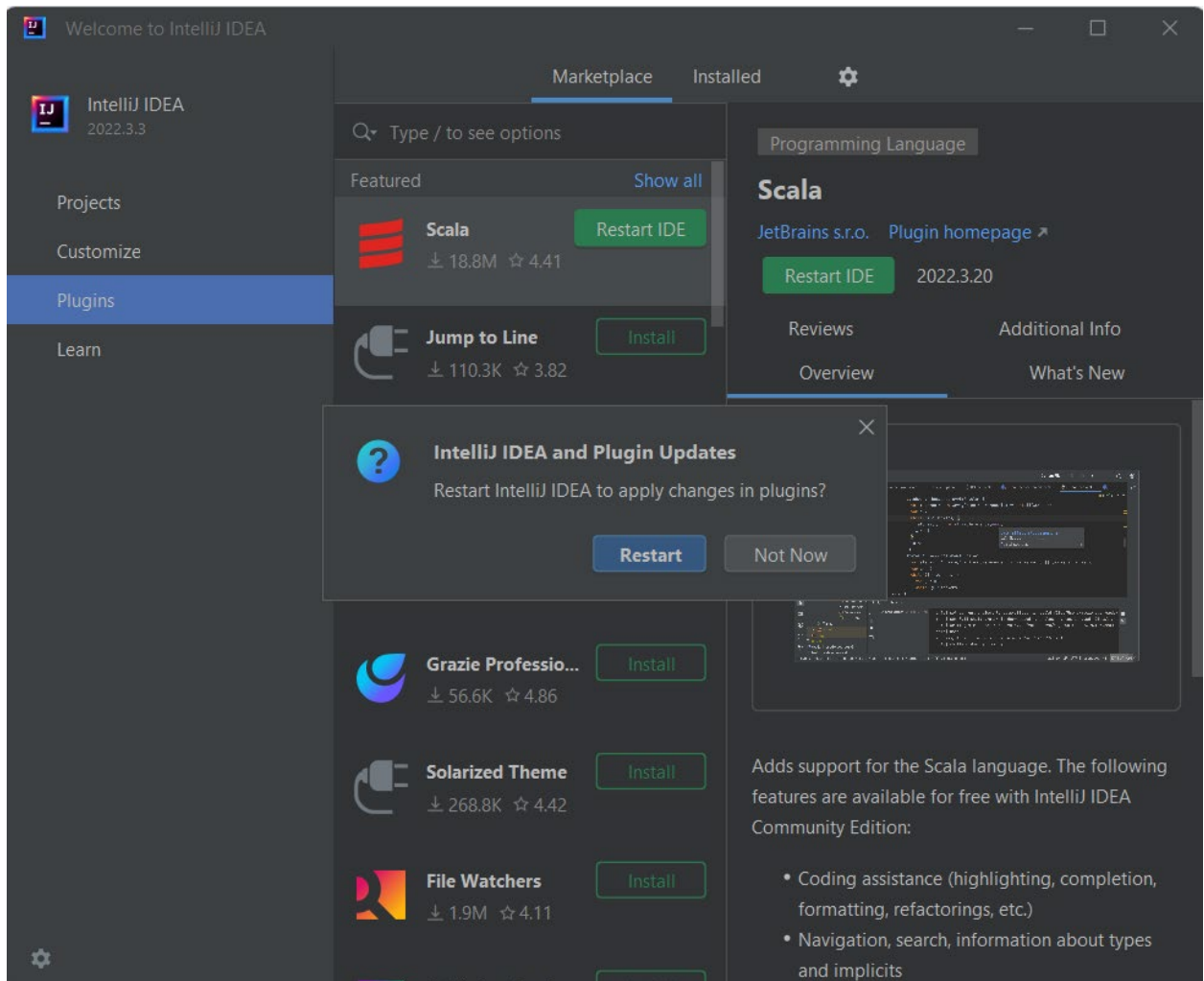
10. After rebooting, launch the installed IntelliJ IDEA by double clicking the icon.
11. Accept the Conditions and License
12. From the left menu, click on **"Plugins"**



13. Type **“Scala”** in Marketplace search bar and select the **“Scala”** plugin and click **“Install”**

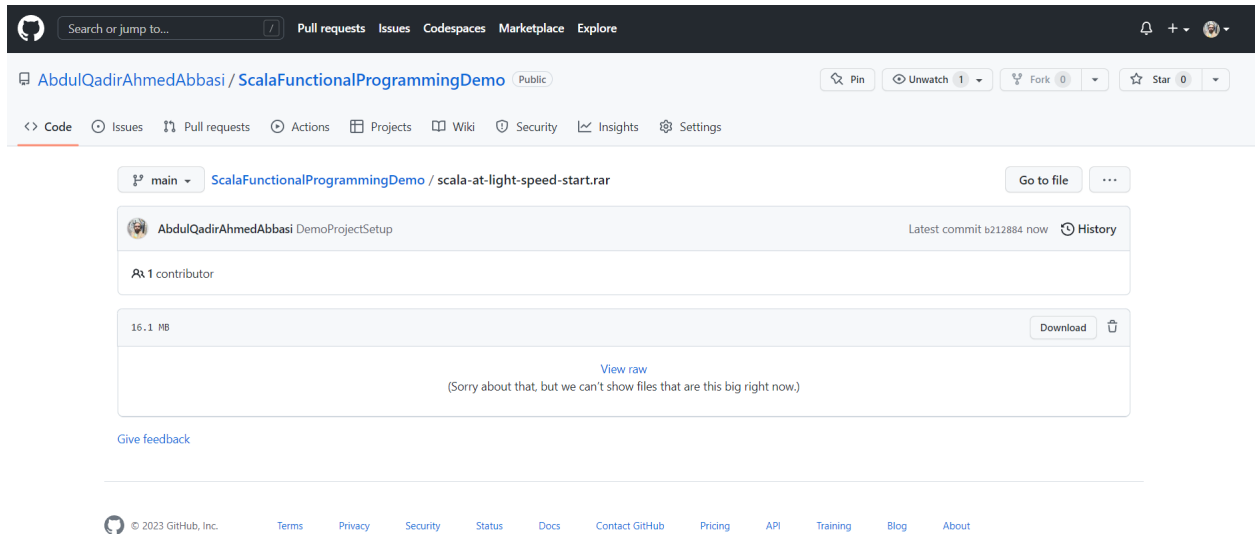


14. Restart the IDE after “**Scala**” plugin installation is complete

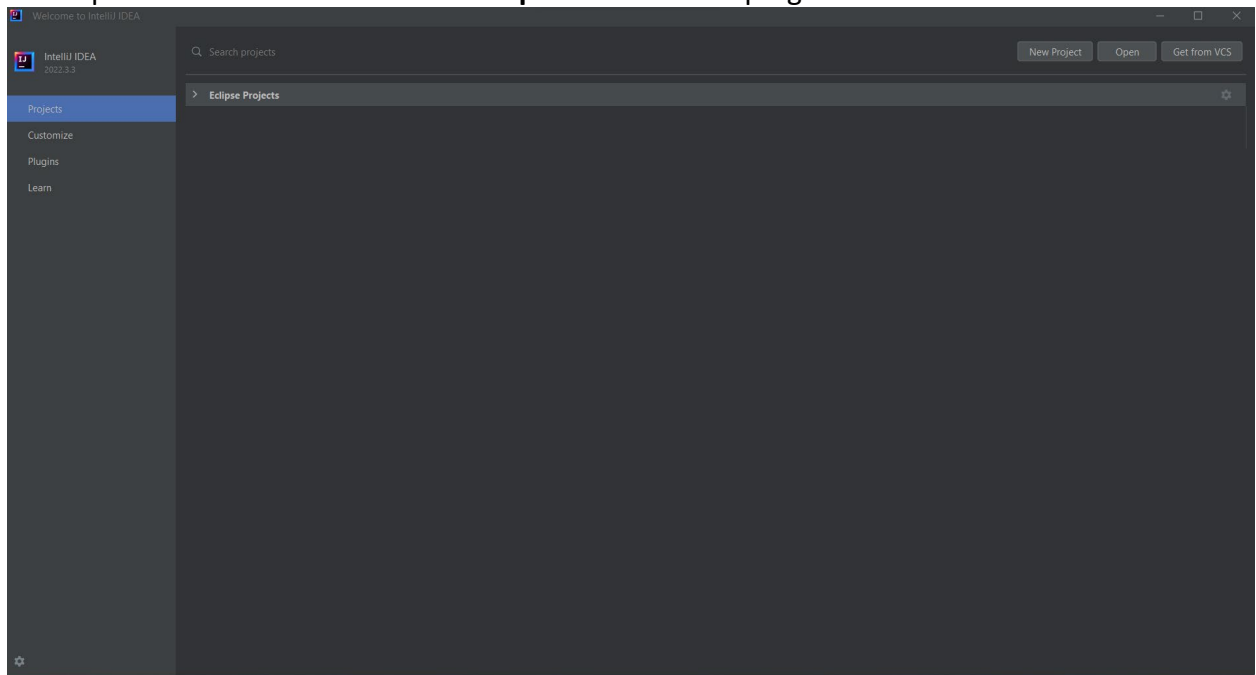


Project Setup:

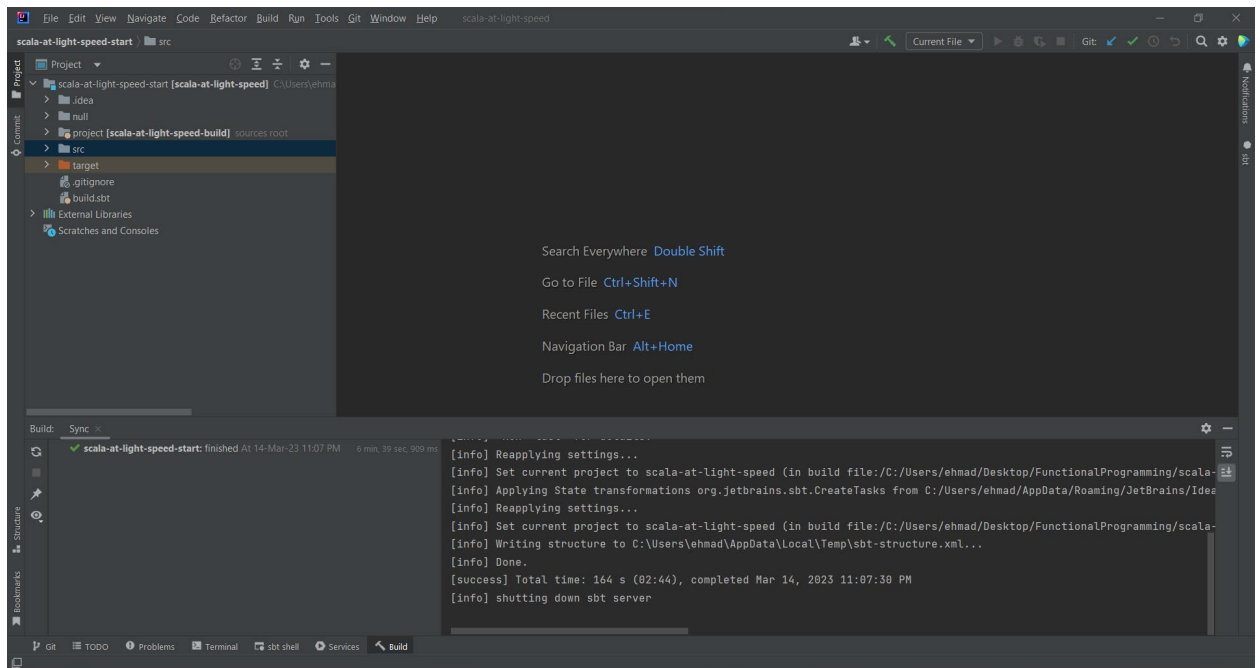
1. To speed up things and due to the time limitation for this course, a demo project is already uploaded on GitHub.
2. Go to the following link and **download** the folder named as “**scala-at-light-speed-start.zip**” on your local system
<https://github.com/AbdulQadirAhmedAbbasi/ScalaFunctionalProgrammingDemo/blob/main/scala-at-light-speed-start.rar>



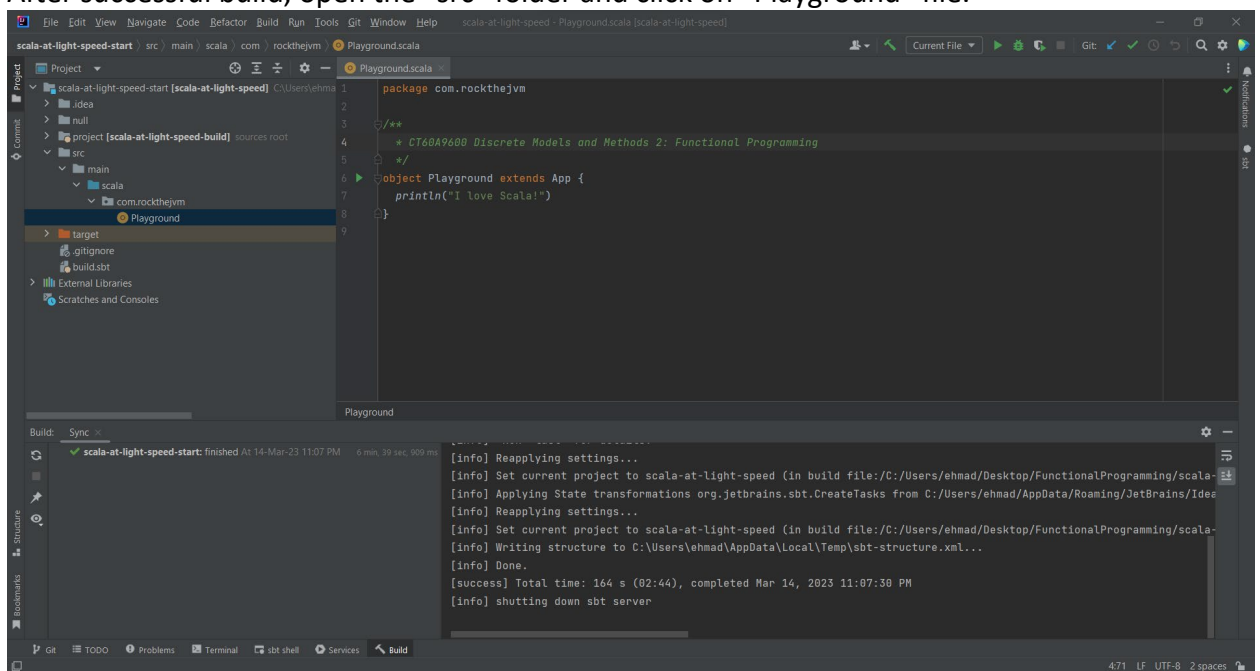
3. Extract the folder on your system
4. Now open the Scala IDE and click on “**Open**” button in top right menu



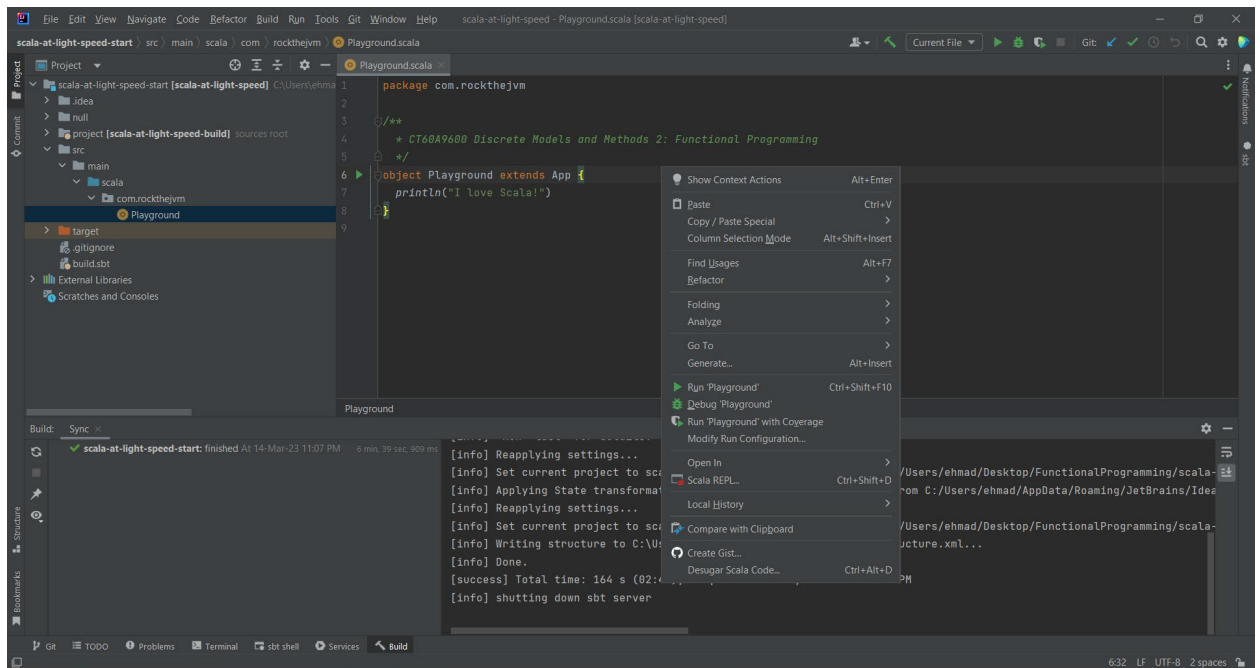
5. Select the recently extracted folder and click “**Ok**” (Note: Make sure that the folder structure is correct i.e. **scala-at-light-speed-start** should be the main folder and inside it there is **src** and other folders)
6. After loading the project successfully, it will start fixing build dependencies which will take some time. Keep checking the “**background tasks**” window in the bottom right to see if something is **paused**; if something is paused then resume the task by yourself. Also keep an eye on “**build terminal**” and wait for the **success** build message in log. **Don't close the project until it is completely build.**



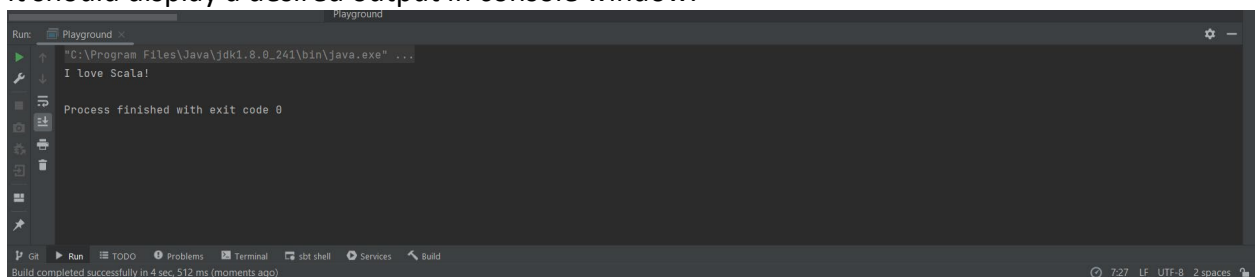
- After successful build, open the “src” folder and click on “Playground” file.



- Right click on the code and select “Run Playground”



9. It should display a desired output in console window.



Reading Material:

[1] Hunt, J. (2018). A Beginner's Guide to Scala, Object Orientation & Functional Programming. Chapter 7. Springer International Publishing. <https://doi.org/10.1007/978-3-319-75771-1>