Installation of JDK + IDE + JavaFX (GUI)

Console Application Environment Installations

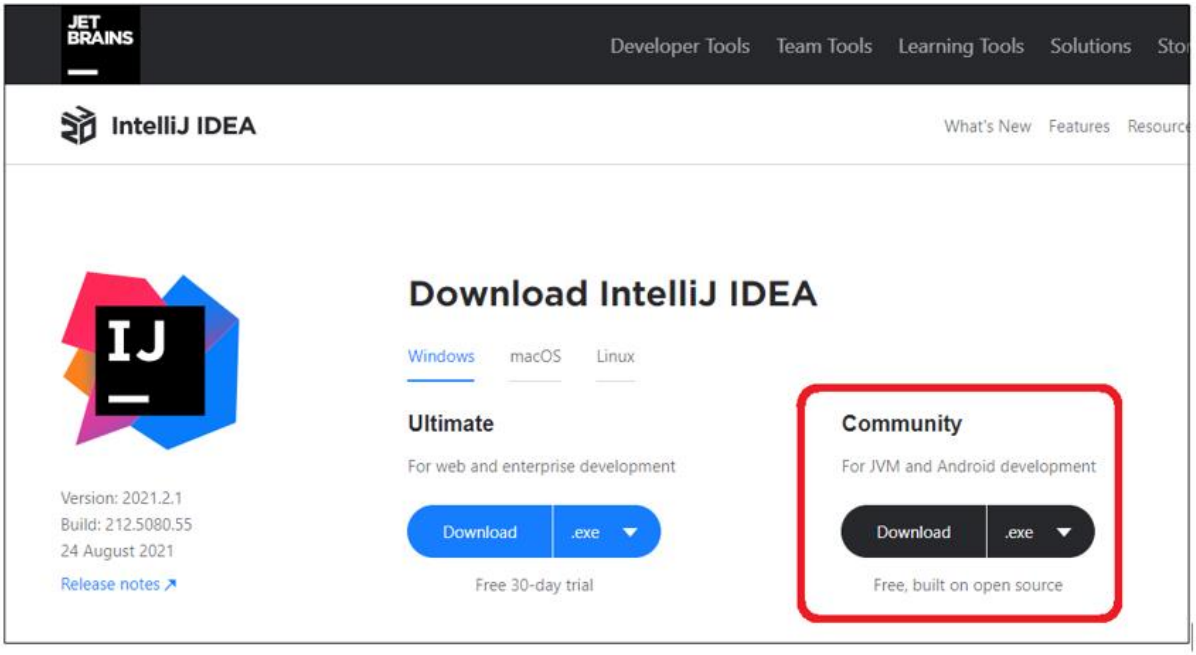
* **JDK**
* **IntelliJ IDE**

Installation of JDK

1. Uninstall older version, if any. (Run **Control Panel**. Select **Program and Features**. Uninstall programs such as Java SE Development Kit) and "Java SE Runtime".
2. URL: **https://www.oracle.com/java/technologies/downloads/#jdk21-windows**
3. You may need to register with Oracle.
4. Install the **JDK**.
5. (Default folder: *C:\Program Files\Java\jdk-21*)

Installation of IntelliJ

1. URL: **https:// www.jetbrains.com/idea/download/#section=windows**
2. Download the **IntelliJ IDEA Community Edition** (Community version)
3. Install the **IDE**.

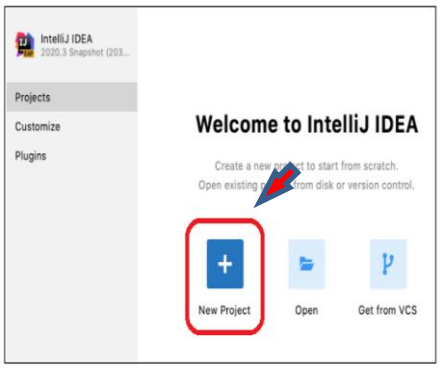


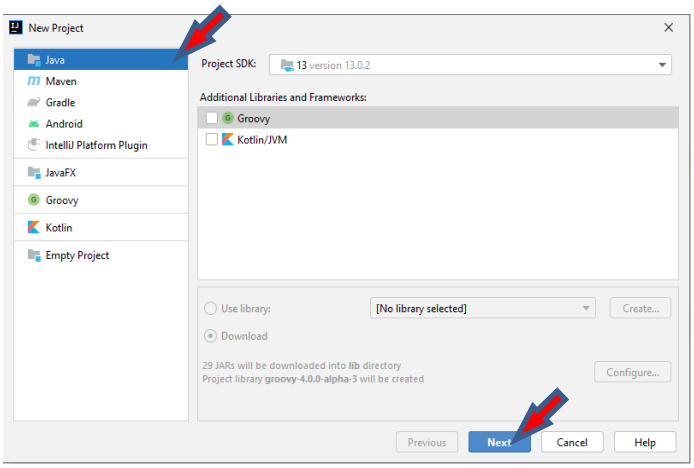
ideaC-2023.3.4

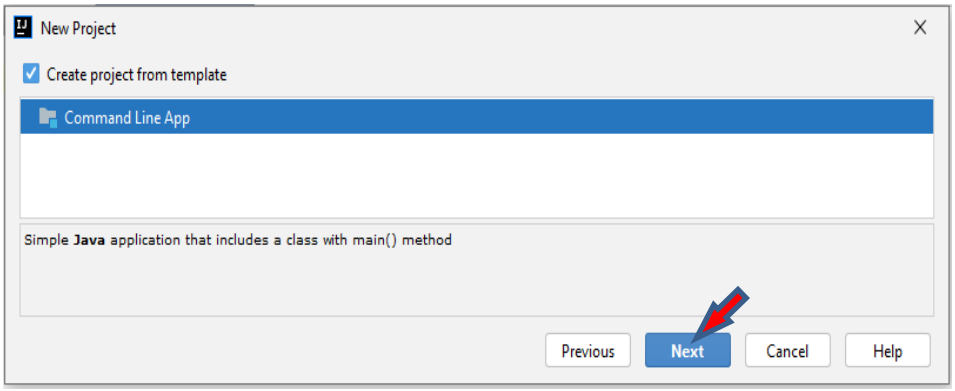
C for community version

Run IntelliJ for First Time

1. Start IntelliJ
2. Accept terms

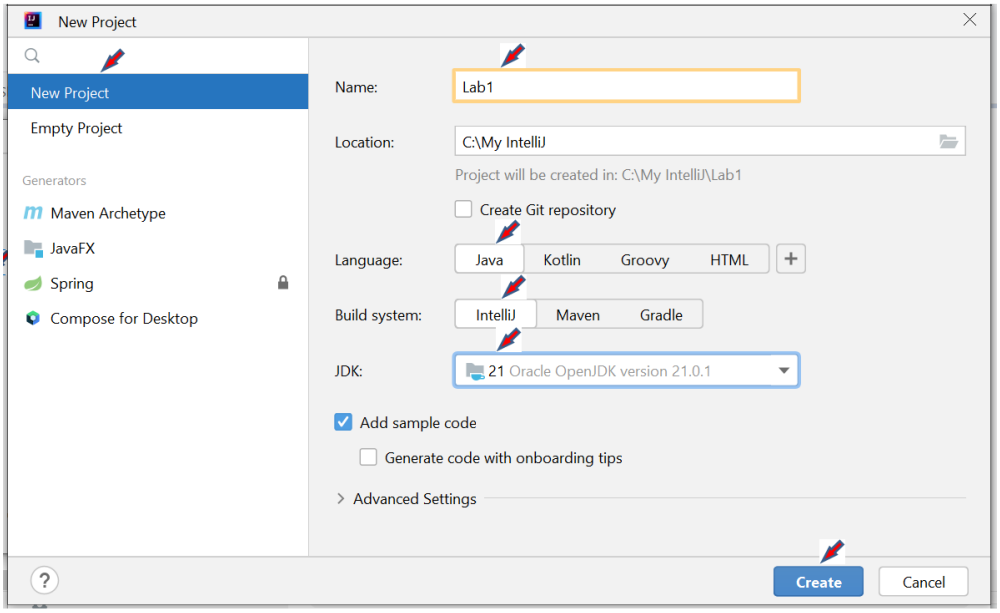




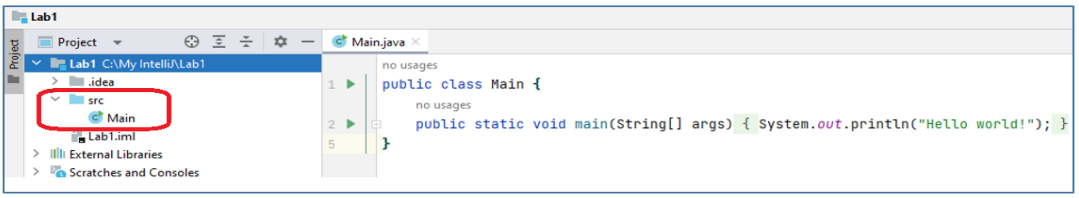


Create First Project

1. File ➔ New ➔ Project…
2. Select New Project (not empty project)
3. Name: Lab1
4. Location: (your choice of folder)
5. Language: Java
6. Build System: IntelliJ
7. JDK: 21
8. Click Create button



9. In the Project tree window, click on src ➔ Main to examine the default "Main.java":



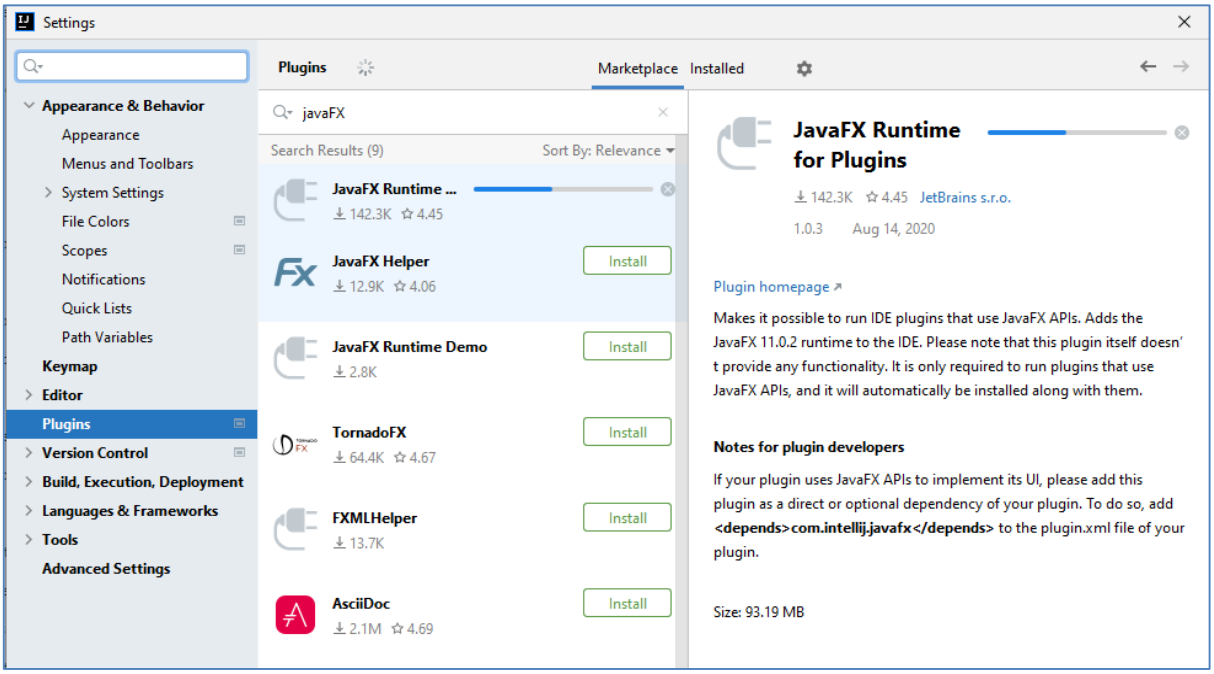
10. Run ➔ Run "Main.java" to this output in the console:
11. "Hello World!" being displayed in console output.

Until now, Java project created will run and generate output at console (not GUI)

Installation for Development of JavaFX GUI

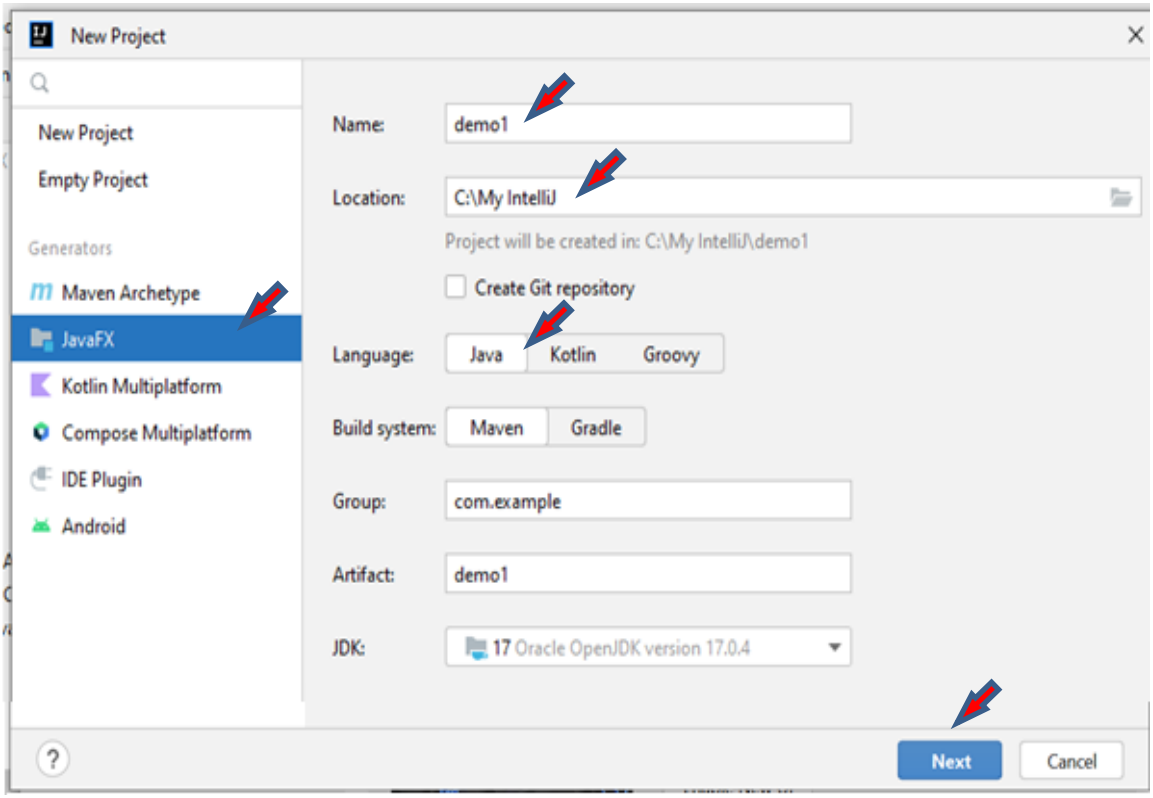
1. JavaFX Runtime Plug-in
2. For further drag-n-drop tool – install Scene Builder

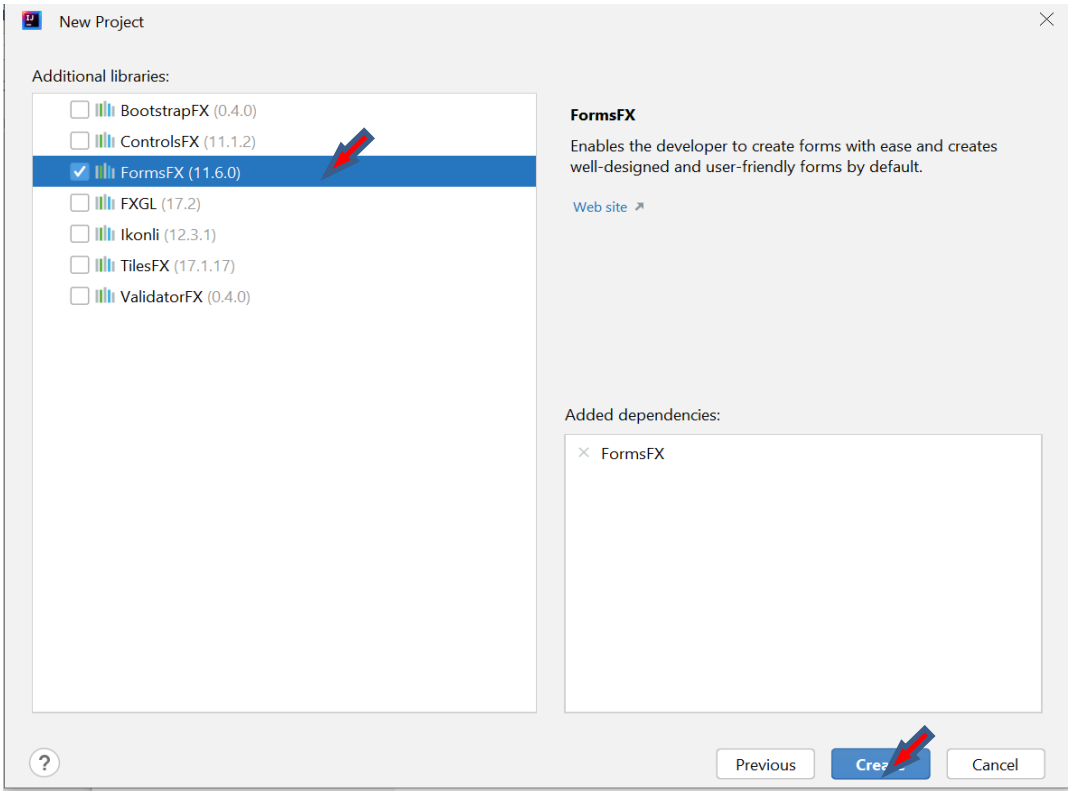
Installation of JavaFX Runtime (Plug-in)



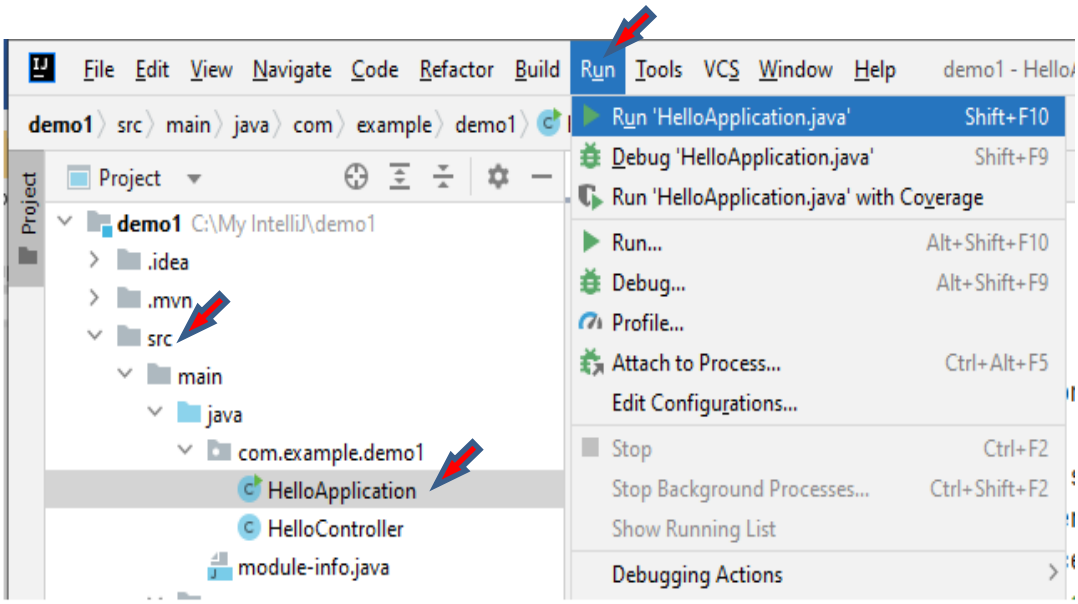
Create First JavaFX GUI Project

1. File ➔ New ➔ Project…

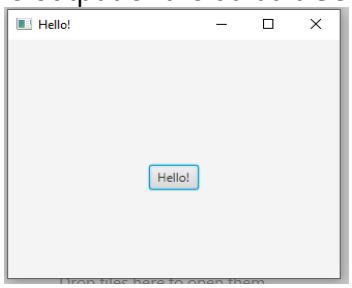




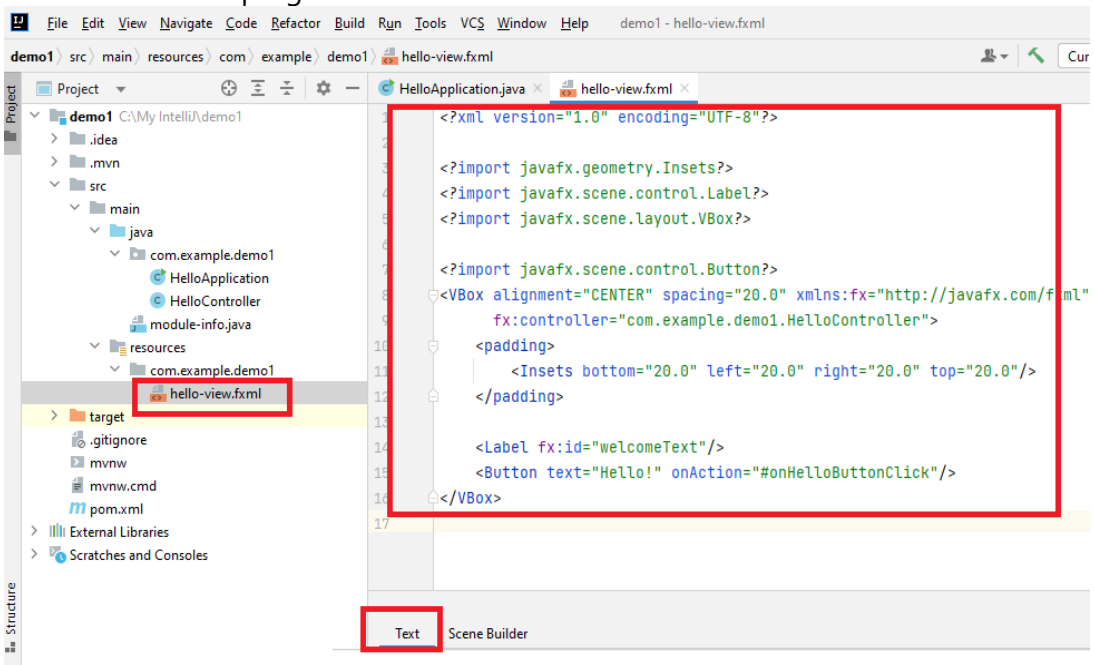
2 . After project is created, run the application.



The output of the dafualt GUI program:



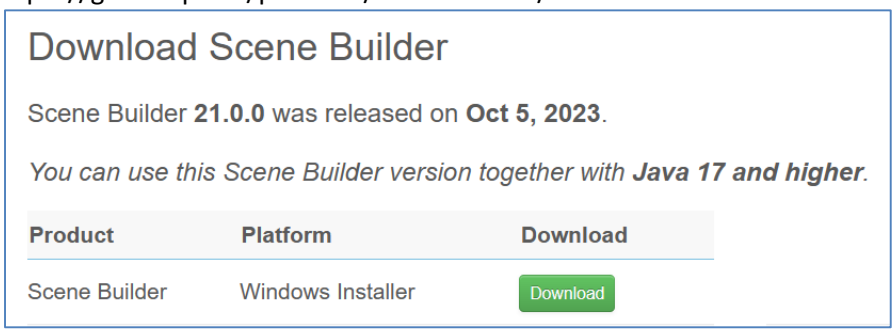
Examine the default program.



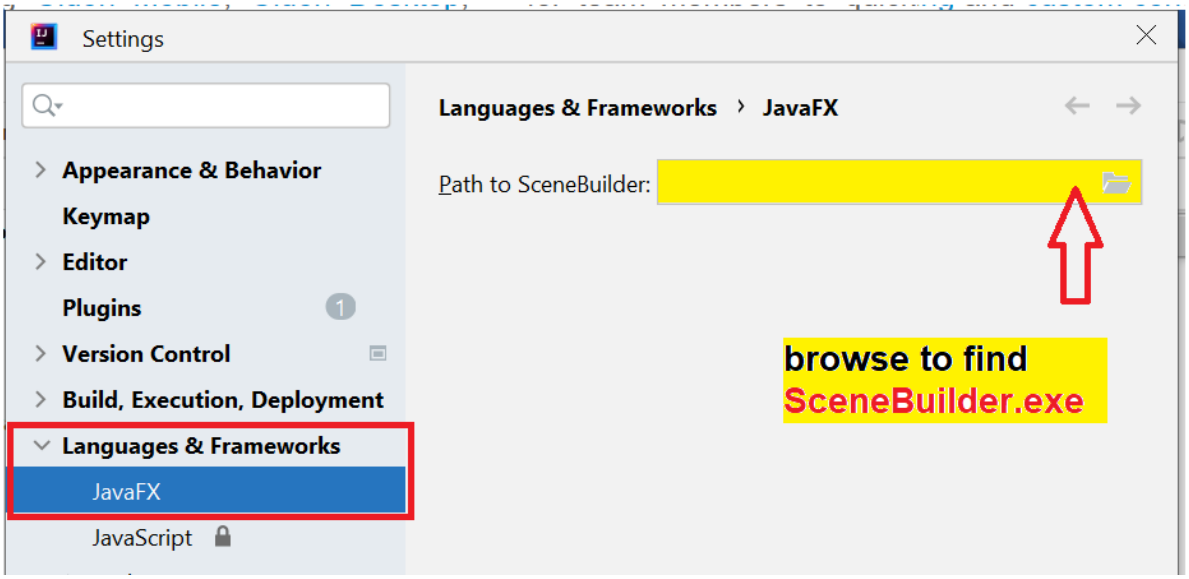
Installation for Further Drag-n-Drop Tool – Scene Builder

1. From the JavaFX project created in previous steps, select the fxmlXML file.
2. Switch the tab to "Scene Builder" (from tab Text). For now, there should be an error:

3. Need to download Scene Builder Kit:
   * https: //gluonhq.com/products/scene-builder/
   *



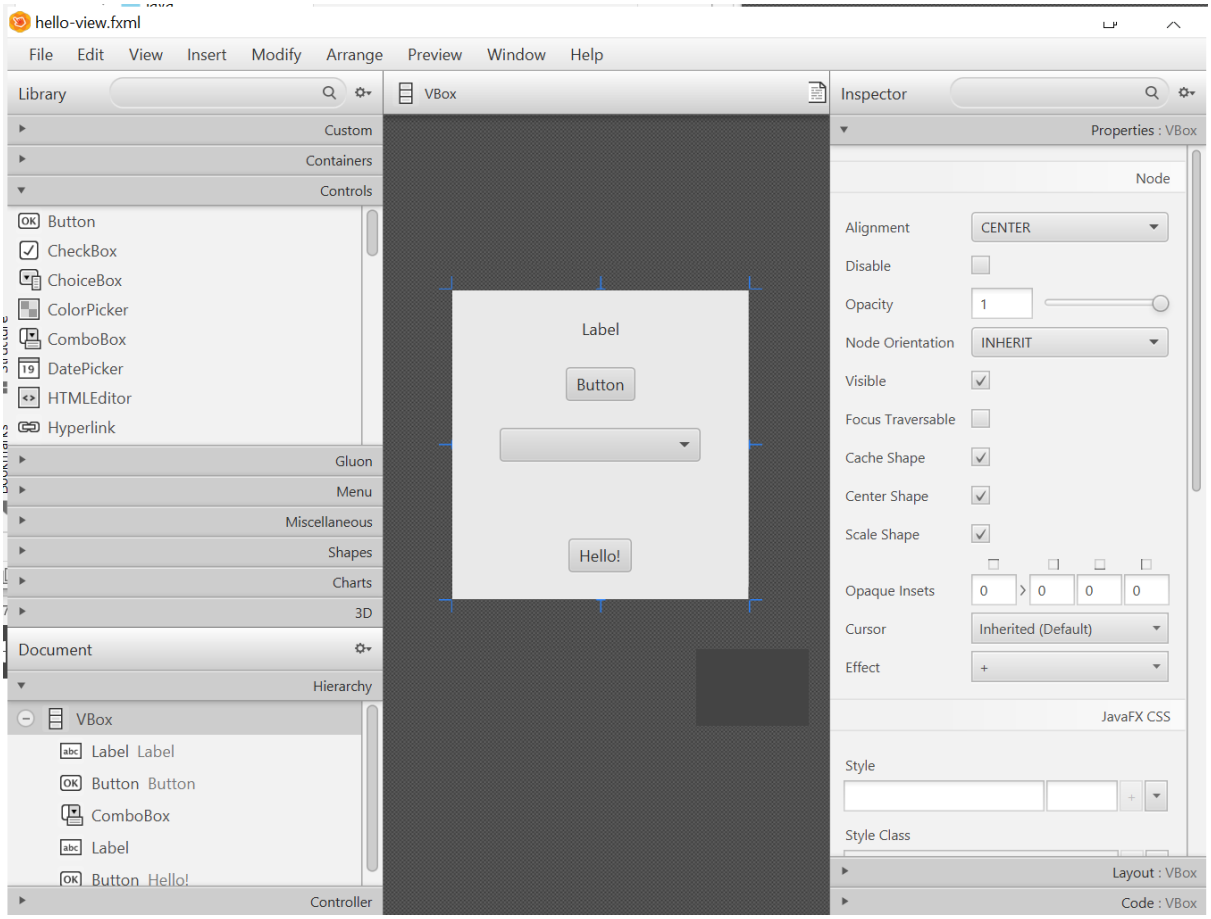
4. In IntelliJ, select **File➔Settings...**



For example:

C:\Users\common\AppData\Local\SceneBuilder\SceneBuilder.exe

5. Now, right click **hello-view.fxml,** select **Open in SceneBuilder** to start drag-n-drop or further modify the GUI.

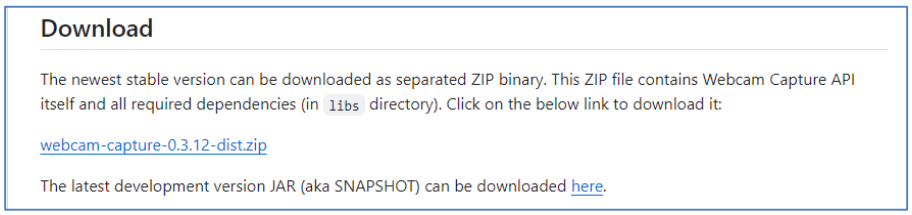

hello-view.fxml
File Edit View Insert Modify Arrange Preview Window Help
Library
Custom
Containers
Controls
Button
CheckBox
ChoiceBox
ColorPicker
ComboBox
DatePicker
HTMLEditor
Hyperlink
Gluon
Menu
Miscellaneous
Shapes
Charts
3D
Document
Hierarchy
VBox
Label Label
Button Button
ComboBox
Label
Button Hello!
Controller
VBox
Label
Button
Hello!
Inspector
Properties : VBox
Node
Alignment
CENTER
Disable
Opacity
1
Node Orientation
INHERIT
Visible
Focus Traversable
Cache Shape
Center Shape
Scale Shape
Opaque Insets
0
0
0
0
Cursor
Inherited (Default)
Effect
JavaFX CSS
Style
Style Class
Layout : VBox
Code : VBox

Working with external libraries

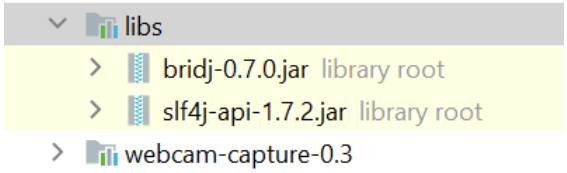
Example: - Sarxos webcam library in github
https://github.com/sarxos/webcam-capture?tab=readme-ov-file

Method 1 - Using IntelliJ Build Sytem – download library jar, add into project

1. Follow the instructions in github site and download the library



2. Unzip into a folder for standby.
3. Create a new console IntelliJ Java project. (Build system: IntelliJ)
4. Add the library (File ➔ Project Structure ➔ Librraies ➔ +)
   Will have errors later when compiling.
5. Found that errors can be fixed by adding the <lib> of downloaded into project library



6. Try out the Sarxos Webcam sample code that capture a photo with webcam on laptop and store in a file. How to take picture and save to file) from github.

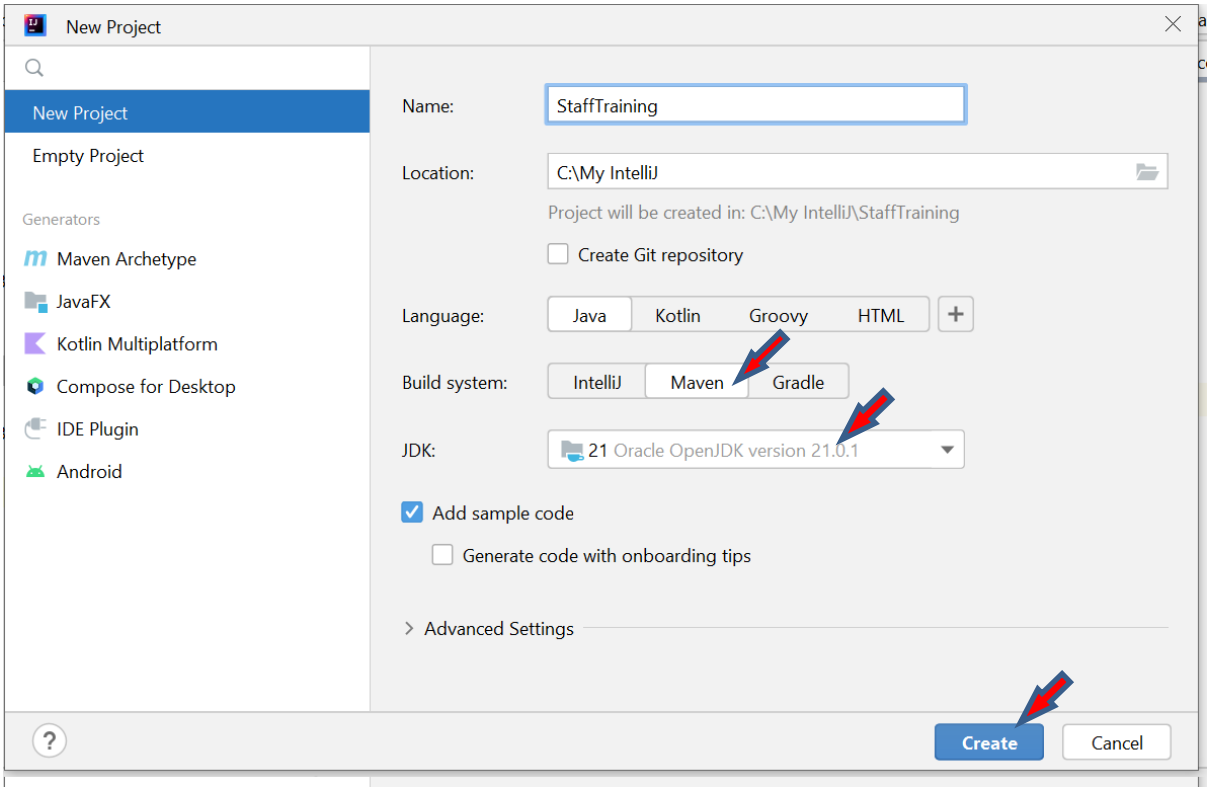
(https://github.com/sarxos/webcam-capture/blob/master/webcam-capture/src/example/java/TakePictureExample.java)

```
// get default webcam and open it
Webcam webcam = Webcam.getDefault();
webcam.open();

// get image
BufferedImage image = webcam.getImage();

// save image to PNG file
ImageIO.write(image, "PNG", new File("test.png"));
```

(Fix imports and try-catch issues)
Run program to take a picture using your laptop webcam.

Method 2 - Using Maven

1. Create a new console IntelliJ Java project but choose Build system as Maven.



2. Copy the dependency lines from github.

3. Open POM.XML. Paste the lines in there. You may need to create <dependencies> </dependencies> if this is the very first dependency to be added.

```
<dependency>
<groupId>com.github.sarxos</groupId>
 <artifactId>webcam-capture</artifactId>
 <version>0.3.12</version>
</dependency>
```

4. Try out the same sample program for the Sarxos webcam.