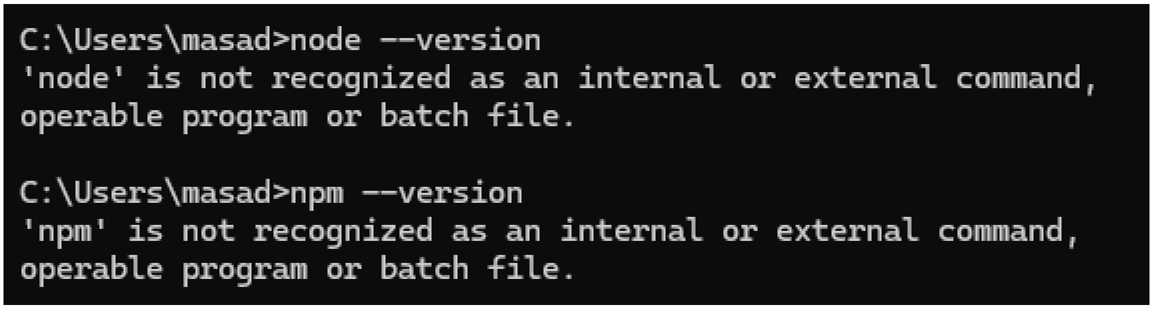
Appium

Installation & setup

1. Node and npm

   Node –version

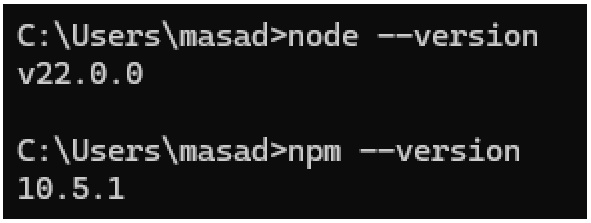
   Npm –version



```
C:\Users\masad>node --version
'node' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\masad>npm --version
'npm' is not recognized as an internal or external command,
operable program or batch file.
```

2. Node download link:

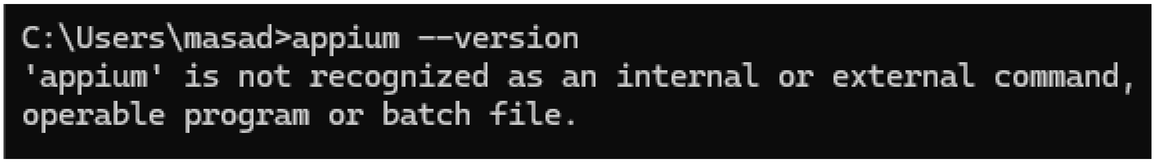
   https://nodejs.org/en/download/current



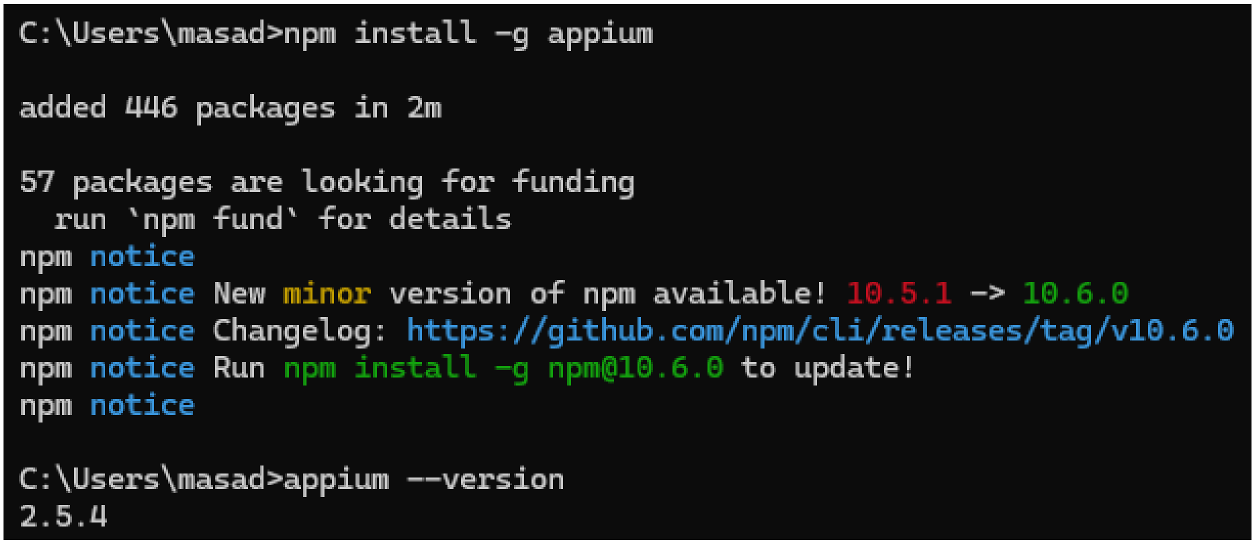
```
C:\Users\masad>node --version
v22.0.0

C:\Users\masad>npm --version
10.5.1
```

3. Install Appium

   apm install -g appium



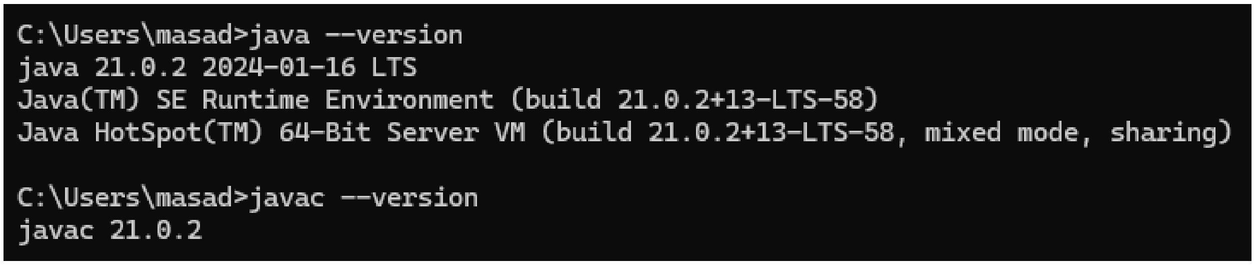
```
C:\Users\masad>appium --version
'appium' is not recognized as an internal or external command,
operable program or batch file.
```



```
C:\Users\masad>npm install -g appium

added 446 packages in 2m

57 packages are looking for funding
  run `npm fund` for details
npm notice
npm notice New minor version of npm available! 10.5.1 -> 10.6.0
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.6.0
npm notice Run npm install -g npm@10.6.0 to update!
npm notice

C:\Users\masad>appium --version
2.5.4
```

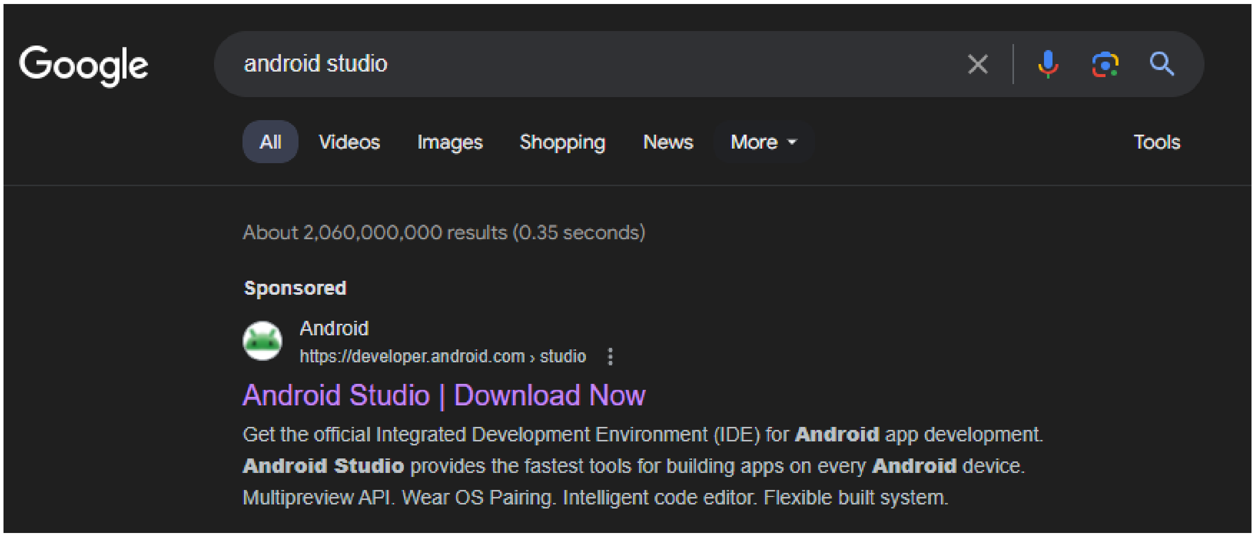
4. Java JDK installation

https://download.oracle.com/java/22/latest/jdk-22_windows-x64_bin.exe



```
C:\Users\masad>java --version
java 21.0.2 2024-01-16 LTS
Java(TM) SE Runtime Environment (build 21.0.2+13-LTS-58)
Java HotSpot(TM) 64-Bit Server VM (build 21.0.2+13-LTS-58, mixed mode, sharing)

C:\Users\masad>javac --version
javac 21.0.2
```

5. Android SDK



android studio

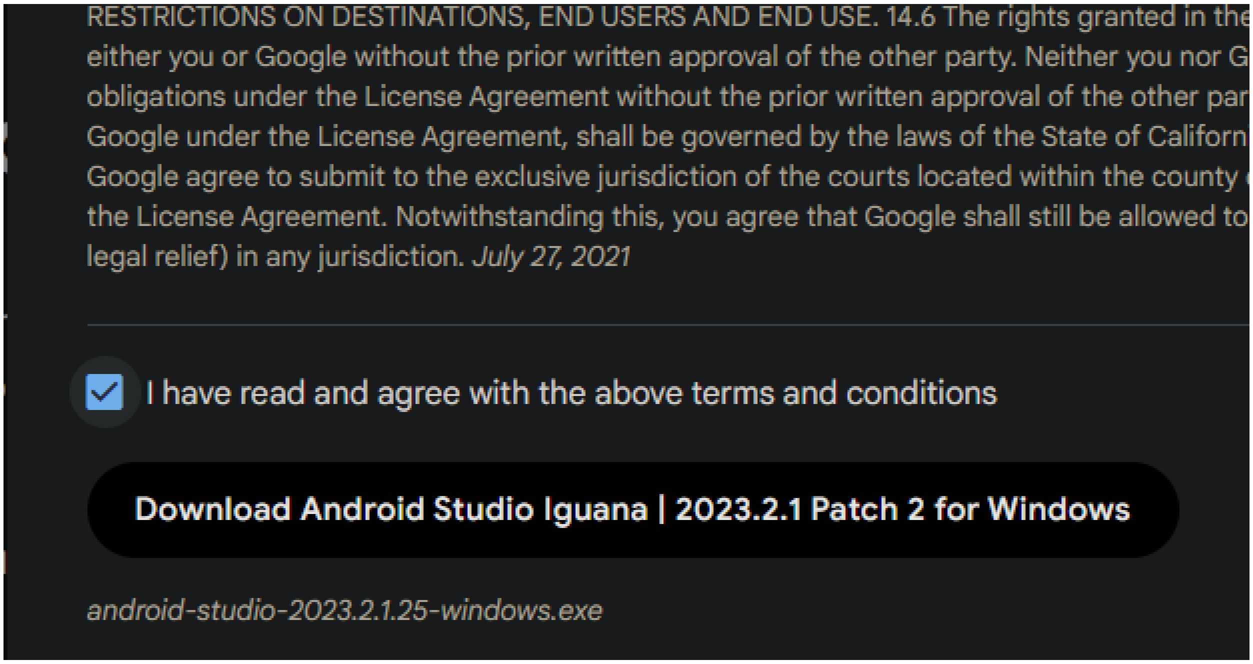
About 2,060,000,000 results (0.35 seconds)

Sponsored

Android
https://developer.android.com › studio

Android Studio | Download Now

Get the official Integrated Development Environment (IDE) for **Android** app development. **Android Studio** provides the fastest tools for building apps on every **Android** device. Multipreview API. Wear OS Pairing. Intelligent code editor. Flexible built system.



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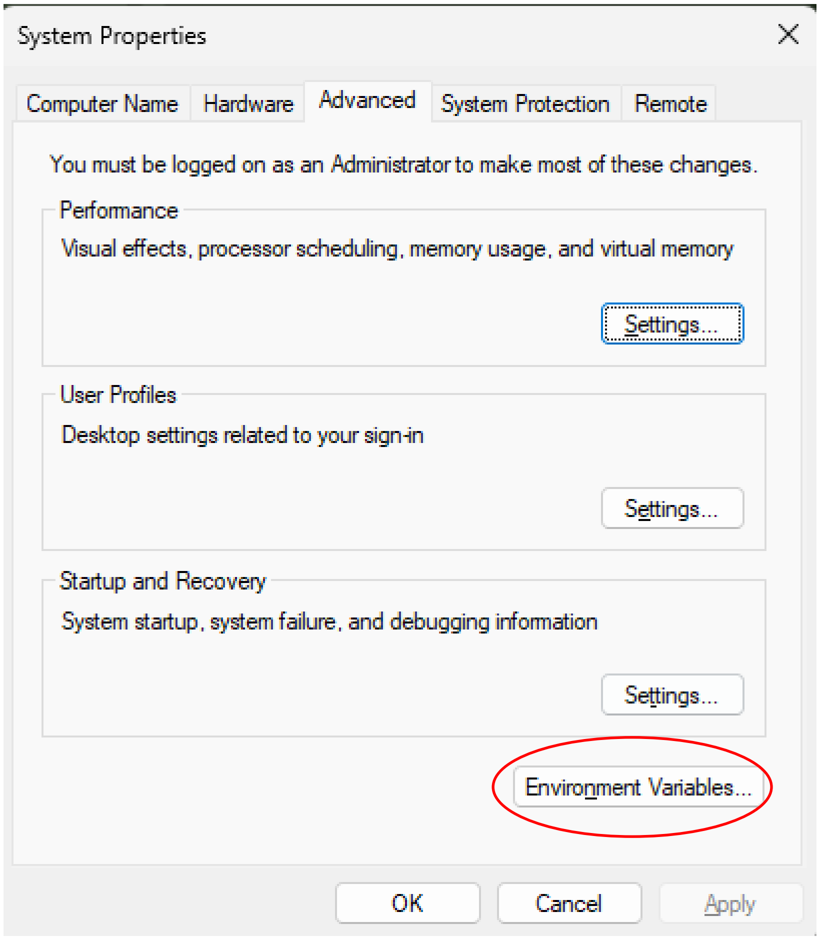
☑ I have read and agree with the above terms and conditions

Download Android Studio Iguana | 2023.2.1 Patch 2 for Windows

android-studio-2023.2.1.25-windows.exe

Download, install and run android studio.

6. Add path of platform-tools folder to the environment variable called path.



You must be logged on as an Administrator to make most of these changes.

Performance

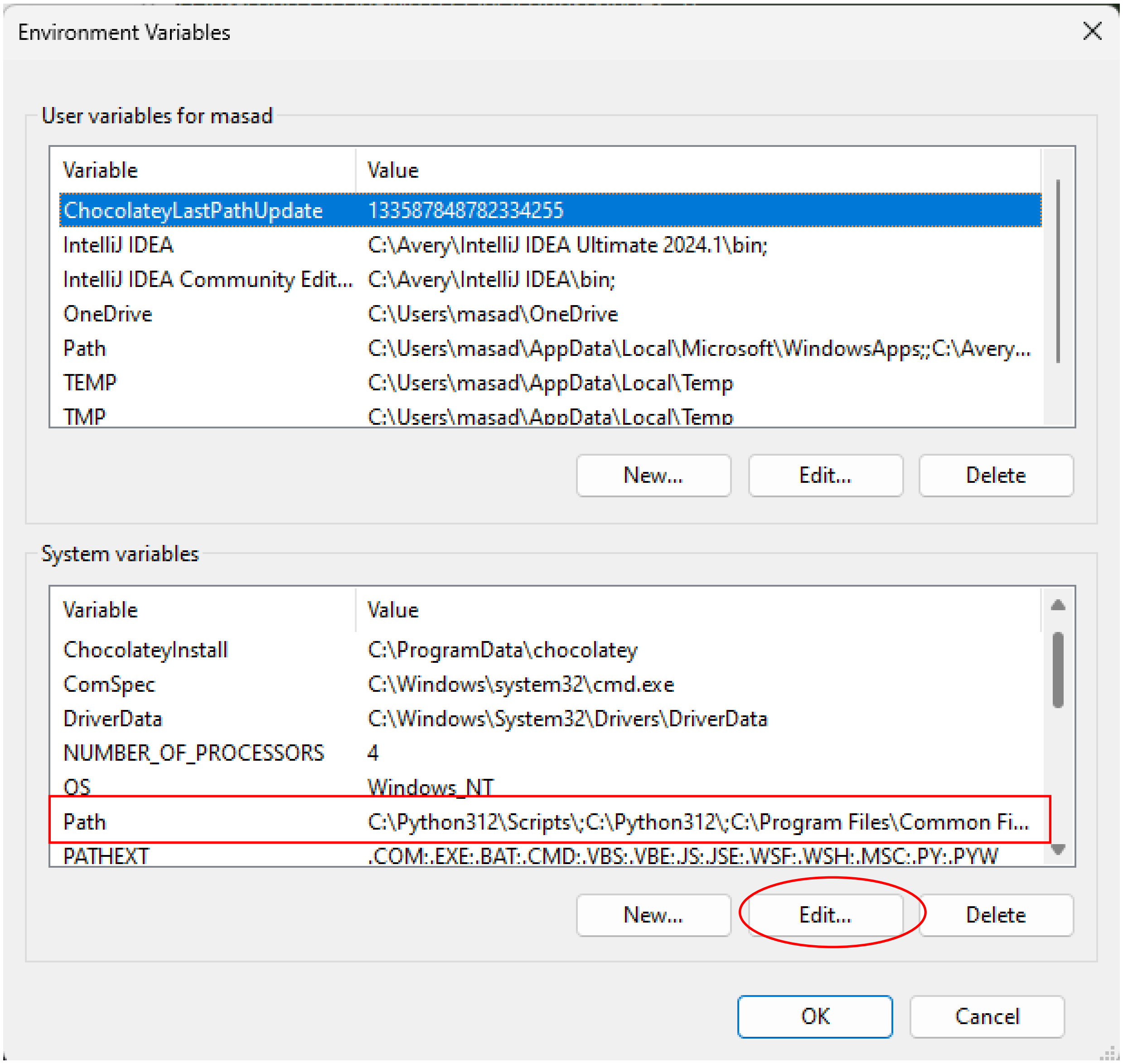
Visual effects, processor scheduling, memory usage, and virtual memory

User Profiles

Desktop settings related to your sign-in

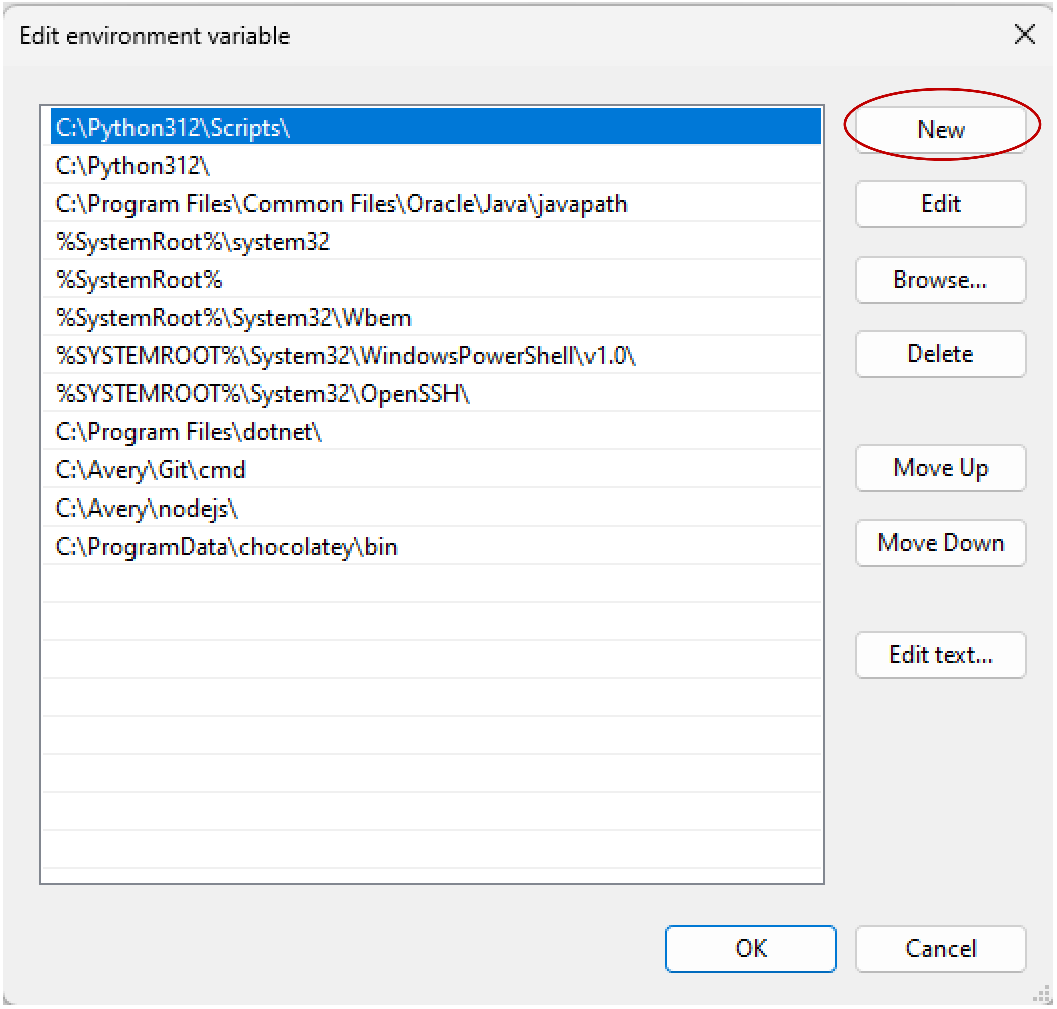
Startup and Recovery

System startup, system failure, and debugging information



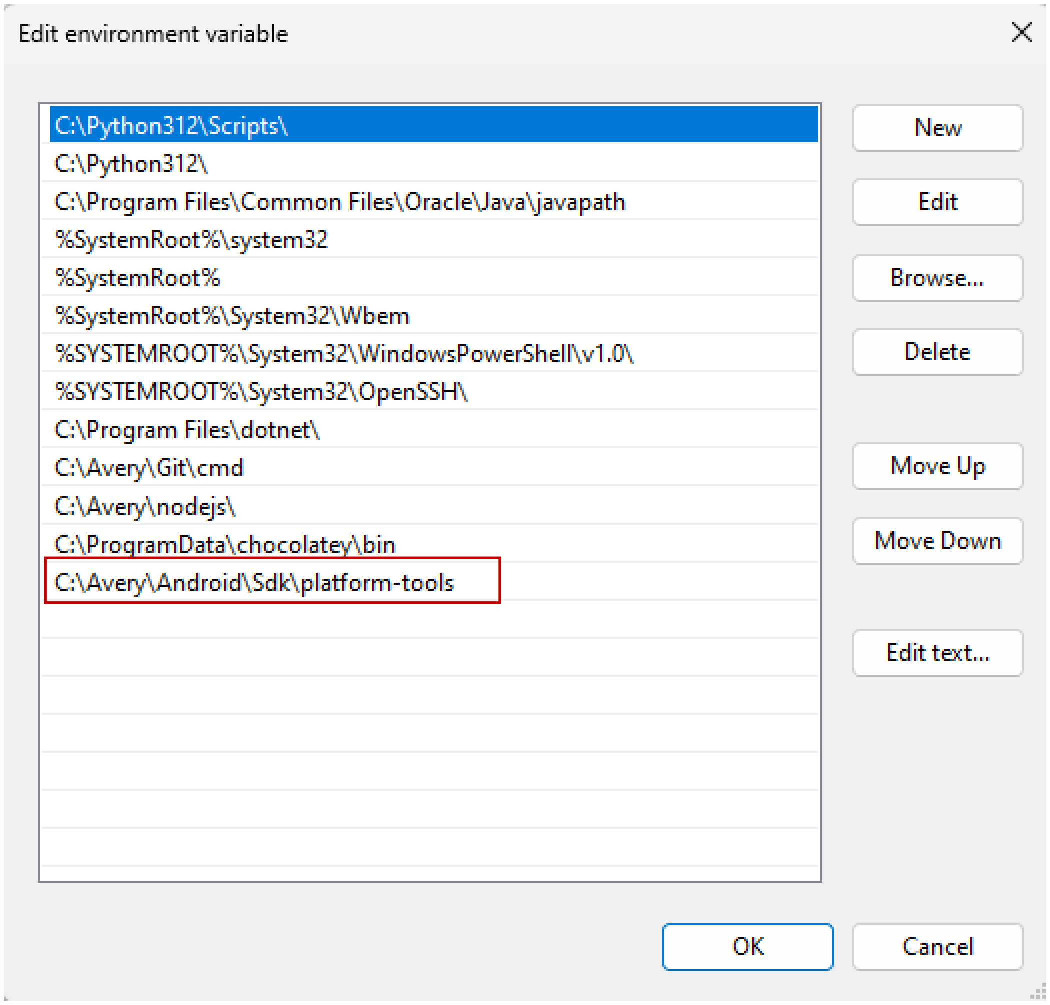
Variable	Value
ChocolateyLastPathUpdate	133587848782334255
IntelliJ IDEA	C:\Avery\IntelliJ IDEA Ultimate 2024.1\bin;
IntelliJ IDEA Community Edit...	C:\Avery\IntelliJ IDEA\bin;
OneDrive	C:\Users\masad\OneDrive
Path	C:\Users\masad\AppData\Local\Microsoft\WindowsApps;;C:\Avery...
TEMP	C:\Users\masad\AppData\Local\Temp
TMP	C:\Users\masad\AppData\Local\Temp

Variable	Value
ChocolateyInstall	C:\ProgramData\chocolatey
ComSpec	C:\Windows\system32\cmd.exe
DriverData	C:\Windows\System32\Drivers\DriverData
NUMBER_OF_PROCESSORS	4
OS	Windows_NT
Path	C:\Python312\Scripts\;C:\Python312\;C:\Program Files\Common Fi...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC;.PY;.PYW



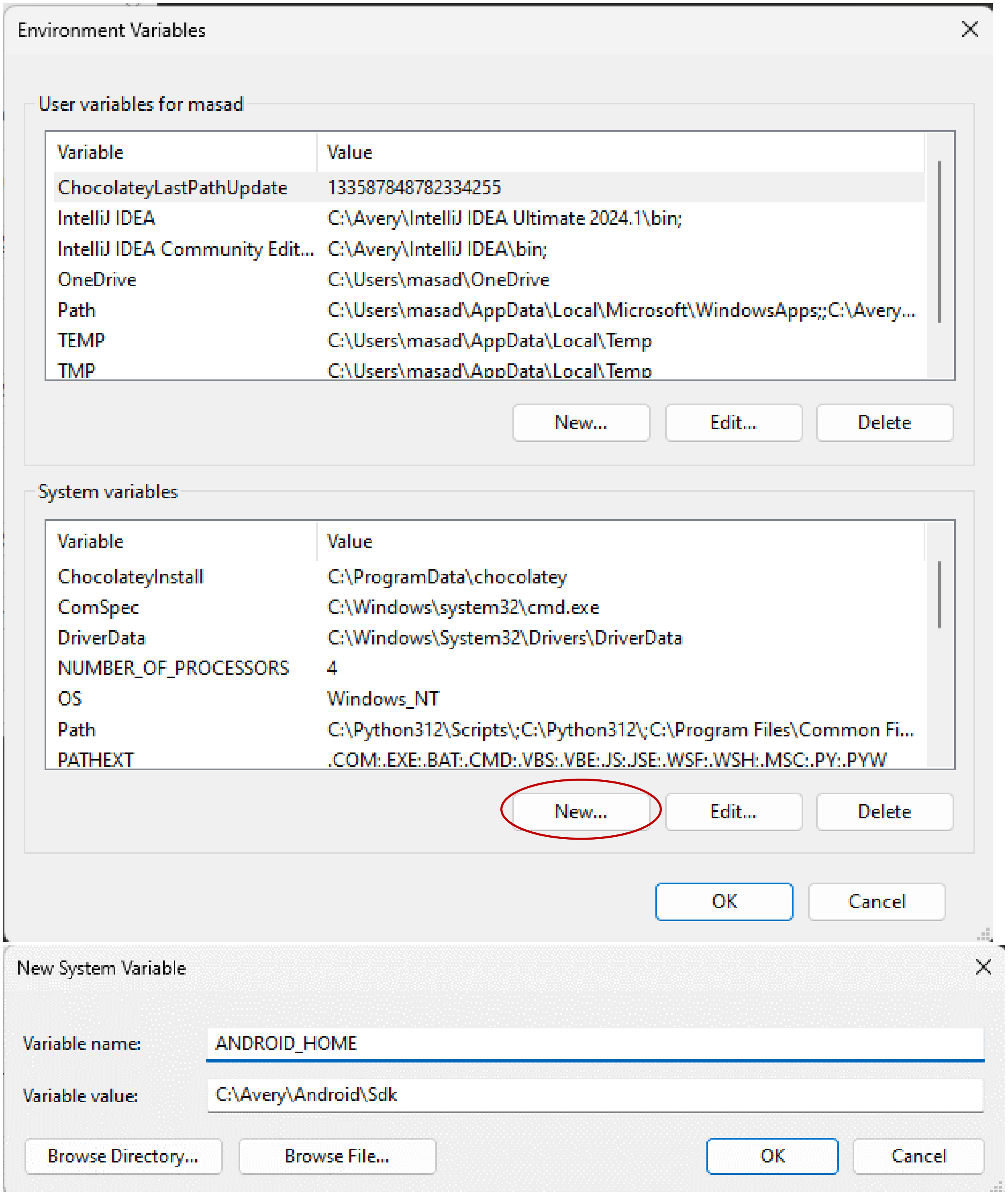
Edit environment variable

```
C:\Python312\Scripts\
C:\Python312\
C:\Program Files\Common Files\Oracle\Java\javapath
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files\dotnet\
C:\Avery\Git\cmd
C:\Avery\nodejs\
C:\ProgramData\chocolatey\bin
```



```
C:\Python312\Scripts\
C:\Python312\
C:\Program Files\Common Files\Oracle\Java\javapath
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files\dotnet\
C:\Avery\Git\cmd
C:\Avery\nodejs\
C:\ProgramData\chocolatey\bin
C:\Avery\Android\Sdk\platform-tools
```

7. Add new variable ANDROID_HOME and set its value to the path of sdk directory.



Environment Variables

User variables for masad

Variable	Value
ChocolateyLastPathUpdate	133587848782334255
IntelliJ IDEA	C:\Avery\IntelliJ IDEA Ultimate 2024.1\bin;
IntelliJ IDEA Community Edit...	C:\Avery\IntelliJ IDEA\bin;
OneDrive	C:\Users\masad\OneDrive
Path	C:\Users\masad\AppData\Local\Microsoft\WindowsApps;;C:\Avery...
TEMP	C:\Users\masad\AppData\Local\Temp
TMP	C:\Users\masad\AppData\Local\Temp

System variables

Variable	Value
ChocolateyInstall	C:\ProgramData\chocolatey
ComSpec	C:\Windows\system32\cmd.exe
DriverData	C:\Windows\System32\Drivers\DriverData
NUMBER_OF_PROCESSORS	4
OS	Windows_NT
Path	C:\Python312\Scripts\;C:\Python312\;C:\Program Files\Common Fi...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC;.PY;.PYW

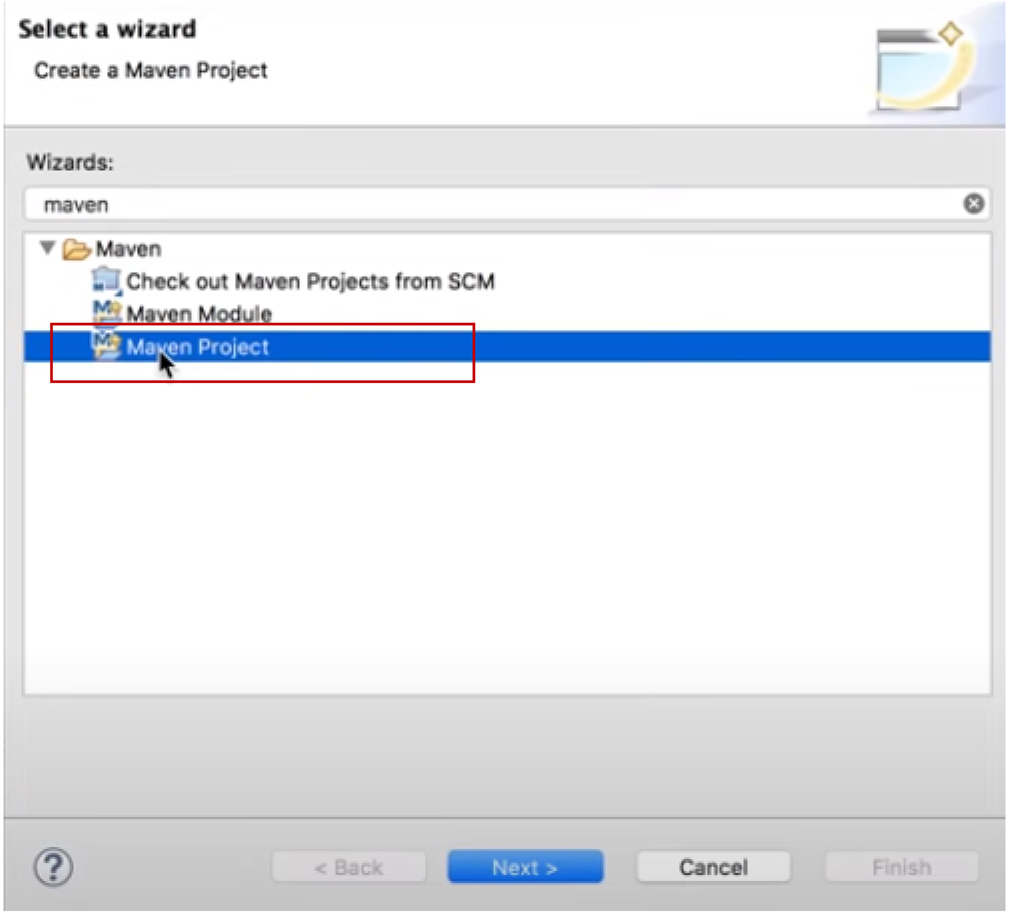
New System Variable

Variable name: ANDROID_HOME

Variable value: C:\Avery\Android\Sdk

8. Also set the the JAVA_HOME variable with the path of jdk directory.

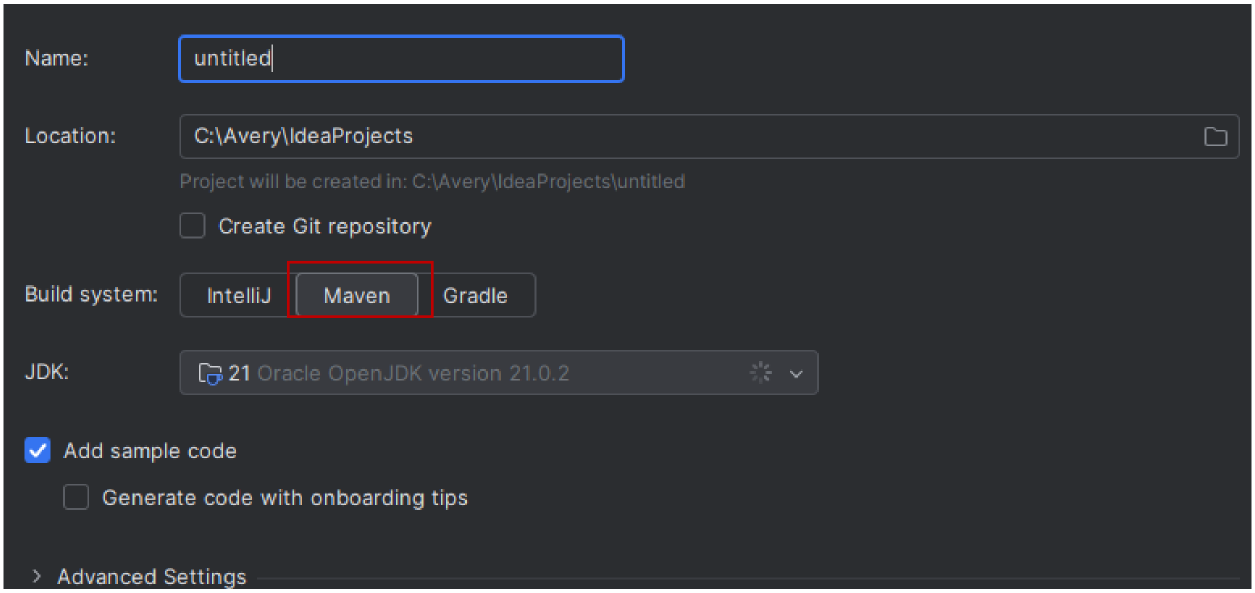
9. Create a maven project in Eclipse or any other IDE for java.



Select a wizard

Create a Maven Project

Wizards: maven



Name: untitled

Location: C:\Avery\IdeaProjects

Project will be created in: C:\Avery\IdeaProjects\untitled

☐ Create Git repository

Build system: IntelliJ [✓ Maven] Gradle

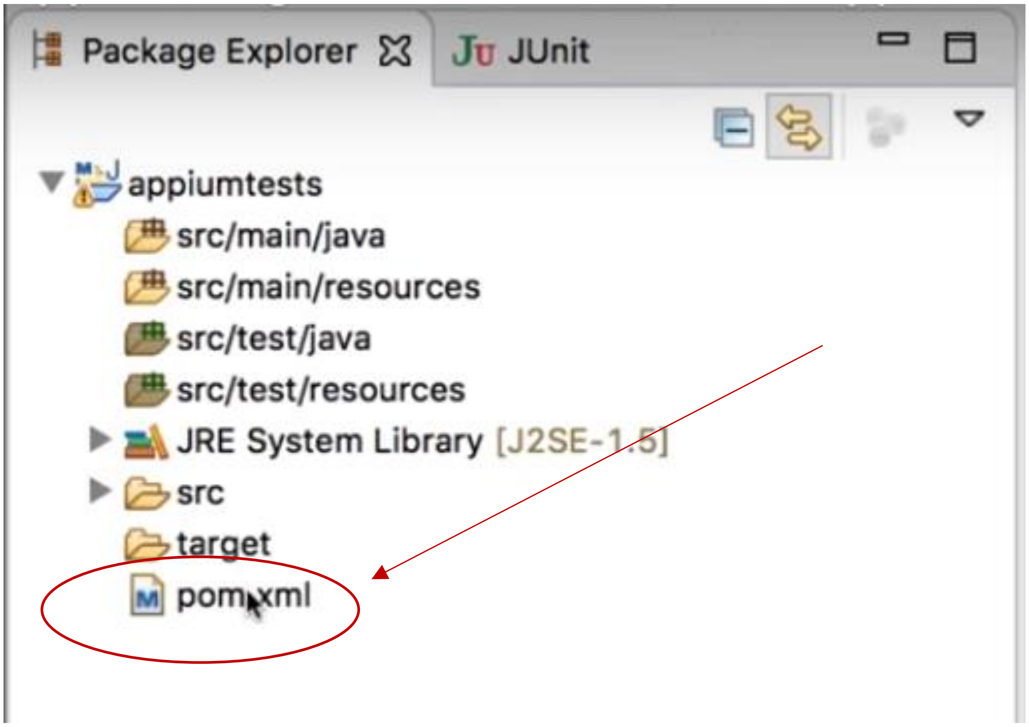
JDK: 21 Oracle OpenJDK version 21.0.2

☑ Add sample code

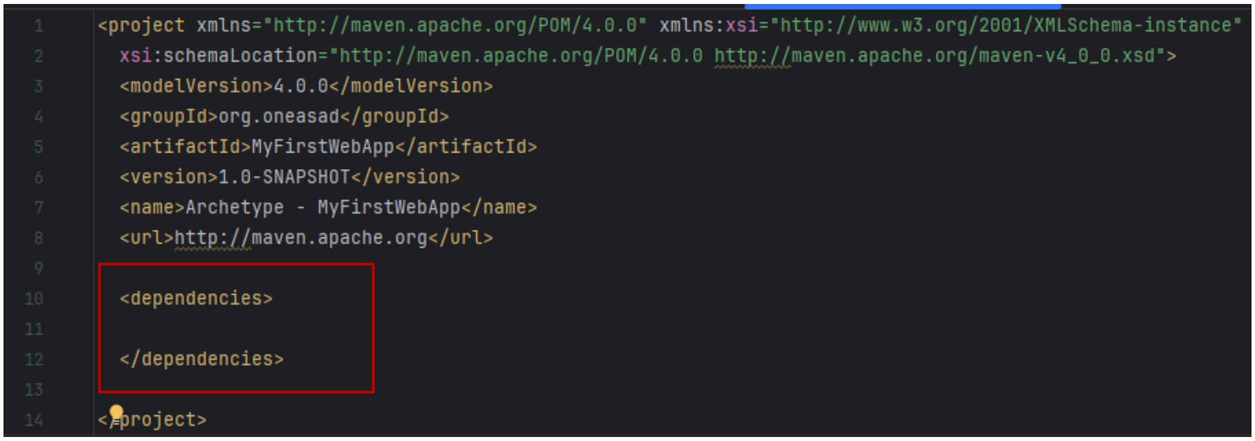
☐ Generate code with onboarding tips

› Advanced Settings

10. Open the pom.xml file that would be in your source folder of the maven project.



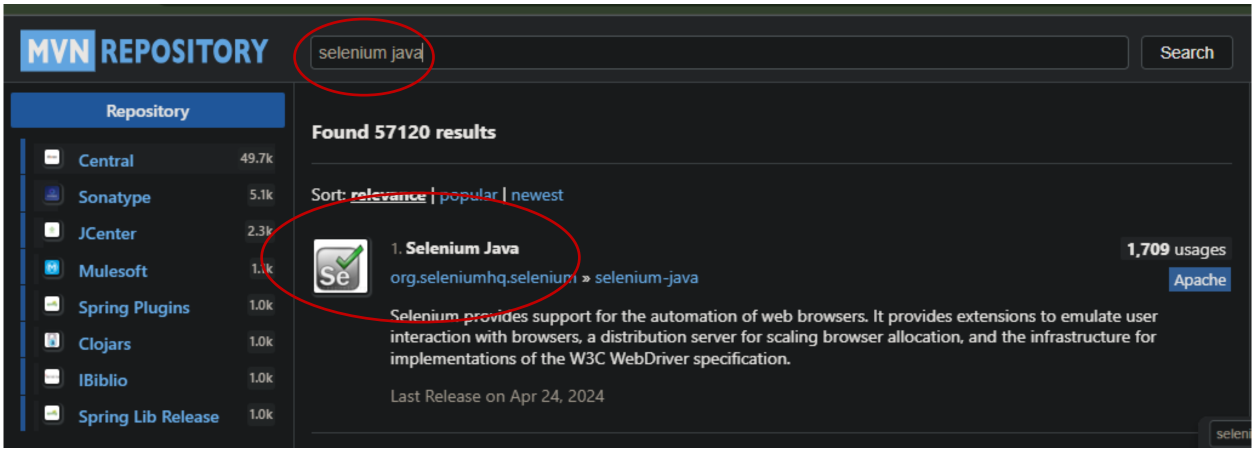
11. Add dependencies tags



```
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>org.oneasad</groupId>
  <artifactId>MyFirstWebApp</artifactId>
  <version>1.0-SNAPSHOT</version>
  <name>Archetype - MyFirstWebApp</name>
  <url>http://maven.apache.org</url>

  <dependencies>

  </dependencies>

</project>
```

12. Go to maven repository website https://mvnrepository.com/

13. Search for “selenium java”, as we are using java. And click the first link.



Found 57120 results

Sort: relevance | popular | newest

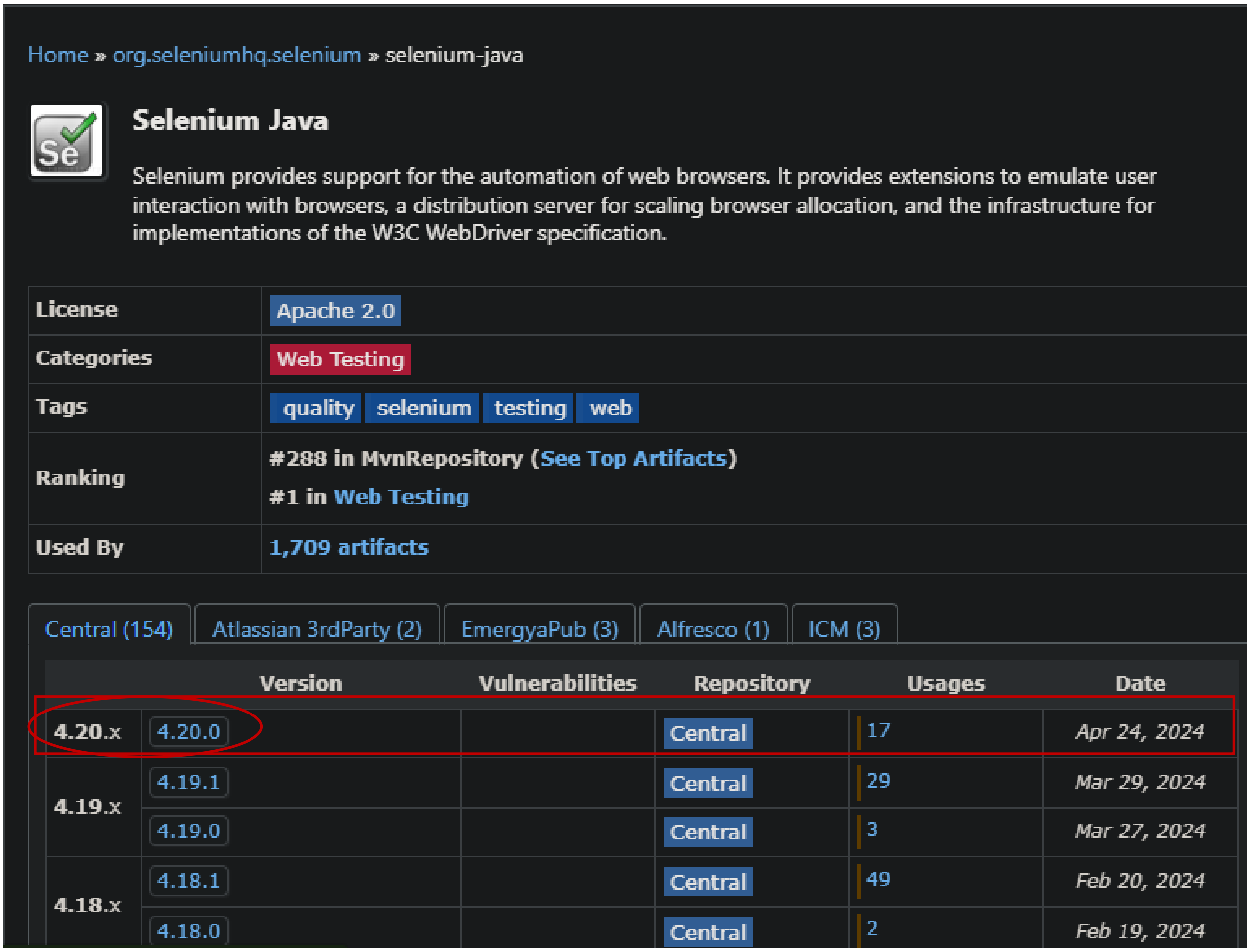
1. **Selenium Java** 1,709 usages

org.seleniumhq.selenium » selenium-java Apache

Selenium provides support for the automation of web browsers. It provides extensions to emulate user interaction with browsers, a distribution server for scaling browser allocation, and the infrastructure for implementations of the W3C WebDriver specification.

Last Release on Apr 24, 2024

14. Now select the latest version.



Home » org.seleniumhq.selenium » selenium-java

Selenium Java

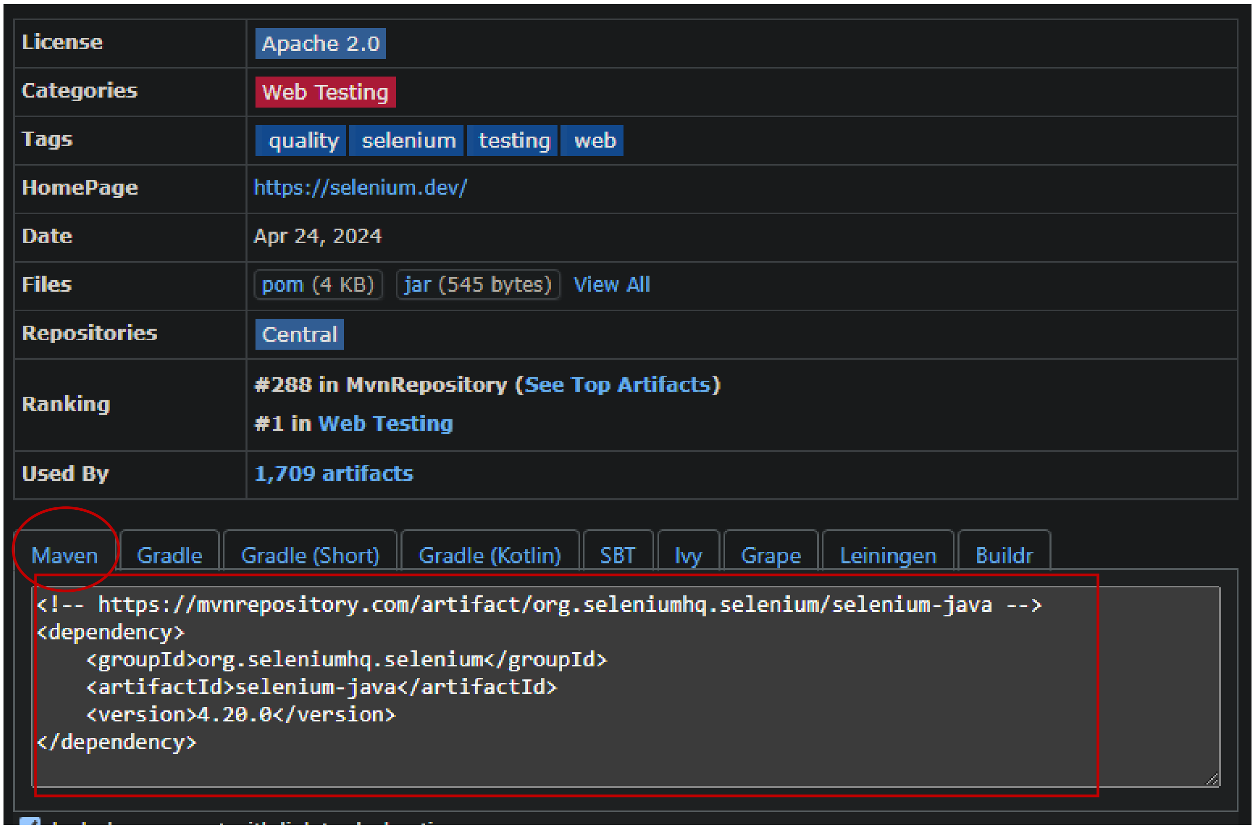
Selenium provides support for the automation of web browsers. It provides extensions to emulate user interaction with browsers, a distribution server for scaling browser allocation, and the infrastructure for implementations of the W3C WebDriver specification.

License	Apache 2.0
Categories	Web Testing
Tags	quality selenium testing web
Ranking	#288 in MvnRepository (See Top Artifacts) #1 in Web Testing
Used By	1,709 artifacts

Central (154) Atlassian 3rdParty (2) EmergyaPub (3) Alfresco (1) ICM (3)

	Version	Vulnerabilities	Repository	Usages	Date
4.20.x	4.20.0		Central	17	Apr 24, 2024
4.19.x	4.19.1		Central	29	Mar 29, 2024
	4.19.0		Central	3	Mar 27, 2024
4.18.x	4.18.1		Central	49	Feb 20, 2024
	4.18.0		Central	2	Feb 19, 2024

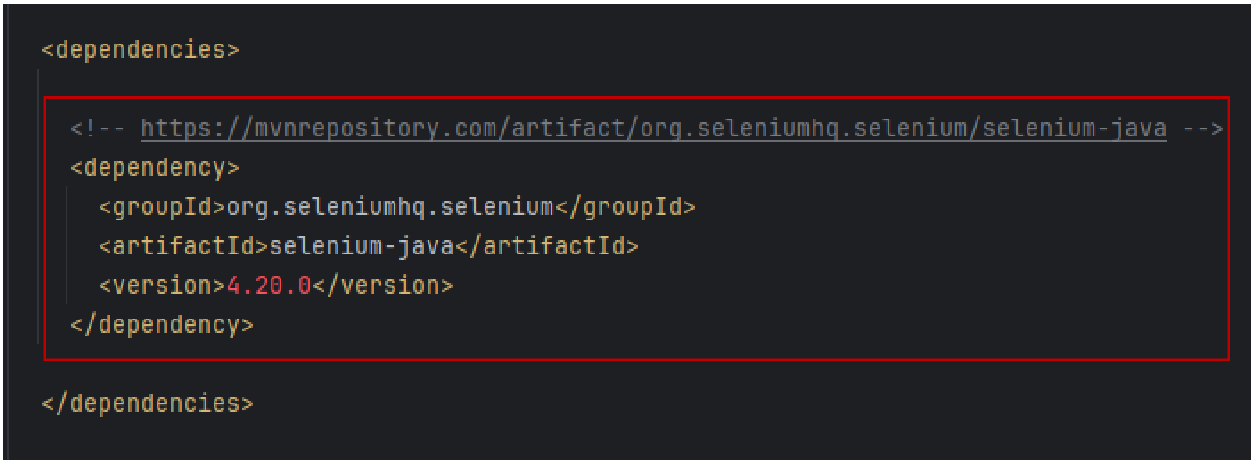
15. Click to copy the details.



License	Apache 2.0
Categories	Web Testing
Tags	quality selenium testing web
HomePage	https://selenium.dev/
Date	Apr 24, 2024
Files	pom (4 KB) jar (545 bytes) View All
Repositories	Central
Ranking	#288 in MvnRepository (See Top Artifacts) #1 in Web Testing
Used By	1,709 artifacts

```
<!-- https://mvnrepository.com/artifact/org.seleniumhq.selenium/selenium-java -->
<dependency>
    <groupId>org.seleniumhq.selenium</groupId>
    <artifactId>selenium-java</artifactId>
    <version>4.20.0</version>
</dependency>
```

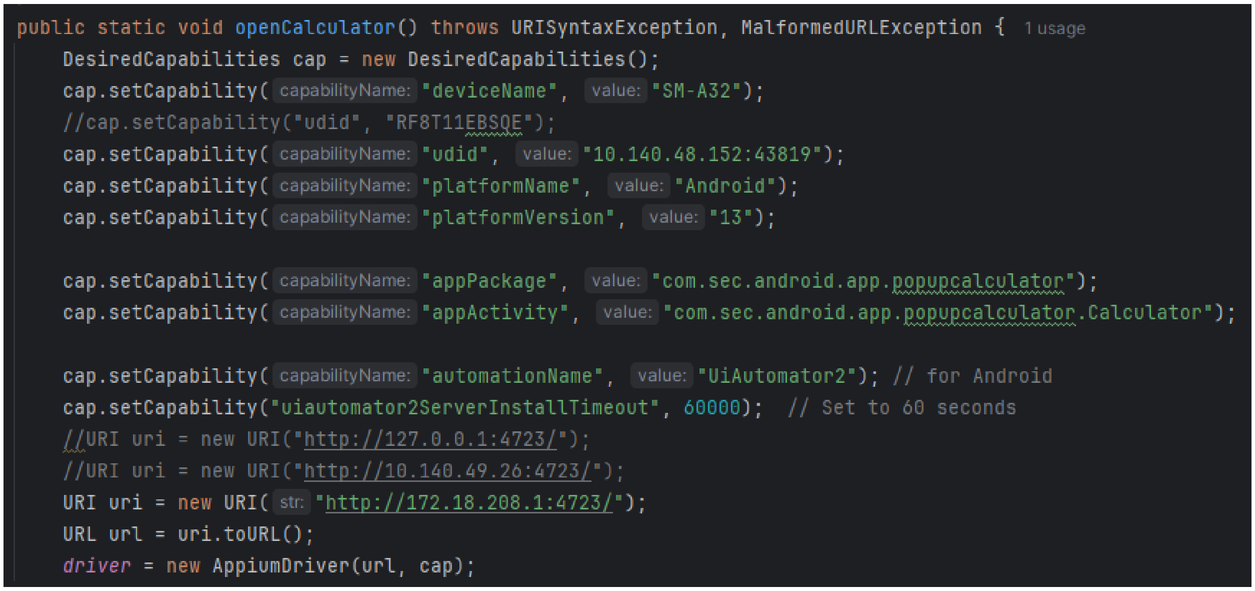
16. Now paste it in the dependencies tag we have created in pom.xml file.



```
<dependencies>

  <!-- https://mvnrepository.com/artifact/org.seleniumhq.selenium/selenium-java -->
  <dependency>
    <groupId>org.seleniumhq.selenium</groupId>
    <artifactId>selenium-java</artifactId>
    <version>4.20.0</version>
  </dependency>

</dependencies>
```

17. Now repeat step 12-15 for “Appium java client”.

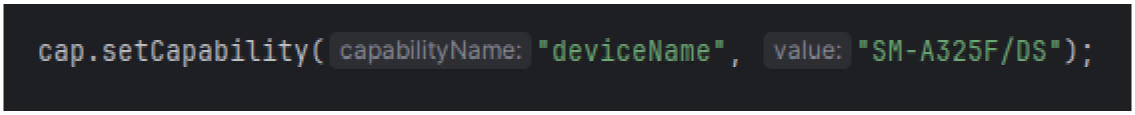
18. Now we will write code for testing.



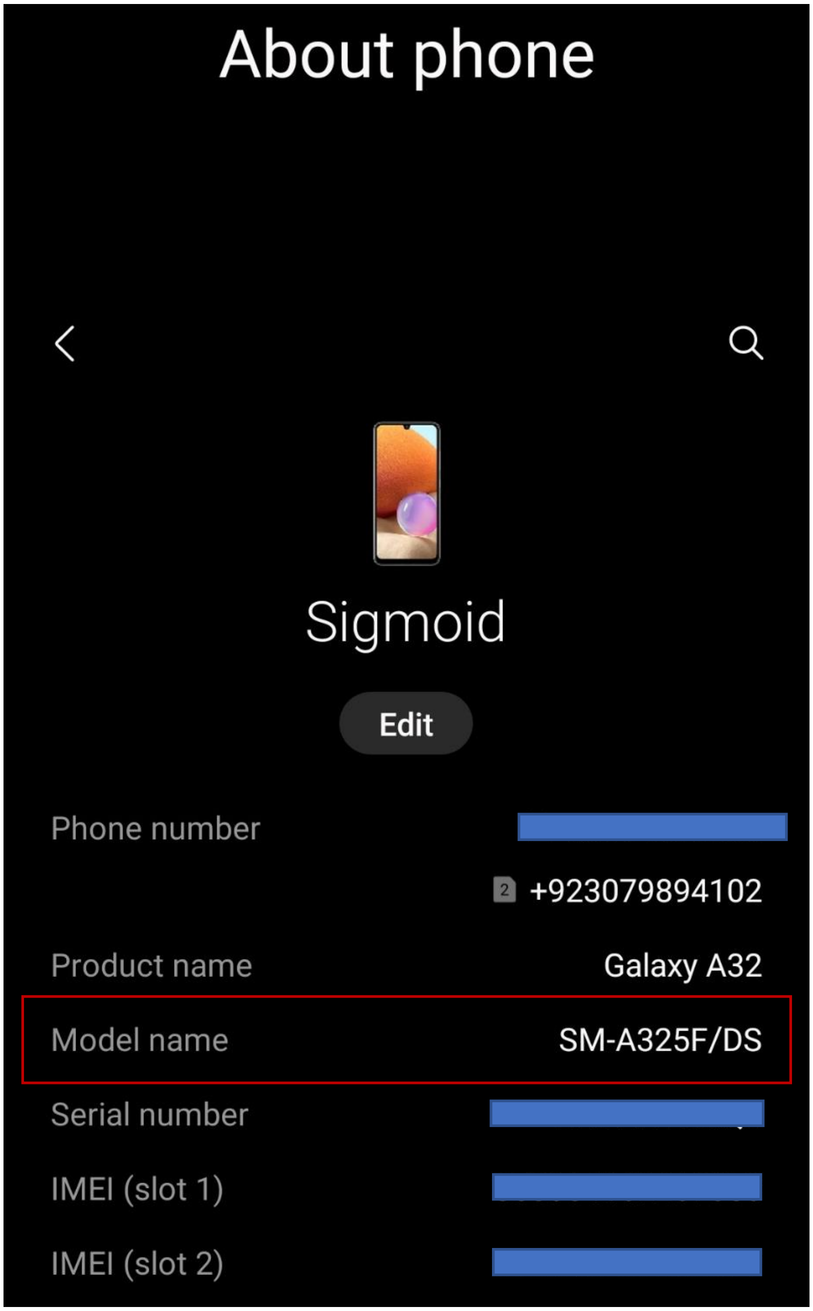
```
public static void openCalculator() throws URISyntaxException, MalformedURLException {  1 usage
    DesiredCapabilities cap = new DesiredCapabilities();
    cap.setCapability( capabilityName: "deviceName",  value: "SM-A32");
    //cap.setCapability("udid", "RF8T11EBSQE");
    cap.setCapability( capabilityName: "udid",  value: "10.140.48.152:43819");
    cap.setCapability( capabilityName: "platformName",  value: "Android");
    cap.setCapability( capabilityName: "platformVersion",  value: "13");

    cap.setCapability( capabilityName: "appPackage",  value: "com.sec.android.app.popupcalculator");
    cap.setCapability( capabilityName: "appActivity",  value: "com.sec.android.app.popupcalculator.Calculator");

    cap.setCapability( capabilityName: "automationName",  value: "UiAutomator2"); // for Android
    cap.setCapability("uiautomator2ServerInstallTimeout", 60000);  // Set to 60 seconds
    //URI uri = new URI("http://127.0.0.1:4723/");
    //URI uri = new URI("http://10.140.49.26:4723/");
    URI uri = new URI( str: "http://172.18.208.1:4723/");
    URL url = uri.toURL();
    driver = new AppiumDriver(url, cap);
```

Required Material & their sources

1. Device name, for this you should go the “About Phone” section in your phone settings.



```
cap.setCapability( capabilityName: "deviceName",  value: "SM-A325F/DS");
```

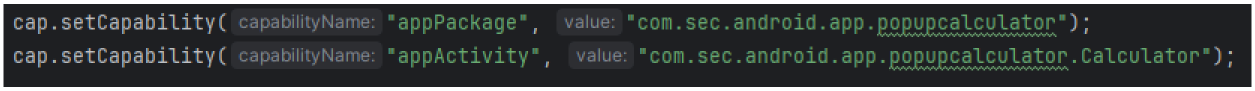


About phone

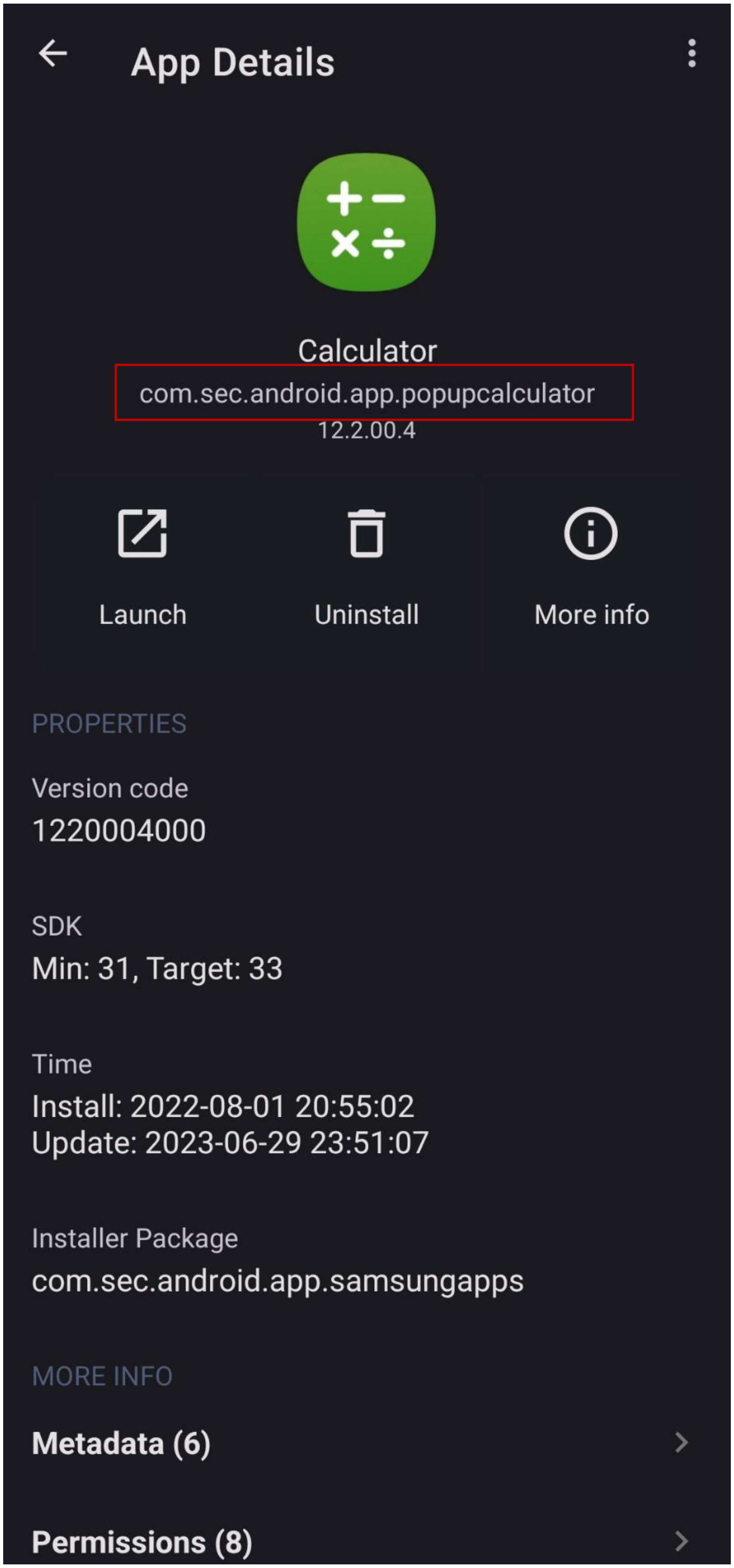
Sigmoid

Phone number	[redacted]
	+923079894102
Product name	Galaxy A32
Model name	SM-A325F/DS
Serial number	[redacted]
IMEI (slot 1)	[redacted]
IMEI (slot 2)	[redacted]

2. App information, it comes from using an apk like “App Info”, you download it from play store https://play.google.com/store/apps/details?id=com.wt.apkinfo&pcampaignid=web_share



```
cap.setCapability( capabilityName: "appPackage",  value: "com.sec.android.app.popupcalculator");
cap.setCapability( capabilityName: "appActivity",  value: "com.sec.android.app.popupcalculator.Calculator");
```



Calculator

com.sec.android.app.popupcalculator

12.2.00.4

PROPERTIES

Version code
1220004000

SDK
Min: 31, Target: 33

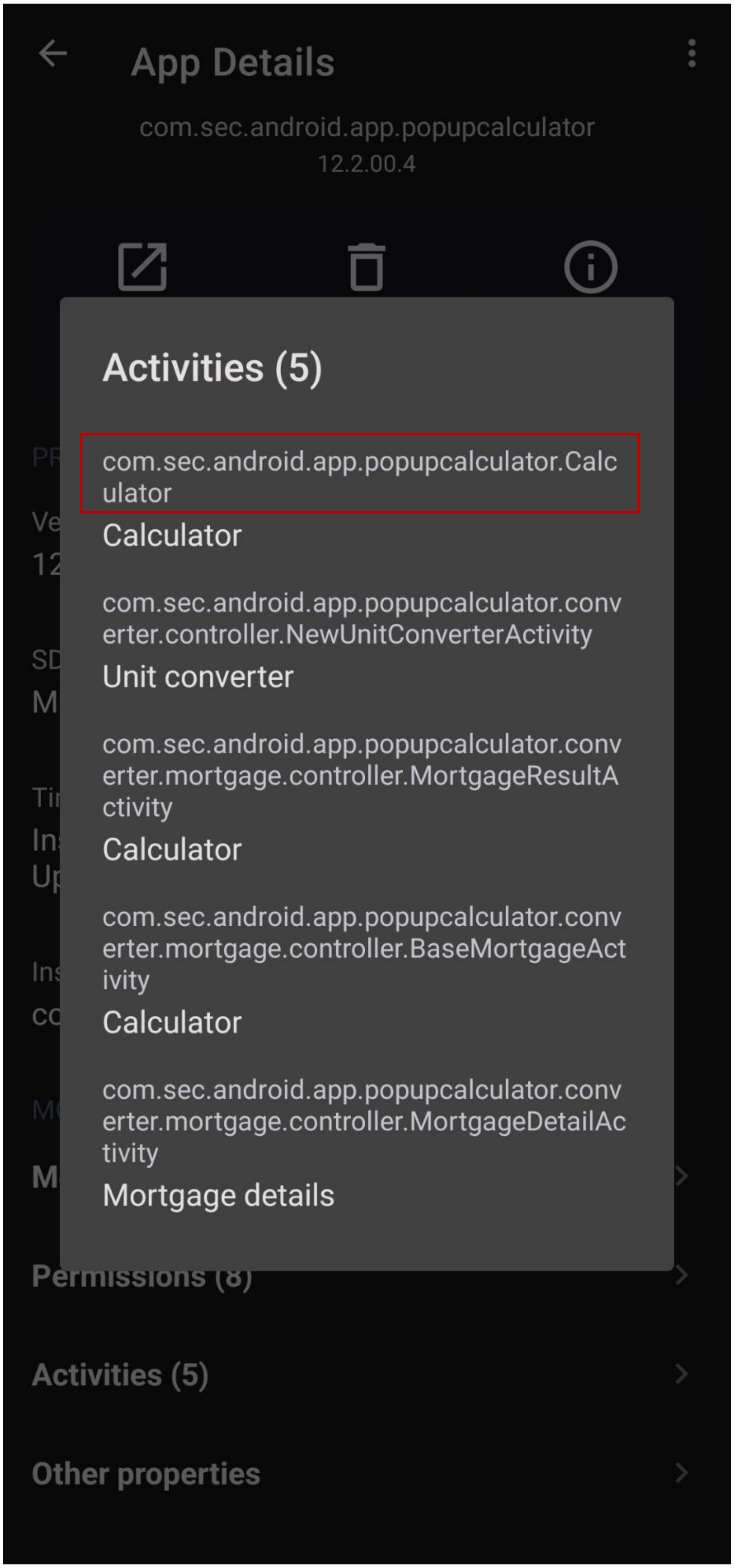
Time
Install: 2022-08-01 20:55:02
Update: 2023-06-29 23:51:07

Installer Package
com.sec.android.app.samsungapps

MORE INFO

Metadata (6) >

Permissions (8) >



App Details

com.sec.android.app.popupcalculator
12.2.00.4

Activities (5)

com.sec.android.app.popupcalculator.Calculator
Calculator

com.sec.android.app.popupcalculator.converter.controller.NewUnitConverterActivity
Unit converter

com.sec.android.app.popupcalculator.converter.mortgage.controller.MortgageResultActivity
Calculator

com.sec.android.app.popupcalculator.converter.mortgage.controller.BaseMortgageActivity
Calculator

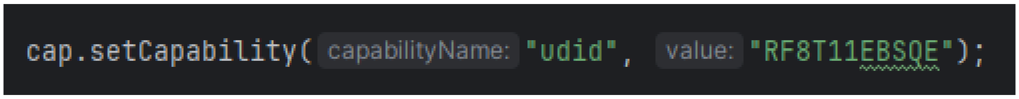
com.sec.android.app.popupcalculator.converter.mortgage.controller.MortgageDetailActivity
Mortgage details

Permissions (8)

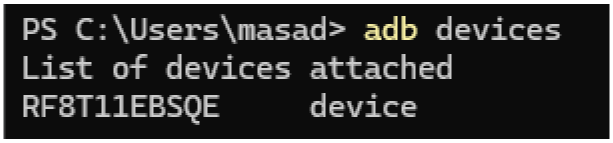
Activities (5)

Other properties

3. UDID of the phone

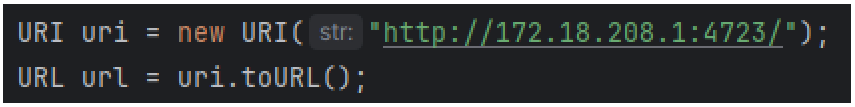


```
cap.setCapability( capabilityName: "udid",  value: "RF8T11EBSQE");
```

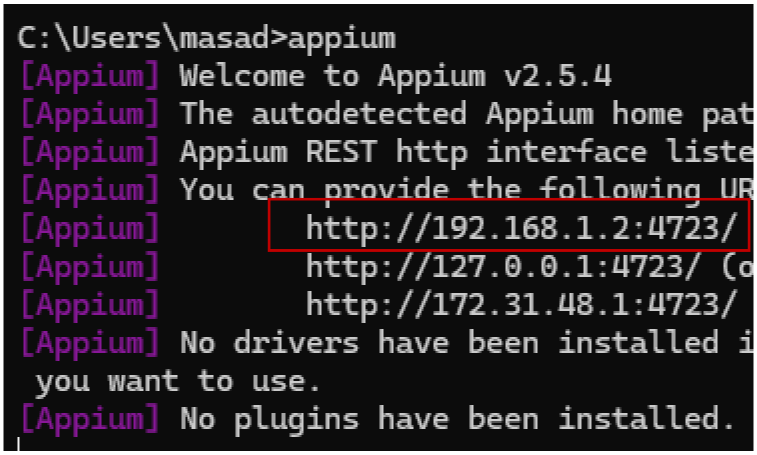


```
PS C:\Users\masad> adb devices
List of devices attached
RF8T11EBSQE     device
```

4. URL of Appium



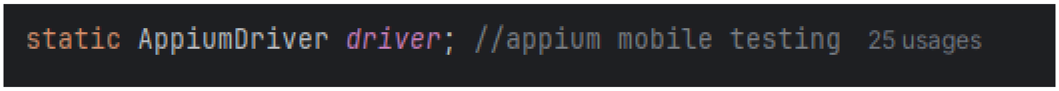
```
URI uri = new URI( str: "http://172.18.208.1:4723/");
URL url = uri.toURL();
```



```
C:\Users\masad>appium
[Appium] Welcome to Appium v2.5.4
[Appium] The autodetected Appium home pat
[Appium] Appium REST http interface liste
[Appium] You can provide the following UR
[Appium]        http://192.168.1.2:4723/
[Appium]        http://127.0.0.1:4723/ (o
[Appium]        http://172.31.48.1:4723/
[Appium] No drivers have been installed i
 you want to use.
[Appium] No plugins have been installed.
```

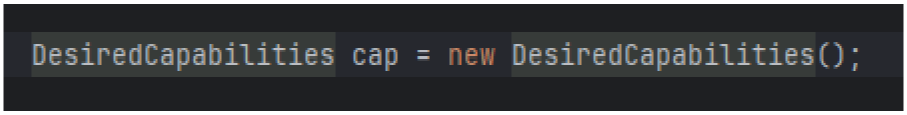
Code Explanation

1. First we need to create an Appium driver, that will give us tools for testing:



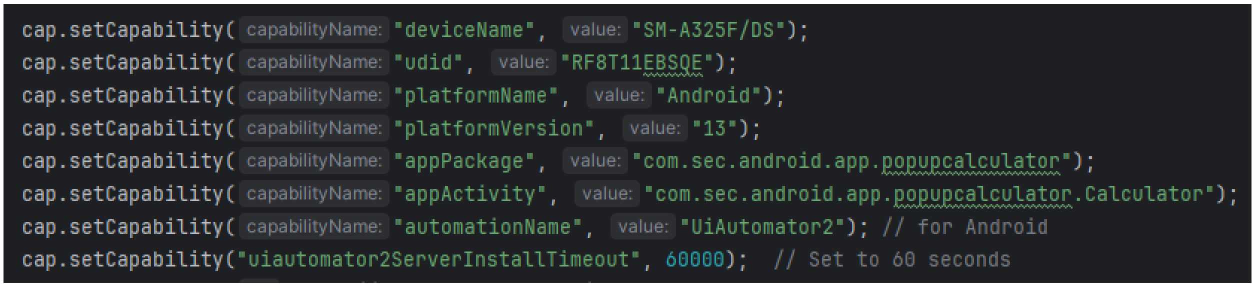
```
static AppiumDriver driver; //appium mobile testing  25 usages
```

2. Then we need to create a variable that will be a representative of device, a variable that will have device information.



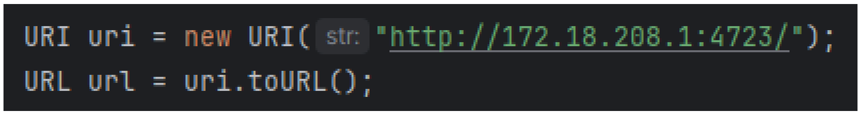
```
DesiredCapabilities cap = new DesiredCapabilities();
```

3. Now we need to enter device and application information into “cap” variable.



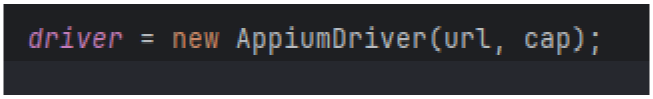
```
cap.setCapability( capabilityName: "deviceName",  value: "SM-A325F/DS");
cap.setCapability( capabilityName: "udid",  value: "RF8T11EBSQE");
cap.setCapability( capabilityName: "platformName",  value: "Android");
cap.setCapability( capabilityName: "platformVersion",  value: "13");
cap.setCapability( capabilityName: "appPackage",  value: "com.sec.android.app.popupcalculator");
cap.setCapability( capabilityName: "appActivity",  value: "com.sec.android.app.popupcalculator.Calculator");
cap.setCapability( capabilityName: "automationName",  value: "UiAutomator2"); // for Android
cap.setCapability("uiautomator2ServerInstallTimeout", 60000);  // Set to 60 seconds
```

4. Now we need to create URL variable that will hold the address of Appium server.



```
URI uri = new URI( str: "http://172.18.208.1:4723/");
URL url = uri.toURL();
```

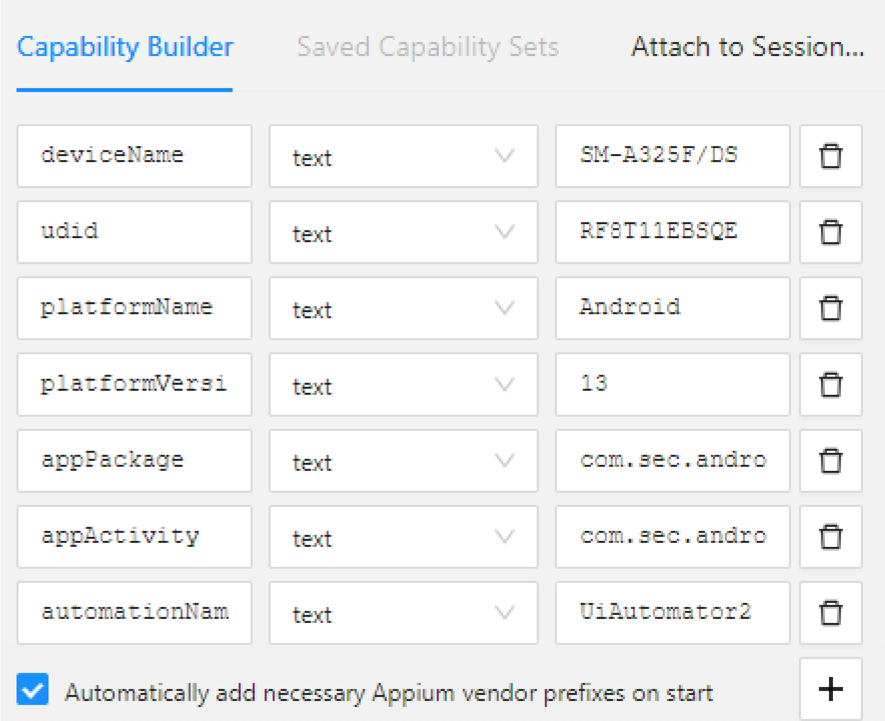
5. Now we need to initialize the Appium driver with our Appium server and device.



```
driver = new AppiumDriver(url, cap);
```

6. To interact with the applications, we need to inspect them, so that we can identify and hit the elements. For this purpose we need to download Appium inspector, which you can download from here: https://github.com/appium/appium-inspector/releases

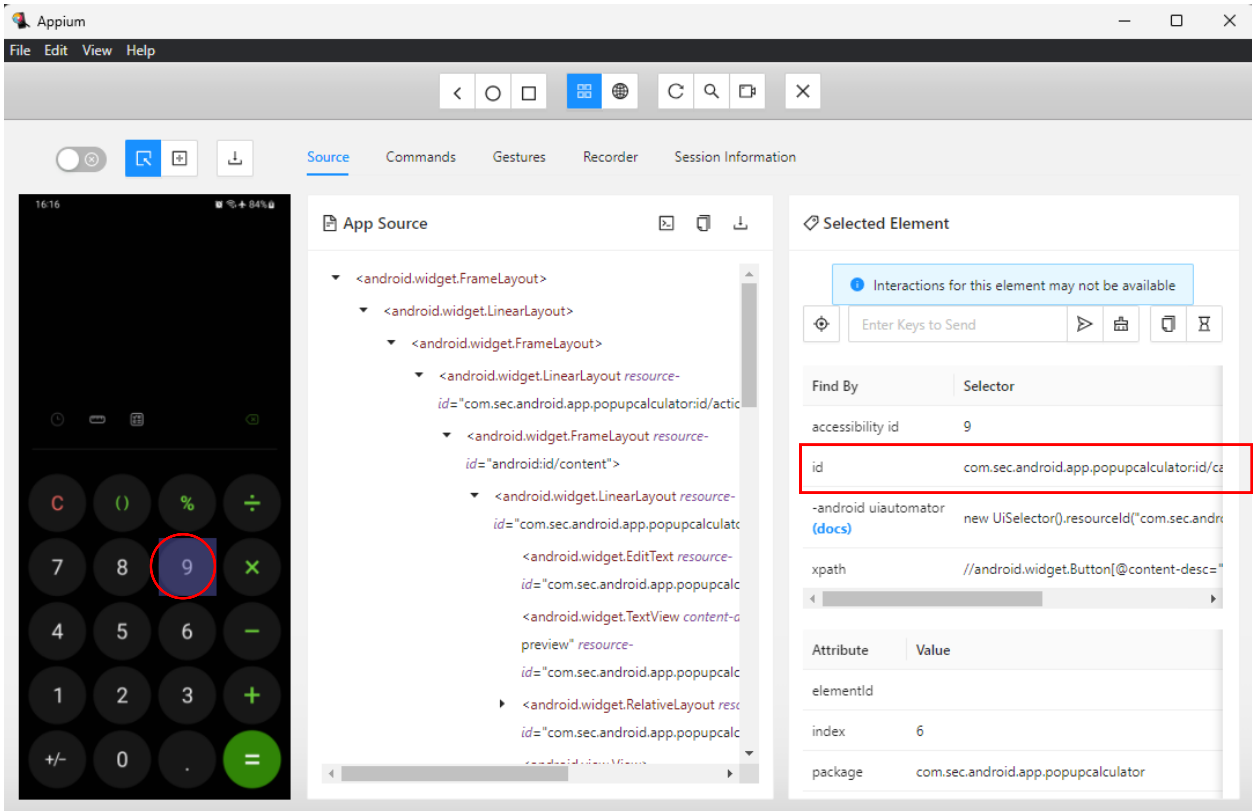
7. Now, add all device information in Appium inspector that we added in third step:



deviceName	text	SM-A325F/DS
udid	text	RF8T11EBSQE
platformName	text	Android
platformVersi	text	13
appPackage	text	com.sec.andro
appActivity	text	com.sec.andro
automationNam	text	UiAutomator2

☑ Automatically add necessary Appium vendor prefixes on start

8. Now we can click any element to see its details, that can be used to approach it from java code.



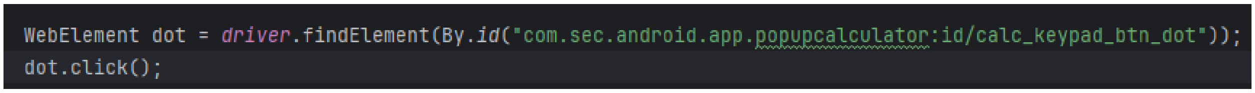
```
<android.widget.FrameLayout>
  <android.widget.LinearLayout>
    <android.widget.FrameLayout>
      <android.widget.LinearLayout resource-
      id="com.sec.android.app.popupcalculator:id/actic
        <android.widget.FrameLayout resource-
        id="android:id/content">
          <android.widget.LinearLayout resource-
          id="com.sec.android.app.popupcalculatc
            <android.widget.EditText resource-
            id="com.sec.android.app.popupcalc
            <android.widget.TextView content-c
            preview" resource-
            id="com.sec.android.app.popupcalc
            <android.widget.RelativeLayout resc
            id="com.sec.android.app.popupcalc
```

Interactions for this element may not be available

Find By	Selector
accessibility id	9
id	com.sec.android.app.popupcalculator:id/ca
-android uiautomator (docs)	new UiSelector().resourceId("com.sec.andr
xpath	//android.widget.Button[@content-desc="

Attribute	Value
elementId	
index	6
package	com.sec.android.app.popupcalculator

9. The information of element can be used in several ways, like this:



```
WebElement dot = driver.findElement(By.id("com.sec.android.app.popupcalculator:id/calc_keypad_btn_dot"));
dot.click();
```

Conclusion

Up till now, you have got everything, that is needed to get started with Appium, installation guide, details needed during code, how and where to get these things, how to set up an environment and project for testing. The code that was shown in the screenshot has been uploaded to GitHub with this manual and slides to help you get started. You can access all these things on this repository.