Importance of Mobile Phone

- I want to pay my electricity bill.
- I need to communicate with my manager and submit my reports urgently.
- I want to buy new clothes for my kid, but I don't have the time to go to a store.
- Oh...it's 10 PM; I am running late for my flight. Where is my cab?
- I have been in this city for the first time; which hotel should I book?

Now answer yourself. What do you need to perform these activities in a fraction of second? The answer would be –

- A smartphone,
- Internet connectivity, and
- A mobile app to do the job.

Various Mobile OS

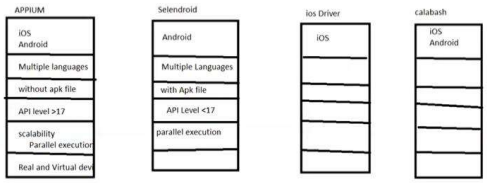
Operating System	Developed by	Popularity (Low, Medium, High)
Android	Google Inc	High
iOS	Apple Inc	High
Blackberry	Blackberry Ltd	Low
Windows	Microsoft Inc	Medium

Types of Mobile Apps

- **Mobile Web App**
  - Web apps are not real applications; they are actually websites that open in your smartphone with the help of a web browser. Mobile websites have the broadest audience of all the primary types of applications.
- **Native App**
  - A native app is developed specifically for one platform. It can be installed through an application store (such as Google Play Store or Apple's App Store).
  - Example – Whatsapp, Facebook. This app can use all the system application's(the apps which comes by default with your mobile)
- **Hybrid App**
  - Hybrid Apps are a way to expose content from existing websites in App format. They can be well described as a mixture of Web App and Native App.

Tools Available

- Appium
- Selendroid
- ios-driver
- Calabash
- MoneyTalk
- Frank
- KIF(keep it functional)
- Robotium



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Open source Tools Requirements

- Application source code should not be modified for test automation : I don't want to compile or modify the source code of the application, whatever the application we are going to submit the same app i need to test
  - Explanation : There are many open source mobile automation testing tools (like Robotium) which needs compilation or modification of the source code before conducting testing and even after testing also we need to remove those changes. It means in these cases we are not going to test the application whatever we are going to submit to the play store.
- Tests should run across Simulators/Emulators & Real Devices: my tool should support simulators(virtual device for iOS), emulators(virtual device for Android), real devices
- Tests should be written using Java and any test automation frameworks: written in java so that it can support any framework
- Large open source community for continuous maintenance and support:larger community support

- Tools which fulfills open source requirements:

Requirements	APPIUM	iOS Driver	Calabash
1	Yes	Yes	No
2	Yes	No	Yes
3	Yes	Yes	No
4	Yes	Yes	No

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Why Appium (Advantages)

- Cross platform: Android & iOS: we can test native, hybrid, web app
- Allows you to communicate with other apps , Ex: WhatsApp (Majority of tools doesn't support this)
- No pre-compilation of your app
- support for built-in app : alarm, phone, calendar etc
- Any WebDriver compatible language is supported : Java, objective C, Ruby, php , C# : we just need language specific libraries to work on

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Limitations of Appium

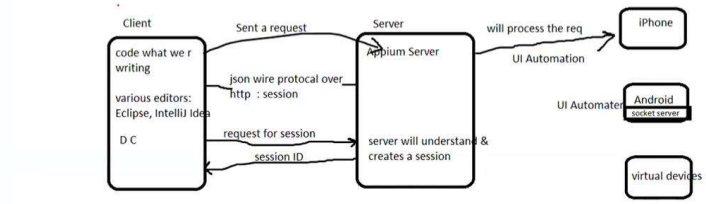
- For Android, No Support for Android API level < 17(for android v>4.1) if you mobile having less than 17 then we need to go for selendroid.
- Script execution is very slow on iOS platform & android virtual devices
- No support for Toast messages: we can handle this
- no parallel execution directly : we can handle using sauce labs

What is Appium?

- Appium is mobile web, native and hybrid software application test automation tool developed and supported by Sauce Labs .
- It is open-source software automation tool which is useful to automate android and IOS platform apps.

Appium Architecture

- As Appium is an HTTP server(webserver), its performs pretty much same as Selenium Webdriver server
- Appium works as a Client/Server architecture.
- To JSON wire protocol the communication will happen with session ID's only.
- whenever the client sends a request the server will create a session and it will send back session ID to the client so that the future communication between client and server will happen with this session ID only
- Q) How come the server will identify which session it needs to create?
- A) usually the client has desired capabilities which we need to pass using which the session will be created .. DC contains application name, platform version, package name, activity name
- **Appium Desired capabilities?**
- Desired Capabilities are sent by the Client to Server via JSON Objects by requesting the automation session we need.
- **These desired capabilities are found in the link below**
- http://appium.io/slate/en/v1.2.0/?java#appium-server-capabilities



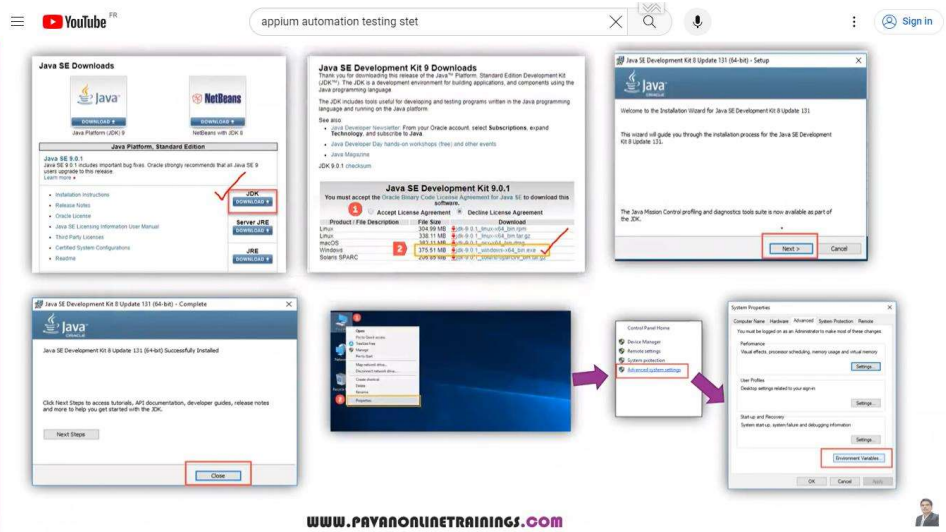
Prerequisite to use APPIUM (Windows)

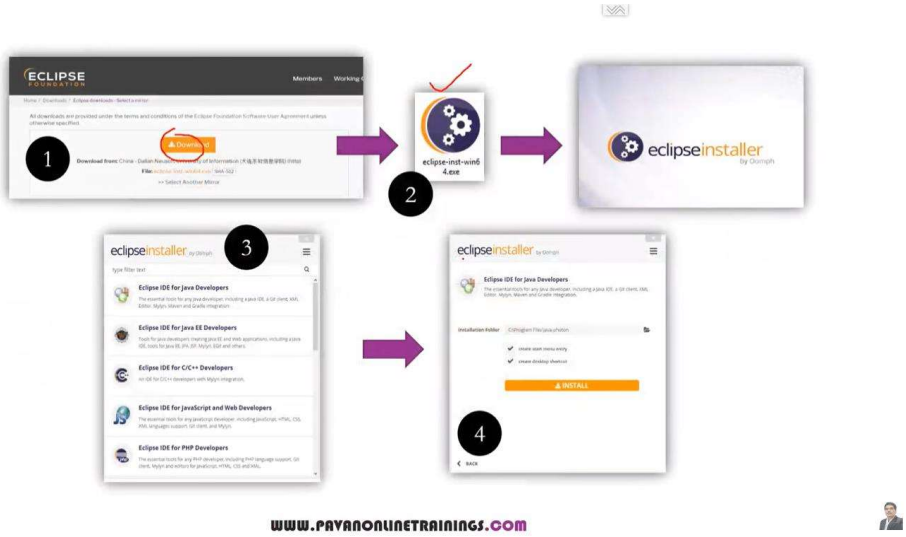
Pre-requisites

- Install Java (JDK)
- Eclipse
- Maven plugin for Eclipse
- TestNG plugin for Eclipse
- Selenium Standalone Server

Android Tools

- Android Studio (SDK)
- Appium Server/Appium Desktop
- Appium Client Library




ECLIPSE FOUNDATION
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eclipse-inst-win64.exe
2
eclipseinstaller
eclipseinstaller
3
Eclipse IDE for Java Developers
Eclipse IDE for Java EE Developers
Eclipse IDE for C/C++ Developers
Eclipse IDE for JavaScript and Web Developers
Eclipse IDE for PHP Developers
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Eclipse IDE for Java Developers
INSTALL
4
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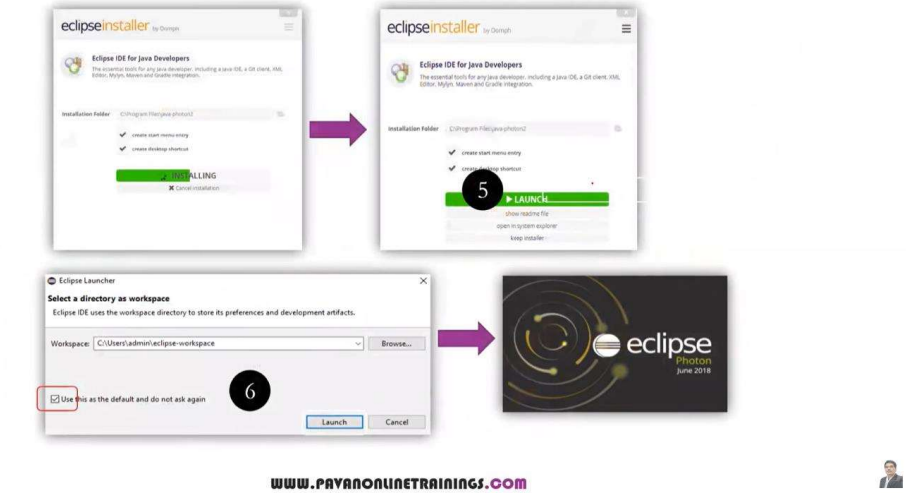
eclipseinstaller
Eclipse IDE for Java Developers
INSTALLING
eclipseinstaller
Eclipse IDE for Java Developers
5
LAUNCH
Eclipse Launcher
Select a directory as workspace
Eclipse IDE uses the workspace directory to store its preferences and development artifacts.
Workspace: C:\Users\admin\eclipse-workspace
Browse...
Use this as the default and do not ask again
6
Launch
Cancel
eclipse
Photon
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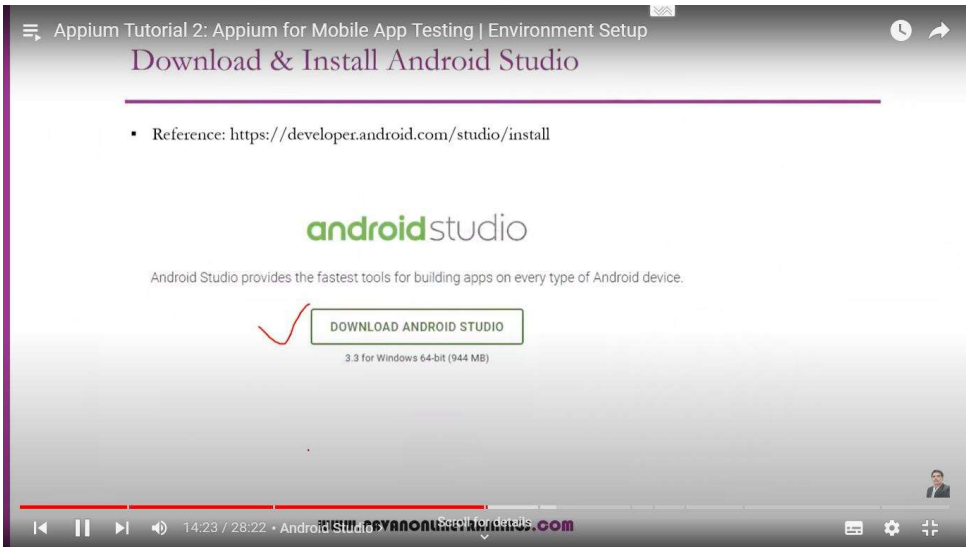
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Download & Install Android Studio
Reference: https://developer.android.com/studio/install
android studio
Android Studio provides the fastest tools for building apps on every type of Android device.
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3.3 for Windows 64-bit (944 MB)
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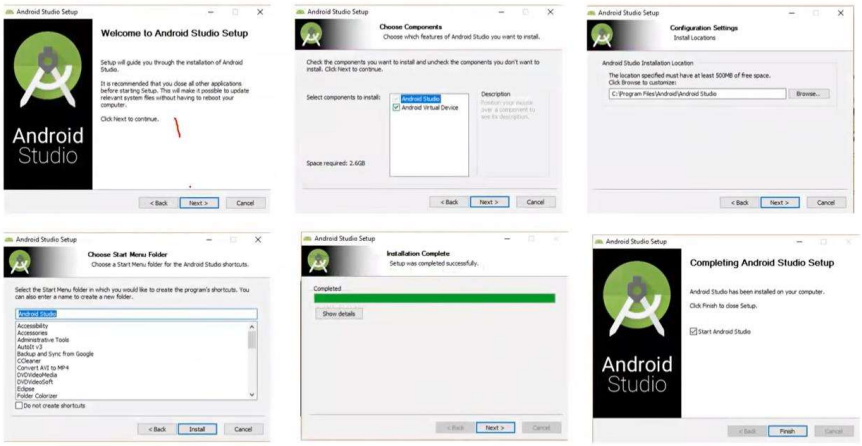
C:\Program Files\Android\Android Studio



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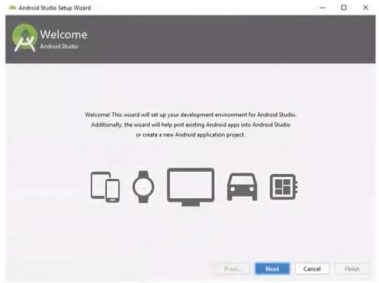

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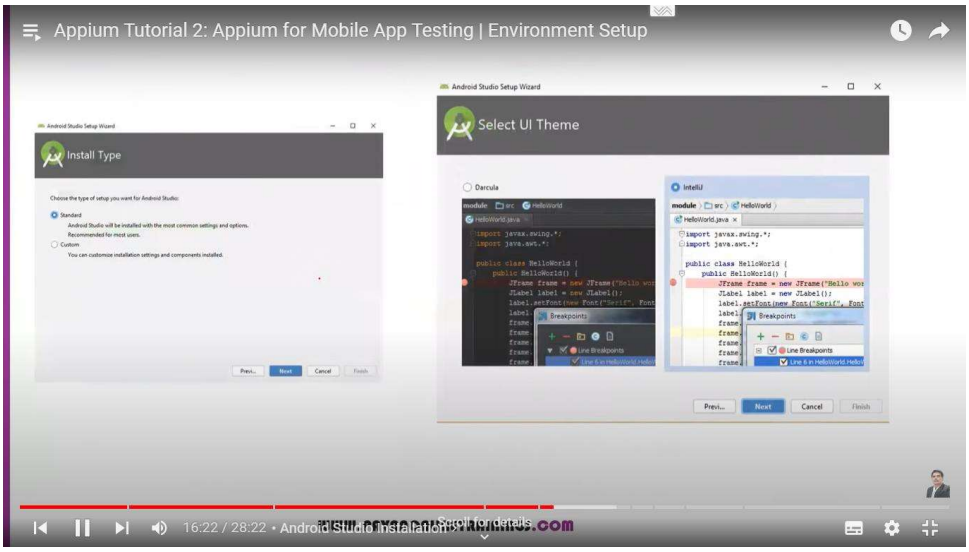

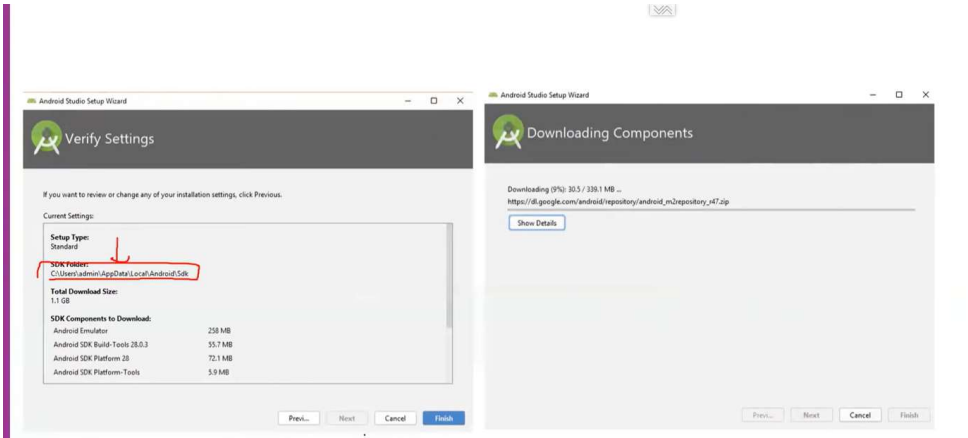

C:\Users\admin\AppData\Local\Android\Sdk

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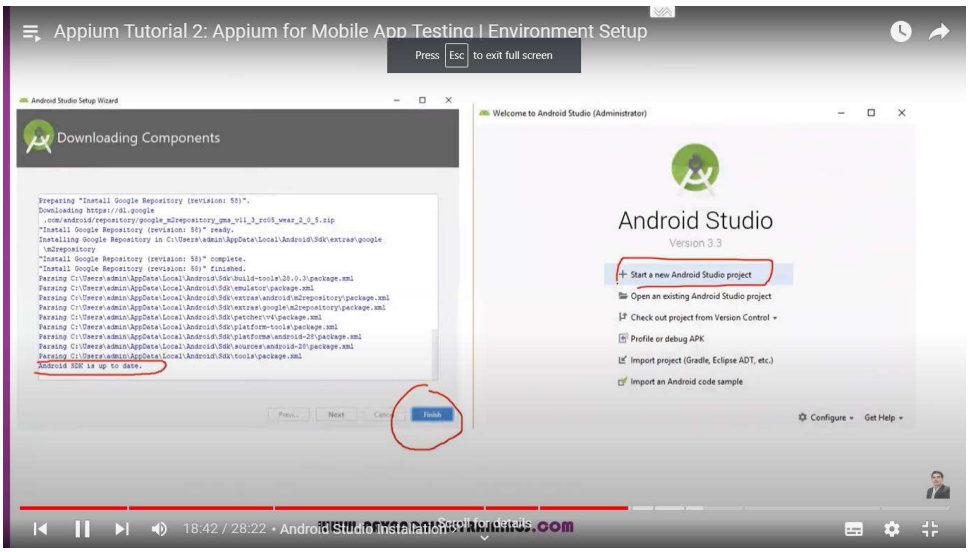

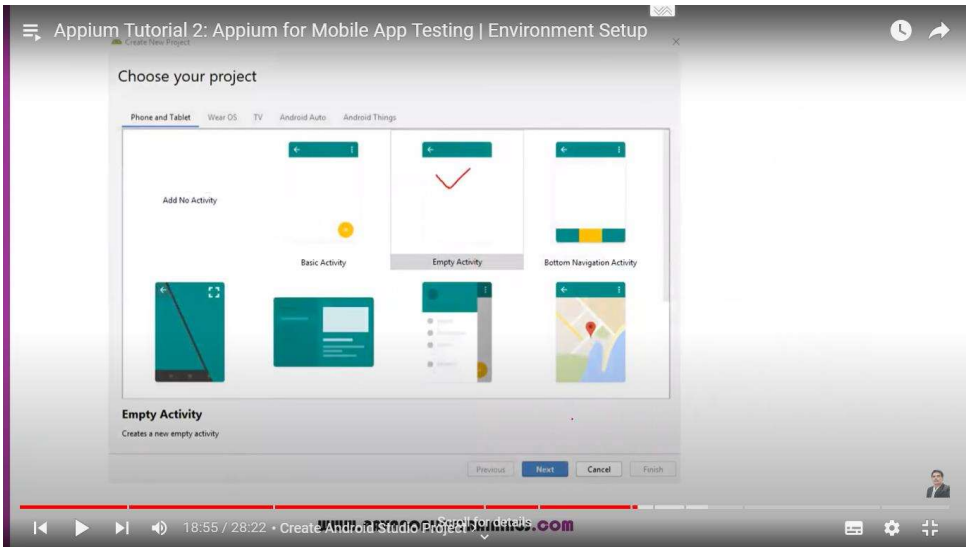

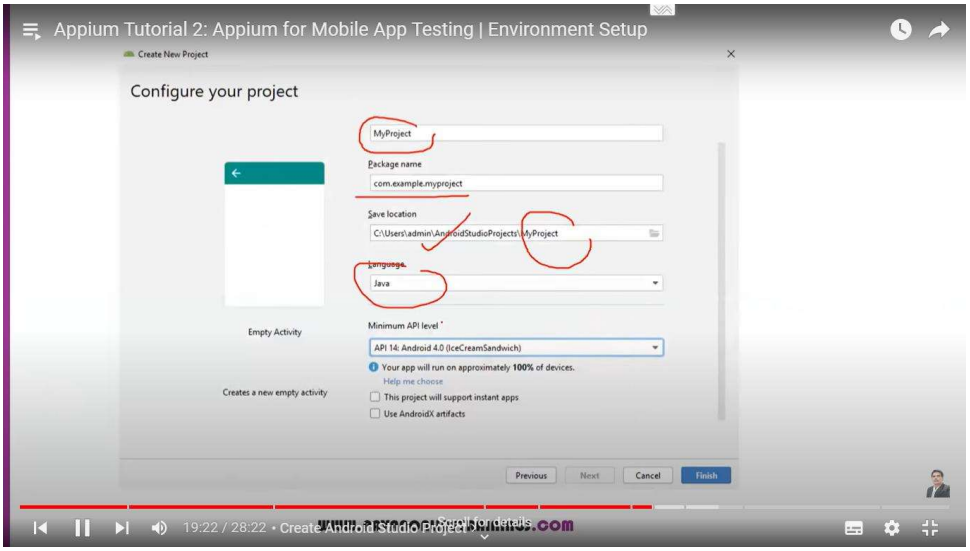
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Create New Project
Configure your project
MyProject
Package name
com.example.myproject
Save location
C:\Users\admin\AndroidStudioProjects\MyProject
Language
Java
Minimum API level
API 14: Android 4.0 (IceCreamSandwich)
Your app will run on approximately 100% of devices.
Help me choose
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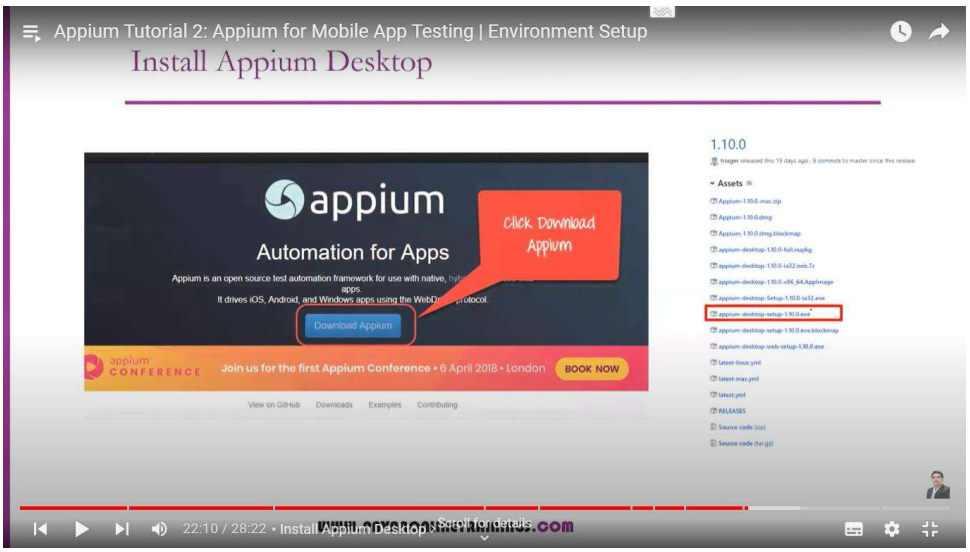
Cancel
Finish
19:22 / 28:22 • Create Android Studio Project
Scroll for details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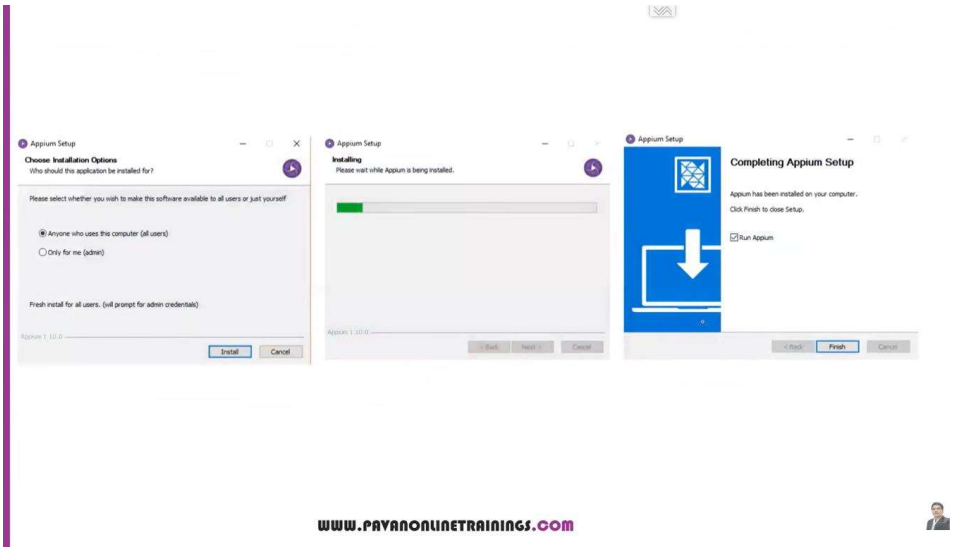
Appium Setup
Choose Installation Options
Who should this application be installed for?
Please select whether you wish to make this software available to all users or just yourself
Anyone who uses this computer (all users)
Only for me (admin)
Fresh install for all users. (will prompt for admin credentials)
Install
Cancel
Appium Setup
Installing
Please wait while Appium is being installed.
Appium Setup
Completing Appium Setup
Appium has been installed on your computer.
Click Finish to close Setup.
Run Appium
Finish
Cancel
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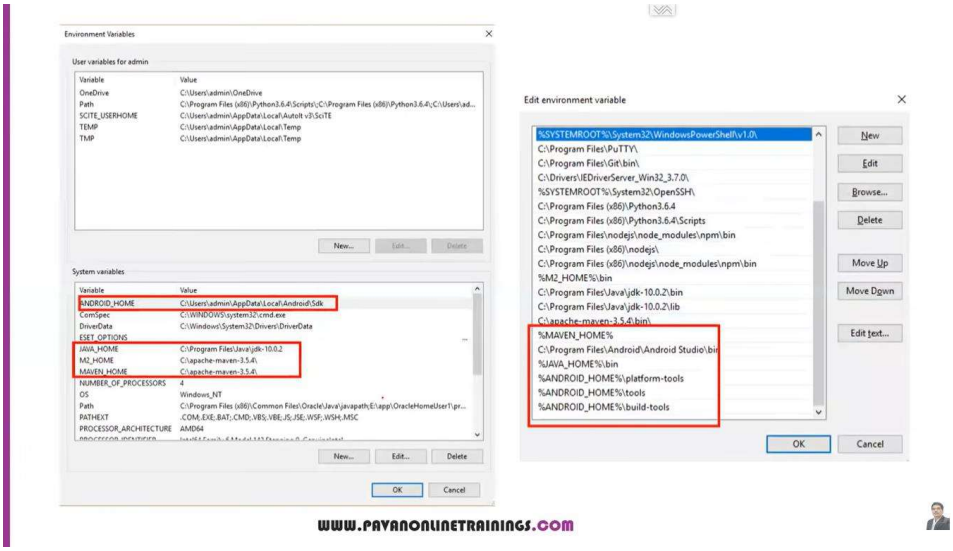
Environment Variables
User variables for admin
Variable
Value
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C:\Users\admin\AppData\Local\AutoIt v3\SciTE
TEMP
C:\Users\admin\AppData\Local\Temp
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Variable
Value
ANDROID_HOME
C:\Users\admin\AppData\Local\Android\Sdk
ComSpec
C:\WINDOWS\system32\cmd.exe
DriverData
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JAVA_HOME
C:\Program Files\Java\jdk-10.0.2
M2_HOME
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MAVEN_HOME
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NUMBER_OF_PROCESSORS
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OS
Windows_NT
Path
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C:\Program Files\Git\bin\
C:\Drivers\IEDriverServer_Win32_3.7.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files (x86)\Python3.6.4
C:\Program Files (x86)\Python3.6.4\Scripts
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C:\Program Files (x86)\nodejs\node_modules\npm\bin
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%MAVEN_HOME%
C:\Program Files\Android\Android Studio\bin
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%ANDROID_HOME%\tools
%ANDROID_HOME%\build-tools
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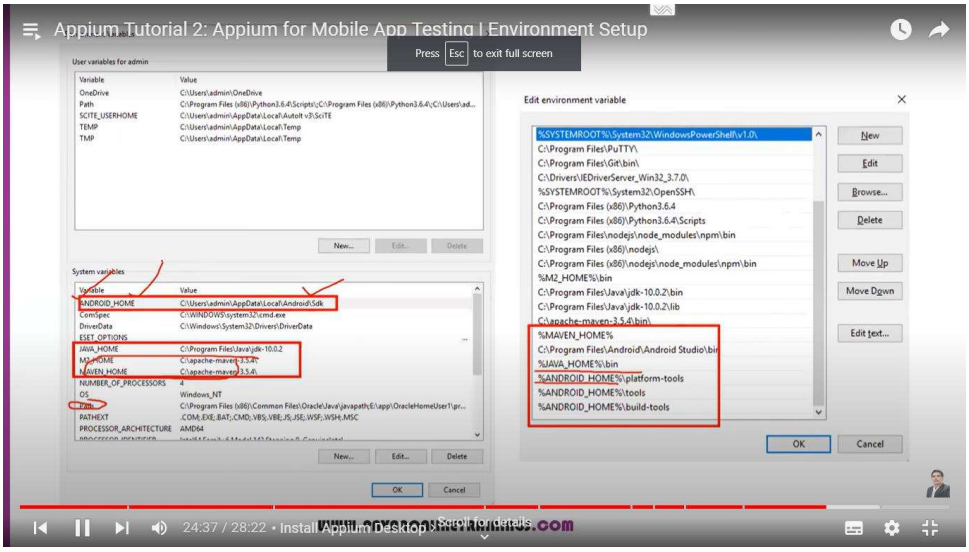
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Press Esc to exit full screen
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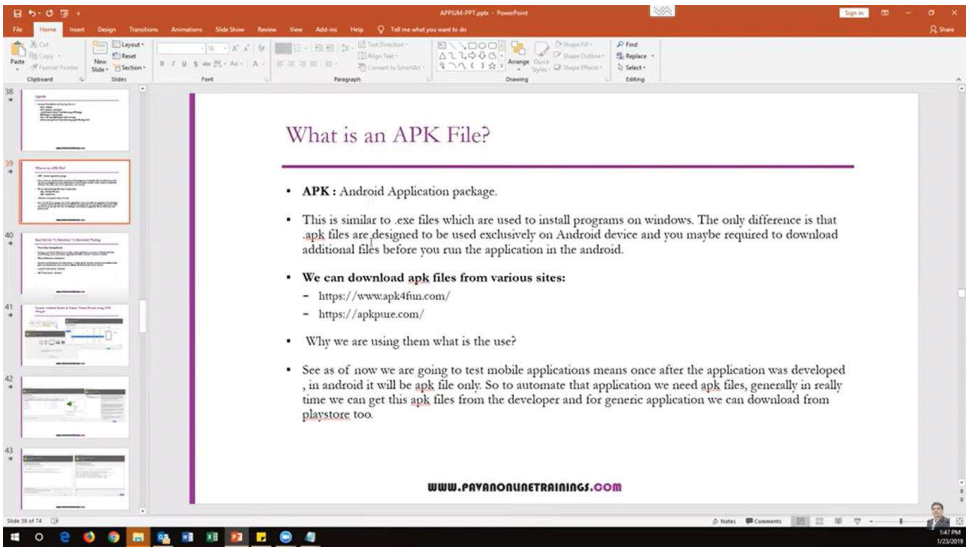
What is an APK File?
APK : Android Application package.
This is similar to .exe files which are used to install programs on windows. The only difference is that .apk files are designed to be used exclusively on Android device and you maybe required to download additional files before you run the application in the android.
We can download apk files from various sites:
https://www.apk4fun.com/
https://apkpure.com/
Why we are using them what is the use?
See as of now we are going to test mobile applications means once after the application was developed , in android it will be apk file only. So to automate that application we need apk files, generally in really time we can get this apk files from the developer and for generic application we can download from playstore too.
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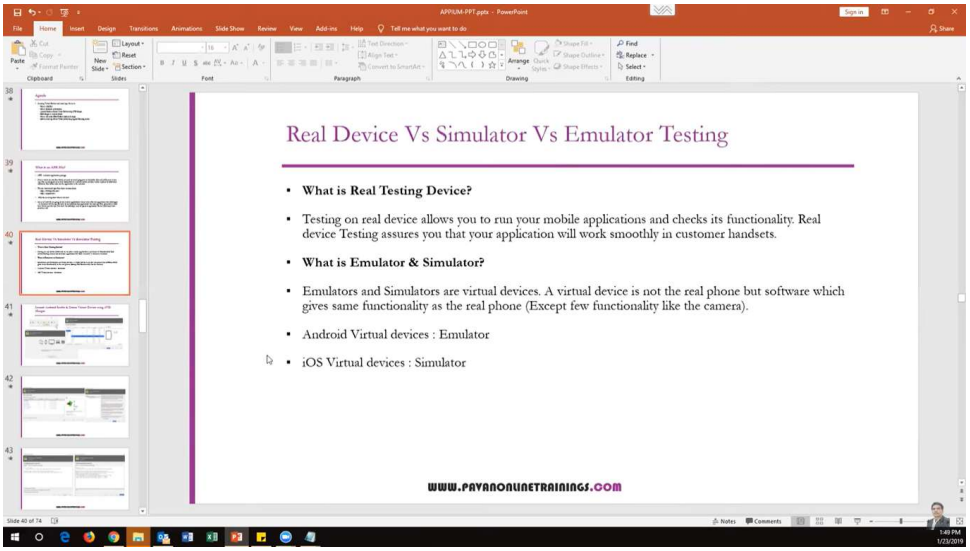

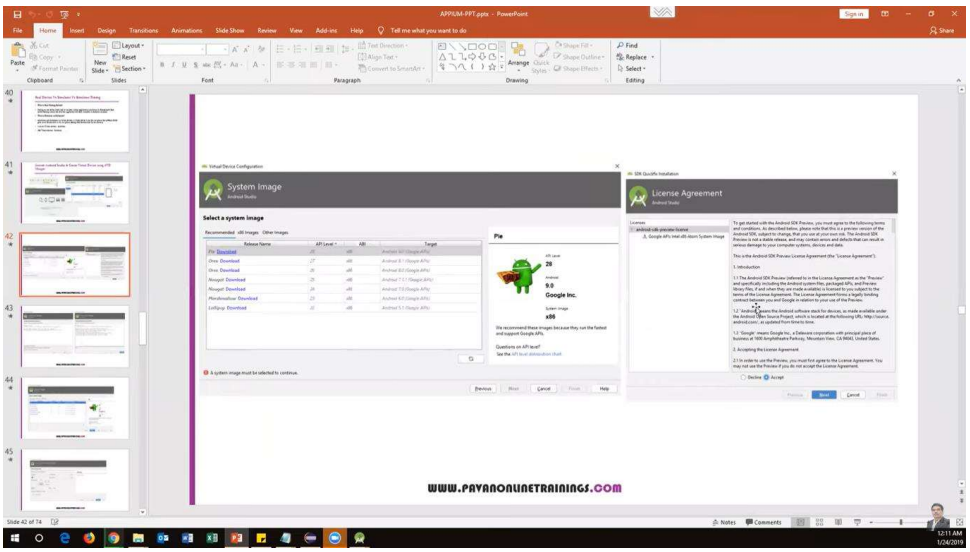

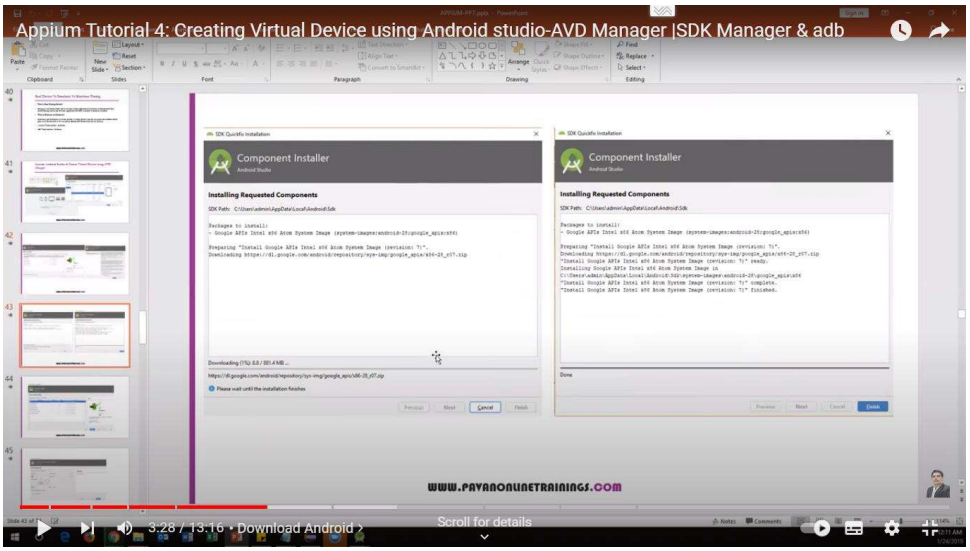

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