# Unit 1 – Lesson 2. Introduction to Android Studio and Android Projects

**Aim:**

* What is Android Studio?
* What are the components of an Android project?

**Objectives:** After the lesson, students will

1. Obtain basic understanding of the structure and key components of Android app projects
2. Be able to explain the purpose of key files such as Manifest.xml, Activity\_Main.xml, and MainActivity.java.

**CLASS PROCEDURE:**

***Do Now:***  Open Android Studio. Open the App Project we created yesterday. How do we change the text displayed on the screen? How do we create an emulator and run the app?

***Class Discussion / Presentation:***

1. What is Android Studio?

**Android Studio** is the IDE for [Google](https://en.wikipedia.org/wiki/Google)'s [Android](https://en.wikipedia.org/wiki/Android_(operating_system)) [operating system](https://en.wikipedia.org/wiki/Operating_system), built based on [JetBrains](https://en.wikipedia.org/wiki/JetBrains" \o "JetBrains)' [IntelliJ IDEA](https://en.wikipedia.org/wiki/IntelliJ_IDEA" \o "IntelliJ IDEA) software and designed specifically for [Android development](https://en.wikipedia.org/wiki/Android_software_development). It is available for download on [Windows](https://en.wikipedia.org/wiki/Windows), [macOS](https://en.wikipedia.org/wiki/MacOS" \o "MacOS) and [Linux](https://en.wikipedia.org/wiki/Linux) based operating systems. It is a replacement for the [Eclipse Android Development Tools](https://en.wikipedia.org/wiki/Eclipse_(software)#Android_Development_Tools) (ADT) as primary IDE for native Android application development. (Source: wiki)

1. How do we test our app projects using Android Studio?

* Emulators
* Android mobile devices

1. What is XML?

* XML stands for eXtensible Markup Language
* XML is a markup language much like HTML
* XML was designed to store and transport data
* XML was designed to be self-descriptive
* XML is a W3C Recommendation

(Source: w3schools.com)

1. What are some of the key components of common Android app projects?

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| --- | --- |
|  | **Components & Description** |
| 1 | **Activities**  They dictate the UI and handle the user interaction to the smart phone screen. |
| 2 | **Services**  They handle background processing associated with an application. |
| 3 | **Broadcast Receivers**  They handle communication between Android OS and applications. |
| 4 | **Content Providers**  They handle data and database management issues. |

1. What are included in the Manifest.xml?

* Package name
* Permissions
* Minimum SDK version
* Libraries
* Information about activities, capacities, components

1. What is an intent? How do we build an intent?

* Intents are objects of the android.content.Intent type.
* Your code can send them to the Android system defining the components you are targeting.
  + For example via the startActivity() method you can define that theintent should be used to start an activity.
* An intent can contain data via a Bundle.

1. What is an activity? How do we build an activity?

* An activity represents a single screen with a user interface just like window or frame of Java.
* Android activity is the subclass of ContextThemeWrapper class.

***Class Activity / Pair – sharing Activity:*** Work with your partner, add a button on your Android app. When the user click on the button, your app should display a text message! Use <https://developer.android.com/training/basics/firstapp/creating-project.html> as reference.

[Challenge] Add three buttons to your app screen. Name button 1 “System Time”, button 2 “Android Version”, and button 3 “Change Color”. When the user clicks on the first button, your app should show the system time. When the user clicks the second button, the app shows the version of Android. When the user clicks the 3rd button, the app changes the background color.