**Assignment Module 4 – Android Studio and Android App Structure**

1. **Explain the Android app structure in detail, including the purpose of the AndroidManifest.xml file, Gradle, and various directories (e.g., res, src).**

* **AndroidManifest.xml :**
* An AndroidManifest.xml file is an XML document that contains information about an Android app, such as its components, permissions, and hardware and software requirements
* The file is required for every app project and is located at the root of the project source set.
* **Gradle**
* Gradle file is used to define global configuration and settings for the entire project.
* It is also used to implement dependencies and plugins on top level.
* By default, all configurations and settings inside our project-level build.
* Gradle should be inherited by all the modules in the project, and build.
* **Directories**
* src/: Contains app source code and test files.
  + main/java: Java/Kotlin code for app logic.
  + main/AndroidManifest.xml: App manifest file.
* res/: Stores resources like UI layouts, images, and constants.
  + drawable/: Images and icons.
  + layout/: XML files for UI design.
  + values/: Strings, colors, dimensions, and styles.
  + mipmap/: Launcher icons.

1. **Write an essay on the different layout types in Android (Linear Layout, Relative Layout, Constraint Layout). Compare their usage and performance.**
2. **Linear Layout**

* Linear Layout is the most basic layout in android studio, that aligns all the children sequentially either in a horizontal manner or a vertical manner by specifying the **android:orientation** attribute.
* If one applies **android:orientation=”vertical”** then elements will be arranged one after another in a vertical manner
* If you apply **android:orientation=”horizontal”** then elements will be arranged one after another in a horizontal manner.

1. **Relative Layout**

* The Relative Layout is used to arrange the Child Views in a proper order which means arranging the child objects relative to each other.
* There are so many properties that are supported by relative layouts. some of the most used properties are listed below
  + layout\_alignParentTop
  + layout\_alignParentBottom
  + layout\_alignParentRight
  + layout\_alignParentLeft
  + layout\_centerHorozontal
  + layout\_centerVertical
  + layout\_above
  + layout\_below