Mobile Development

Prerequisite of the Course

- Basic OOP Skills

What you will learn

- Fundamentals of Android Development

- Kotlin Programming Language

- Basic 2D Game development using Godot

Android Operating System

- Android is a mobile operating system based on a modified version of the Linux owned by Google.

- Launched in 2008, android undergo on 14 version since September 2019, Android 10 being the latest iteration.

Android Versions

Code Name	Version	API Level
Cupcake	1.5	3
Donut	1.6	4
Eclair	2.0	5 - 7
Froyo	2.2	8
Gingerbread	2.3	9 - 10

Android Versions

Code Name	Version	API Level
Honeycomb	3.0	11 - 13
Ice Cream Sandwich	4.0	14 - 15
Jelly Bean	4.1	16 - 18
KitKat	4.4	19
Lollipop	5.0	21 - 22

Android Versions

Code Name	Version	API Level
Marshmallow	6.0	23
Nougat	7.0	24 - 25
Oreo	8.0	26 - 27
Pie	9	28
Android 10	10	29

Android Open Source Project

- Android is an open source operating system for mobile devices and a corresponding open source project led by Google.

- This project offers the information and source code needed to create custom variants of the Android OS, port devices and accessories to the Android platform, and ensure devices meet the compatibility requirements that keep the Android ecosystem a healthy and stable environment for millions of users.

Why Develop on Android Platform

- 74% market share world wide (iOS 25%)

- 1,250,495 questions on Stackoverflow

- Open Source

Development on Android

- Programming Languages

  - Java

  - Kotlin

- IDE

  - Android Studio

Kotlin

- Kotlin is a **modern** general purpose, open source, statically typed "pragmatic" programming language for the JVM and Android that combines object-oriented and functional programming features developed by Jetbrains.

- It has been open source since 2012.

Kotlin Features

- Concise / Short

  - Smart cast

  - Type inference

  - Named Arguments

- Safety

  - Mutable / Immutable Properties

  - Null type (Optionals)

POJO

Java

```java
public class Person {
    private String name;

    public Person(String name){
        this.name = name;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    // toString...

    // hashCode...

    // equals...

    //copy...
}
```

Kotlin

```kotlin
data class Person(val name: String)
```

Code

Java

```java
public void createAndPrintPerson() {
    String name = "Pieter";
    Person person = new Person(name);

    printName(person.getName());
    // Prints: Pieter
    }
}
```

Kotlin

```kotlin
fun createAndPrintPerson() {
    val name = "Pieter"
    val person = Person(name)

    printName(person.name)
    // Prints: Pieter
}
```

Hands-on

# What you will learn

- How to start an android project

- Basic UI Layout using

  - Frame Layout

  - Linear Layout

  - Relative Layout

- Basic views: TextView and Buttons

- Connection between UI - Logic

Roman Numeral Guessing Game

- Generate a random Roman numeral
- Let the user guess roman numeral it is
- Let the users know if the answer is correct
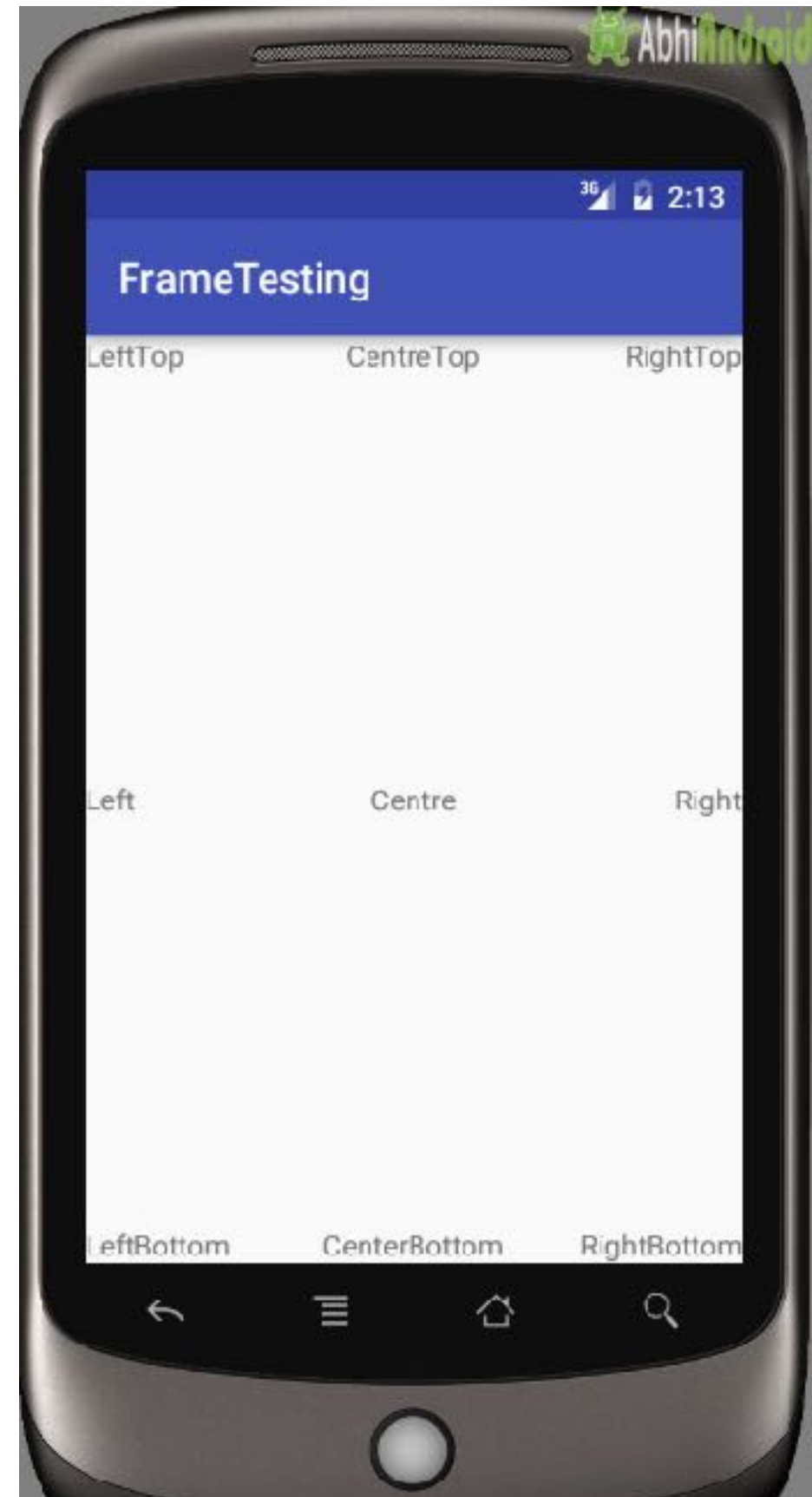
UI and Logic Connection

Logic (Codes)
Activities / Fragments

.java

Or

.kt

➡

UI
Layout Resources

.xml
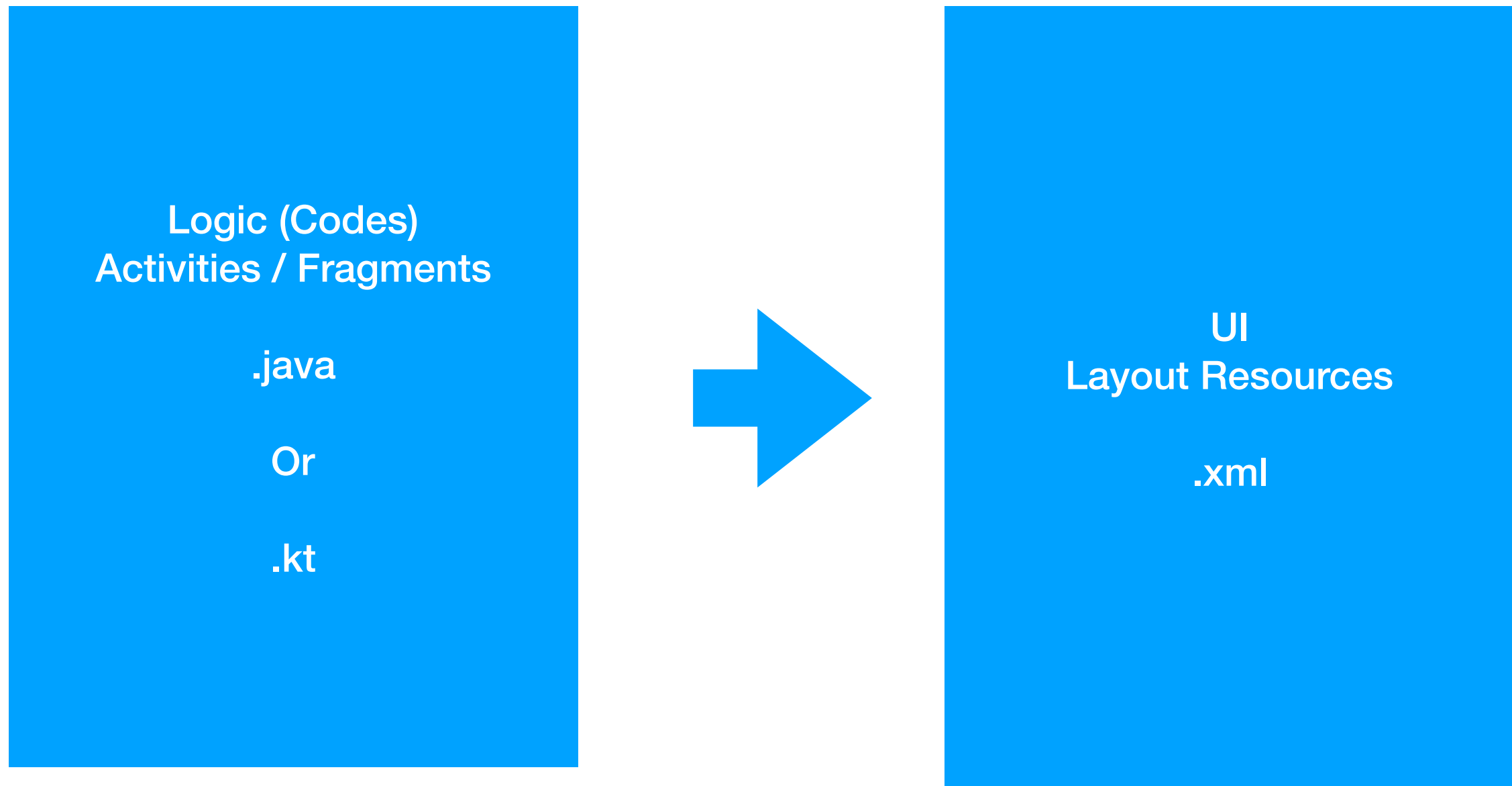
Every Activities (or Fragments) needs a Layout resource

Frame Layout

Gravity:
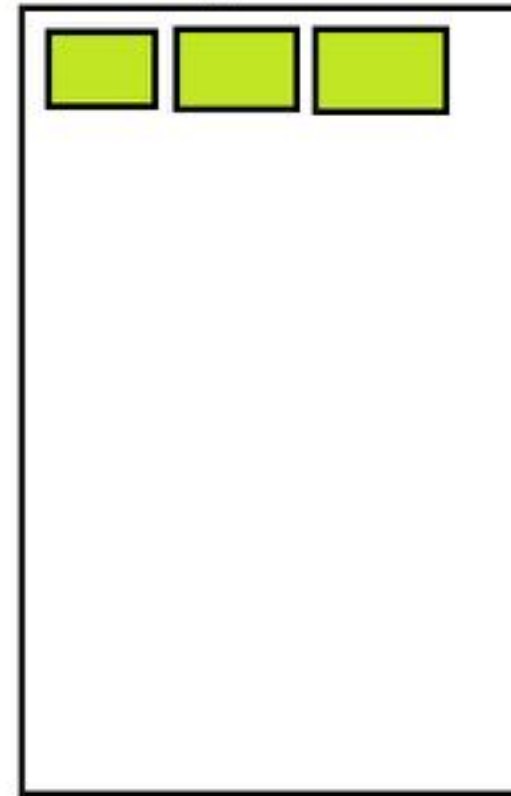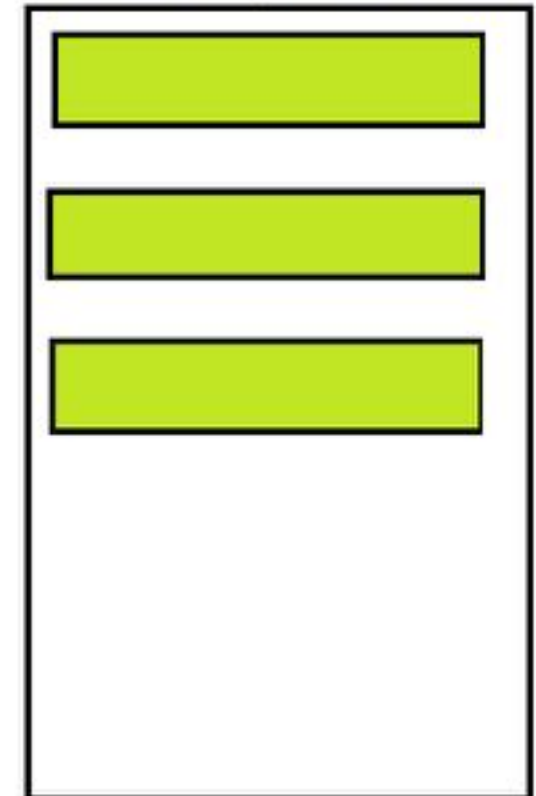
All sides
All corners

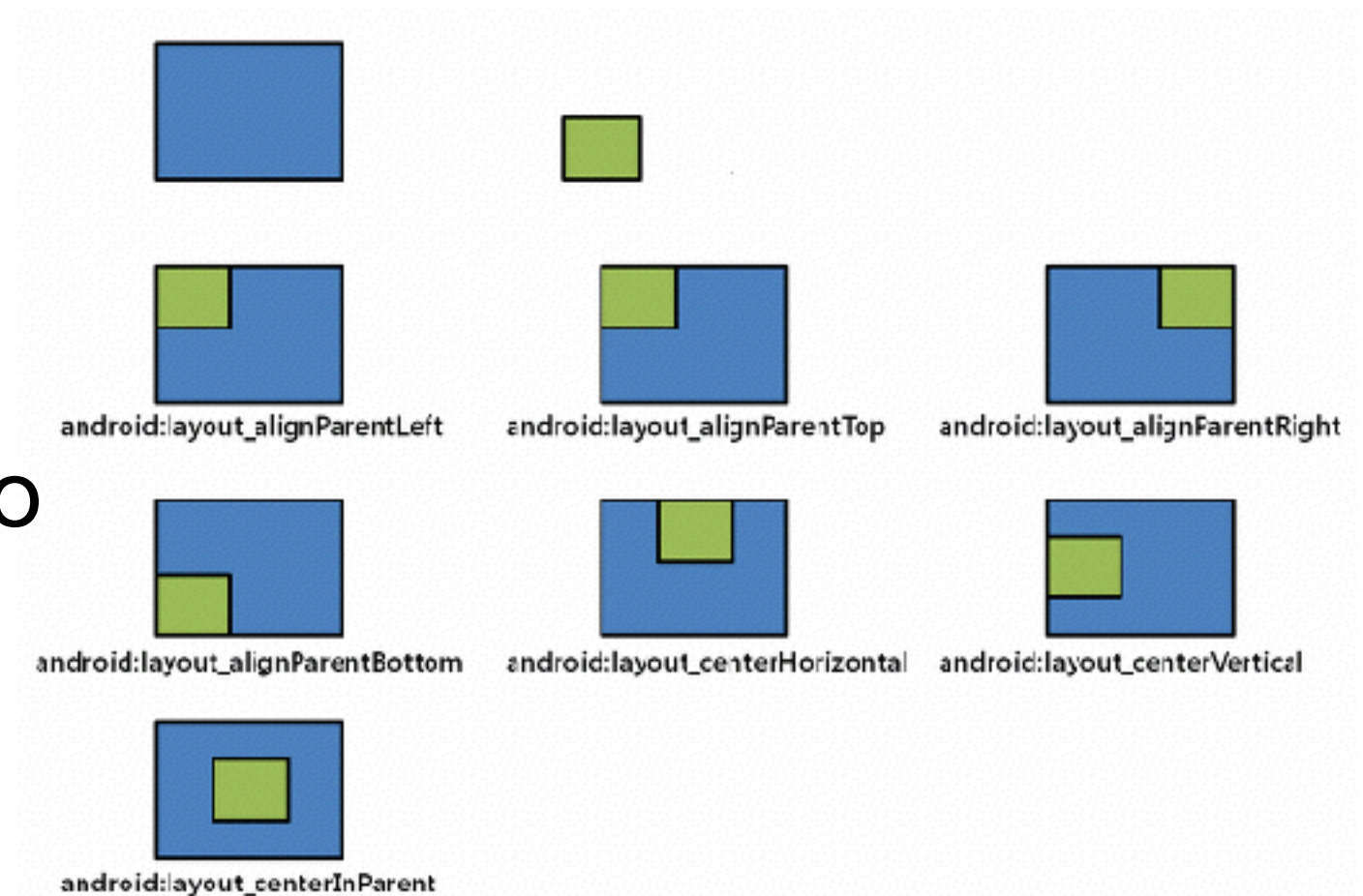# Linear Layout

Orientation:

Vertical
Horizontal

Linear Layout Horizontal

Linear Layout Vertical

Relative Layout

Aligns its child relative to its parents and siblings

android:layout_alignParentLeft

android:layout_alignParentTop

android:layout_alignParentRight

android:layout_alignParentBottom

android:layout_centerHorizontal

android:layout_centerVertical

android:layout_centerInParent

Have a good day!

https://github.com/JcDelaCueva/nu-calamba-lessons