Kotlin Programming Language

What is Kotlin?

- **Kotlin** is a statically typed, general-purpose programming language developed by JetBrains, that has built world-class IDEs like IntelliJ IDEA, Php Storm, App Code, etc.
- It was first introduced by JetBrains in 2011 and a new language for the JVM.
- Kotlin is object-oriented language, and a "better language" than Java, but still be fully interoperable with Java code.
- It exists in variants that target the JVM (Kotlin/JVM), JavaScript (Kotlin/JS), and native code (Kotlin/Native).
- Kotlin is sponsored by Google, announced as one of the official languages for **Android Development** in 2017.

Why Kotlin?

- Concise: Drastically reduce the amount of boilerplate code (i.e. the extra written code in other OOP Languages).

```
/*      Java Code       */
class Book {
    private String title;
    private Author author;
    public String getTitle()
    {
        return title;
    }
    public void setTitle(String
title)
    {
        this.title = title;
    }
    public Author getAuthor()
    {
        return author;
    }
    public void setAuthor(Author
author)
    {
        this.author = author;
    }
}
```

```
/* Kotlin Code */

data class Book(var title:String, var
author:Author)
```

- Safe: Avoid entire classes of errors such as null pointer exception.

```
/* Kotlin Code */

String s = "Hello Geeks"    // Non-null

//If we try to assign s null value then it gives compile time error.

s = null            // compile time error

//To assign null value to any string string it should be declared as nullable.

String nullableStr? = null  // compiles successfully
```

- Interoperable: Leverage existing libraries for the JVM, Android, and the Browser.

```
/*  MyJavaFile

 *   Interoperability Example

 * */
public class MyJavaFile {

        public static void main(String[] args) {

                int sum =
MyKotlinInteroperabilityKt.addNumbers(3, 4);

                System.out.println("Printing sum
from Java file :" + sum);

        }

        public static int getArea(int l, int b) {

                return l * b;

        }

}
```

```
/*  MyKotlinInteroperability.Kt

 *   Interoperability Example

 * */
fun main(args: Array<String>) {

   var area = MyJavaFile.getArea(10, 5)

   println("Printing area from Kotlin file:
$area")

}
fun addNumbers(a: Int, b: Int): Int {

   return a + b

}
```

- Tool-friendly: Use any Java IDE or command line.
  - IntelliJ IDEA: https://www.jetbrains.com/idea/download/?_ga=2.250640134.1291544864.1585141179-1019469978.1584992809#section=windows
  - Android Studio: https://developer.android.com/studio/
  - Eclipse: https://www.eclipse.org/downloads/
  - Standalone Compiler: Command Line