

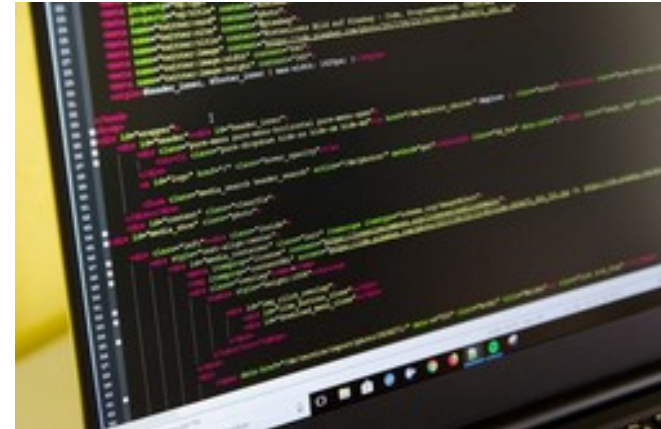
BCA SEMESTER - II
0302203
HISTORY OF COMPUTING

UNIT - 3
HISTORY OF PROGRAMMING LANGUAGES

- Dr. Disha Shah

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- **History of Programming Languages**
 - Ada Lovelace's machine algorithm
 - Machine Language
 - Symbolic Programming Language
 - Lower Level Languages
 - Higher Level Languages
 - FORTRAN
 - ALGOL (Algorithmic Language)
 - LISP (List Processor)
 - COBOL (Common Business Oriented Language)



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- **Mid 1900s (Any 3)**

- BASIC
- PASCAL
- Smalltalk,
- C,
- PROLOG
- Ada
- C++
- Python
- Ruby
- Java,
- PHP
- Java Script

- **Mid 2000s (Any 3)**

- Scala
- Go
- Dart
- Swift
- AlphaGo
- Rust
- Kotlin
- Flutter
- NLP

Kotlin



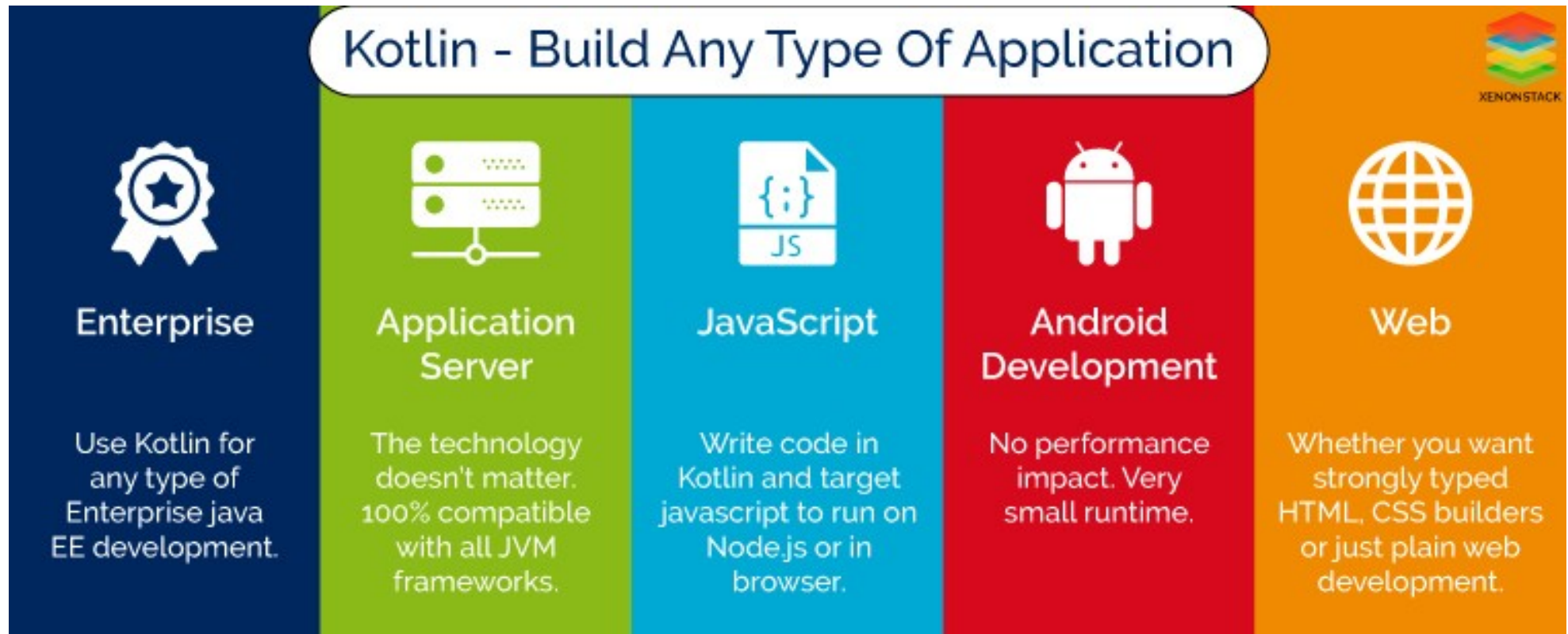
- Kotlin is a programming language introduced by JetBrains in 2011, the official designer of the most intelligent Java IDE, named IntelliJ IDEA.
- This is a strongly statically typed general-purpose programming language that runs on JVM.
- In 2017, Google announced Kotlin is an official language for android development.
- Kotlin is an open source programming language that combines object-oriented programming and functional features into a unique platform.

- Kotlin is influenced by other popular programming languages such as Java, C#, JavaScript, Scala and Groovy.
- The syntax of Kotlin may not be exactly similar to Java Programming Language, however, internally Kotlin is reliant on the existing Java Class library to produce wonderful results for the programmers.
- Kotlin provides interoperability, code safety, and clarity to the developers around the world.
- Kotlin was developed and released by JetBrains in 2016.
- Kotlin is free, has been free and will remain free.
- It is developed under the Apache 2.0 license and the source code is available on GitHub

Why Kotlin?

- Kotlin is getting high popularity among all level of programmers and it is used for:
 - Cross-platform Mobile applications.
 - Android Application Development.
 - Web Application Development
 - Server Side Applications
 - Desktop Application Development
 - Data science based applications
- Kotlin works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.) and it's 100% compatible with Java.
- Kotlin is used by many large companies like Google, Netflix, Slack, Uber etc to develop their Android based applications.
- The most importantly, there are many companies actively looking for Kotlin developers, especially in the Android development space.

Kotlin can be used for



Why Use Kotlin?

- Kotlin is fully compatible with Java
- Kotlin works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.)
- Kotlin is concise and safe
- Kotlin is easy to learn, especially if you already know Java
- Kotlin is free to use
- Big community/support

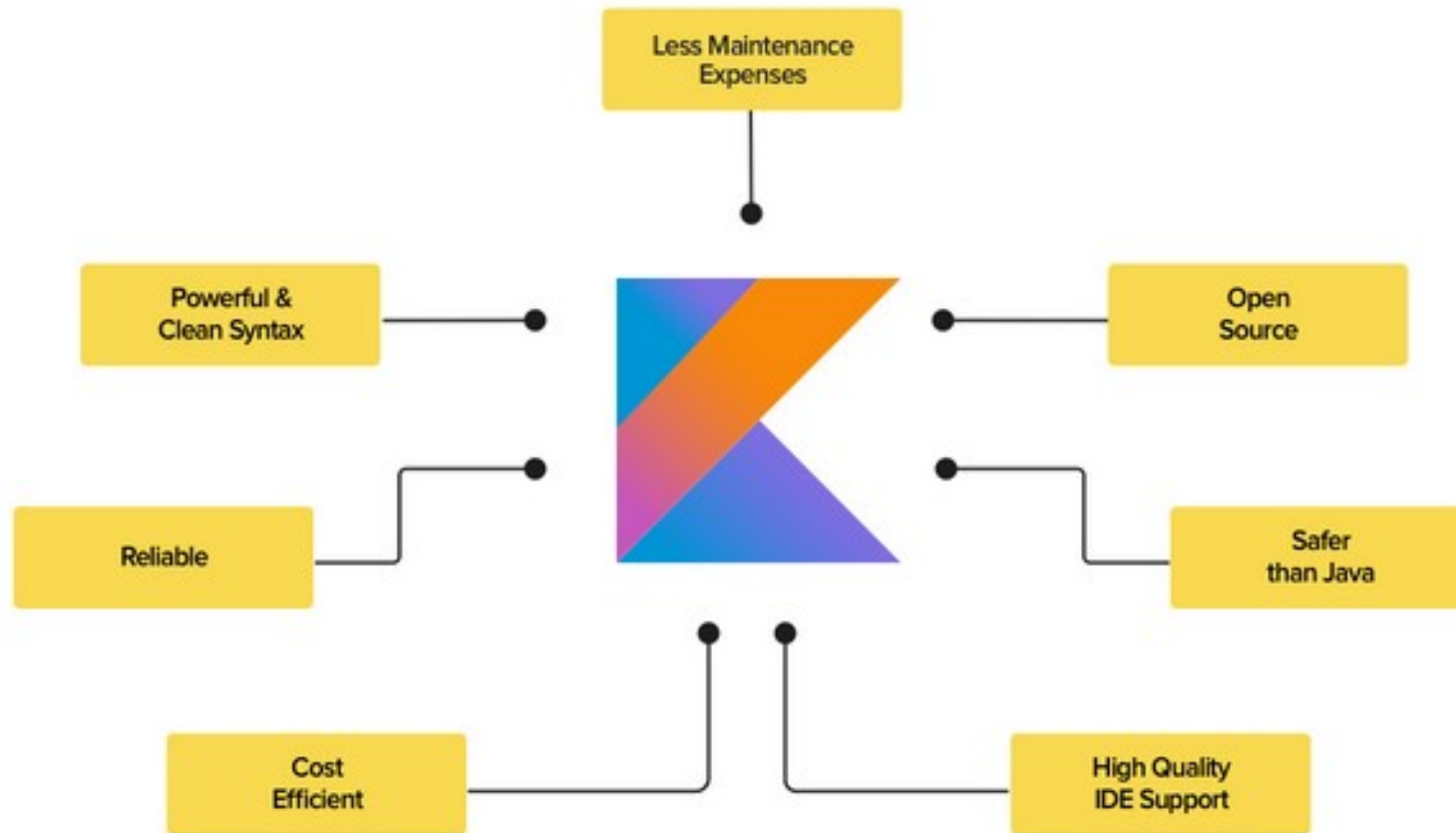
Advantages of Kotlin

- 1. Easy Language – Kotlin supports object-oriented and functional constructs and very easy to learn. The syntax is pretty much similar to Java, hence for any Java programmer it is very easy to remember any Kotlin Syntax.
- 2. Very Concise – Kotlin is based on Java Virtual Machine (JVM) and it is a functional language. Thus, it reduce lots of boiler plate code used in other programming languages.
- 3. Runtime and Performance – Kotlin gives a better performance and small runtime for any application.
- 4. Interoperability – Kotlin is mature enough to build an interoperable application in a less complex manner.
- 5. Brand New – Kotlin is a brand new language that gives developers a fresh start. It is not a replacement of Java, though it is developed over JVM. Kotlin has been accepted as the first official language of Android Application Development. Kotlin can also be defined as - Kotlin = Java + Extra updated new features.

Drawbacks of Kotlin

- 1. Namespace declaration – Kotlin allows developers to declare the functions at the top level. However, whenever the same function is declared in many places of your application, then it is hard to understand which function is being called.
- 2. No Static Declaration – Kotlin does not have usual static handling modifier like Java, which can cause some problem to the conventional Java developer.

Features of Kotlin



Companies using Kotlin

- Kotlin is very high in demand and all major companies are moving towards Kotlin to develop their web and mobile applications.
- Average annual salary for a Kotlin developer is around \$130,000. Though it can vary depending on the location. Following are the great companies who are using Kotlin:
 - Google
 - Amazon
 - Netflix
 - Pinterest
 - Uber
 - Trello
 - Coursera
 - Basecamp
 - Corda
 - JetBrains
 - Many more...

Kotlin IDEs

- **Our top 5 IDEs and text editors for Kotlin.**
 - IntelliJ IDEA
 - TryKotlin
 - Android Studio
 - Vim
 - Sublime Text

Kotlin Sample code

```
*/  
  
fun main() {  
    println("Hello, world!!!")  
}
```

Hello, world!!!