

# Day 1

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## Agenda

1. Language, Technology, Platform, Framework
2. Java Platforms
3. JDK, JRE, JVM
4. Explore JDK's Installation Directory
5. Simple Hello Application

## Language

- Example
  - C, C++, Java, C#, Python, Go etc.
- Tokens
  - Identifiers[ name given to variable/function/class]
  - Keywords[ Reserved words ]
  - Constants/ Literals
  - Operator
  - Punctuators/Separators ( {,},(,),[,],<,>,tab,","comma, :, space )

```
#include<stdio.h>
int main( void )
{
    printf("Hello World\n");
    return 0;
}
```

- Language has its syntax and semantics.
  - Consider syntax of C

```
void print( )
{
    printf("Hello World");
}
```

– Consider syntax of Python

```
def print()
    print("Hello World")
```

- It contains data types.
- It has its built in features( pointer, security, support for ML).
- If we want to implement business logic then we should use programming language.
- We can use language to develop application also.
  1. Console User Interface ( CUI ) application.
  2. Graphical User Interface( GUI ) application.
  3. Library application.

## Technology

- Example
  - ASP.NET, Java etc.
  - It provides features that we can use to develop application.
  - Every language is a technology but every technology can not be a language.

## Platform

- It can be H/W or S/W environment in which we can execute application.
- Platform can be:
  1. Hardware based platform
    - All operating systems
      - MS Windows( Win-11, Win-10, Win-8)
      - Linux( Centos, Ubuntu, Open Suse, RHEL )
      - Mac OS( Catalina, Mojave, High Siera )
  2. Software only platform
    - MS.NET, Java etc.
    - Java language is both technology as well as platform.
    - MS.NET is a development platform that we can use to develop and deploy different types of application:
      1. CUI application
      2. GUI application( Win forms)
      3. Library application(assembly)
      4. Web application and Web Services
      5. WPF, WCF, WWF application etc.

## Framework

- Example
  1. AWT, SWING: GUI Frameworks of Java
  2. RMI: Distributed application development framework
  3. Struts: MVC based readymade web application development framework.
  4. Hibernate: It is automatic persistance framework.
  5. JUnit: Testing Framework
- It is a library of reusable classes that we can use to develop application.

## Java Platforms

1. Java SE platform( for standalone )

- Java Standard Edition Platform
  - It is also called Core Java.
  - We can use to create CUI,GUI, Library application.
  - Java SE API's are sub set of Java EE API's.
  - To use Java SE platform, we need to install software on machine.
2. Java EE platform( For client-server application)
- Java Enterprise Edition Platform
  - Java EE is also called JEE / Enterprise java /Advanced Java / Web java.
  - It is used to develop web application and web services.
3. Java ME platform
- Java Micro Edition Platform
  - It is desgined to develop application for consumer devices.
  - e.g Mobile Phones
4. Java FX platform
- It is designed to develop rich UI application for internet.

## Software Development Kit

- SDK = Language tools + Documentation + Supporting Libraries + Runtime Environment.
- Java SDK = Java language tools( bin ) + Java Documentation(java docs ) + Supporting Libraries( rt.jar ) + Runtime Environment( JVM ).
- JDK = Java language tools( bin ) + Java Documentation(java docs ) + rt.jar + JVM.
- JDK = Java language tools( bin ) + Java Documentation(java docs ) + JRE[ rt.jar + JVM ].