1995 – James Gosling

Introduced → Java Programming

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Page

Unit 1 Introduction to Java

What is Java

- Java is a programming Language and a platform
- Java: is a high level, robust, secured and object-oriented programming Language
- Platform: Any hardware or Software environment in which program runs, is known as a platform.
- Since Java has its own runtime environment (JRE) and API it is called platform

Where it is used?

According to Sun 3 billion devices run Java.
There are many devices where Java is currently used for Some of them are as follows

★ Desktop Applications such as acrobat reader, media player antivirus etc.
★ Web application (such as irctc.co.in, javatpoint.com etc
★ Enterprise application (such as banking application)
- mobile
- Embedded system
- Smart card
- Robotics
- Games etc

Java Applications

- We can develop two types of Java program

1 Stand alone application
2 Web application (Applets)
3 Enterprise Application } The other two application are
4 Mobile Application }

Type of Java Application

Date
Page

① Standalone Application

- It is also known as desktop app, or window based application
- An application that we need to install on every machine to execute Java code such as media player, antivirus etc
- AWT and Swing are used in Java for creating enterprise app, standalone applications

② Web Application

- An application that runs on the server side and creates dynamic page is called web application
- Currently, servlet, jsp, struts, jsf etc technodogies are used for creating web
- To execute web application java enable web browser is required
- It is an applet type file

④ ~~Enterprise~~ Application Mobile Application

- An application that is created for mobile devices
- Currently Android and Java ME are used for creating mobile Application

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③ Enterprise Application

- An application that is distributed in the nature • government sector etc
- EJB (Enterprise Java Bin) used for creating Enterprise Application

Difference between Standard alone & Web application

	Stand alone	Web application
*	It can be invoked from the command line	A program embedding in a web page, to be run when the page is browsed
*	Stand alone program that as "main method"	Web application does not contain main method
*	An app, executed by Javas Enterprise Interpreter	An app, it uses Javas Enables to execute

2-9-20

Features of Java programing: are as

1. Simple
2. Object Oriented
3. Platform independent
3. Secured
4. Robust
5. Architecure neutral
6. Portable
7. Dynamic
8. Interpreted
9. High performance
10. Multithreaded
11. Distributed

1 Simple

- It is simple to execute
- No need to remove

* It is simple to execute bez it is based on C++
* Java removes rarely & confusing features like pointer, operator overloading et
* Java as a automatic Garbage Collection in java which remove unreferenced objects.

② object oriented

* The object oriented programing is a methology is used

The various object oriented concepts arees as follows

① object ② class ③. Inheritance
④ Polymorphism ⑤. Abstraction ⑥ Encapsulation
⑥ Dynamic Binding

① object :- It is a basic run time entity in an object
When a prg: is executed the object is created
Eg: Customer & account

② Class :-

- class is a collection of object
- Any no, of objects can be created under a class
- Inside the class we can create an object, data, num, variables, etc

Employee

Inheritance

It is a process acquiring object of one class which occuring the properties object of another class

Eg (Class B : - - -)

↓

Class B Class A (- - - -) Class B (- - -)

class B extened A (- - - - -).

Polymorphism → It is a ability to take more than one form

The operation exi dif behaviour in dif instantes

Eg Adding 2 no, using + operator
Concatinating Streng using + operator

Abstraction → It represent ess feature without including background details to the user

Eg Mobile phone

In Java data abstraction represented by interfaces and abstract classes

Encapsulation :- The process of grouping / binding / Wrapping of data and method into single unit

Eg :-

SSL - Secur Socket Layer
JVM - Java Virtual Machine
JAAS - Java Authentication Authorization Services

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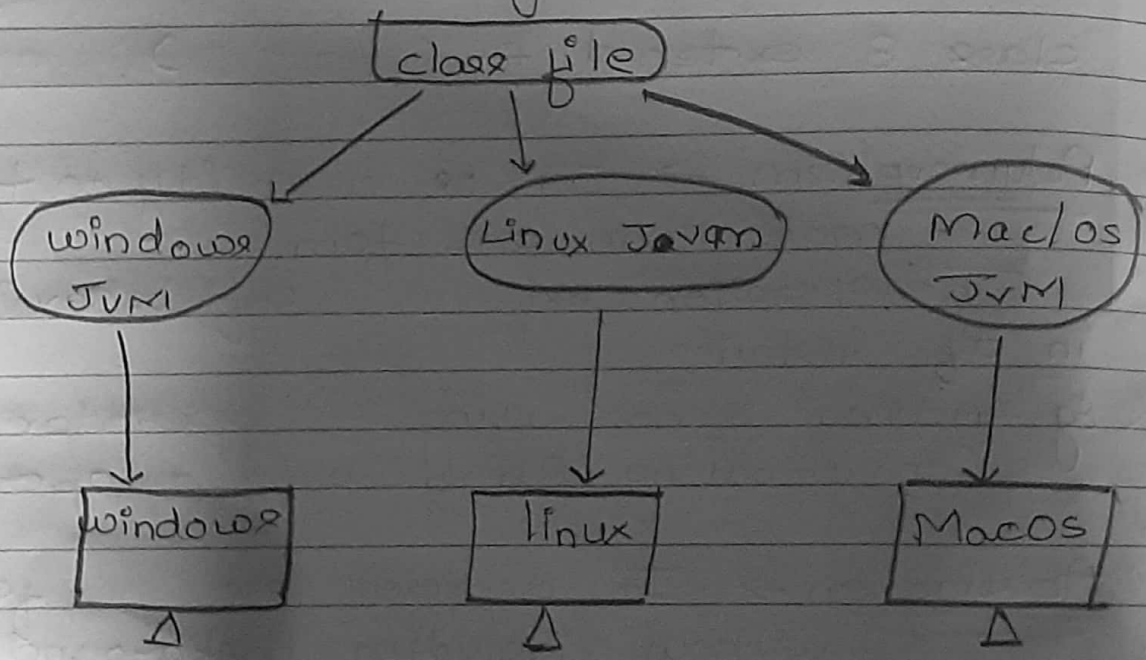
③ Platform Independent

Platform is a H/w or a S/w environment in which program Java code can be run on

Java code can be compiled by Java compiler & it produces bytecode
This bytecode can be converted into a machine code using interpriter



④ Secured

- Java is highly secured bcz java pg run inside Java Virtual machine (JVM) and also Java does not support explicit pointer

★ Class loader → adds security by separating the package for the class
★ Bytecode Verifier
It checks for illegal code

Security Manager

- It determines what resources a class can access such as reading & writing to the local device like
  - SSL Secure Socked Layer
  - JAAS - Java Authentication and Authorization Service