



# Master Core Java in 30 days

Day-1



Core Java

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History, Java Terminology,  
Features and  
Applications Of Java





# Course Contents

Day	Topics Covered
Day-1	History, features, Java Terminology and Applications
Day-2	JDK Setup, installation, Setting Class Path, Introduction to Variables, Constants, and Literals
Day-3	Data types, Operators, keywords
Day-4	Control Structures
Day-5	Loops
Day-6	Object Oriented Programming Concepts
Day-7	Class and objects
Day-8	Methods, Constructors in Java
Day-9	Modifiers in Java
Day-10	Static, Final Keywords in Java

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Day-11	Inner Class ,Super and this keyword
Day-12	Inheritance
Day-13	Polymorphism
Day-14	Abstraction
Day-15	Encapsulation
Day-16	Packages
Day-17	Wrapper Classes
Day-18	Arrays
Day-19	Strings,String Buffer, String Builder
Day-20	Java Regular Exp

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Day-21	Serialization
Day-22	Exception Handling
Day-23	Java Annotations
Day-24	Input-Output Stream
Day-25	Applets
Day-26	AWT components
Day-27	Event Handling
Day-28	Multi Threading
Day-29	JDBC
Day-30	Java Frame works

# History of Java

- [James Gosling](#), Mike Sheridan, and Patrick Naughton initiated the Java language project in June 1991.
- The small team of sun engineers called **Green Team**.
- Initially it was designed for small, [embedded systems](#) in electronic appliances like set-top boxes.
- Firstly, it was called "**Green talk**" by James Gosling, and the file extension was .gt.
- After that, it was called **Oak** and was developed as a part of the Green project.
- Oak is a symbol of strength and chosen as a national tree of many countries like the U.S.A., France, Germany, Romania, etc.
- In 1995, Oak was renamed as "**Java**" because it was already a trademark by Oak Technologies.





# Java Terminology

## Java Virtual Machine(JVM):

There are three execution phases of a program. They are written, compile and run the program. Writing a program is done by a java programmer. The compilation is done by the **JAVAC** compiler which is a primary Java compiler included in the Java development kit (JDK). It takes the Java program as input and generates byte code as output. In the Running phase of program, **JVM** executes the byte code generated by the compiler.

Every Operating System has a different JVM but the output they produce after the execution of byte code is the same across all the operating systems. This is why Java is known as a **platform-independent language**.



# Java Terminology

**Byte code :** It is saved as `.class` file by the compiler. To view the byte code, a disassembler like [`javap`](#) can be used.

**3. Java Development Kit(JDK):** it is a complete Java development kit that includes everything including compiler, Java Runtime Environment (JRE), java debuggers, java docs, etc. For the program to execute in java, we need to install JDK on our computer in order to create, compile and run the java program.

# Java Terminology

**Java Runtime Environment (JRE):** JDK includes JRE. JRE installation on our computers allows the java program to run, however, we cannot compile it. JRE includes a browser, JVM, applet supports, and plugins. For running the java program, a computer needs JRE.

**5. Garbage Collector:** In Java, programmers can't delete the objects. To delete or recollect that memory JVM has a program called [Garbage Collector](#). Garbage Collectors can recollect the objects that are not referenced. So Java makes the life of a programmer easy by handling memory management. However, programmers should be careful about their code whether they are using objects that have been used for a long time. Because Garbage cannot recover the memory of objects being referenced.





# Java Terminology

**Class Path:** The [classpath](#) is the file path where the java runtime and Java compiler look for **.class** files to load. By default, JDK provides many libraries. If you want to include external libraries they should be added to the class path.



# Features of java

- ❖ Object-Oriented
- ❖ Portable
- ❖ Platform independent
- ❖ Secured
- ❖ Robust
- ❖ Simple

- ❖ Interpreted
- ❖ High Performance
- ❖ Multithreaded
- ❖ Architecture neutral
- ❖ Distributed
- ❖ Dynamic



# Features of java

❖ Object-Oriented: java is an object oriented programming Language . It will treat every thing as An object, which having both data and behavior. It will supports oops concepts like class, inheritance Polymorphism,encapsulation,inheritance etc.

# Features of java

- ❖ portable: Java is portable language ,the programs Written in java can run in other operating system Without making any modifications
- ❖ simple :Java is one of the simple languages as it does not have complex features like pointers, operator overloading, multiple inheritances, Explicit memory allocation



# Features of java

## ❖ Platform independent

- writing a java code for one operating system is going to run any other operating systems is called Platform independent
- if we compile a program on Windows, then we can run it on Linux and vice versa.

# Features of java



## ❖ Robust –

It uses strong memory management.

There is a lack of pointers that avoids security problems.

Java provides automatic garbage collection which runs on the Java Virtual Machine to get rid of objects which are not being used by a Java application anymore.

There are exception handling and the type checking mechanism in Java. All these points make Java robust.



# Features of java

## Architecture-neutral

Java is architecture neutral because there are no implementation dependent features, for example, the size of primitive types is fixed.

In C programming, int data type occupies 2 bytes of memory for 32-bit architecture and 4 bytes of memory for 64-bit architecture. However, it occupies 4 bytes of memory for both 32 and 64-bit architectures in Java

## Secured:

Java is secured because:

**No explicit pointer**

**Java Programs run inside a virtual machine sandbox**

**Class loader:** Class loader in Java is a part of the Java Runtime Environment (JRE) which is used to load Java classes into the Java Virtual Machine dynamically. It adds security by separating the package for the classes of the local file system from those that are imported from network sources.

**Byte code Verifier:** It checks the code fragments for illegal code that can violate access rights to objects.

**Security Manager:** It determines what resources a class can access such as reading and writing to the local disk.



## distributed

Java is distributed because it facilitates users to create distributed applications in Java. RMI and EJB are used for creating distributed applications. This feature of Java makes us able to access files by calling the methods from any machine on the internet.

## Multi-threaded

A thread is like a separate program, executing concurrently. We can write Java programs that deal with many tasks at once by defining multiple threads. The main advantage of multi-threading is that it doesn't occupy memory for each thread. It shares a common memory area. Threads are important for multi-media, Web applications, etc.



# Types of Java Applications

- Standalone Application

- also known as desktop applications or window-based applications.
- AWT and Swing are used in Java for creating standalone applications.

- Web Application

- An application that runs on the server side and creates a dynamic page is called a web application.
- web applications are created using java frameworks like struts,springs,hibernates etc

- Enterprise Application

- application that is distributed in nature, such as banking applications, etc. is called an enterprise application, created using EJB

- Mobile Application

- application which is created for mobile devices is called a mobile application

# Java Applications

- ❖ Desktop GUI Applications
- ❖ Mobile Applications
- ❖ Enterprise Applications
- ❖ Scientific Applications
- ❖ Web-based Applications
- ❖ Embedded Systems
- ❖ Big Data Technologies
- ❖ Distributed Applications
- ❖ Cloud-based Applications
- ❖ Web servers and Application servers
- ❖ Software Tools
- ❖ Gaming Applications



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