**\*(FEATURES OF JAVA) :-**

--->>> Java is a widely-used programming language known for its versatility, performance, and ease of use.

Here are some of the key features that make Java popular among developers.

(1). OBJECT ORIENTED PROGRAMMING (OOP):-

-> Java follows the OOP paradigm, which means it uses objects to model real-world entities.

This promotes code reuse, modularity, and easier maintenance.

Key concepts include classes, objects, inheritance, polymorphism, encapsulation, and abstraction.

(2). PLATFORM INDEPENDENCE :-

-> Java code is compiled into bytecode, which can run on any system that has a Java Virtual Machine (JVM).

This is often summed up by the phrase “write once, run anywhere” (WORA).

(3). SIMPLE AND EASY TO LEARN :-

-> Java has a straightforward syntax, which is similar to C++,

making it easy for developers who are familiar with C-style languages to pick up quickly.

The language removes many complex features of C++, such as pointers and multiple inheritance.

(4). ROBUST AND SECURE :-

-> Java emphasizes early checking for possible errors, as it handles many runtime errors by default.

It has strong memory management, using garbage collection to eliminate memory leaks.

Security features include the Java security manager and bytecode verification.

(5). MULTITHREADING :-

-> Java supports multithreaded programming, which allows concurrent execution of two or more threads.

This is useful for performing multiple tasks simultaneously and improving the performance of applications.

(6). HIGH PERFORMANCE :-

-> While Java is an interpreted language, it achieves high performance through the use of Just-In-Time (JIT) compilers,

which convert bytecode into native machine code at runtime.

(7). DISTRUBUTED COMPUTING :-

-> Java was designed with networking capabilities in mind,

making it easy to work with networked environments and build distributed applications.

It includes a rich set of APIs for networking, such as Java RMI (Remote Method Invocation) and CORBA.

(8). DYNAMIC AND EXTENSIBLE :-

-> Java programs can carry extensive runtime information

That can be used to verify and resolve access to objects at runtime.

It supports dynamic class loading and has an extensible runtime environment.

(9). RICH STANDARD LIBRARY :-

-> Java comes with a vast standard library that provides many useful utilities for tasks

Such as data structures, networking, I/O, and graphical user interface (GUI) development.

This reduces the need for third-party libraries and speeds up development.

(10). COMMUNITY AND ECOSYSTEM:-

-> Java has a large and active community,

which contributes to a vast ecosystem of libraries, frameworks, tools, and resources.

Popular frameworks include Spring, Hibernate, and Apache Struts.

(11). BACKWARD COMPATABILITY:-

-> Java ensures that newer versions of the language remain compatible with older versions,

protecting investments in existing codebases.

(12). DEVELOPMENT TOOLS:-

-> There are numerous Integrated Development Environments (IDEs) available for Java,

such as Eclipse, IntelliJ IDEA, and NetBeans,

which enhance productivity with features like code completion, debugging, and version control integration.

These features collectively make Java a robust, versatile, and highly capable language

for developing a wide range of applications,

from web and mobile applications to enterprise systems and embedded devices.