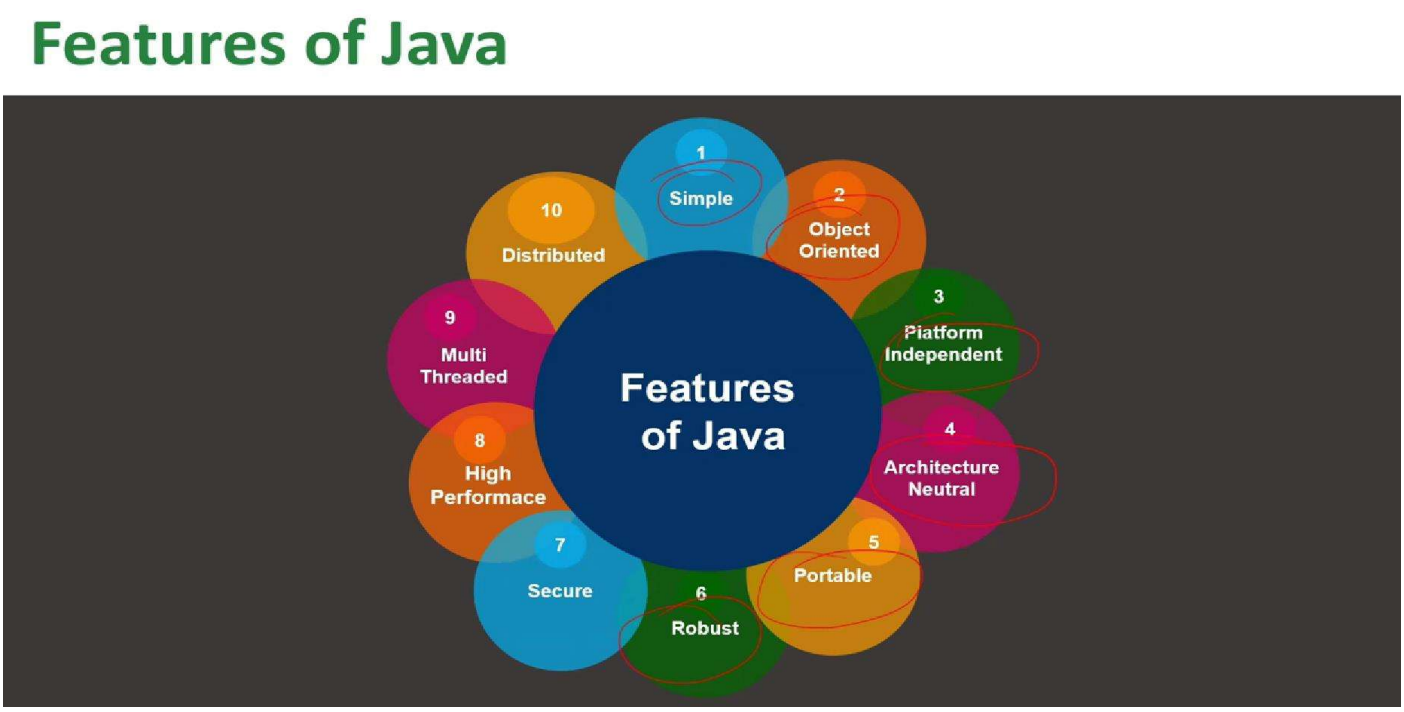
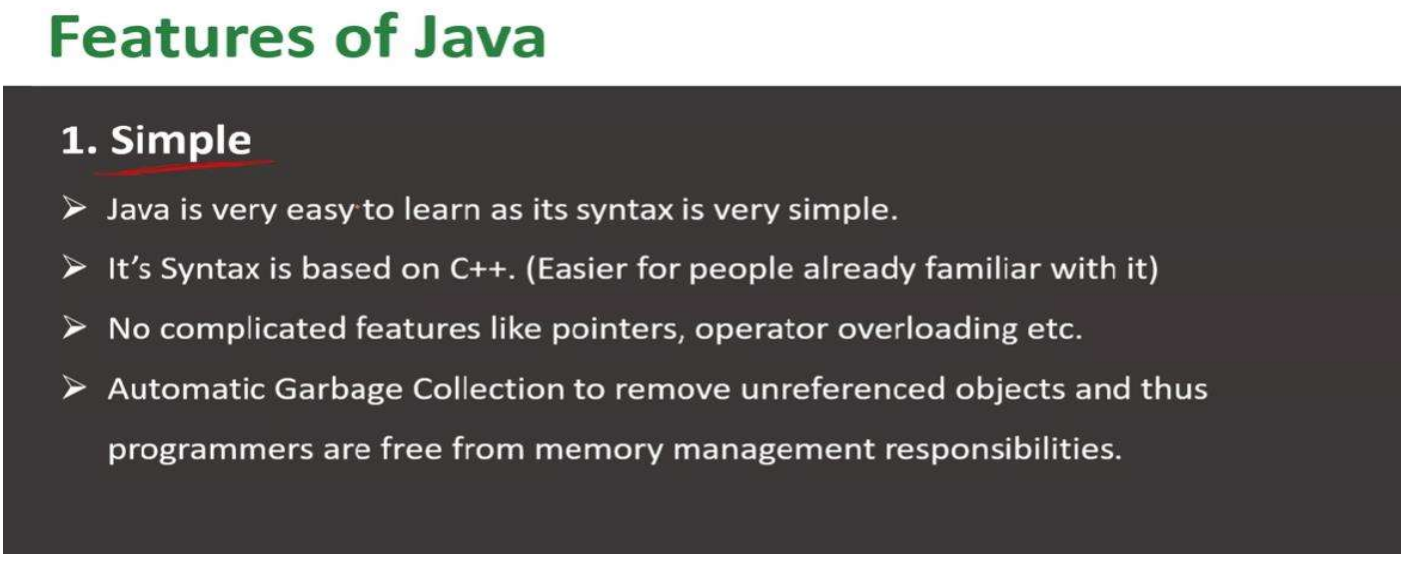
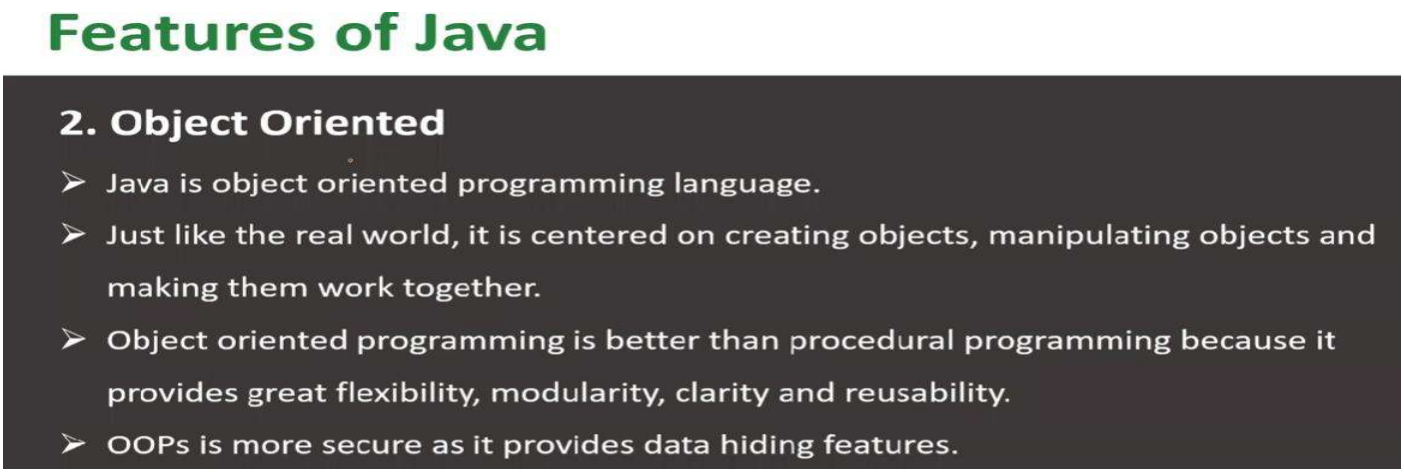
❖ Features of JAVA: --





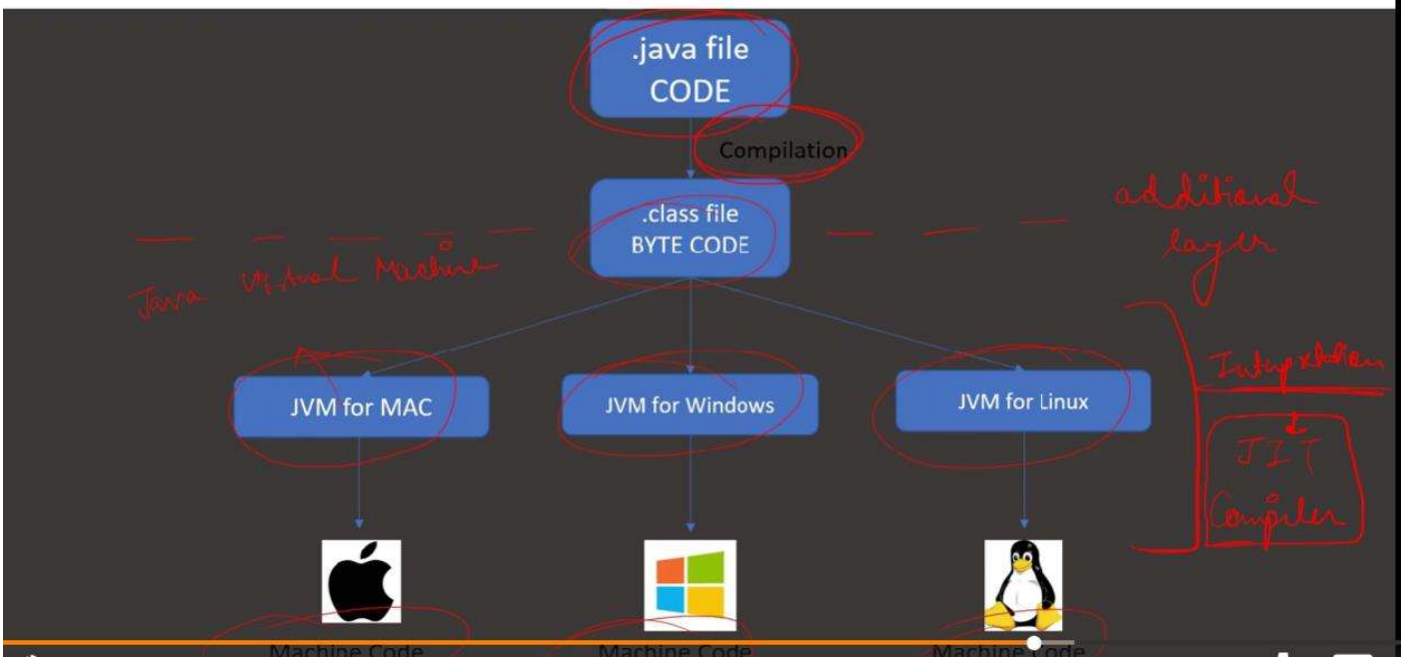


Features of Java

3. Platform Independent

- "Write once run anywhere" feature of Java makes it platform independent. It allows a Java program to run on any operating system like Windows, Linux, Mac or Solaris.
- Other languages like C, C++, etc. are directly compiled into platform specific machine codes.
- An additional layer (class file) is added in java to achieve platform independence.

Features of Java – Platform Independence



Features of Java

- Java Compiler creates .class file which contains byte code.
- JVM (Java Virtual Machine) executes byte code into machine code.
- JVM itself is platform dependent. There is a separate JVM available for each operating system.
- Different JVM produces different binary code for different operating systems.
- Using byte code and different JVMs for different operating systems Java achieves its platform independence and makes software development easy to run on different platforms.

Features of Java

4. Architecture Neutral

- Java has an essential feature that allows the applications to run easily on different machines with different hardware architecture.
- There are no architecture 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.
- In java it occupies 4 bytes of memory for both 32 and 64-bit architectures.

Features of Java

5. Portable

- The Platform Independence and Architecture Neutral features of Java make it portable.
- Portable because it facilitates to carry the Java bytecode to any platform.

Features of Java

6. Robust

- Robust means strong/reliable
- Java has eliminated certain types of error prone programming constructs that are found in other languages.
- Using exception handling mechanism, Java can catch and respond to exceptional situations, so that a program can continue its normal execution.
- Java has a strong memory allocation and garbage collection mechanism.
- It does not support pointers, thereby eliminating the possibilities of overwriting memory and corrupting data.

Features of Java

7. Secure

- Java is best known for its security.
- Java does not use pointers explicitly.
- Java programs run under an area known as the Sand Box.
- Security manager determines the accessibility options of a class, like reading and writing a file to the local disk.
- Java uses a public key encryption system to allow the Java application transmit over the internet in the secured encrypted form.
- The byte code verifier checks the classes after loading

Features of Java

8. High Performance

- Java is faster than other traditional interpreted programming languages because Java bytecode is "close" to native code.
- But it is not as fast as compiled languages, such as C++, because Java is interpreted.
- The new JVM is significantly faster than the earlier one. The new JVM uses the technology known as Just-In-Time compilation(JIT). It converts the byte code into machine code on demand basis.

Features of Java

9. Multi-Threaded

- Multithreading means a single program having different independent tasks to be performed independently at the same time(concurrently).
- We can write Java programs that deal with many tasks at once by defining multiple threads.
- Multithreading is particularly useful in server applications, a server can serve multiple clients at the same time.
- In Java, threads can be created in two ways: by extending **Thread class** and by implementing **Runnable interface**.

Features of Java

10. Distributed

- In distributed computing, several computers work together on a network.
- Java is designed to develop applications that make distributed computing easy and efficient.
- This feature of Java makes us able to access files by calling the methods from any machine on the internet.