Introduction to Java

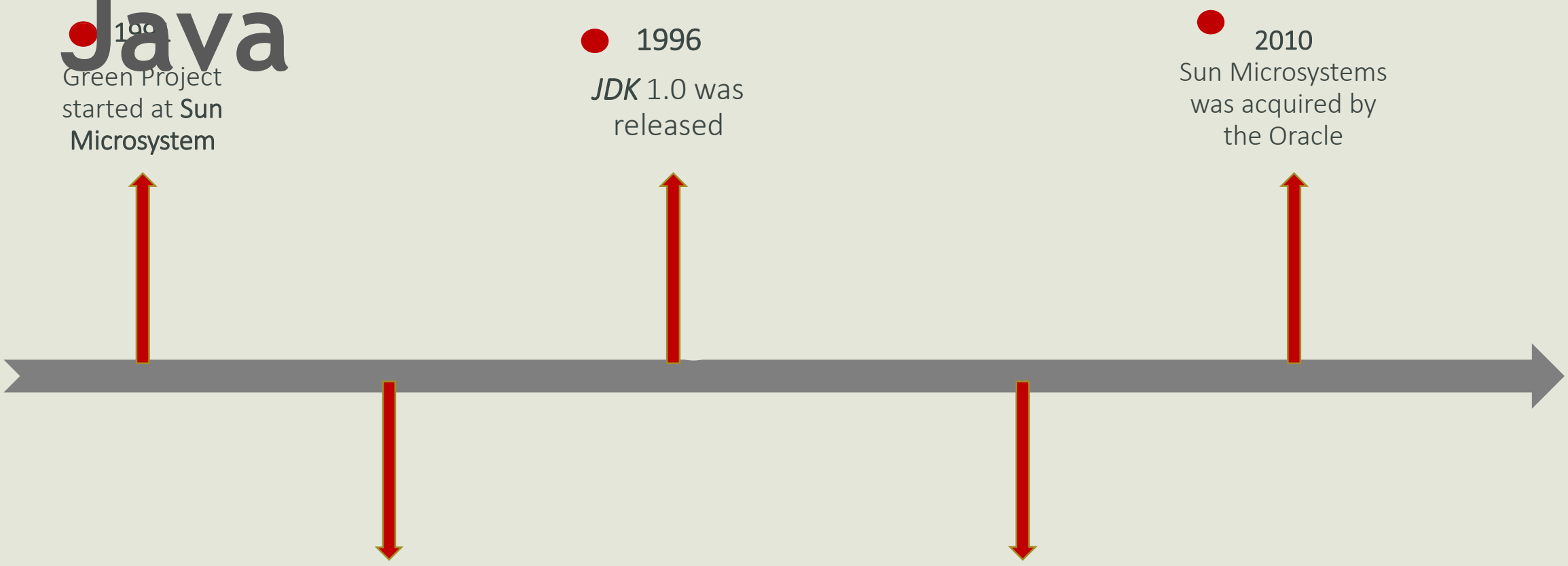
Todays Agenda

- [x] What is java
- [x] History
- [x] Features of Java
- [x] Java Virtual Machine
- [x] How Java works?
- [x] Development Process with Java
- [x] Java Development Kit (JDK)
- [x] Java Platform Editions
- [x] Java is Everywhere!

What is Java?

- Java is an innovative programming language to run on a variety of different computer systems.
- Write Once and Run Anywhere!

History of Java



Features Of Java

1. Platform Independent and Database independent:

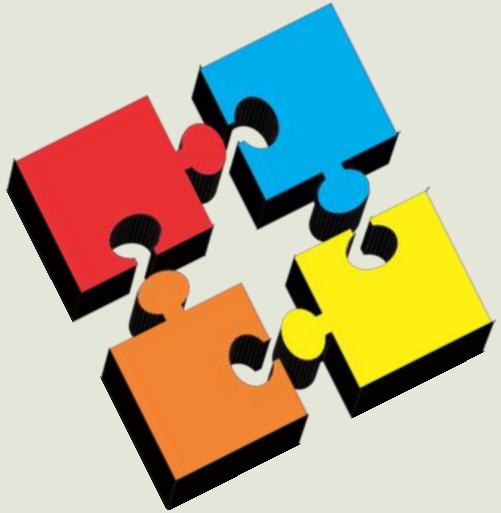
Java is architecture neutral, Java programs are portable. They can be run on any platform without being recompiled.

Features Of Java

2. Object Oriented Programming Language:

Java is “pure” Object Oriented programming Language

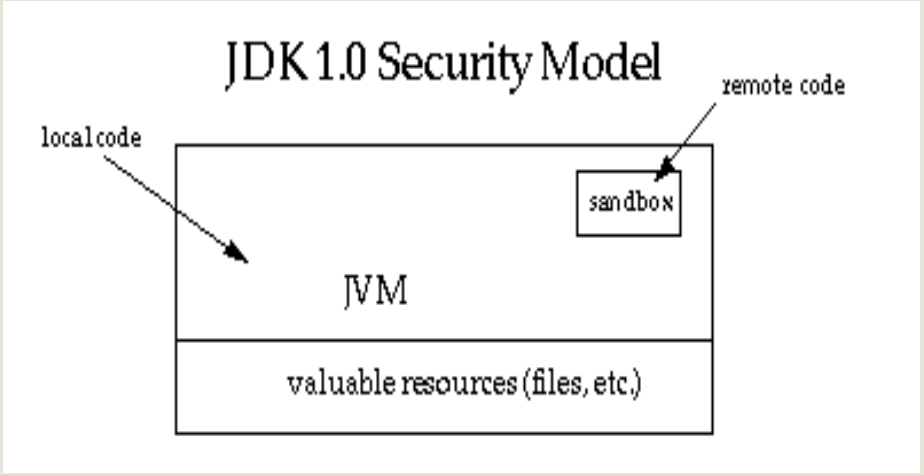
- Reusable code
- Improved software maintainability
- Reduce software complexity



Features Of Java

3. Secure:

- Enforcing runtime constraints through the use of the Java Virtual Machine (JVM)
- A security manager that sandboxes untrusted code from the rest of the operating system



Features Of Java

4. Automatic memory management:

- Java manages the memory allocation and de-allocation for creating new objects.
- The program does not have direct access to the memory.

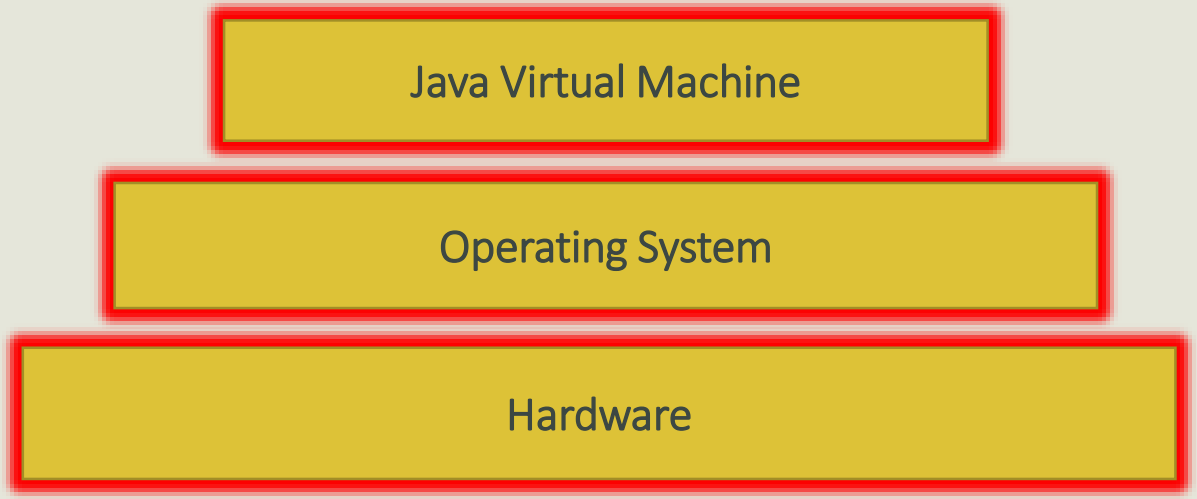
Features Of Java

5. Robust:

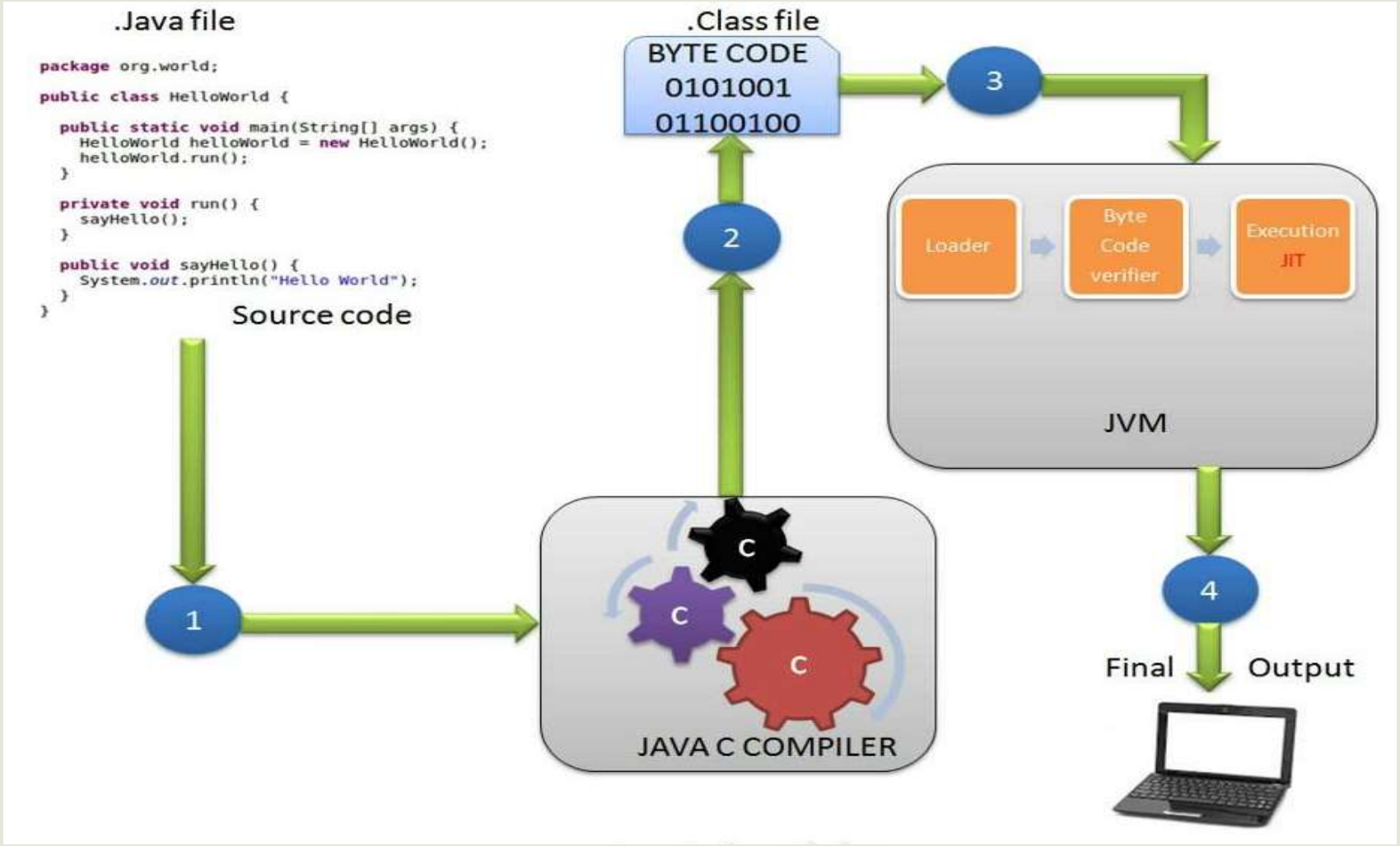
- Java compilers can detect many problems before execution
- Java has a runtime exception-handling feature to provide programming support for robustness.

How Java works?

- Java programs use the Java virtual machine
- Do not access the operating system directly
- A Java program can run unmodified on all supported platforms, e.g., Windows or Linux.



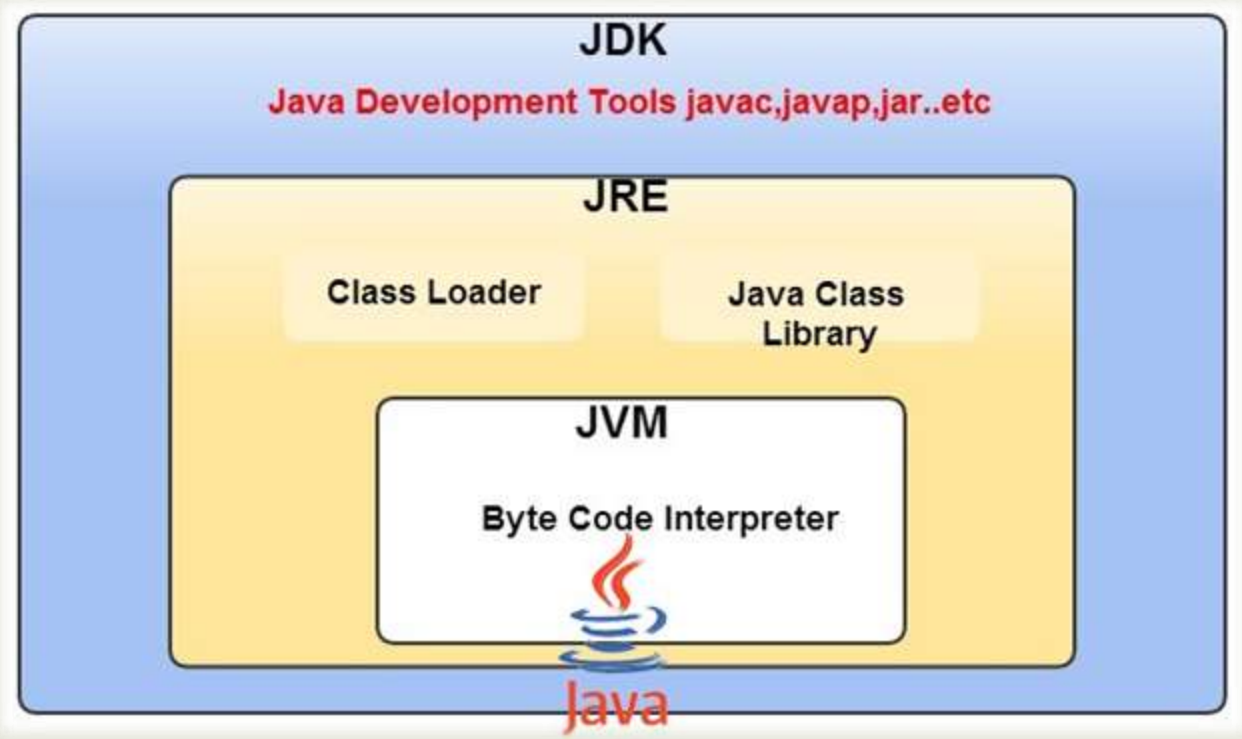
Development Process with Java



Java Development Kit (JDK)

Java Development Kit (JDK)

- Is a set of Java tools for developing Java programs
- Consists of Java API, Java Compiler, and JVM



JRE vs. JDK

- A Java distribution typically comes in two flavors,
  - *Java Runtime Environment* (JRE)
  - *Java Development Kit* (JDK)
- The Java runtime environment (JRE) consists of the JVM and the Java class libraries.
- The JDK additionally contains the development tools necessary to create Java programs.

Java Platform Editions

A Java Platform is the set of APIs, class libraries, and other programs used in developing Java programs for specific applications

- There are 3 Java Platform Editions
- Java 2 Platform, Standard Edition (J2SE)
  - Core Java Platform targeting applications running on workstations
- Java 2 Platform, Enterprise Edition (J2EE)
  - Component-based approach to developing distributed, multi-tier enterprise applications
- Java 2 Platform, Micro Edition (J2ME)
  - Targeted at small, stand-alone or connectable consumer and embedded devices

Why Software Developers Choose Java?

- Write software on one platform and run it on virtually any other platform
- Create programs that can run within a web browser and access available web services
- Develop server-side applications
- Write powerful and efficient applications for
  - Mobile phones
  - Remote processors
  - Microcontrollers
  - Wireless modules and practically any other electronic device

Java is Everywhere!

- From laptops to datacenters, game consoles to scientific supercomputers, cell phones to the Internet, Java is everywhere!
  - 97% of Enterprise Desktops Run Java
  - 89% of Desktops (or Computers) in the U.S. Run Java
  - 9 Million Java Developers Worldwide
  - 3 Billion Mobile Phones Run Java
  - 100% of Blu-ray Disc Players Ship with Java
  - 5 Billion Java Cards in Use
  - 125 million TV devices run Java
  - 5 of the Top 5 Original Equipment Manufacturers Ship Java ME

Thank You