JAVA

OBJECTIVES

- Introduction
- Java Features
- Components of Java Architecture
- Java Virtual Machine
- Java Fundamenatals
- Object Orientation

INTRODUCTION

- General-purpose high-level language developed by Sun Microsystem
- Originally called OAK, later renamed to Java in 1995 and modified for World Wide Web

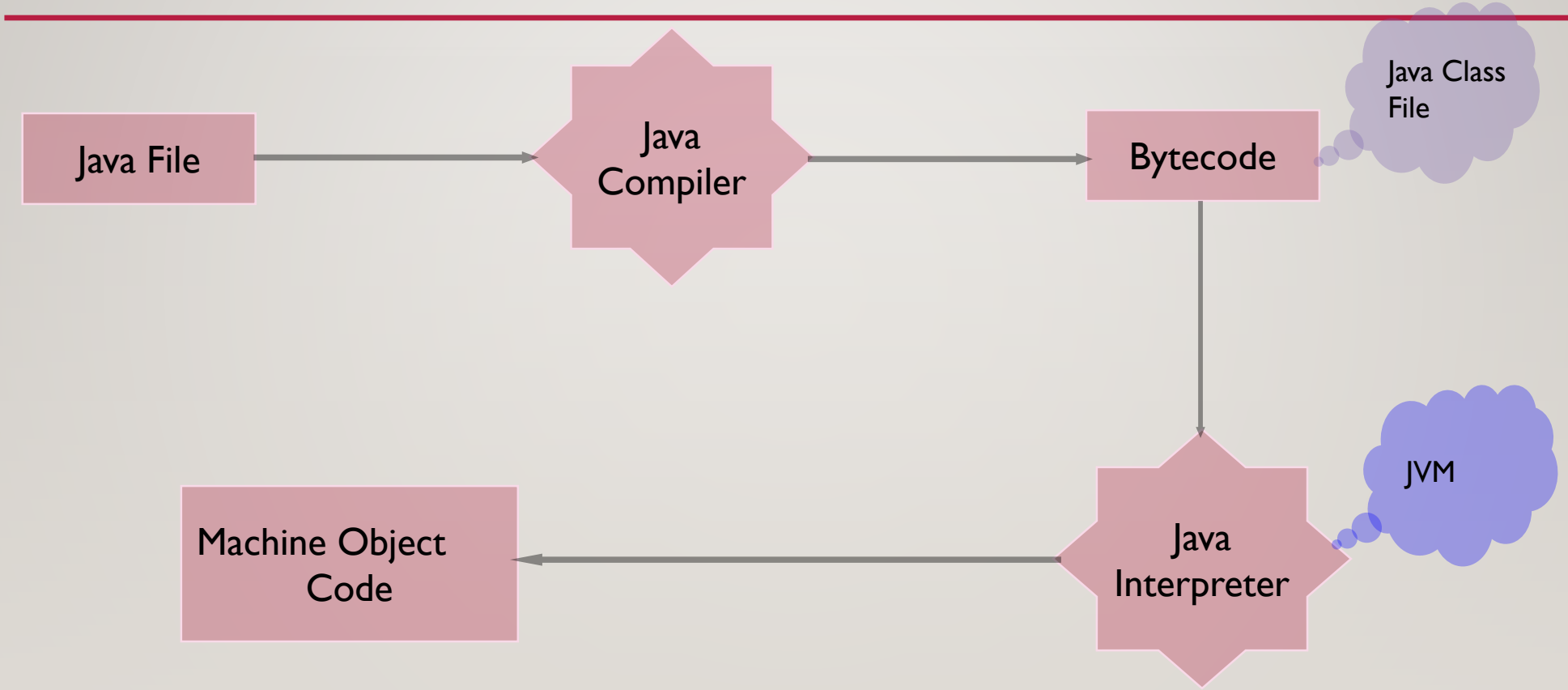
JAVA FEATURES

- Object Oriented Programming language
- Simple
- Is both interpreted and compiled
- Robust and reliable
- Portable
- Secure
- Multithreaded
- Dynamic in nature
- High performance
- Distributed

JAVA ARCHITECTURE

- Java Programming Environment
- Java class file
- Java Virtual Machine
- Java API

JAVA PROGRAMMING ENVIRONMENT



JAVA CLASS FILE (BYTECODE)

- Is a binary code
- Makes the Java file network mobile and platform independent
- Is compact and can be transported easily and quickly

JAVA VIRTUAL MACHINE (JVM)

- Is a software that interprets and executes the bytecode
- Starts the application by running the `main()` method
- Is responsible for loading `.class` files through various class loaders

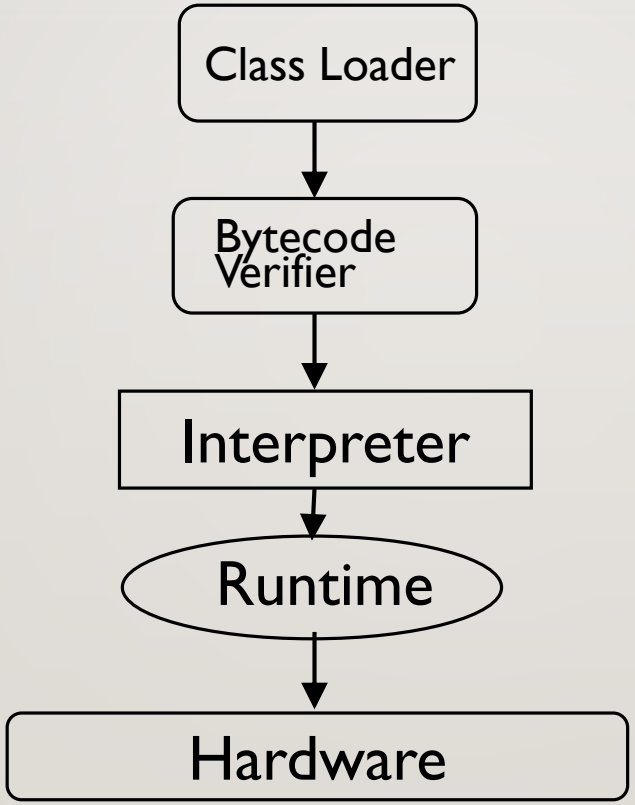
COMPONENTS OF JVM

- Class loader
- Bytecode verifier
- Execution Engine
  - Interpreter
  - Just In Time Compiler
- Garbage Collector

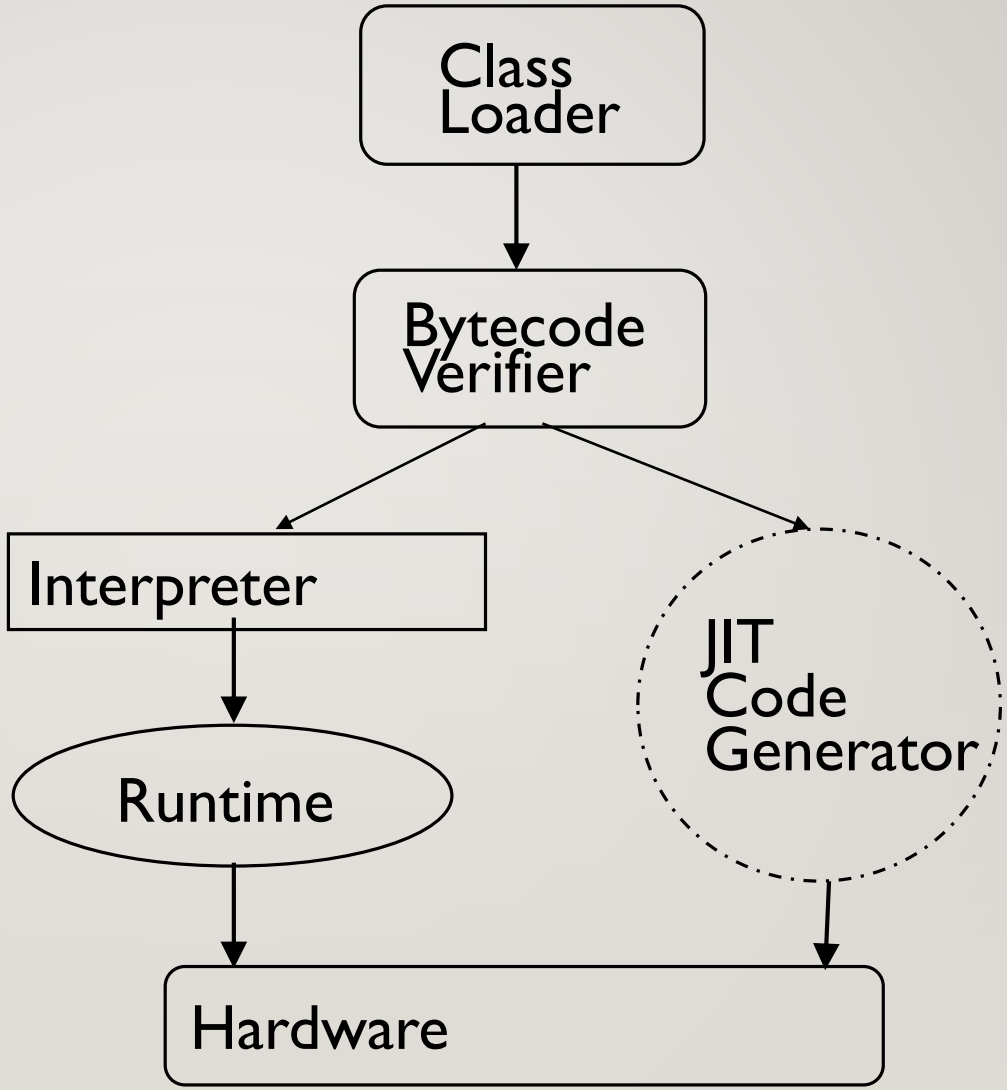
JAVA RUNTIME ENVIRONMENT

- Performs three main tasks
  - Loads code
  - Verifies code
  - Executes code

JAVA RUNTIME ENVIRONMENT



JUST IN TIME CODE GENERATOR



A BASIC JAVA APPLICATION

- HelloWorldApp.java

```
1 //
2 // sample HelloWorld application
3 //
4 public class HelloWorldApp {
5     public static void main(string args[]){
6             system.out.println(“Hello World!”);
7     }
8 }
```

COMPILING AND RUNNING HELLOWORLDAPP

- Compiling HelloWorldApp.java

```
javac HelloWorldApp.java
```

- Running an application

```
java HelloWorldApp
```