

# CHAPTER 1

## Introduction to Object Oriented Programming Concepts

### Questions & Answer:

**Q1: Write a short note on types of java programs**

Ans: A stand-alone java application refers to a java program that can run independently on a computer. Microsoft Word is an excellent example of this type of application. In Java, every stand-alone application begins its execution with the main() method. Java stand-alone applications can be classified into two types:

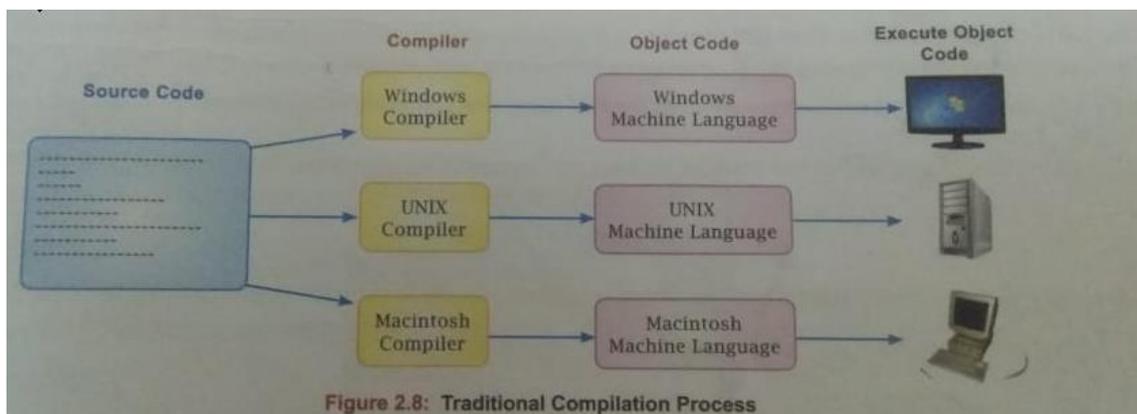
1. Console based applications
2. Graphical user interface based application

**Q2. How is java platform independent?**

Java applications are platform independent, which means that Java applications can be run on any platform. After Java source code is compiled, it is converted into bytecode. The bytecode is then interpreted by the JVM. JVM can be installed on several different operating systems such as Windows, UNIX, Macintosh, etc. JVM allows Java programs to run on almost any computer regardless of its hardware configuration. Due to this factor, Java is considered as a platform independent language.

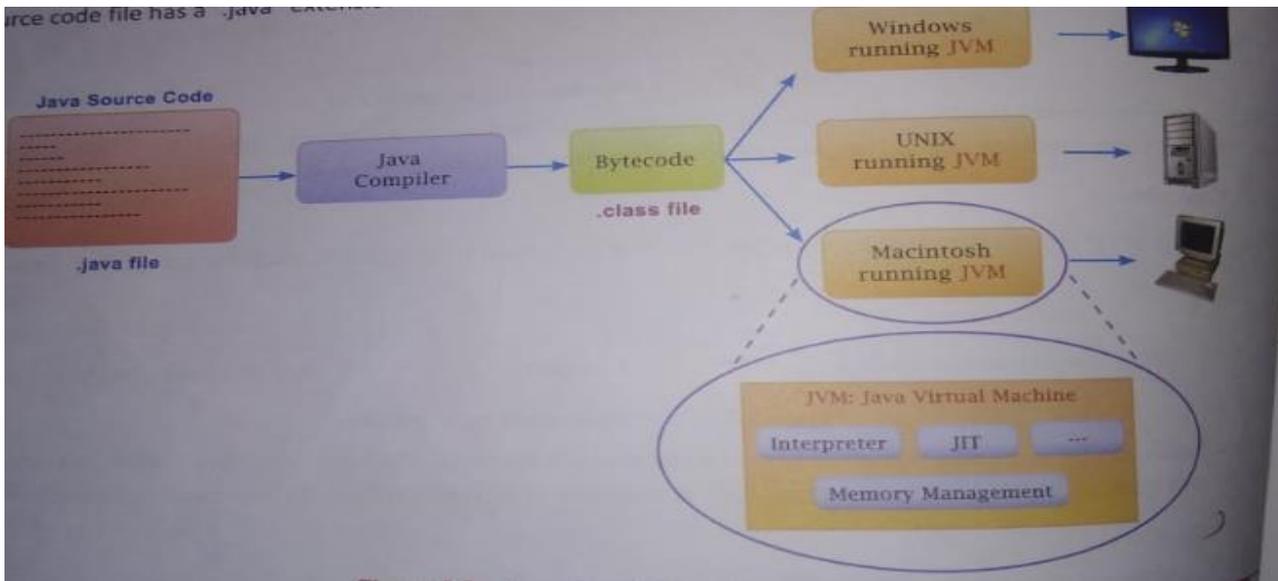
**Q3: Describe the traditional compilation process with a suitable diagram.**

Ans: The machine language version generated by the compilation process is specific to the platform one is compiling, for example, if you were to compile your code on a Windows platform, the resulting program would run only on the Windows platform. To use the same program on any other platform, for example, Macintosh, you need to compile the original source code with a compiler suitable for Macintosh.



#### Q4. Describe java compilation process with suitable diagram.

Ans: In the traditional compilation process, an equivalent machine code is generated for that particular platform. However, on compiling the java source code, you get bytecode which cannot be directly executed by the machine, this bytecode needs a java interpreter to convert it into the machine code of the computer on which it is to be executed. This interpreter is part of the java virtual machine or (JVM)



#### Q5: - Cancelled

#### Q6: What are JVM and JIT?

Ans: The JVM also includes a Just-In-Time (JIT) compiler that compiles selected portions of bytecode into executable code. The remaining code is simply interpreted.

#### Q7. Distinguish between:

##### 1: Source code and Object code.

**Source Code:** A set of instructions written in a high-level programming language is called source code.

**Object Code:** A compiler-generated machine language version of the source code is called object code.

##### 2: Compiler and Interpreter.

A **Compiler** is a program that translates code written in a high-level language into machine code.

An **Interpreter** translates the source code instruction into machine code one-by-one.

##### 3: ".java" file and ".class" file.

The ".java" files are compiled using java compiler.

The compilation process generated bytecode files with the ".class" extension.