

Java Programming

Assignment - 1

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→ Aim:

Introduction to Java SDK, JVM architecture, IDE (Eclipse/NetBeans). Write a Java Program to print the text "Welcome to Java Programming World".

→ Objective:

1. To study the architecture of J2EE, JVM
2. To study the basic concepts of Java.
3. To study the installation steps of JDK.
4. To study different IDEs used for the java program.

→ Theory:

1.1 SDK - Software Development Kit

Collection of software development tool in one installable package.

- 1.2 Facilitates the creation of applications by having a compiler, debugger and perhaps a software

frame work.

1.3 Specific to a hardware platform and OS combination.

1.4 To create applications with advanced functionalities such as advertisement, push notifications, etc, most application software development use specific software development kits.

2. JDK - Java Development Kit

- JDK is a development environment for building applications and components using Java language.
- The JDK includes tools useful for developing, testing and monitoring programs written in the Java language and running on the Java platform.

Installation of JDK

- a) Download JDK from the site
- b) Install the JDK .exe file.
- c) Check the directory
- d) Update the environment variables
- e) Verify the Java Installation.

J2EE and JVM architecture

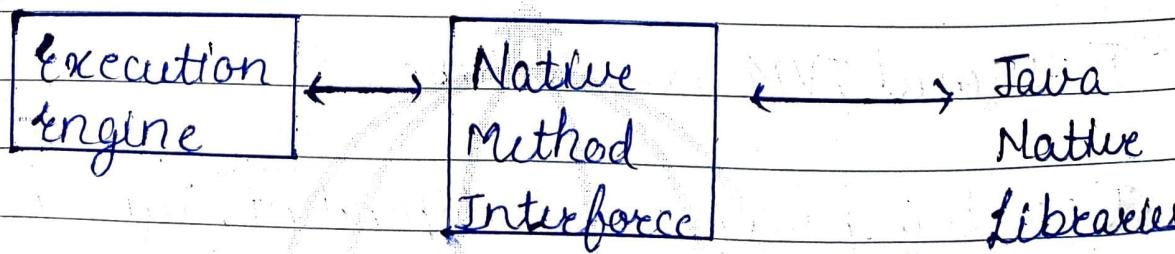
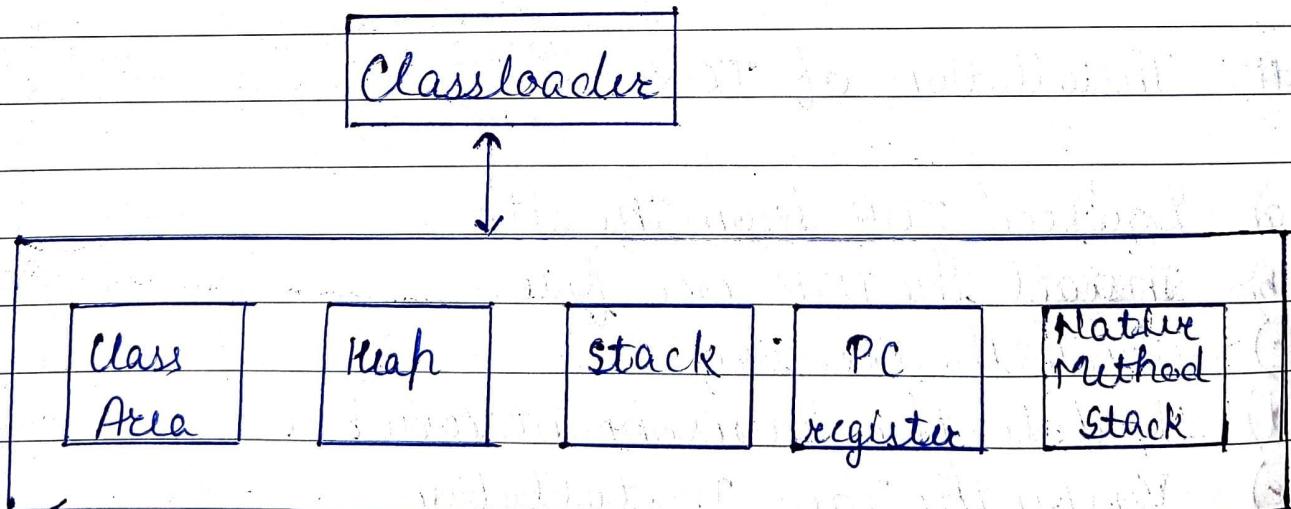
- J2EE is a platform-independent, Java based

environment application for developing, building and deploying Web-based enterprise applications online.

- The J2EE includes various set of services, APIs and protocols to develop multiplex, web based application.
- Provides a platform for developers with enterprise features such as distributed computing and web services.

JVM is an abstract Machine.

- It is a specification that provides runtime environment in which java byte code can be executed.
- JVM is platform dependent.



- Classloader : Used to load class files
- Class Area : Stores per class structures such as the runtime constant pool, field and method data, the code for methods .
- Heap : Runtime data area in which objects are allocated.
- Stack : Holds local variables and partial results, and play a part in method invocation & return.
- PC Register : Contains the address of the JVA instruction currently being executed.
- Execution Engine : Contains a VM processor interpreter and JIT Compiler.
- Native Method Interface : Provides an interface to comm. with another app, written in another lang like C, C++, etc .

→ Platforms : Open source Java Programming tool like Eclipse Editor / Netbeans.

→ Conclusions :

Thus, studied the installation steps of Java and implementation the Java programs using java basic concepts such as loops and control statements.

→ FAQ's :

1) How Java Program is executed?

Ans In Java, programs are not compiled into executable files, they are compiled into bytecode, which the JVM then executes at runtime. The bytecode is saved on the disk with file extension class.

2) What is the use of JVM?

Ans JVM is specifically responsible for converting bytecode to machine specific code & is necessary in both JDK and JRE. It is also platform-dependent many functions including memory management and security.

3) Explain the J2EE module.

Ans J2EE is a platform independent, Java based environment applicable for developing building & deploying web-based enterprise applications online. It includes various set of services, API's and protocols to develop multi-tier, web based applications. It provides a platform for developer with enterprise features such as distributed computing and web services.



4) What are the different control stat. used in Java?

Ans There are 3 types of different control statements :-

a) Decision Making -

if statements → simple if statements

if else statements

if elseif ladder

Nested if statements

switch statements

b) Loop statements :-

> do while loop

> while loop

> for loop

> for each loop

c) Jump statements :-

> Break statements

> Continue statements

5)

Explain different Java primitive data types.
Ans Integer types :

Byte : -128 to 127

: 8 bit signed e's compliment

Short : -32768 to 32767

: 16 bit signed e's compliment

Int : -2147483648 to 2147436847

: 32 bit signed e's compliment



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long :- -2^{63} to $2^{63} - 1$

: 64 bit signed 2's comp. int

Floating point type :-

Float : $3.4e-0.38$ to $3.4e+0.38$: 32 bit IEEE 754 floating pt.

Double : $1.7e-308$ to $1.7e+308$: 64 bit IEEE 754 floating pt.

Boolean : True OR False

Char : ' \u0000 ' to ' \uffff ' : 16 bit Unicode character

c) How do break and continue statements work in JP,

Ans

syntax

for (...)

{ // statements

Break,

}

As soon as the break statement is reached, loop terminates and is used to continue the rest of the program. Continue statement is used to skip the remaining section of the loop.

Syntax:

for (...)

{

if (condition)

continue,

// statements

}

When the if condition is true, continue statement skips the test of the " // statements " and the loop continues. Loop is not exited by it.