JAVA Notes

B.Tech. CSE

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Contents

1 Introduction

Java basics unit 1:

1. Developed by Sun Microsystems in 1995

2. Father of Java is James Gosling.

3. It is high-level, robust, object oriented and secure.

Types of java applications:

- Standalone applications.

- Web applications. e.g. Servlet, JSP, Struts, Spring, Hibernate, JSF etc.

- Enterprise appliction.

- Mobile application. e.g. Android and Java ME

Features of Java:

- Simple.

- Object-oriented.(data and behavior)

- Automatic Garbage Collection.

- Platform-independent (Write once run anywhere WORA)

- Secure

- Classloader

- Bytecode Verifier

Sidenote: We know that + adds numbers. we can also add objects with the help of the same operator by the help of operator overloading.

to Develop java applications you need JDK to Run java applications you need JRE

JRE is a part of JVM

1.1 Class loader

1. It is a part of JRE. It is used to load Java classes into the JVM.

2. It adds security by separating packages of local filesystem and those imported from network sources.

1.2 Bytecode Verifier

1. It checks the code fragments for illegal code.

1.3 Security Manager

1. It determines what resources a class can access. e.g. reading and writing to the local disk.
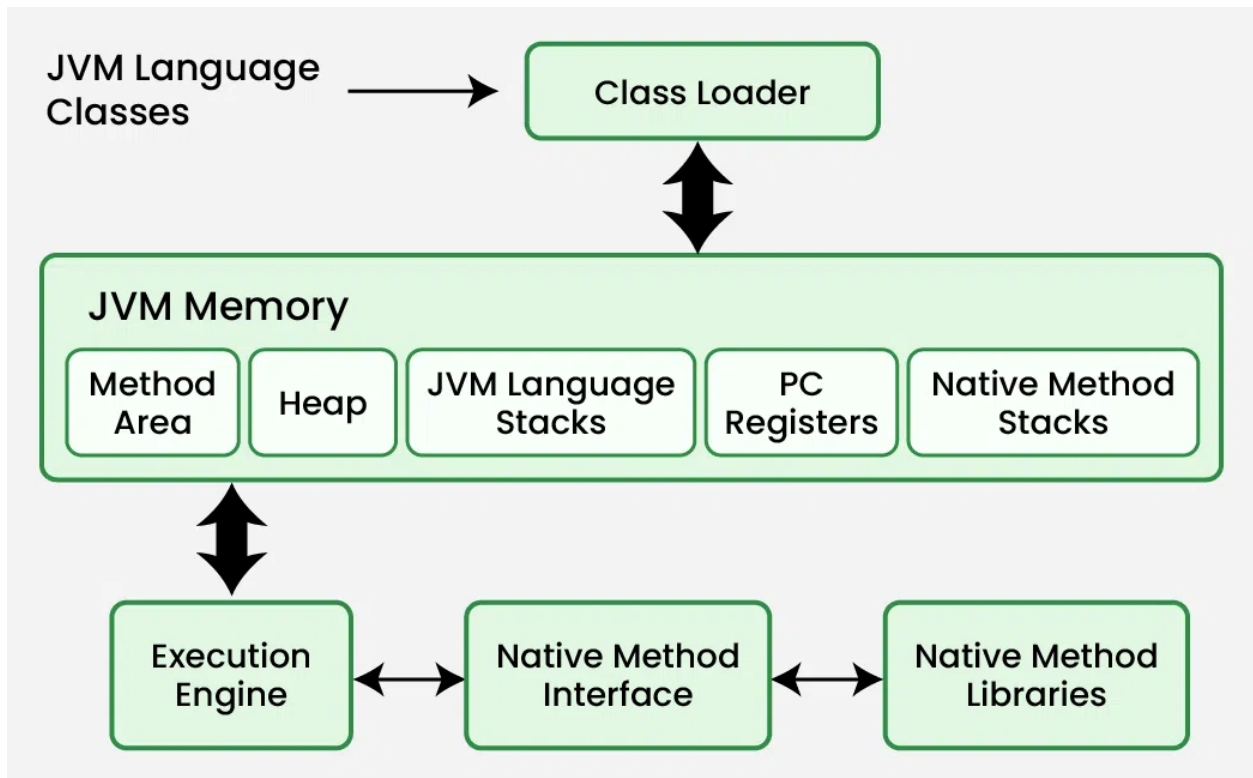
Sidenote: JVM Language stacks contain threads.

Homework: what is RMI and what EJB does how to typecast how is data loss handled in narrow casting

1.4 Typecasting

Assigning a value of 1 primite to another type is called typecasting.

1.4.1 Widening cast(automatic)

converting a smaller type to a larger type size.
byte $\rightarrow$ short $\rightarrow$ char $\rightarrow$ int $\rightarrow$ long $\rightarrow$ float $\rightarrow$ double

1.4.2 Narrowing cast(manual)

converting a larger type to a smaller type size.
byte $\leftarrow$ short $\leftarrow$ char $\leftarrow$ int $\leftarrow$ long $\leftarrow$ float $\leftarrow$ double

assinmen: if for while flowchart

1.5   Operators

1.6   Variables

There are three types of Variables.

1. Local Variable

    (a) A variable declared inside the body of the method is called local variable.
    (b) A locar variable cannot be defined with "static" keyword.

2. Static variable.

    (a) It is something that belongs to the class.
    (b) A variable that is declared as static is called a static variable. It cannot be local.
    (c) A <u>single copy</u> of the static variable is shared among all instances/objects of a class.

3. Instance variable.

    (a) A variable declared inside the class but outside th body of the methoud is called an instance variable. It is not declared as static.

```
class student{
  int id;
  String name;
  static String college;
}
```

The JVM allocates memory for method calls and local variables on the stack.
Stack memory is used for primited data types and references to objects