**CORE JAVA**

**History:**

* Made in 1995 by Sun Microsystems and lead by the team James Gosling and later by Oracle.
* Java updates in every six months not major but want to make Java as most powerful language.
* It’s an Object Oriented Programming.

**IDE:**

There are many like NetBeans, IntelliJ, Eclipse. Here VS Code is used i.e., Light Weight.

**Compiler:**

**JDK –** Java Development Kit

**Note:** Always download LTS (Long Term Support) despite of new releases.

Open CMD Prompt:

For version, **java --version** and

For Compiler, **javac --version**

If these commands throws as ‘variable not found’ then set path in environmental variables.

Programmer 🡪 Java Code 🡪 Compiler 🡪 ByteCode 🡪 JRE 🡪 JVM (OS+ H/W)

(.java) (javac) (.class)

**Note:**  JVM is dependent on OS and Hardware.

**Variable:**

To store the data.

* Java is also known as Strongly typed language.

**Data Types:**

**Types:**

1. Primitive
2. Non Primitive

**Primitive:**

* Integer
* Float
* Character
* Boolean

**Integer:**

* Byte – 1byte
* Short – 2bytes
* Int – 4bytes
* Long – 8bytes

**Float:**

* Double – 8bytes
* Float – 4bytes

**Note:** By default, double will be used by JavaC.

**Character:**

* Char – 2bytes

Uses UNICODE not ASCII.

Will be in single quotes.

**Boolean:**

* Boolean- True or False

Used for conditions.

**Literal:**

Nothing but a value assigned to a variable.

**Type Conversion and Casting:**

Conversion of one data type to another. a=b 🡪 Implicit

Converting integer value into byte is known as Casting b = (byte)a 🡪 Explicit

byte b = 127;

int a = 12;

**Operators:**

* Assignment operators (=)
* Relational Operators (<, >, ==,!=, <=, >=)
* Logical Operators (&&, ||, !)

**Conditional Statements:**

* If
* If else
* If else if
* Switch

**Ternary Operator:**

?: - Like if else in some cases.

**Loops:**

* While
* Do While
* For

**Objects And Classes:**

* Properties and behaviour
* When we need to create object,first we need to create class.
* Class acts as a blueprint.
* JVM creates objects in Java.

**JDK, JVM And JRE:**

**JDK:**

* Java Development Kit.
* Compiles the code.
* JDK acts like a upper layer.

**JVM:**

* Java Virtual Machine.
* Runs the code.

**JRE:**

* Java Runtime Environment.
* To run the code, we need some extra files like inbuilt classes, JRE provides those extra files.
* JVM is a part of JRE.

JDK

JRE

JVM

**Method Overloading:**

**Method:** block of code runs when it is called

Same method used but with different parameters.

main( ) – is a method and start of the execution.

**Stack:**

Last in First Out

Memory Block

Stores data

Local variables are part of stack.

**Heap:**

Here we have open space to store data.

Memory Block.

Stores data.

Instance variables are part of Heap.

**Array:**

Holds multiple values.

**String:**

Collection of characters.

Mutable String – Changed

Immutable String - Unchanged