JVM BASIC, Variable and Method
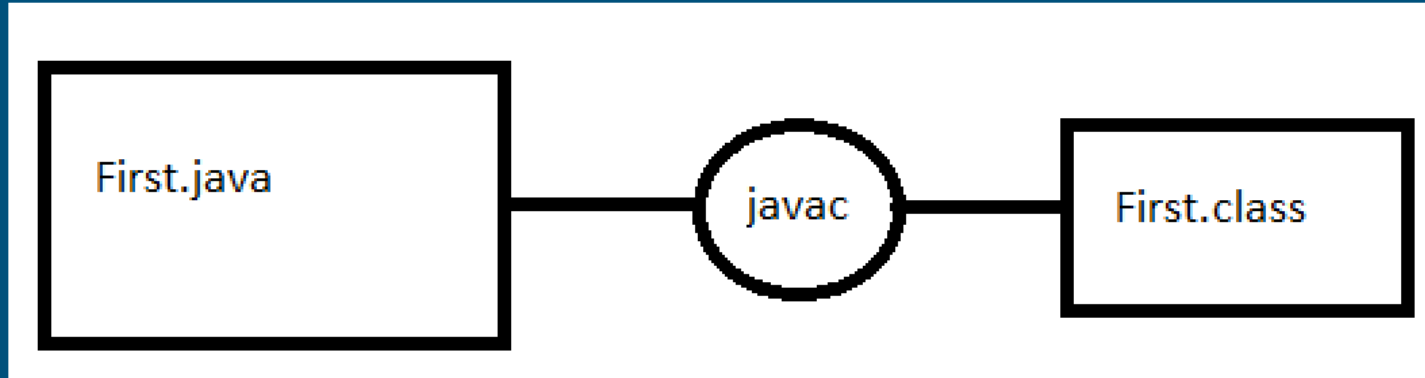
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JVM, Variable and Method

- ★ JVM Basic Introduction
- ★ What is Class?
- ★ What is an Object and Difference between Class and Object.
- ★ What is variable?
- ★ What is Method?
- ★ Java Main Method basic introduction
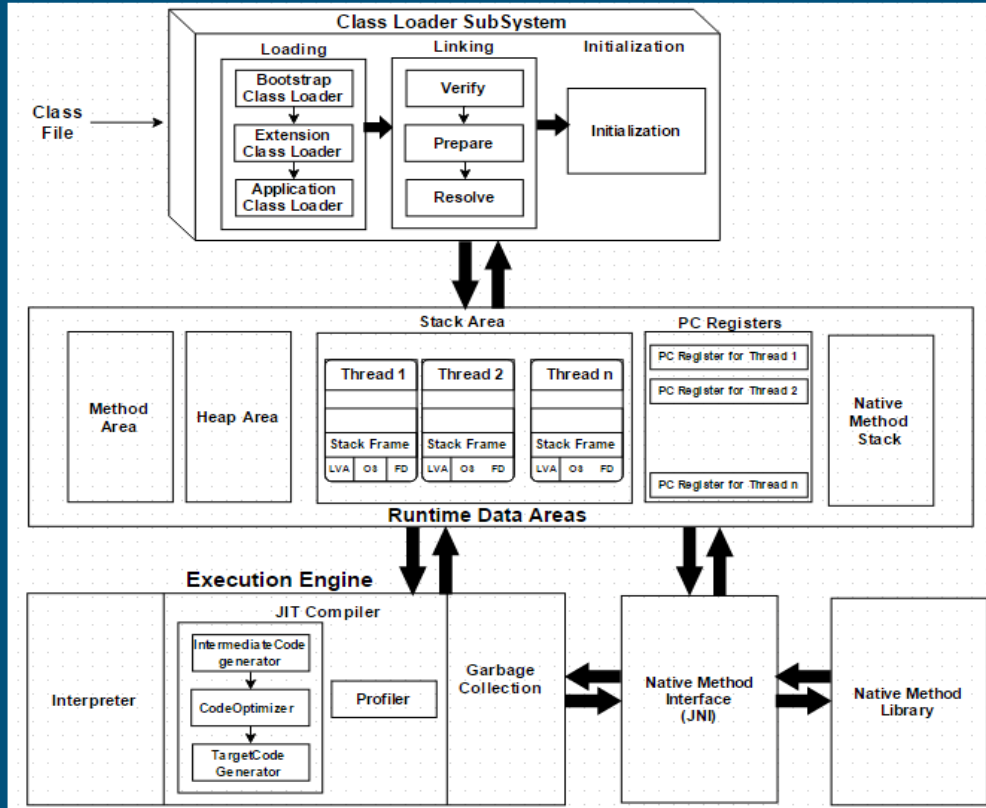- ★ Simple program of variable and method

★ JVM Basic Introduction
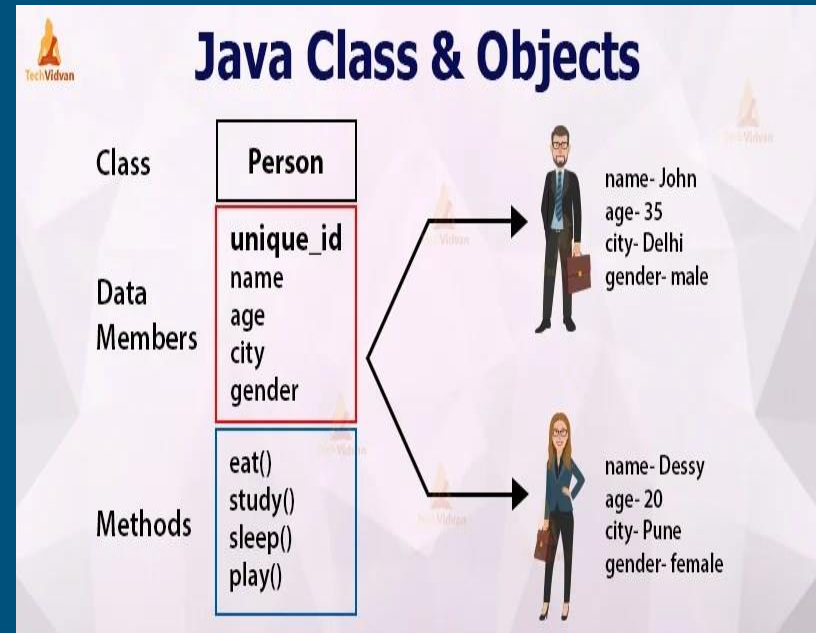
Java Compilation Process
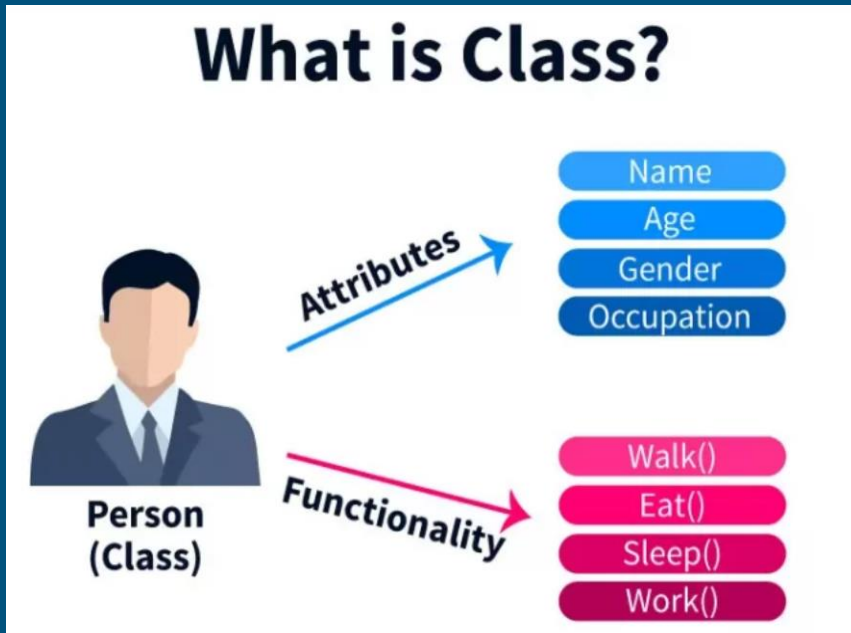
Step -1: Javac First.java

2] Program Execution with JVM Architecture

Step -2 : Java First

★ What is Class ?

Java is a programming language that operates using classes and objects to build code blocks. Class is a group of variables of different data types and a group of methods. It is a blueprint which must be implemented by each of its objects.

★ **What is an Object?**

A class contains the properties and behaviour for a set of objects, many objects can be formed using a class.

★ Take an example of a person as an object.

★ There are different varieties of person that means different varieties of objects according to the person class. For example, one person has 25 age , another person may have 30 age, or 40, etc.

★ However, we can notice that most of the behaviours are the same like eating, sleeping and Walking etc.

★ Properties and behaviour of these objects can be the same but their values would be different.

★ Syntax to create a Class and Object

```
Class Person{              Person p = new Person("Umesh");

        }                  Person p1 = new Person("Gajanan");
```

★ **Difference between Class and Object.**

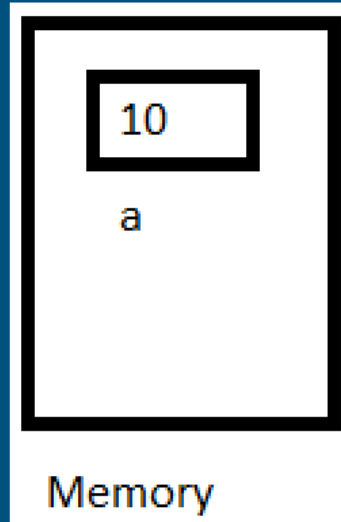| Class	Object
A class is a blueprint for declaring and creating objects.	An object is a class instance that allows programmers to use variables and methods from inside the class.
Memory is not allocated to classes. Classes have no physical existence.	When objects are created, memory is allocated to them in the heap memory.
You can declare a class only once.	A class can be used to create many objects.
Class is a logical entity.	An object is a physical entity.
We cannot manipulate class as it is not available in memory.	Objects can be manipulated.
Class is created using the class keyword like class Dog{}	Objects are created through new keyword like Dog d = new Dog();. We can also create an object using the newInstance() method, clone() method, fatory method and using deserialization.
Example: Mobile is a class.	If Mobile is the class then iphone, redmi, blackberry, samsung are its objects which have different properties and behaviours.

★ What is variable?

- A variable is the name of a reserved allocated in memory…In simple word name of the memory location.

    Syntax :- dataType nameofVariable = value ;

        Int a = 10;

Type of Variables :-

    1] Local Variables
    2] Instance Variables
    3] Static Variables

```
10

a
```

Memory

```
class First {

//1. Instance Variable
int sum = 20;

//2. Static Variable
static int p = 100;

Void add(){
        //3. Local Variable
        Int a = 10;
}

}
```

```
public class Simple{

public static void main(String[] args){

int a=10;

int b=10;

int c=a+b;

System.out.println(c);

}

}
```

★ What is Method?

A method is block of code or collection of statement to perform some operation. It achieve the reusability of code. We don't require to write code again & again.
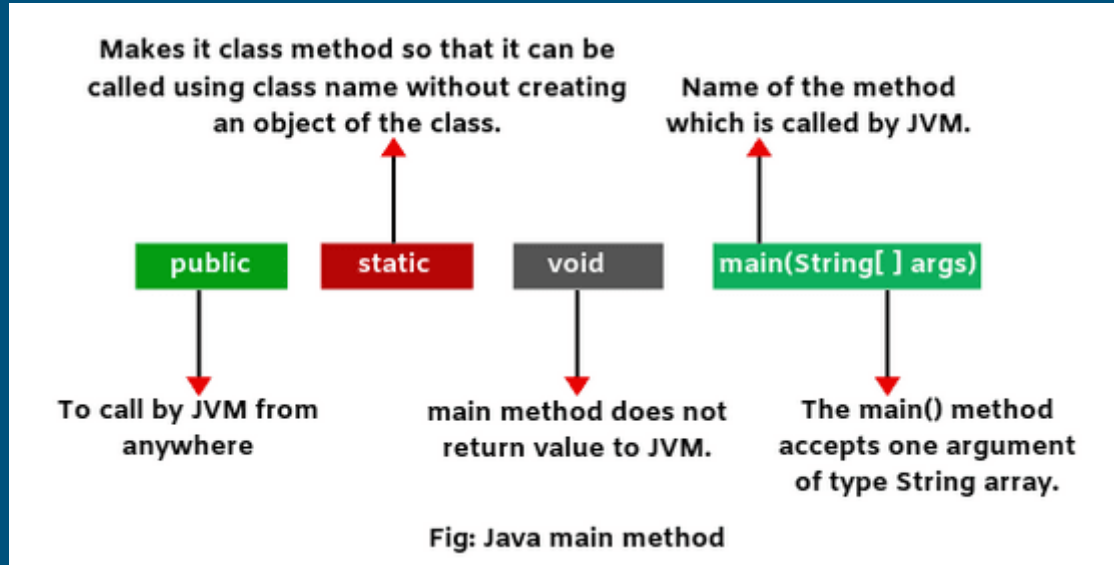
Syntax of Method Declaration :

returnType methodName(parameter List){

}

Type of Methods :

1] Predefined Method (like java's main method)

2] User Defined Method

★ Java Main Method

Makes it class method so that it can be called using class name without creating an object of the class.

Name of the method which is called by JVM.

public   static   void   main(String[ ] args)

To call by JVM from anywhere

main method does not return value to JVM.

The main() method accepts one argument of type String array.

Fig: Java main method

★ Simple program of variable and method

```java
class Main {

  // create a method
  public int addNumbers(int a, int b) {
    int sum = a + b;
    // return value
    return sum;
  }

  public static void main(String[] args) {

    int num1 = 25;
    int num2 = 15;

    // create an object of Main
    Main obj = new Main();
    // calling method
    int result = obj.addNumbers(num1, num2);
    System.out.println("Sum is: " + result);
  }
}
```

Thank you