**Static Keyword–Assignment**

Question 1: -**Why do we need static keyword in java Explain with an example?**

Ans: -The **static keyword** in [Java](https://www.javatpoint.com/java-tutorial) is used for memory management mainly. We can apply static keyword with [variables](https://www.javatpoint.com/java-variables), methods, blocks and [nested classes](https://www.javatpoint.com/java-inner-class). The static keyword belongs to the class rather than an instance of the class.

**Static Variable:-**The static variable gets memory only once in the class area at the time of class loading.

**Static Method:-**A static method can be invoked without the need of creating an Object of a class.

A static method can access static data members and can change the value of it.We call a static method direct class name with **dot(.) operator.**

The static method can not use non-static data member or call non-static method directly.

this and super cannot be used in a static context.

**EX:-class<name>.method<Static Method-name>.**

**Static block: -**It is used to initialize the static data member.It is executed before the main method at the time of classloading.

**package** hello;

**class** Student1 {

**int** rollno;

String name;

**static** String *my\_name* ;

**static** String *college* = "ITS";// static variable

Student1(**int** r, String n) {

rollno = r;

name = n;

}

**static** **void** change() {

*college* = "BBDIT";

}

**static** {

System.***out***.println("this is static block");

}

**void** display() {

System.***out***.println(rollno + " : " + name + " : " + *college*);

}

}

**public** **class** Student {

**public** **static** **void** main(String args[]) {

Student1 s1 = **new** Student1(111, "Karan");

Student1.*change*();

String name=Student1.*my\_name*="vikash chauhan";

System.***out***.println(name);

s1.display();

}

}

Question 2: -**What is class loading and how does the Java program actually execute?**

Ans: -The **Java ClassLoader** is a part of the [Java](https://www.geeksforgeeks.org/differences-jdk-jre-jvm/) Runtime Environment(JRE) that dynamically loads Java classes into the Java Virtual Machine(JVM). The Java run time system does not need to know about files and file systems because of classloaders. Java classes aren’t loaded into memory all at once, but when required by an application. At this point, the **Java Classloader** is called by the **JRE** and these ClassLoaders load classes into memory dynamically.

**There are types of classloader:-**

**1-BootStrap ClassLoader**

**2-Extension ClassLoader**

**3-System ClassLoader**

**Execution process of a java Program:**

**Source code(A java program)->**

**Java Compiler(Javac)---->Bytecode(.class)---->JVM[(Class loader—->Bytecode verified)---->Jit(just in time)]----->Native Machine code(1010001)**

Hence,when we write a java program then first java compile it’s convert bytecode then JVM execute inside the JVM first class load then bytecode verified and then jit convert into native machine code.

Question 3: -**Can we make a local variable as static?**

Ans: -No,In java we can not create a local variable as static.

Question 4: -**Why is the static block execute before the main method in Java?**

Ans: -The static blocks always execute first before the *main()* method in Java because the compiler stores static block in memory at the time of class loading and before the object creation.

Question 5: -**Why is static method also called a class method?**

Ans: -A static method can be invoked without the need of creating an Object of a class.

A static method can access static data members and can change the value of it.We call a static method direct class name with **dot(.) operator.This the reason to call static method as a static class because when the JVM load the class in this process JVM class static method with class using dot operator(.)**

Question 6: -**What is the use of static block in Java?**

Ans: -It is used to initialize the static data member.It is executed before the main method at the time of classloading.I means if we want to execute some important information before the main method then we use a static block.

Question 7: -**Difference between Static and Instance Variables.**

Ans: -

Static Variable–

1.A static variable is a property of a class.

2.A static variable is created only once when the classloader loads the class.

Instance Variable–

1.An instance variable is a property of an instance.

2.An instance variable is created every time an instance is created.

Question 8: -**Defference between static and non-static members.**

Ans: -

Static Members–

Static Variable:–Static variables can be accessed using class name.

Static variables can be accessed by static and non static methods

Static variables reduce the amount of memory used by a program.

Ex: -

**class** A

{

**static** **int** b;

}

Static Method:–

A static method can be invoked without the need for creating an instance of a class.

A static method can access static data member and can change the value of it

Static Block:–It is used to initialize the static data member.It is executed before the main method at the time of classloading.

Non-Static Members:–

Non-Static Variable:–Memory for non-static variable is created at the time of create an object of class.

These variable should not be preceded by any static keyword.

Example: These variables can be accessed with object reference.

**class** A

{

**int** a;

}

Non-Static Method:–A non-static method does not have the keyword static before the name of the method.

A non-static method belongs to an object of the class and you have to create an instance of the class to access it.

Non-Static Block:–

When the block is declared without using any modifier, then it is treated as the **non-static block** is first executed before the constructor is executed.

Non-static block directly access the static variable and instance variable.