**What happens when you execute the java program:**

**How the memory is allocated:**

**When static and non-static members are loaded in to memory:**

* When a class file is executed, memory will be allocated and that memory is being divided into STACK and HEAP
* STACK is used for method call execution which implements LIFO and HEAP is used for storing members.
* JRE enters into stack and invokes(calls) class loader. Class loader loads all static members of a class.
* JRE invokes main method, now main method enters into stack and starts execution.
* When java encounters object creation statement, all non-static members are loaded into HEAP and a reference is stored in a reference variable and using that reference variable we can access any non-static members
* When main method execution is over, it comes out from the stack, now JRE calls GARBAGE COLLECTOR
* Garbage Collector: Once an object is no longer referenced and therefore is not reachable by the application code, the garbage collector removes it and reclaims the unused memory.

**Difference between Static and Non-Static:**

|  |  |
| --- | --- |
| STATIC | NON-STATIC |
| Static members are loaded into memory at the time of class loading | Non-Static members are loaded into memory each time when object is created |
| There is only one copy of static members for entire class | There are multiple copies of non-static members. Number of copies are equal to number of objects created |
| Object creation is not required for accessing static members | Object creation is mandatory for accessing Non-static members |
| Static members can be accessed either through class name or through reference variable | Non-static members can be accessed only through reference variable |

**Why main () method should be always static?**

Because Execution starts from the main method. Main method should be invoked before object creation. Only static members can be invoked before object creation.

**Constructor:**

* It’s like a special type of method which will be implicitly invoked by java when an instance is created using “new” keyword
* Constructor name should always match with class name
* No modifier/No return type is allowed
* Access specifier is allowed but not mandatory
* Constructor is used to initialize the value of instance variable

**There are two types of constructor:**

1.Default constructor: Constructor without arguments is called default constructor

2.Parameterized constructor: Constructor with arguments is called parameterized constructor