STATIC

- ➢ static is a keyword.
- ➢ It is a modifier.
- ➢ Any member of a class is prefixed with a static modifier then it is known as a static member of a class.
- ➢ static members are also known as class members.

NOTE :

Static members can be prefixed only for a class members (members declared in a class).

STATIC MEMBERS :

- • Static method
- • Static variable
- • Static initializers

JAVA RUNTIME MEMORY

- To execute the java program a portion of memory in RAM is allocated for JRE.

- In that portion of memory allocated , we have different range of memory, hence they are classified as follows,

- **Method area**

- **Class static area**

- **Stack area**

- **Heap area**

Method area	Static pool	Stack area	Heap
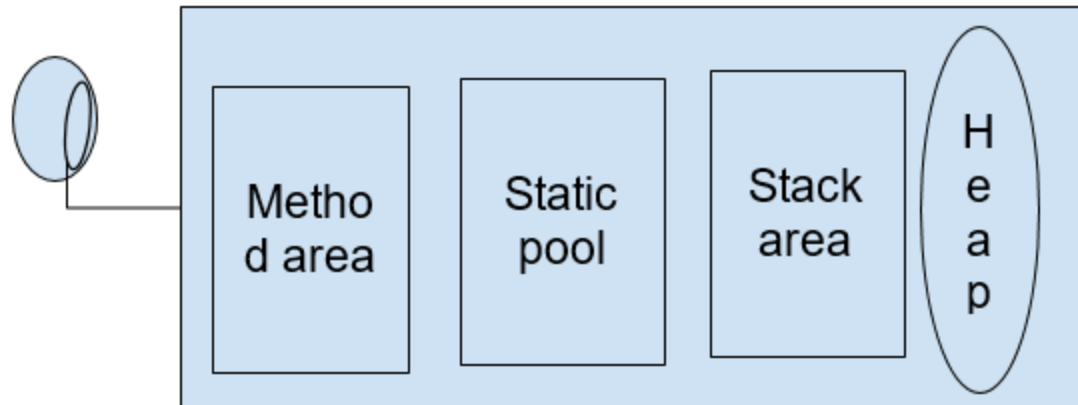
METHOD AREA :

- All the method blocks will be stored in a method area (Instruction of the methods).

CLASS STATIC AREA :

- For every class there is a dedicated block of memory is created in the class static area (static pool).
- The static members of the class will be allocated inside the memory created for the class.

STACK AREA :

- The stack area is used for the execution of instructions.
- For every method that is under execution a block of memory is created in this stack area which is known as a frame.
- Once the execution of a method is completed the frame is removed.

HEAP AREA :

- In a heap area, a block of memory is created for the instance of a class (Object).
- Every block of memory is created with the help of reference.
- All the non-static members of a class will be allocated inside this block of memory.
- Therefore we can access the non-static member with the help of reference.

STATIC METHOD

STATIC METHOD :
      A method prefixed with a static modifier is known as the static method.

CHARACTERISTICS :
- Static method block is stored in the method area and reference of the static method is stored inside the class static area (static pool).
- We can use the static method with or without creating an object of the class.
- We can use the static method with the help of the class name.
- A static method of the class can be used in any class with the help of a class name.

STATIC CONTEXT :

- The block which belongs to the static method and multi-line static initializer is known as static context.
- Inside a static context, we can use the static members of the same class directly by using its name.
- Inside a static context, we can't use the non-static members of the same or different class directly by using its name or by using its class name.
- this keyword is not allowed inside the static context.

STATIC VARIABLE

STATIC VARIABLE :

Variable declared in a class block and prefixed with static modifier is known as static variable.

CHARACTERISTICS :

- It is a member of the class.
- It will be assigned a default value.
- Memory will be allocated inside the class static area.
- It is global in nature, it can be used within the class as well as in different classes.
- We can use a static variable with the help of the class name as well as with the help of object reference.
- We can access the static variable from different classes directly with the help of the class name.
- **NOTE: If static variable and local variable are in the same name then we can differentiate static variable with the help of class name**

STATIC INITIALIZERS :

STATIC INITIALIZERS :
We have two types of static initializers. They are,
- Single line static initializer
- Multi-line static initializer

SINGLE LINE STATIC INITIALIZER :

Syntax to create single line static initializers :

static data type variable = value / expression ;

MULTILINE STATIC INITIALIZER :

Syntax to create multi line static initializers :

```
static
{
        Statements ;
}
```

CHARACTERISTICS :

- Static initializers get executed implicitly during the loading process of the class.

- A class can have more than one static initializer they execute top to bottom order.

PURPOSE OF STATIC INITIALIZER :

- Static initializers are used to execute the startup instructions.

- As the static blocks get executed before the actual execution of the main method.

main()

Static block
execute before
main() method

static { }