

DAY-28

21 July 2023 15:42

WHAT IS OBJECT IN JAVA ?

- AN OBJECT IN JAVA IS AN ENTITY WHICH HAS ITS OWN STATE AND BEHAVIOUR
 - STATE : IT REPRESENTS THE DATA/VALUE (VARIABLES)
 - BEHAVIOUR : IT REPRESENTS THE FUNCTIONALITY OF AN OBJECT (METHOD)
- WHAT IS CLASS ?

CLASS IS A TEMPLATE / BLUE PRINT FROM WHICH OBJECTS ARE CREATED

TYPES OF MEMORY IN JAVA

CLASS AREA/ MEMORY

RESPONSIBLE FOR STORING STATIC MEMBERS (STATIC METHOD DECLARATION AND STATIC VARIABLE DECLARATION AND INITIALIZATION)

HEAP AREA/ MEMORY

RESPONSIBLE FOR STORING NON STATIC MEMBERS (NON STATIC METHOD DECLARATION AND NON STATIC VARIABLE DECLARATION AND INITIALIZATION)

METHOD AREA / MEMORY

STORING STATIC AND NON STATIC METHOD DEFINITION

STACK AREA/ MEMORY

MEMORY WHERE EXECUTION HAPPENS (METHOD BINDING TAKES PLACE)

```
class Test1
{
    static int x = 10;
    int y = 1;

    public static void m1()
    {
        int a = 1;
    }

    public void m2()
    {
        int b = 2;
    }
}
```

CLASS AREA

Int x = 10;
m1()// declaration

HEAP MEMORY/ AREA

Int y = 1;

```

{
    int b = 2;
}

public static void main(String[] args)
{
    int c = 3;
    System.out.println(c);

    System.out.println(x);

    Test1 a1 = new Test1();

    System.out.println(a1.y);
    m1();
    a1.m2();

}
}

```

HEAP MEMORY/ AREA

Int y = 1;
m2() //declaration

METHOD AREA/ MEMORY

STATIC METHOD DEFINITION
NON STATIC METHOD DEFINITION

STACK AREA

RESPONSIBLE FOR MEMORY IN
WHICH EXECUTION TAKE PLACE

BLOCKS

WHAT ARE BLOCKS ?

- THESE ARE SET OF INSTRUCTION WHICH ARE WRITTEN BY USER TO PERFORM SOME TASK
- THERE ARE TWO TYPES BLOCKS
 - STATIC BLOCK
 - NON STATIC BLOCK

STATIC BLOCK

- STATIC BLOCKS ARE EXECUTED AUTOMATICALLY DURING THE CLASS LOADING TIME, i.e, WHEN WE LOAD THE .class FILE TO THE JVM FOR EXECUTION. BEFORE GOING TO THE MAIN METHOD , THE JVM WILL FIRST CHECK DOES THE CLASS CONTAIN ANY STATIC BLOCK OR NOT
- IF THERE IS A STATIC BLOCK IS PRESENT IN THE GIVEN CLASS FILE, JVM WILL FIRST EXECUTE THE STATIC BLOCK AND THEN, GO TO THE MAIN METHOD

```

class Test1
{

    static
    {
        System.out.println("bye");
    }

}

```

LOAD STATIC BLOCK

LOAD STATIC MEMBERS

```

{
    System.out.println("bye");
}

public static void m1()
{
    System.out.println("HI");
}

public static void main(String[] args)
{
    m1();
}
}

```

LOAD STATIC MEMBERS

1. EXECUTE STATIC BLOCK
2. EXECUTE MAIN METHOD

NON -STATIC BLOCK

- NON STATIC BLOCKS ARE EXECUTED AUTOMATICALLY WHEN WE CREATE AN OBJECT OF THE CLASS . i.e, WHENVER WE CREATE AN OBEJCT OF A CLASS , THE JVM BEFORE LOADING ALL NON STATIC MEMBERS OF THE OBJECT, WILL CHECK DOES CLASS CONTAIN ANY NON STATIC BLOCK OR NOT
- IF THE CLASS CONTAIN NON STATIC BLOCK , THEN JVM WILL FIRST EXECUTE NON STATIC BLOCK AND THEN LOAD OBJECTS INTO HEAP MEMORY

```

class Test1
{

    static
    {
        System.out.println("bye");
    }

    public static void m1()
    {
        System.out.println("HI");
    }

    public static void main(String[] args)
    {
        m1();
    }

}

```

LOAD NON-STATIC BLOCK

LOAD NON-STATIC MEMBERS

1. EXECUTE NON-STATIC BLOCK
2. EXECUTE MAIN METHOD

*****DIFFERENCE BETWEEN METHODS AND BLOCKS

METHODS	BLOCKS
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METHODS WILL HAVE SOME NAME , SO THEY WILL IDENTIFIED UNIQUELY	BLOCKS WILL NOT HAVE ANY NAMES
METHODS CAN RETURN A VALUE	BLOCKS WON'T RETURN VALUE
METHODS HAVE ACCESS MODIFIERS	BLOCKS DON'T HAVE ACCESS MODIFIERS
METHODS ARE EXECUTED ONLY WHEN THEY CALLED EXPLICITLY BY THE USER	BLOCKS ARE EXECUTED AUTOMATICALLY (STATIC BLOCKS DURING CLASS LOADING AND NON STATIC DURING OBJECT CREATION TIME)

POINTS TO BE REMEMBER

- FIRST ALWAYS THE STATIC BLOCK IS EXECUTED AND THEN THE NON STATIC BLOCK IS EXECUTED (AS COMPILER FIRST SEARCHES FOR THE STATIC BLOCK AND THEN WHEN OBJECT IS CREATED IT SEARCHES FOR NON STATIC BLOCK)
- STATIC BLOCK EXECUTED ONLY ONCE WHEN THE PROGRAM IS COMPILED
- WHERE AS NON STATIC BLOCK EXECUTED EACH TIME WHEN THE OBJECT IS CREATED

