Search and Self learning (Static keyword)

I. Definition

The static keyword in java is used for memory management mainly.

II. How to apply it

We can apply static keyword with:

1. Variable
2. Method
3. Block
4. Nested class.

III. Variable static

We declare variable static for save memory and retain value.

Example:

➢ save memory

If we have objects that have the same value so we can declare static value for save memory.

➢ Retain value
If we want to know how many objects in a class so can declare static variable for get number of objects.

```java
class Counter2{
static int count=0;//will get memory only once and retain its value


Counter2(){
count++;//incrementing the value of static variable
System.out.println(count);
}


public static void main(String args[]){
//creating objects
Counter2 c1=new Counter2();
Counter2 c2=new Counter2();
Counter2 c3=new Counter2();
}
}
```

Output:

```
1

2

3
```

IV. Method static
- A static method belongs to the class rather than object of a class.
- A static method can be invoked without the need to for creating an instance of a class.
- A static method can access static data member and can change the value of it.

Example:

Static method that performs a normal calculation

```
class Calculate{
  static int cube(int x){
  return x*x*x;
  }

  public static void main(String args[]){
  int result=Calculate.cube(5);
  System.out.println(result);
  }
}
```

```
Output:125
```

V.   Block static
   ➢ Is used to initialize the static data member.
   ➢ It is executed before the main method at the time of class loading.

Example:

```
class A2{
  static{System.out.println("static block is invoked");}
  public static void main(String args[]){
   System.out.println("Hello main");
  }
}
```

```
Output:static block is invoked
        Hello main
```
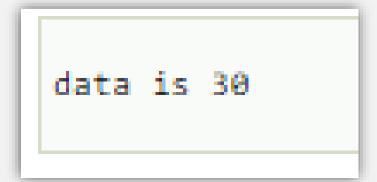
VI.   Nested class

A static class i.e. created inside a class is called static nested class in java. It cannot access non-static data members and methods. It can be accessed by outer class name.

- ➤ It can access static data members of outer class including private.
- ➤ Static nested class cannot access non-static (instance) data member or method.

Example:

```java
class TestOuter1{
  static int data=30;
  static class Inner{
   void msg(){System.out.println("data is "+data);}
  }
  public static void main(String args[]){
  TestOuter1.Inner obj=new TestOuter1.Inner();
  obj.msg();
  }
}
```

```
data is 30
```

The end