Comparison of static keyword in C++ and Java

Static keyword is used for almost same purpose in both C++ and Java. There are some differences though. This post covers similarities and differences of static keyword in C++ and Java.

Static Data Members: Like C++, static data members in Java are class members and shared among all objects. For example, in the following Java program, static variable *count* is used to count the number of objects created.

```
class Test {
    static int count = 0;

    Test() {
       count++;
    }
    public static void main(String arr[]) {
       Test t1 = new Test();
       Test t2 = new Test();
       System.out.println("Total " + count + " objects created");
    }
}
```

Output:

```
Total 2 objects created
```

Static Member Methods: Like C++, methods declared as static are class members and have following restrictions:

1) They can only call other static methods. For example, the following program fails in compilation. fun() is non-static and it is called in static main()

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```
class Main {
    public static void main(String args[]) {
        System.out.println(fun());
    }
    int fun() {
        return 20;
    }
}
```

2) They must only access static data.

3) They cannot access *this* or *super* . For example, the following program fails in compilation.

```
class Base {
    static int x = 0;
}

class Derived extends Base
{
   public static void fun() {
        System.out.println(super.x); // Compiler Error: non-static vari
                                     // cannot be referenced from a stati
   }
}
```

Like C++, static data members and static methods can be accessed without creating an object. They can be accessed using class name. For example, in the following program, static data member count and static method fun() are accessed without any object.

```
class Test {
    static int count = 0;
    public static void fun() {
        System.out.println("Static fun() called");
    }
}

class Main
{
    public static void main(String arr[]) {
        System.out.println("Test.count = " + Test.count);
        Test.fun();
    }
}
```

Static Block: Unlike C++, Java supports a special block, called static block (also called static

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clause) which can be used for static initialization of a class. This code inside static block is executed only once. See Static blocks in Java for details.

Static Local Variables: Unlike C++, Java doesn't support static local variables. For example, the following Java program fails in compilation.

```
class Test {
    public static void main(String args[]) {
        System.out.println(fun());
    }
    static int fun()  {
        static int x= 10; //Compiler Error: Static local variables are no
        return x--;
    }
}
```

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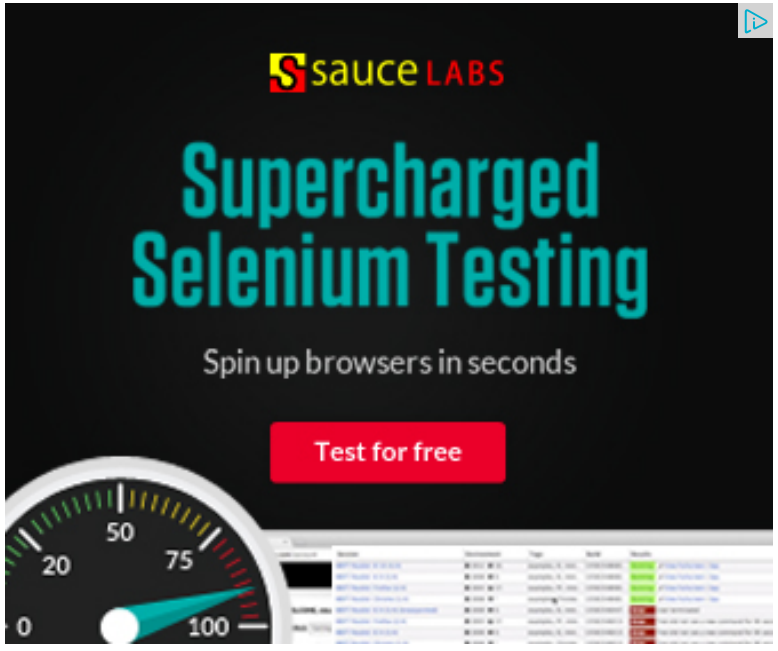

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throughout the program means it can hold the same value throughout the lifeti

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To summarize it we can say that whenever we use static modifier for anything

If a method is made static, it can be called without the object.
A static block is executed at first, even before creation of any class object. Sta
initialization activities.
If a variable is static, it is not associated with any class and only one copy of th
execution.
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