

## How does default virtual behavior differ in C++ and Java ?

**Default virtual behavior of methods is opposite in C++ and Java:**

In C++, class member methods are non-virtual by default. They can be made virtual by using *virtual* keyword. For example, *Base::show()* is non-virtual in following program and program prints "*Base::show() called*".

```
#include<iostream>

using namespace std;

class Base {
public:
    // non-virtual by default
    void show() {
        cout<<"Base::show() called";
    }
};

class Derived: public Base {
public:
    void show() {
        cout<<"Derived::show() called";
    }
};

int main()
{
    Derived d;
    Base &b = d;
    b.show();
}
```

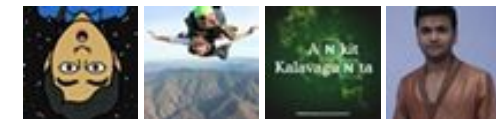
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    getchar();
    return 0;
}

```

Adding *virtual* before definition of *Base::show()* makes program print “*Derived::show() called*”

In Java, methods are virtual by default and can be made non-virtual by using *final* keyword. For example, in the following java program, *show()* is by default virtual and the program prints “*Derived::show() called*”

```

class Base {

    // virtual by default
    public void show() {
        System.out.println("Base::show() called");
    }
}

class Derived extends Base {
    public void show() {
        System.out.println("Derived::show() called");
    }
}

public class Main {
    public static void main(String[] args) {
        Base b = new Derived();
        b.show();
    }
}

```

Unlike C++ non-virtual behavior, if we add *final* before definition of *show()* in *Base* , then the above program fails in compilation.

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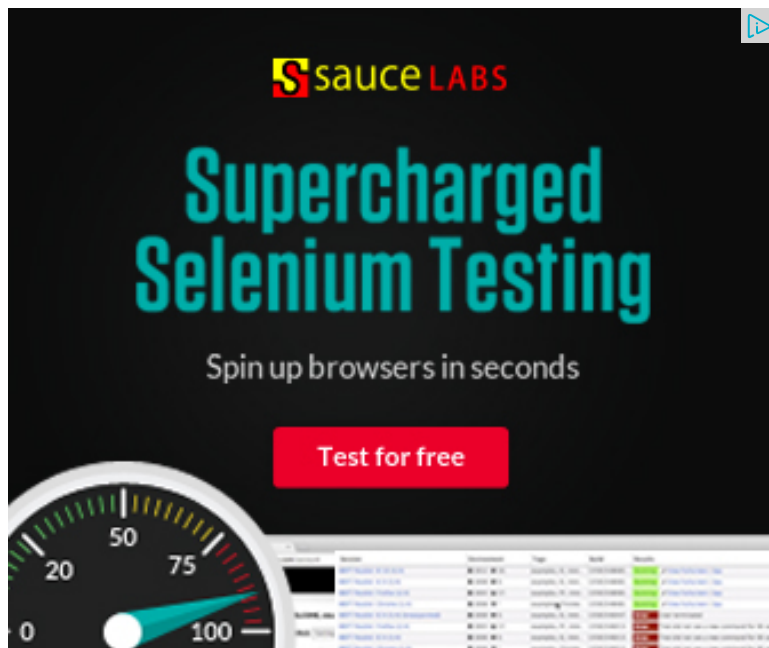
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