

## Copy Constructor in Java

Like C++, Java also supports copy constructor. But, unlike C++, Java doesn't create a default copy constructor if you don't write your own.

Following is an example Java program that shows a simple use of copy constructor.

```
// filename: Main.java

class Complex {

    private double re, im;

    // A normal parametrized constructor
    public Complex(double re, double im) {
        this.re = re;
        this.im = im;
    }

    // copy constructor
    Complex(Complex c) {
        System.out.println("Copy constructor called");
        re = c.re;
        im = c.im;
    }

    // Overriding the toString of Object class
    @Override
    public String toString() {
        return "(" + re + " + " + im + "i";
    }
}

public class Main {
```

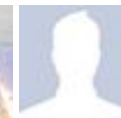
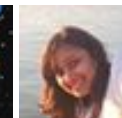
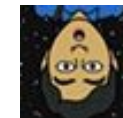
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```

public static void main(String[] args) {
    Complex c1 = new Complex(10, 15);

    // Following involves a copy constructor call
    Complex c2 = new Complex(c1);

    // Note that following doesn't involve a copy constructor call
    // non-primitive variables are just references.
    Complex c3 = c2;

    System.out.println(c2); // toString() of c2 is called here
}
}

```

Output:

```

Copy constructor called
(10.0 + 15.0i)

```

Now try the following Java program:

```

// filename: Main.java

class Complex {

    private double re, im;

    public Complex(double re, double im) {
        this.re = re;
        this.im = im;
    }
}

public class Main {

    public static void main(String[] args) {
        Complex c1 = new Complex(10, 15);
        Complex c2 = new Complex(c1); // compiler error here
    }
}

```

Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above.

See also: [ArrayList](#)



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**Ajinkya Shinde** · 10 months ago

explain me toString of c2 is what...and you are printing reference..so how the pr

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**Abhirut** → Ajinkya Shinde · 7 months ago

When c2 is passed as an argument to println, the toString() method is overrides the method, that gets called otherwise you will see the output class. I think.

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**Adam Smith** · a year ago

You can use Cloneable, but just about everyone agrees Cloneable is broken a Bloch's book Effective Java, 2nd ed. for a full explanation.

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**Frigo** → Adam Smith · a year ago

I believe copy constructors are more broken, they just don't mix with in With Clon(e)able you actually have a chance to implement it properly.

Or as an alternative you could just use Serializable and Apache Comr

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**Shrikant Kale** · a year ago

```
package com.cxt.java.core;
```

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```

/** A JAVA APPLICATION THAT DEMONSTRATE THE USE OF 'COPY CONSTRUCTOR'
 * @author Shrikant.Kale
 */
public class Galaxy {

    private double fMass;
    private final String fName;

    /**
     * This is the only method which changes the state of a Galaxy
     * object. If this method were removed, then a copy constructor
     * would not be provided either, since immutable objects do not
     * need a copy constructor.
     */

```

[see more](#)

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**Joonas Vali** • 2 years ago

I think Java has clone method, which should be overridden in your class instead

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**Sandeep Bhardwaj** → Joonas Vali • 2 years ago

clone method does not provide deep copy but shallow copy which does not have references of other java classes.

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**Suresh** → Sandeep Bhardwaj • 2 years ago

You can customize your clone method to make deep copy by cloning references that present in the class.

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This is actually a GOOD thing since the copy constructor won't slice polymor  
to.

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