



Inter faces



## Interface

→ Blueprint of class (class ka Blueprint ko  
interface bolte hai)

Bookish def

- Interface is just like a class.
- interface class ki tareh hi hota hai.

# Class

class ABC {

// bangayi apki class



object

ABC obj1 = new ABC();

# Interface

interface ABC {

// bangayi apki interface.



object X

no one can  
create this.

```

1 public class Main {
2     public static void main(String[] args) {
3         ABC obj1 = new ABC();
4         obj1.add();
5         System.out.println(obj1);
6         ABC3 obj3 = new ABC3();
7         obj3.add();
8     }
9 }
10
11 static class ABC {
12     int a = 2;
13     void add() {
14         System.out.println("I am running to the sky");
15     }
16 }
17
18 static class ABC3 {
19     void add() {
20         System.out.println("Run add korange");
21     }
22 }

```

```

1 public class Main {
2     public static void main(String[] args) {
3         ABC obj1 = new ABC();
4         obj1.add();
5     }
6 }
7
8 static interface ABC {
9     void add();
10 }
11
12 static interface ABC2 {
13     void add();
14 }
15
16 static class ABC3 {
17     void add() {
18         System.out.println("Run add korange");
19     }
20     void add() {
21         System.out.println("Run add korange");
22     }
23 }

```

# Inheritance in class & interface

class ABC {

}

```
Run Codes Untitled.java Save Java Output: Finished  
1. public class Main {  
2.     public static void main(String[] args) {  
3.         ABC3 obj1 = new ABC3();  
4.         obj1.add();  
5.     }  
6.  
7.     static interface ABC{  
8.         // void add();  
9.     }  
10.    static interface ABC2{  
11.        // void add();  
12.    }  
13.  
14.  
15.    // class object bna skte hai  
16.    static interface ABC3 extends ABC,ABC2{  
17.        // inherit karlieb ABC AND ABC2 INTERFACE KO  
18.    }  
19.  
20. }
```

Finished in 116 ms  
Hm add karange

Finished in 102 ms  
Hm add karange

class ABC2 {

}

class ABC3 extends ABC,ABC2{

// Inheritance

\* class ABC3 mai properties & methods  
inherite Kar liye ABC class &  
ABC2 class ki \*/

}

interface

interface A<sup>d</sup>

↳

interface B<sup>d</sup>

↳

interface C extends A, B<sup>d</sup>

↳

interface A<sup>d</sup>

↳

interface B<sup>d</sup>

↳

class C implements A, B<sup>d</sup>

↳

↳

## Note ↴

Class ABC ↴

    Void add();

    Void print();

↳

↳

abstract class ABC {

    Void add();

abstract Void print();

↳

↳

    abstract → method → Define X

    ↳ class → object → Define X

interface ABC ↴

    Void add();

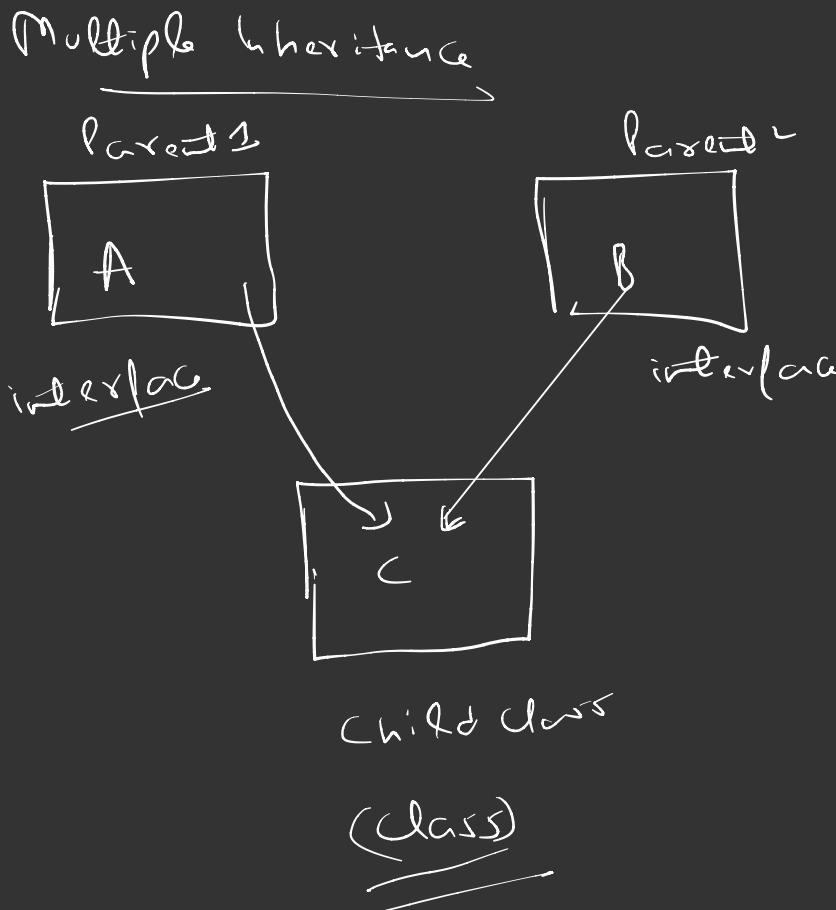
    ↳ X

// not possible

    Void add();

↳

# Implementing Multiple Inheritance in Java with the help of interface





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[Run Code](#) Untitled ↗

[Save](#)

Java



Output: [Finished](#)

```
1 // IMPLEMENTING MULTIPLE INHERITANCE
2
3 public class Main {
4     public static void main(String[] args) {
5         Zindagi obj1 = new Zindagi();
6         obj1.Parent1Function();
7         obj1.Parent2Function();
8     }
9
10    static interface Parent1{
11        void Parent1Function();
12    }
13
14    static interface Parent2{
15        void Parent2Function();
16    }
17
18    static class Zindagi implements Parent1,Parent2{
19        public void Parent1Function(){
20            System.out.println("Parent1 calling");
21        }
22
23        public void Parent2Function(){
24            System.out.println("Parent2 calling");
25        }
26    }
27 }
```

Finished in 103 ms

Parent1 calling

Parent2 calling



Q.1

For every interface written in a java file, .class file will be generated after [compilation](#)? True or False?

→ True

Q.2 Can you identify the errors in the below code?

Interface A {

private int i ;

}

→ illegal modifier for field i . Only public,

static & final are allowed.

Q.3) what will be the output of the following program?

```
1 interface A
2 {
3     void myMethod();
4 }
5
6 class B
7 {
8     public void myMethod()
9     {
10         System.out.println("My Method");
11     }
12 }
13
14 class C extends B implements A
15 {
16 }
17
18 class MainClass
19 {
20     public static void main(String[] args)
21     {
22         A a = new C();
23         a.myMethod();
24     }
25 }
26
27 }
```

→ My Method

Q.4) Can a class implement more than one interfaces?

Soln) Yes

Q.5) Why the below code is showing compile time error?

```
1 interface X
2 {
3     void methodX();
4 }
5
6 class Y implements X
7 {
8     void methodX()
9     {
10         System.out.println("Method X");
11     }
12 }
```

Soln interface method must be implemented as public.  
interface method <sup>are</sup> public by default & you should

not reduce the visibility of any methods while overriding.

Q-6) Does below code compile successfully?  
if not, why?

6) Does below code compile successfully? If not, why?

```
1  interface A
2  {
3      int i = 111;
4  }
5
6  class B implements A
7  {
8      void methodB()
9      {
10         i = 222;
11     }
12 }
```

Soln) No, bcoz interface fields are static & final by default and you can't change their value once they're initialized.

In the above code, method B() is changing value of interface field A. i.e. it shows compile time error.

Q.3) Is the following code written correctly?

```
1 class A
2 {
3     //Class A
4 }
5
6 interface B extends A
7 {
8     //Interface B extending Class A
9 }
```

Soln) No an interface can extend another interface not the class.

Q.8) What will be the output of the following program?

```
1 interface P
2 {
3     String p = "PPPP";
4
5     String methodP();
6 }
7
8 interface Q extends P
9 {
10    String q = "QQQQ";
11
12    String methodQ();
13 }
14
15 class R implements P, Q
16 {
17     public String methodP()
18     {
19         return q+p;
20     }
21
22     public String methodQ()
23     {
24         return p+q;
25     }
26 }
27
28 public class MainClass
29 {
30     public static void main(String[] args)
31     {
32         R r = new R();
33
34         System.out.println(r.methodP());
35
36         System.out.println(r.methodQ());
37     }
38 }
```

Sol:)

Q Q Q Q P P P P

P P P P Q Q Q Q

Q.9) Can interfaces have constructors?

Sol<sup>n</sup>) No, interfaces can't have constructors.

Q.10) Is the below program written correctly? If yes, what will be the output?

```
1 class A implements B
2 {
3     public int methodB(int i)
4     {
5         return i += i * i;
6     }
7 }
8
9 interface B
10 {
11     int methodB(int i);
12 }
13
14 public class MainClass
15 {
16     public static void main(String[] args)
17     {
18         B b = new A();
19         System.out.println(b.methodB(2));
20     }
21 }
22 }
```

Sol<sup>n</sup>) Yes, program is written correctly.

O/P will be 4.

Q.11) Can you find out the errors in  
the following code?

```
1 | interface A
2 | {
3 |     {
4 |         System.out.println("Interface A");
5 |     }
6 |
7 |     static
8 |     {
9 |         System.out.println("Interface A");
10|    }
11| }
```

Soln) Interfaces can't have initializers.

Q.12) How do you access interface  
field "i" in the below code?

```
1 | class P
2 | {
3 |     interface Q
4 |     {
5 |         int i = 111;
6 |     }
7 | }
```

Soln) P.Q.i

Q.13) Like classes in java, interfaces also extend `java.lang.Object` class by default.  
True OR false?

Sol) False, interfaces don't extend Object class.

Q.14) Does below program compile successfully?

```
1 | interface ABC
2 |
3 | {
4 |     public void methodOne();
5 |     public void methodTwo();
6 | }
7 |
8 | interface PQR extends ABC
9 |
10| {
11|     public void methodOne();
12|     public void methodTwo();
13| }
```

Sol) Yes, program compile successfully.

Q.15) Can interfaces have static methods?

Soln) Yes, from java 8 interfaces can have static methods.

Q.16) Is the following program written correctly? If yes, what will be the output?

```
1  interface ABC
2  {
3      void methodOne();
4  }
5
6  interface PQR extends ABC
7  {
8      void methodTwo();
9  }
10
11 abstract class XYZ implements PQR
12 {
13     public void methodOne()
14     {
15         methodTwo();
16     }
17 }
18
19 class MNO extends XYZ
20 {
21     public void methodTwo()
22     {
23         methodOne();
24     }
25 }
26
27 public class MainClass
28 {
29     public static void main(String[] args)
30     {
31         ABC abc = new MNO();
32         abc.methodOne();
33     }
34 }
35 }
```

Soln  
=

Yes, program is written is  
correctly.

But it will throw StackOverflowError  
at run time. Bcoz method One()  
& methodTwo() are cyclically called.

(Q.17)

What will be the o/p of the  
following program?

```
1  interface X
2  {
3      char c = 'A';
4
5      char methodX();
6  }
7
8  class Y implements X
9  {
10     {
11         System.out.println(c);
12     }
13
14     public char methodX()
15     {
16         char c = this.c;
17
18         return ++c;
19     }
20 }
21
22 public class MainClass
23 {
24     public static void main(String[] args)
25     {
26         Y y = new Y();
27
28         System.out.println(y.methodX());
29
30         System.out.println(y.c);
31
32     }
33 }
34 }
```

Sol<sup>n</sup>)

A

B

A

A

Q.18 Can you identify the error in the  
below code?

```
1 interface A
2 {
3     void methodA();
4 }
5
6 class B implements A
7 {
8     public void methodA()
9     {
10         interface C
11         {
12             int i = 123;
13         }
14     }
15 }
```

Sol<sup>n</sup>)

interfaces can't be local members  
of a method.

Q.19) Can we declare an interface  
as 'abstract'?

Soln) Yes, interface can be declared as  
'abstract'. but there is no  
need to declare like that  
bcz interfaces are 'abstract'  
by default.

Q. 20)

20) What will be the output of the following program?

```
1  interface One
2  {
3      String s = "FINAL";
4
5      String methodONE();
6  }
7
8  interface Two
9  {
10     String methodONE();
11 }
12
13 abstract class Three
14 {
15     String s = "NOT FINAL";
16
17     public abstract String methodONE();
18 }
19
20 class Four extends Three implements One, Two
21 {
22     public String methodONE()
23     {
24         String s = super.s + One.s;
25
26         return s;
27     }
28 }
29
30 public class MainClass
31 {
32     public static void main(String[] args)
33     {
34         Four four = new Four();
35
36         System.out.println(four.methodONE());
37
38         One one = four;
39
40         System.out.println(one.s);
41     }
42 }
```

Sol:)

NOT FINALFINAL

FINAL

Q. 21) what will be the o/p of the below program?

```
1 interface X
2 {
3     void method();
4 }
5
6 class Y
7 {
8     public void method()
9     {
10         System.out.println("CLASS Y");
11     }
12 }
13
14 class Z extends Y implements X
15 {
16 }
17
18 public class MainClass
19 {
20     public static void main(String[] args)
21     {
22         X x = new Z();
23         x.method();
24     }
25 }
26
27 }
```

Sol:- CLASS Y

Q.22) Can interfaces have methods other than abstract?

Soln) Yes From java 8, interfaces can have static methods and default methods other than abstract methods.

Q.23) What will be the o/p of the following program?

```
1. interface A
2. {
3.     int methodA();
4. }
5.
6. interface B
7. {
8.     int methodB();
9. }
10.
11. interface C
12. {
13.     int methodC();
14. }
15.
16. class D implements A, B, C
17. {
18.     int i = 999+111;
19.
20.     public int methodA()
21.     {
22.         i += i / i;
23.     }
24.
25.     public int methodB()
26.     {
27.         i = i * i;
28.     }
29.
30.     public int methodC()
31.     {
32.         i += i - --i;
33.     }
34.
35.     public class MainClass
36.     {
37.         public static void main(String[] args)
38.         {
39.             D d = new D();
40.
41.             System.out.println(d.i);
42.             System.out.println(d.methodA());
43.             System.out.println(d.methodB());
44.             System.out.println(d.methodC());
45.         }
46.     }
47. }
```

Q. 23)

1110

1

-1

1

Q. 24) How do you print the value

of field 'i' of interface

'OneTwoThree' in the below

example & what will be it's

value ?

```
1  interface One
2  {
3      int i = 222;
4
5      interface OneTwo
6      {
7          int i = One.i+One.i;
8
9          interface OneTwoThree
10         {
11             int i = OneTwo.i + OneTwo.i;
12         }
13     }
14 }
```

Sol<sup>n</sup>) Printing 'i' value  $\rightarrow$  S.o.pn(One, One Two  
One Two Three, i)

Value of One, One Two, One Two Three, i will  
be 88.

Q.25) All members of interface are  
public by default. True or  
false?

Sol<sup>n</sup>) True.

Q. 26) What will be the output of the following program?

```
1  interface A
2  {
3      String A = "AAA";
4
5      String methodA();
6  }
7
8  interface B
9  {
10     String B = "BBB";
11
12     String methodB();
13 }
14
15 class C implements A, B
16 {
17     public String methodA()
18     {
19         return A+B;
20     }
21
22     public String methodB()
23     {
24         return B+A;
25     }
26 }
27
28 class D extends C implements A, B
29 {
30     String D = "DDD";
31
32     public String methodA()
33     {
34         return D+methodB();
35     }
36
37
38 public class MainClass
39 {
40     public static void main(String[] args)
41     {
42         C c = new C();
43
44         System.out.println(c.methodA());
45
46         System.out.println(c.methodB());
47
48         c = new D();
49
50         System.out.println(c.methodA());
51
52         System.out.println(c.methodB());
53     }
54 }
```

Sol)  
= AAA BBB  
      BBB AAA  
      DDD BBB AAA  
      BBB AAA

Q.27) Is the below program written correctly? If yes, what will be the output?

```
1  interface X
2  {
3      void methodX();
4
5      interface Y
6      {
7          void methodY();
8      }
9
10
11     class Z implements X, X.Y
12     {
13         {
14             methodX();
15             System.out.println(1);
16         }
17
18         public void methodX()
19         {
20             methodY();
21             System.out.println(2);
22         }
23
24         public void methodY()
25         {
26             System.out.println(3);
27         }
28
29     }
30
31
32
33     public class MainClass
34     {
35         public static void main(String[] args)
36         {
37             Z z = new Z();
38             z.methodX();
39             z.methodY();
40             X x = z;
41             x.methodX();
42         }
43     }
44 }
```

Sol:) Yes program is correct. o/p will be

3  
2  
1  
3  
2

3

3

2

Q-28) Can you identify the error in  
the below code?

28) Can you identify the error in the below code?

```
1 class A implements A.B
2 {
3     static interface B
4     {
5         void methodB();
6     }
7 }
```

Soln) Cycle detected. Any class can not  
extend itself or it's member types

Q.29) Interfaces are abstract & public by default. True or false?

Soln) False, interfaces are abstract by default but not public

Q.30) Can you identify the error in the below code?

```
1 interface X
2 {
3     void methodX();
4 }
5
6 interface Y extends X
7 {
8     void methodY();
9 }
10
11 class Z implements Y
12 {
13     public void methodY()
14     {
15         System.out.println("Method Y");
16     }
17 }
```

Soln) Class Z must implement methodX() also.

Q.31) Can we define interfaces as generic?

S.Q. Yes we can define generic interfaces

Q.32) what will be the output of the following program?

```
1 abstract class A
2 {
3     abstract void myMethod(Number N);
4 }
5
6 interface B
7 {
8     abstract void myMethod(Object O);
9 }
10
11 class C extends A implements B
12 {
13     void myMethod(Number N)
14     {
15         System.out.println("Number");
16     }
17
18     public void myMethod(Object O)
19     {
20         System.out.println("Object");
21     }
22 }
23
24 public class MainClass
25 {
26     public static void main(String[] args)
27     {
28         A a = new C();
29         a.myMethod(new Integer(121));
30
31         B b = new C();
32         b.myMethod(new Integer(121));
33
34         C c = new C();
35         c.myMethod(new Integer(121));
36     }
37 }
38
39 }
```

Sol<sup>n</sup>) Number  
Object  
Number

(Q.33) Is the below program written correctly? If yes, what will be the output?

```
1 interface I
2 {
3     class C
4     {
5         int i;
6
7         public C(int i)
8         {
9             this.i = ++i;
10        }
11
12         int methodC()
13         {
14             return ++i;
15         }
16     }
17 }
18
19 public class MainClass
20 {
21     public static void main(String[] args)
22     {
23         I.C c = new I.C(000);
24         System.out.println(c.methodC());
25     }
26 }
27 }
```

Sol<sup>n</sup>) Yes, program is written correctly.  
Output will be 2.

(Q.34) what will be the output of the following program?

```
1 class A { }
2
3 class B extends A { }
4
5 class C extends B { }
6
7 interface ABC
8 {
9     void method(A a);
10}
11
12 interface PQR
13 {
14     void method(B b);
15}
16
17 class M implements ABC, PQR
18 {
19     public void method(A a)
20     {
21         System.out.println(2);
22     }
23
24     public void method(B b)
25     {
26         System.out.println(3);
27     }
28 }
29
30 public class MainClass
31 {
32     public static void main(String[] args)
33     {
34         M m = new M();
35
36         m.method(new A());
37
38         m.method(new B());
39
40         m.method(new C());
41     }
42 }
```

5. (1)

2

3

4

(Q.35)) Can you identify the errors in  
the below code?

35) Can you identify the errors in the below code?

```
1  interface I
2  {
3      class C implements I
4      {
5          public void methodI(int i)
6          {
7              System.out.println(i);
8          }
9      }
10     void methodI(int i);
11 }
12 }
```

Soln) No errors exist