

1-02-23

Hello world:-

The screenshot shows a Sublime Text interface with a dark theme. At the top, there is a menu bar with options: File, Edit, Selection, Find, View, Goto, Tools, Project, Preferences, and Help. Below the menu, there is a tab bar with three tabs: "myjava.sublime-build", "printHello.java", and "s.javaum". The "printHello.java" tab is currently active. The code in the editor is:

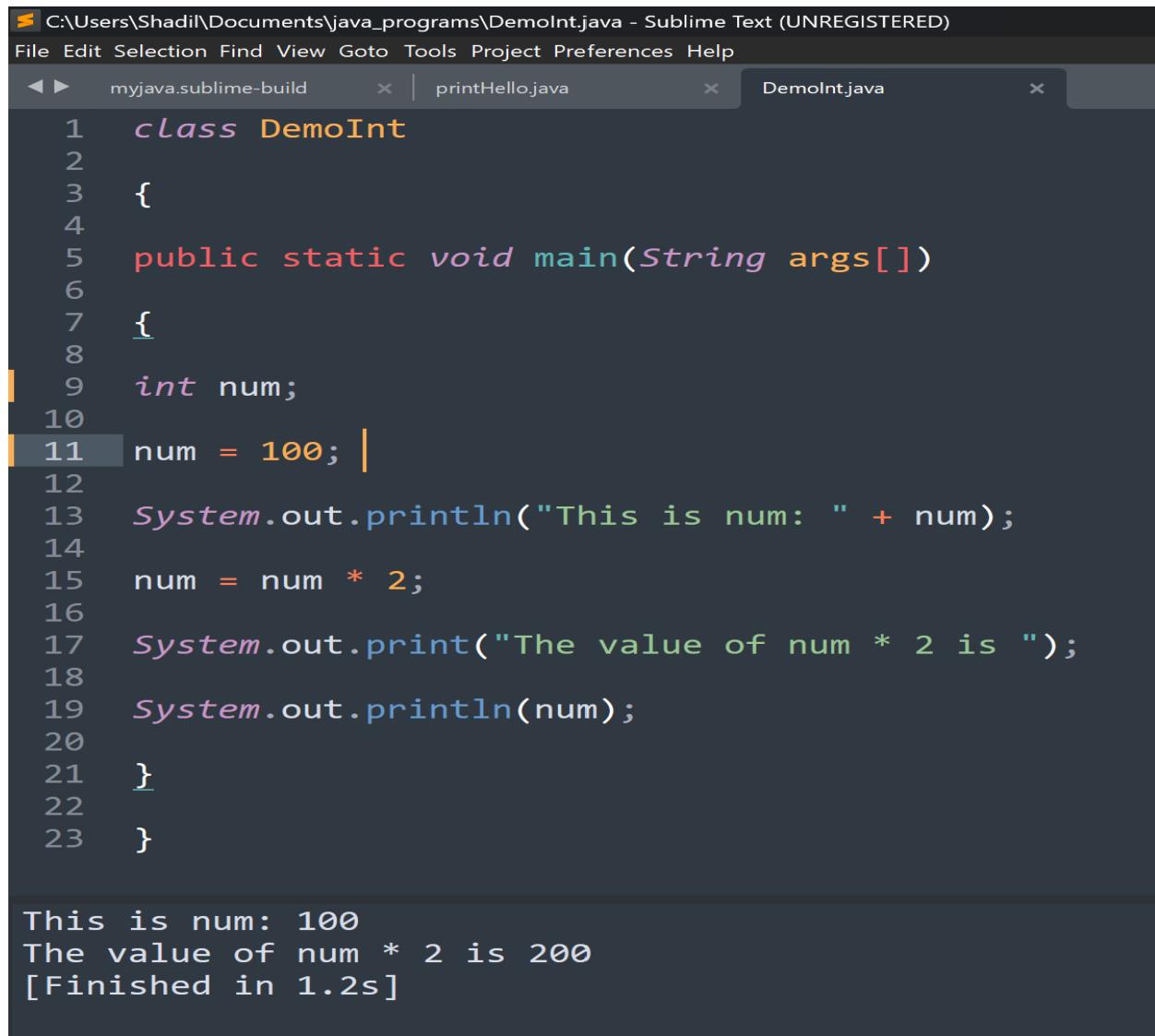
```
1 public class printHello{
2     public static void main(String args[]){
3         System.out.println("hello world");
4     }
5 }
```

Below the editor, the output window displays the results of running the program:

```
hello world
[Finished in 1.6s]
```

7-02-23

Int:-



C:\Users\Shadil\Documents\java_programs\Demoint.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

myjava.sublime-build printHello.java Demoint.java

```
1 class DemoInt
2 {
3     int num;
4
5     public static void main(String args[])
6     {
7         num = 100;
8         System.out.println("This is num: " + num);
9         num = num * 2;
10        System.out.print("The value of num * 2 is ");
11        System.out.println(num);
12    }
13}
```

This is num: 100
The value of num * 2 is 200
[Finished in 1.2s]

Float:-

C:\Users\Shadil\Documents\java_programs\DemoFloat.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

myjava.sublime-build printHello.java Demolnt.java DemoFloat.java

```
1 class DemoFloat
2
3 {
4
5     public static void main(String args[])
6
7     {
8
9         double pi, r, a;
10
11        r = 10.8; // radius of circle
12
13        pi = 3.1416; // pi, approximately
14
15        a = pi * r * r; // compute area
16
17        System.out.println("Area of circle is " + a); }
18
19 }
```

Area of circle is 366.436224
[Finished in 1.2s]

Char:-

```
1  class CharDemo
2
3  {
4
5  public static void main(String args[])
6
7  {
8
9  char ch1, ch2;
10
11 ch1 = 88; // code for X
12
13 ch2 = 'Y';
14
15 System.out.print("ch1 and ch2: ");
16
17 System.out.println(ch1 + " " + ch2);
18
19 ch1++; // increment ch1
20
21 System.out.println("ch1 is now " + ch1);
22
23 }
24
25 }
```

ch1 and ch2: X Y
ch1 is now Y
[Finished in 1.2s]

Boolean:-

C:\Users\Shadil\Documents\java_programs\BoolDemo.java - Sublime Text (UNREGISTERED)

File Edit Selection Find View Goto Tools Project Preferences Help

◀ ▶ myjava.sublime-build × | printHello.java × | DemolInt.java ×

```
1 class BoolDemo
2
3 {
4
5     public static void main(String args[])
6
7     {
8
9         boolean b;
10
11        b = false;
12
13        System.out.println("b is " + b);
14
15        b = true;
16
17        System.out.println("b is " + b);
18
19        // outcome of a relational operator is a boolean value
20
21        System.out.println("10 > 9 is " + (10 > 9));
22
23    }
24
25 }
```

b is false
b is true
10 > 9 is true
[Finished in 1.2s]

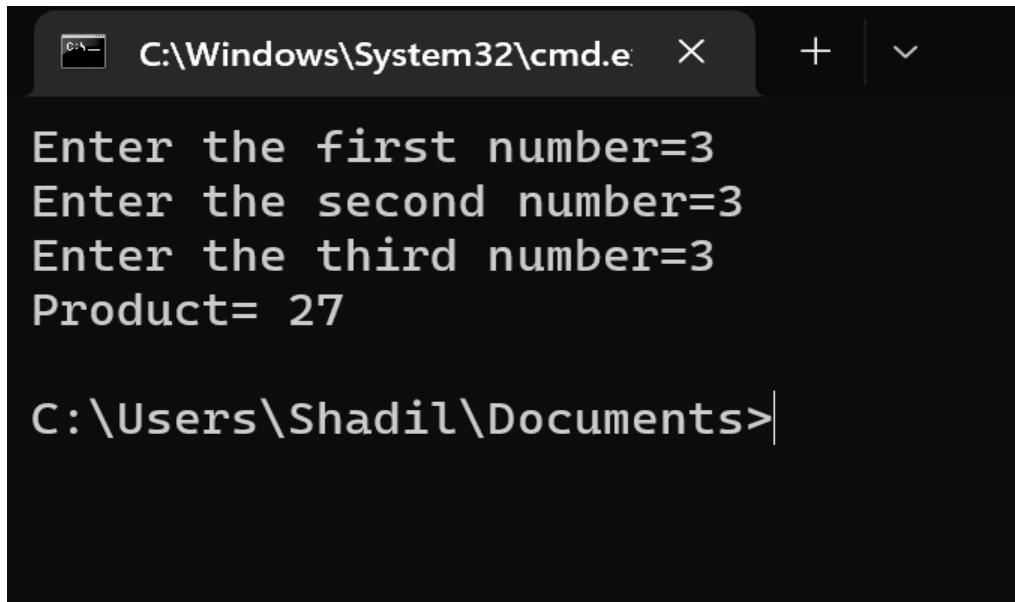
8-02-23

```
File Edit Selection Find View Goto Tools Project Preferences Help
◀ ▶ myjava.sublime-build x | printHello.java x | DemolInt.java x | DemoFloat.java x | CharDemo.java x
1 import java.util.*;
2
3 public class IntSum{
4
5     public static void main(String[] args) {
6         Scanner sc= new Scanner(System.in);
7         System.out.print("Enter the first number=");
8         int num_1= sc.nextInt();
9         System.out.print("Enter the second number=");
10        int num_2= sc.nextInt();
11        System.out.print("Enter the third number=");
12        int num_3= sc.nextInt();
13        int sum=num_1+num_2+num_3;
14        System.out.println("Total= " +sum);
15    }
16 }
17
[Finished in 1.3s]
```

```
C:\Windows\System32\cmd.exe x + v
Enter the first number=2
Enter the second number=67
Enter the third number=89
Total= 158

C:\Users\Shadil\Documents>
```

```
◀ ▶ myjava.sublime-build × | printHello.java × | DemoInt.java × | DemoFloat.java × | CharDemo.java × |  
1 import java.util.*;  
2  
3 public class IntProduct{  
4  
5  
6     public static void main(String[] args) {  
7         Scanner sc= new Scanner(System.in);  
8         System.out.print("Enter the first number=");  
9         int num_1= sc.nextInt();  
10        System.out.print("Enter the second number=");  
11        int num_2= sc.nextInt();  
12        System.out.print("Enter the third number=");  
13        int num_3= sc.nextInt();  
14        int product=num_1*num_2*num_3;  
15        System.out.println("Product= " +product);  
16    }  
17 }  
[Finished in 1.3s]
```



A screenshot of a Windows Command Prompt window titled 'C:\Windows\System32\cmd.exe'. The window displays the output of a Java application. The application prompts the user to enter three integers: 'Enter the first number=3', 'Enter the second number=3', and 'Enter the third number=3'. After the inputs are provided, the application prints the result: 'Product= 27'. The command prompt then shows the path 'C:\Users\Shadil\Documents>'.

```
C:\Windows\System32\cmd.exe × + | ↴  
Enter the first number=3  
Enter the second number=3  
Enter the third number=3  
Product= 27  
C:\Users\Shadil\Documents>
```

Quadratic equations

The screenshot shows a Sublime Text editor window with a dark theme. The title bar displays four tabs: "myjava.sublime-build", "printHello.java", "DemoInt.java", and "DemoFloat.java". The main area contains Java code for solving quadratic equations. The code uses Scanner to input values for a, b, and c, calculates the discriminant d, and then finds the roots r1 and r2 using the quadratic formula. It handles three cases: two real roots (d > 0), one real root (d == 0), and no real roots (d < 0).

```
1 import java.util.*;
2 public class ControlStatements
3 {
4     public static void main(String[] Strings)
5     {
6         Scanner input = new Scanner(System.in);
7         System.out.print("Enter the value of a: ");
8         double a = input.nextDouble();
9         System.out.print("Enter the value of b: ");
10        double b = input.nextDouble();
11        System.out.print("Enter the value of c: ");
12        double c = input.nextDouble();
13        double d= b * b - 4.0 * a * c;
14        if (d> 0.0)
15        {
16            double r1 = (-b + Math.pow(d, 0.5)) / (2.0 * a);
17            double r2 = (-b - Math.pow(d, 0.5)) / (2.0 * a);
18            System.out.println("The roots are " + r1 + " and " + r2);
19        }
20        else if (d == 0.0)
21        {
22            double r1 = -b / (2.0 * a);
23            System.out.println("The root is " + r1);
24        }
25        else
26        {
27            System.out.println("Roots are not real.");
28        }
29    }
30 }
```

```
C:\Windows\System32\cmd.e > + | <

Enter the value of a: 4.7
Enter the value of b: 6.9
Enter the value of c: 2.4
The roots are -0.5661730442759625 and -0.9019120621070162

C:\Users\Shadil\Documents>
```

Prime or composite

```
1 import java.util.*;
2 public class PrimeOrComposite{
3     public static void main(String[] args){
4         Scanner sc=new Scanner(System.in);
5         System.out.print("Enter a number =");
6         int n= sc.nextInt();
7         int flag=0;
8         int i;
9
10        if(n==0|n==1){
11            System.out.println(n+" is not prime number");
12        }
13        for(i=2;i<=n/2;i++)
14        {
15            if(n%i==0){
16                System.out.println(n+" is not prime number");
17                flag=1;
18                break;
19            }
20        }
21        if(flag==0){
22            System.out.println(n+" is prime number");
23        }
24
25    }
26}
27
[Finished in 1.2s]
```

```
C:\Windows\System32\cmd.e > + | <

Enter a number =5
5 is prime number

C:\Users\Shadil\Documents\java_programs>
```

Ladder

The screenshot shows a Sublime Text interface with three tabs: "myjava.sublime-build", "ControlStatements.java", and "PrimeOrComposite.java". The "myjava.sublime-build" tab contains the following Java code:

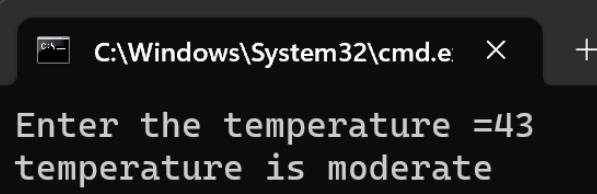
```
1 import java.util.*;
2 public class ladder{
3     public static void main(String[] args){
4         Scanner sc=new Scanner(System.in);
5         System.out.print("Enter a number =");
6         int n= sc.nextInt();
7
8         for(int i=1;i<=n;i++){
9             System.out.println(i);
10
11     }
12 }
13
14 }
```

A terminal window titled "C:\Windows\System32\cmd.exe" is open, displaying the output of the program. It shows the prompt "Enter a number =" followed by the numbers 1, 2, 3, and 4, each on a new line.

Temperature

```
1 import java.util.*;
2 public class temperature{
3     public static void main(String[] args){
4         Scanner sc=new Scanner(System.in);
5         System.out.print("Enter the temperature =");
6         int temp= sc.nextInt();
7         int n=0;
8         int higherTemp=40;
9         int lowerTemp=20;
10        int vlowTemp=5;
11        int vhighTemp=50;
12
13
14        if(temp<lowerTemp){
15            n=1;
16        }
17
18        if(temp>higherTemp){
19            n=2;
20        }
21
22        if(temp>lowerTemp || temp<higherTemp){
23            n=3;
24        }
25
26        if(temp<vlowTemp){
27            n=4;
28        }
29        if(temp>vhighTemp){
30            n=5;
31        }
32
33
34        switch(n){
35            case 1:
36
37                System.out.println("temperature is low");
38                break;
39
40            case 2:
41
42                System.out.println("temperature is high");
43                break;
44
45            case 3:
46
47                System.out.println("temperature is moderate");
48                break;
49        }
    }
}
```

```
51         case 4:  
52             System.out.println("temperature is very low");  
53             break;  
54  
55         case 5:  
56             System.out.println("temperature is very high");  
57             break;  
58  
59         default:  
60             System.out.println("enter a valid temperature");  
61             break;  
62         }  
63     }  
64 }  
65  
66 }
```



Palindrome

```

1 import java.util.*;
2 public class palindrome{
3     public static void main(String[] args){
4         Scanner sc=new Scanner(System.in);
5         System.out.print("Enter a number =");
6         int n= sc.nextInt();
7         int r,sum=0,temp;
8
9         temp=n;
10        while(n>0){
11            r=n%10;
12            sum=(sum*10)+r;
13            n=n/10;
14        }
15        if(temp==sum){
16            System.out.println("It's a palindrome");
17        }
18        else{
19            System.out.println("It's not a palindrome");
20        }
21    }
22 }
```

```
C:\Windows\System32\cmd.e
Enter a number =121
It's a palindrome
```

Min to years

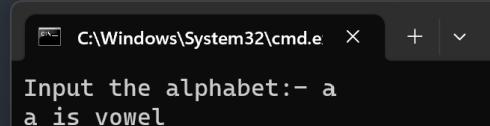
```

myjava.sublime-build x | Armstrong.java x | min_to_years.java • untitled •
1 import java.util.*;
2 public class min_to_years{
3     public static void main(String[] args){
4         double min_to_Year = 60 * 24 * 365;
5
6         Scanner sc = new Scanner(System.in);
7
8         System.out.print("Input the number of minutes: ");
9
10        double min = sc.nextDouble();
11
12        Long years = (long) (min / minutesInYear);
13        int days = (int) (min / 60 / 24) % 365;
14
15        System.out.println((int) min + " minutes is approximately " + years + " years and " + days + " days");
16    }
17 }
```

```
C:\Windows\System32\cmd.e
Input the number of minutes: 123564777
123564777 minutes is approximately 2327 years and 342 days
```

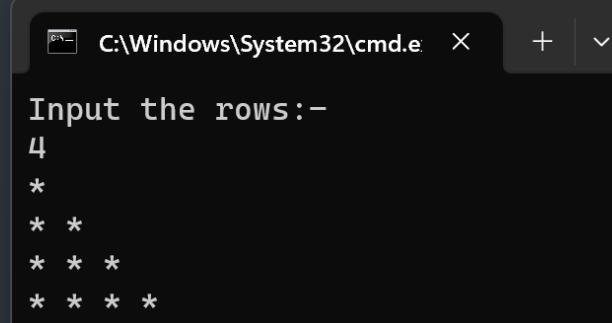
Vowel or consonents

```
1 import java.util.*;
2 public class vowelOrConsonents{
3     public static void main(String[] args){
4
5         Scanner sc = new Scanner(System.in);
6
7         System.out.print("Input the alphabet:- ");
8
9         char ch1 = sc.next().charAt(0);
10
11        if(ch1 == 'a' || ch1 == 'e' || ch1 == 'i' || ch1 == 'o' || ch1 == 'u'){
12            System.out.println(ch1 + " is vowel");
13        }
14
15        else{
16            System.out.println(ch1 + " is consonant");
17        }
18    }
19}
20}
21}
22}
```



Pattern

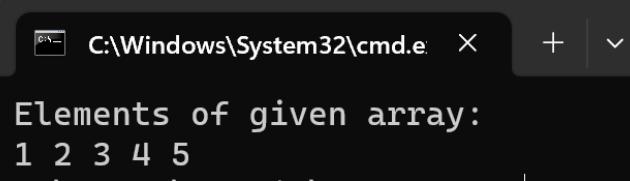
```
1 import java.util.*;
2
3 public class pattern{
4     public static void main(String[] args){
5
6         Scanner sc = new Scanner(System.in);
7
8         System.out.println("Input the rows:- ");
9
10        int rows=sc.nextInt();
11        for(int i=0; i<rows; i++){
12
13            for(int j=0; j<=i; j++){
14                System.out.print("* ");
15            }
16            System.out.println();
17        }
18
19    }
20
21 }
```



```
C:\Windows\System32\cmd.exe + 
Input the rows:-
4
*
* *
* * *
* * * *
```

ArraY Declaration

```
1 import java.util.*;
2
3 public class Array{
4     public static void main(String[] args){
5         int [] arr = new int [] {1, 2, 3, 4, 5};
6         System.out.println("Elements of given array: ");
7         for (int i = 0; i < arr.length; i++) {
8             System.out.print(arr[i] + " ");
9         }
10    }
11 }
```



A screenshot of a Windows Command Prompt window titled 'C:\Windows\System32\cmd.exe'. The window displays the output of a Java application. The output consists of two lines: 'Elements of given array:' followed by the numbers '1 2 3 4 5' separated by spaces.

```
C:\Windows\System32\cmd.exe + Elements of given array: 1 2 3 4 5
```

The screenshot shows a Sublime Text interface with multiple tabs open. The active tab contains Java code for reading user input and printing array elements. The terminal window below shows the execution of the code.

```
1 import java.util.*;
2
3 public class multidimensionalArray{
4     public static void main(String[] args){
5         int n;
6         Scanner sc=new Scanner(System.in);
7         System.out.print("Enter the number of elements you want to store: ");
8         n=sc.nextInt();
9         int[] array = new int[10];
10        System.out.println("Enter the elements of the array: ");
11        for(int i=0; i<n; i++)
12        {
13            array[i]=sc.nextInt();
14        }
15        System.out.println("Array elements are: ");
16        for (int i=0; i<n; i++)
17        {
18            System.out.println(array[i]);
19        }
20
21    }
22
23 }
24 }
```

C:\Windows\System32\cmd.exe

```
Enter the number of elements you want to store: 3
Enter the elements of the array:
12
23
45
Array elements are:
12
23
45
```

20-3-23

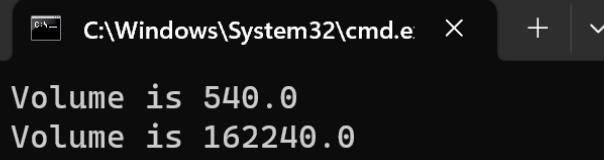
```
1 import java.util.*;
2
3 public class IndexOfArray {
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6
7         System.out.print("Enter the size of the array: ");
8         int size = scanner.nextInt();
9
10        int[] arr = new int[size];
11
12        System.out.println("Enter the elements of the array:");
13        for (int i = 0; i < size; i++) {
14            arr[i] = scanner.nextInt();
15        }
16
17        System.out.println("Enter the number to search:");
18        int num = scanner.nextInt();
19
20        int index = -1;
21
22        for (int i = 0; i < size; i++) {
23            if (arr[i] == num) {
24                index = i;
25                break;
26            }
27        }
28
29        System.out.println("The elements of the array:");
30        for (int i = 0; i < size; i++) {
31            System.out.print(arr[i] + " ");
32        }
33
34        if (index == -1) {
35            System.out.println("\nThe number is not present in the array.");
36        } else {
37            System.out.println("\nThe index of the number is " + index);
38        }
39    }
40 }
41
```

[Finished in 1.3s]

```
C:\Windows\System32\cmd.exe + v
Enter the size of the array: 5
Enter the elements of the array:
1 2 3 4 5
Enter the number to search:
3
The elements of the array:
1 2 3 4 5
The index of the number is 2
```

C:\Users\Shadil\Documents>

```
1  class Box{  
2      double width;  
3      double height;  
4      double depth;  
5  
6  
7      Box(double w, double h, double d){  
8          height=w;  
9          width=h;  
10         depth=d;  
11     }  
12     double volume(){  
13         return height*width*depth;  
14     }  
15 }  
16  
17 public class Box2{  
18     public static void main(String[] args){  
19         Box mybox1= new Box(10,6,9);  
20         Box mybox2= new Box(32,65,78);  
21  
22         System.out.println("Volume is "+ mybox1.volume());  
23         System.out.println("Volume is "+ mybox2.volume());  
24     }  
25 }  
26 }
```

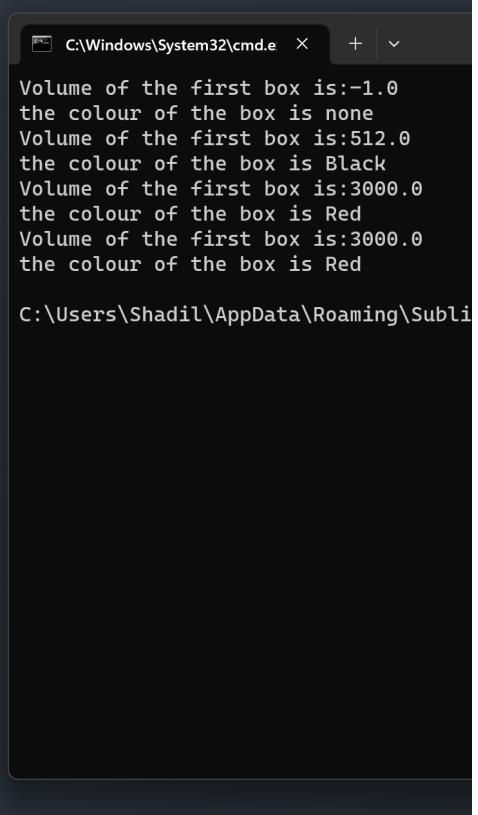


```
C:\Windows\System32\cmd.exe + ▾  
Volume is 540.0  
Volume is 162240.0
```

(12-4-23)

inheritance

```
1  class Box{
2      double width,height,depth;
3      Box(){}
4          width=height=depth=-1;
5      }
6      Box(double len){
7          width=height=depth=len;
8      }
9  }
10     Box(double num1, double num2, double num3 ){
11         width=num1;
12         height=num2;
13         depth=num3;
14     }
15     Box(Box o){
16         width=o.width;
17         height=o.height;
18         depth=o.depth;
19     }
20     double volume(){
21         return width*height*depth;
22     }
23 }
24 class Colour extends Box{
25     String str;
26     Colour(){}
27         width=height=depth=-1;
28         str="none";
29     }
30     Colour(double len){
31         width=height=depth=len;
32         str="Black";
33     }
34
35     Colour(double num1, double num2, double num3,String str){
36         width=num1;
37         height=num2;
38         depth=num3;
```



```
C:\Windows\System32\cmd.exe + ^

Volume of the first box is:-1.0
the colour of the box is none
Volume of the first box is:512.0
the colour of the box is Black
Volume of the first box is:3000.0
the colour of the box is Red
Volume of the first box is:3000.0
the colour of the box is Red
C:\Users\Shadil\AppData\Roaming\Subli
```

```
39         this.str=str;
40     }
41     Colour(Colour o){
42         width=o.width;
43         height=o.height;
44         depth=o.depth;
45         str=o.str;
46     }
47     void colour(){
48         System.out.printf("the colour of the box is %s", str);
49     }
50 }
51 class Main{
52     public static void main(string[] args){
53         Colour obj1= new Colour();
54         Colour obj2= new Colour(8);
55         Colour obj3= new Colour(10,20,15,"Red");
56         Colour obj4= new Colour(obj3);
57         System.out.println("Volume of the first box is:" +obj1.volume());
58         obj1.colour();
59         System.out.println();
60         System.out.println("Volume of the first box is:" +obj2.volume());
61         obj2.colour();
62         System.out.println();
63         System.out.println("Volume of the first box is:" +obj3.volume());
64         obj3.colour();
65         System.out.println();
66         System.out.println("Volume of the first box is:" +obj4.volume());
67         obj4.colour();
68         System.out.println();
69
70
71     }
72 }
```

```

2
3 class Box{
4     double width,height,depth;
5     Box(){
6         width=height=depth=-1;
7     }
8     Box(double len){
9         width=height=depth=len;
10    }
11    Box(double num1, double num2, double num3 ){
12        width=num1;
13        height=num2;
14        depth=num3;
15    }
16    Box(Box o){
17        width=o.width;
18        height=o.height;
19        depth=o.depth;
20    }
21    double volume(){
22        return width*height*depth;
23    }
24}
25 class Weight extends Box{
26     double weight;
27     Weight(){
28         super();
29         weight=-1;
30     }
31     Weight(double num){
32         super(num);
33         weight=-1;
34     }
35     Weight(double num1, double num2){
36         super(num1);
37     }

```

```

C:\Windows\System32\cmd.e x + v
Volume of the first box is:-1.0
The Weight of the given box is-1.0

Volume of the second box is:1000.0
The Weight of the given box is-1.0

Volume of the third box is:1000.0
The Weight of the given box is20.0

Volume of the fifth box is:6000.0
The Weight of the given box is40.0

Volume of the sixth box is:6000.0
The Weight of the given box is40.0

```

C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>

```
41     Weight(double num1, double num2, double num3, double num4){
42         super(num1,num2,num3);
43         weight=num4;
44     }
45     Weight(Weight o){
46         super(o);
47         weight=o.weight;
48     }
49     void show(){
50         System.out.println("The Weight of the given box is" +weight);
51     }
52 }
53 public class BoxWeight{
54     public static void main(String[] args){
55         Weight obj1= new Weight();
56         Weight obj2= new Weight(10);
57         Weight obj3= new Weight(10,20);
58
59         Weight obj5= new Weight(10,20,30,40);
60         Weight obj6= new Weight(obj5);
61         System.out.println("Volume of the first box is:" +obj1.volume());
62         obj1.show();
63         System.out.println();
64         System.out.println("Volume of the second box is:" +obj2.volume());
65         obj2.show();
66         System.out.println();
67         System.out.println("Volume of the third box is:" +obj3.volume());
68         obj3.show();
69         System.out.println();
70
71         System.out.println("Volume of the fifth box is:" +obj5.volume());
72         obj5.show();
73         System.out.println();
74         System.out.println("Volume of the sixth box is:" +obj6.volume());
75         obj6.show();
76         System.out.println();
77 }
```

```

1 //multilevel inheritance
2
3 class Box{
4     double width,height,depth;
5     Box(){
6         width=height=depth=-1;
7     }
8     Box(double len){
9         width=height=depth=len;
10    }
11    Box(double num1, double num2, double num3 ){
12        width=num1;
13        height=num2;
14        depth=num3;
15    }
16    Box(Box o){
17        width=o.width;
18        height=o.height;
19        depth=o.depth;
20    }
21    double volume(){
22        return width*height*depth;
23    }
24 }
25
26
27 class Colour extends Box{
28     String str;
29     Colour(){
30         super();
31         str="none";
32     }
33     Colour(double len){
34         super(len);
35         str="Black";
36     }
37
38     Colour(double num1, double num2, double num3,String str){
39         super(num1,num2,num3);
40         this.str=str;
41     }
42     Colour(Colour o){
43         super(o);
44         str=o.str;
45     }
46     void colour(){
47         System.out.printf("the colour of the box is %s", str);
48     }
49 }
50
51
52

```

Command Prompt: C:\Windows\System32\cmd.exe
ctrl+alt+t

C:\Windows\System32\cmd.e X + ▾

Volume of the first box is:-1.0
The Weight of the given box is-1.0
the colour of the box is none
Volume of the second box is:1000.0
The Weight of the given box is-1.0
the colour of the box is Black
Volume of the third box is:1000.0
The Weight of the given box is20.0
the colour of the box is Black
Volume of the fifth box is:6000.0
The Weight of the given box is45.0
the colour of the box is Blue
Volume of the sixth box is:6000.0
The Weight of the given box is45.0
the colour of the box is Blue

C:\Users\Shadil\AppData\Roaming\Sublime Text

```

52
53     class Weight extends Colour{
54         double weight;
55         Weight(){
56             super();
57             weight=-1;
58         }
59         Weight(double num){
60             super(num);
61             weight=-1;
62         }
63         Weight(double num1, double num2){
64             super(num1);
65             weight=num2;
66         }
67
68         Weight(double num1, double num2, double num3, String str,double num4){
69             super(num1,num2,num3,str);
70             weight=num4;
71         }
72         Weight(Weight o){
73             super(o);
74             weight=o.weight;
75         }
76         void show(){
77             System.out.println("The Weight of the given box is" +weight);
78         }
79     }
80
81     public class Multilevel{
82         public static void main(String[] args){
83             Weight obj1= new Weight();
84             Weight obj2= new Weight(10);
85             Weight obj3= new Weight(10, 20);
86             Weight obj4= new Weight(10,20,30,"Blue",45);
87             Weight obj6= new Weight(obj4);
88             System.out.println("Volume of the first box is:" +obj1.volume());
89             obj1.show();
90             obj1.colour();
91             System.out.println();
92             System.out.println("Volume of the second box is:" +obj2.volume());
93             obj2.show();
94             obj2.colour();
95             System.out.println();
96             System.out.println("Volume of the third box is:" +obj3.volume());
97             obj3.show();
98             obj3.colour();
99             System.out.println();
100
101            System.out.println("Volume of the fifth box is:" +obj4.volume());
102            obj4.show();
103            obj4.colour();
104            System.out.println();
105            System.out.println("Volume of the sixth box is:" +obj6.volume());
106            obj6.show();
107            obj6.colour();

```

18-04-23

Overriding

```
1  class A{
2      void display(){
3          System.out.println("Hello");
4      }
5  }
6
7  class B extends A{
8      void display(){
9          System.out.println("Hi!");
10     }
11 }
12
13
14 class mMain1{
15     public static void main(String[] args){
16         B obj= new B();
17         obj.display();
18     }
19 }
```



The screenshot shows a terminal window titled 'cmd' with the path 'C:\Windows\System32\cmd.e'. The window displays the text 'Hi!', which is the output of the Java program. The code in the terminal window is identical to the code block above, demonstrating that the overridden method in class B is executed instead of the one in class A.

```

1  class rectangle{
2      int base;
3      int height;
4      rectangle(int b, int h){
5          base=b;
6          height=h;
7      }
8
9      int area(){
10         return base*height;
11     }
12 }
13
14 class rectangle2 extends rectangle{
15     rectangle2(int b, int h){
16         super(b,h);
17     }
18
19     int area(){
20         return super.area();
21     }
22 }
23
24 class Main2{
25     public static void main(String[] args){
26         rectangle r= new rectangle2(9,6);
27         rectangle2 r2= new rectangle2(3,6);
28         System.out.println("Area of r1 is :- " +r.area());
29         System.out.println("Area of the rectangles are :- " +r2.area());
30
31     }
32 }
```

[Finished in 1.3s]

```

C:\Windows\System32\cmd.e × +
Area of r1 is :- 54
Area of the rectangles are :- 18

```

19-04-23

Abstract class

```
1 abstract class Sunstar{
2     abstract void printInfo();
3 }
4
5 class Employee extends Sunstar{
6     void printInfo(){
7         String name ="Saarmeen";
8         int age=19;
9         float salary=0.0f;
10        System.out.println(name);
11        System.out.println(age);
12        System.out.println(salary);
13    }
14 }
15
16 class base{
17     public static void main(String[] args){
18         Sunstar s= new Employee();
19         s.printInfo();
20     }
21 }
```

```
C:\Windows\System32\cmd.exe  ×
Saarmeen
19
0.0
```

```
1 abstract class Base{  
2     Base(){  
3         System.out.println("Base constructor called");  
4     }  
5     abstract void fun();  
6 }  
7  
8 class Derived extends Base{  
9     Derived(){  
10        System.out.println("Derived constructor called");  
11    }  
12    void fun(){  
13        System.out.println("Derived fun() called");  
14    }  
15 }  
16  
17 class Abstract2{  
18     public static void main(String[] args){  
19         Derived d= new Derived();  
20         d.fun();  
21     }  
22 }
```

```
C:\Windows\System32\cmd.exe +   
Base constructor called  
Derived constructor called  
Derived fun() called
```

```
1 abstract class base{  
2     void fun(){  
3         System.out.println("Function of base class is called");  
4     }  
5 }  
6  
7 class Derived extends base{  
8 }  
9  
10 class Abstract3{  
11     public static void main(String[] args){  
12         Derived d = new Derived();  
13         d.fun();  
14     }  
15 }  
16 }
```

```
C:\Windows\System32\cmd.exe +   
Function of base class is called
```

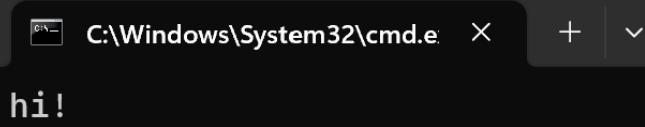
```
1 abstract class Base{  
2     final void fun(){  
3         System.out.println("Base fun() is called");  
4     }  
5 }  
6  
7 class Derived extends Base{  
8  
9 }  
10  
11 class Abstract4{  
12     public static void main(String[] args){  
13         Base b= new Derived();  
14         b.fun();  
15     }  
16 }
```

C:\Windows\System32\cmd.e X + ▾

Base fun() is called

25-04-23

```
1 abstract class A{  
2     abstract class B {  
3         abstract void display();  
4     }  
5 }  
6  
7 class D extends A{  
8     class E extends B{  
9         void display(){  
10             System.out.println("hi!");  
11         }  
12     }  
13 }  
14 public class Abstarct5{  
15     public static void main(String[] args){  
16         D outer= new D();  
17         D.E inner= outer.new E();  
18         inner.display();  
19     }  
20 }
```



```
1 abstract class A{
2     abstract class B {
3         abstract void display();
4     }
5 }
6
7 class D extends A{
8     class E extends B{
9         void display(){
10            System.out.println("hi!");
11        }
12    }
13 }
14 public class change1{
15     public static void main(String[] args){
16         D outer= new D();
17         D.E inner= outer.new E();
18         outer|display();
19     }
20 }
```

change1.java:18: error: cannot find symbol
 outer.display();
 ^
 symbol: method display()
 location: variable outer of type D
1 error
[Finished in 1.2s]

```
1 abstract class A{
2     abstract class B {
3         abstract void display();
4     }
5 }
6
7 class D extends A{
8
9     void display(){
10    System.out.println("helloor");
11 }
12 }
13
14 public class change2{
15     public static void main(String[] args){
16         D outer= new D();
17
18         outer.display();
19     }
20 }
```

[Finished in : helloor

C:\Windows\System32\cmd.exe

```
1 abstract class me{
2     static void show(){
3         System.out.println("show function called");
4     }
5 }
6
7 public class you extends me{
8     public static void main(String[] args){
9         me.show();
10    }
11 }
```

A screenshot of a Windows Command Prompt window titled 'C:\Windows\System32\cmd.exe'. The window contains the text 'show function called'.

```
1 abstract class me1{
2     static void show(){
3         System.out.println("show function called");
4     }
5 }
6
7 public class you1 extends me1{
8     public static void main(String[] args){
9         you1.show();
10    }
11 }
```

A screenshot of a Windows Command Prompt window titled 'C:\Windows\System32\cmd.exe'. The window contains the text 'show function called'.

```
1 abstract class c1{
2     abstract void m1();
3 }
4 class c2 extends c1{
5     public void m1(){
6         System.out.println("Its so empty without me");
7     }
8 }
9
10 class Abstract6{
11     public static void main(String[] args){
12         c2 m= new c2();
13         m.m1();
14     }
15 }
```

C:\Windows\System32\cmd.exe + <input>

Its so empty without me

25-4-23

```
hello1.java Arthematic.java interface1.java interface2.java interface3.java Interface4.java
```

```
1 package FirstPackage;
2
3 class hello1{
4     public static void main(String[] args){
5         System.out.println("hola, mucho gusto");
6     }
7 }
```

(c) Microsoft Corporation. All rights reserved.

```
C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>javac hello1.java
C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>javac -d . hello1.java
C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>java FirstPackage.hello1
hola, mucho gusto
```

```
1 package Pack1;
2 import java.util.*;
3 class Calculation{
4     double Addition(double a, double b){
5         return a+b;
6     }
7     double Subtraction(double a, double b){
8         return a-b;
9     }
10    double Multiplication(double a, double b){
11        return a*b;
12    }
13    double Division(double a,double b){
14        return a/b;
15    }
16 }
17 class Arthematic2 extends Calculation{
18     public static void main(String[] args){
19         Calculation c=new Calculation();
20         Scanner sc = new Scanner(System.in);
21         System.out.println("Enter two numbers:- ");
22         double num1=sc.nextInt();
23         double num2=sc.nextInt();
24         System.out.println("Enter an arithmetic operator:- ");
25         char c1=sc.next().charAt(0);
26         switch (c1) {
27             case '+':
28                 double d=c.Addition(num1,num2);
29                 System.out.println(d);
30                 break;
31             case '-':
32                 d=c.Subtraction(num1,num2);
33                 System.out.println(d);
34                 break;
35             case '*':
36                 d=c.Multiplication(num1,num2);
37                 System.out.println(d);
38                 break;
39             case '/':
40                 d=c.Division(num1,num2);
41                 System.out.println(d);
42                 break;
43             default:
44                 System.out.println("Invalid character!");
45         }
46     }
47 }
48 }
```

```
Microsoft Windows [Version 10.0.22621.1555]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>javac Arthematic2.java

C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>javac -d . Arthematic2.java

C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>java Pack1.Arthematic2
Enter two numbers:-
12 34
Enter an arithmetic operator:-
+
46.0

C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>
```

2-5-23

```
1 import java.util.*;
2 interface a{
3     final int a=10;
4     void display();
5 }
6
7 class interface1 implements a{
8     public void display(){
9         System.out.println("The number is:- ");
10    }
11    public static void main(String[] args){
12        interface1 b=new interface1();
13        b.display();
14        System.out.println(a);
15    }
16 }
```

C:\Windows\System32\cmd.e X + ▾

The number is:-
10

```
1 interface Drawable{
2     void draw();
3 }
4 class Rectangle implements Drawable{
5     public void draw(){
6         System.out.println("Drawing Rectangle");
7     }
8 }
9 class Circle implements Drawable{
10    public void draw(){
11        System.out.println("Drawing Cirlce");
12    }
13 }
14
15 class interface2{
16     public static void main(String[] args){
17         Drawable c=new Circle();
18         c.draw();
19     }
20 }
```

C:\Windows\System32\cmd.exe X + ▾

Drawing Cirlce

```
1 interface Drawable{
2     void draw();
3 }
4 class Rectangle implements Drawable{
5     public void draw(){
6         System.out.println("Drawing Rectangle");
7     }
8 }
9 class Circle implements Drawable{
10    public void draw(){
11        System.out.println("Drwaing Cirlce");
12    }
13 }
14
15 class interface2{
16     public static void main(String[] args){
17         interface2 c=new interface2();
18         c.draw();
19     }
20 }
```

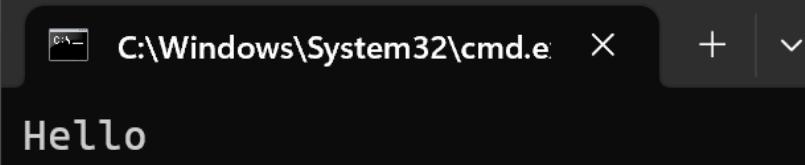
interface2.java:18: error: cannot find symbol
 c.draw();
 ^
 symbol: method draw()
 location: variable c of type interface2
1 error
[Finished in 1.2s]

```
1 interface Printable{
2     void print();
3 }
4 interface Showable{
5     void show();
6 }
7 class interface3 implements Printable,Showable{
8     public void print(){
9         System.out.println("bonjour");
10    }
11    public void show(){
12        System.out.println("Gracias");
13    }
14    public static void main(String[] args){
15        interface3 a=new interface3();
16        a.print();
17        a.show();
18    }
19 }
```

C:\Windows\System32\cmd.e

bonjour
Gracias

```
1  interface printable{
2      void show();
3  }
4  interface showable{
5      void show();
6  }
7  class Test implements printable, showable{
8      public void show(){
9          System.out.print("Hello");
10     }
11 }
12 public class Interface4{
13     public static void main(String[] args){
14         Test obj=new Test();
15         obj.show();
16     }
17 }
18
```



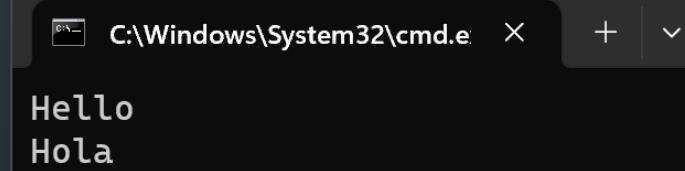
```
1 interface printable{
2     void print();
3 }
4 interface showable{
5     void show();
6 }
7 interface drawable extends printable, showable{
8     void draw();
9 }
10 class Test implements drawable{
11     public void print(){
12         System.out.println("Hello");
13     }
14     public void show(){
15         System.out.println("Hola");
16     }
17     public void draw(){
18         System.out.println("Hi");
19     }
20 }
21 class Interface5{
22     public static void main(String[] args){
23         Test obj=new Test();
24         obj.print();
25         obj.show();
26         obj.draw();
27     }
28 }
29
```

[Finished in 1.3s]

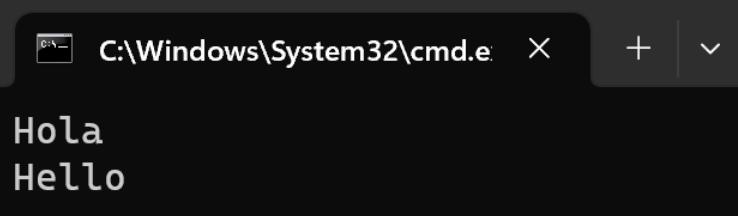
C:\Windows\System32\cmd.exe

Hello
Hola
Hi

```
1  interface Printable{
2      void print();
3      interface Showable{
4          void show();
5      }
6  }
7  class Test implements Printable, Printable.Showable{
8      public void print(){
9          System.out.println("Hello");
10     }
11     public void show(){
12         System.out.println("Hola");
13     }
14 }
15 class Interface6{
16     public static void main(String[] args){
17         Test obj=new Test();
18         obj.print();
19         obj.show();
20     }
21 }
22 }
```



```
1 interface Printable{
2     static void print(){
3         System.out.println("Hello");
4     }
5 }
6 interface Showable
7 {
8     default void show(){
9         System.out.println("Hola");
10    }
11 }
12 class Interface7 implements Printable,Showable{
13     public static void main(String[] args){
14         Interface7 obj=new Interface7();
15         obj.show();
16         Printable.print();
17     }
18 }
19
```



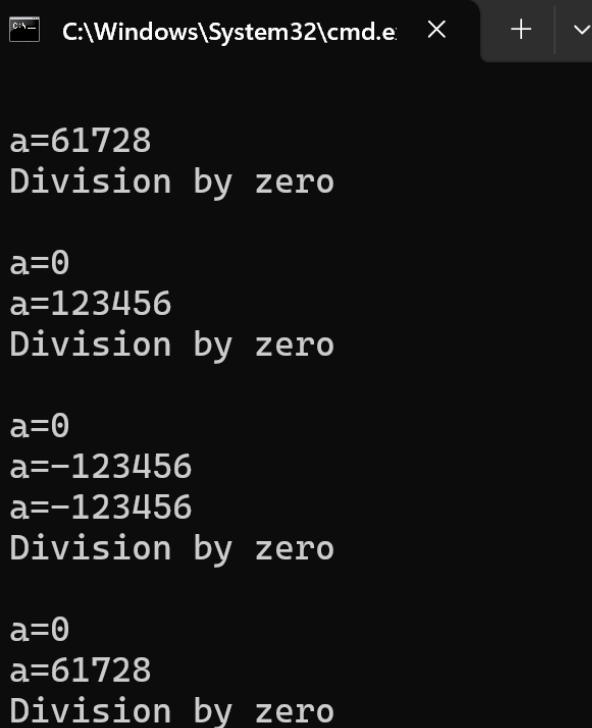
A screenshot of a Windows Command Prompt window titled 'C:\Windows\System32\cmd.exe'. The window contains two lines of text: 'Hola' on the first line and 'Hello' on the second line, which are the outputs of the Java code.

```
C:\Windows\System32\cmd.exe + ▾
Hola
Hello
```

```
1 // Exception handling
2
3 class Exception1{
4     public static void main(String[] args){
5         try{
6             int d=0;
7             int a=42/d;
8             System.out.println("This will not be printed!");
9         }catch(ArithmetricException e){
10             System.out.println("Madhur Shared his File, Hawwwwww!!!");
11         }
12         System.out.println("Madhur Do Better");
13     }
14 }
```

```
C:\Windows\System32\cmd.exe + ▾
Madhur Shared his File, Hawwwwww!!!
Madhur Do Better
```

```
1 import java.util.*;
2
3 class Exception2{
4     public static void main(String[] args){
5         int a=0, b=0, c=0;
6         Random r= new Random();
7         for(int i=0;i<51;i++){
8
9             try{
10                 b = r.nextInt();
11                 c = r.nextInt();
12                 a=123456 / (b/c);
13             }catch(ArithmException e){
14                 System.out.println("\n Division by zero");
15                 a=0;
16             }
17             System.out.printf("\n a=%d" ,a);
18         }
19     }
20 }
21
22 }
```



```
a=61728
Division by zero

a=0
a=123456
Division by zero

a=0
a=-123456
a=-123456
Division by zero

a=0
a=61728
Division by zero
```

[Finished in 1.0s]

Line 14, Column 32

```
1 class Exception3{
2     public static void main(String[] args){
3         try{
4             int a=0;
5             int b=42/a;
6             }catch(Exception e){
7                 System.out.println(e);
8             }catch(ArithmeticException e){
9                 System.out.println("Error Displayed!");
10            }
11        }
12    }
```

Exception3.java:8: error: exception ArithmeticException has already been caught
 }catch(ArithmeticException e){
 ^
1 error
[Finished in 1.1s]

```
1 class Exception3{
2     public static void main(String[] args){
3         try{
4             int a=0;
5             int b=42/a;
6             }catch(Exception e){
7                 System.out.println("cann't divide!");
8             }catch(ArithmeticException e){
9                 System.out.println("Error Displayed!");
10            }
11        }
12    }
```

Exception3.java:8: error: exception ArithmeticException has already been caught
 }catch(ArithmeticException e){
 ^
1 error
[Finished in 1.1s]

```
1 class Exception3{
2     public static void main(String[] args){
3         try{
4             int a=0;
5             int b=42/a;
6         }catch(ArithmeticException e){
7             System.out.println("cann't divide!");
8         }catch(Exception e){
9             System.out.println("this never reached!");
10        }
11    }
12 }
```

[Finished in 1. cann't divide!

```
1 class Exception4{
2     public static void main(String[] args){
3         try{
4             int a = args.length;
5             int b = 42/a;
6             System.out.println("a = " +a);
7             try{
8                 if(a==1) a = a / (a-a);
9                 if(a==2){
10                     int c[]={1};
11                     c[42]=99;
12                 }
13             }catch(ArrayIndexOutOfBoundsException e){
14                 System.out.println("Array out of bound: " +e);
15             }
16             }catch(ArithmeticException e){
17                 System.out.println("Divide by zero: " +e);
18             }
19         }
20 }
```

Divide by zero: java.lang.ArithmetiException: / by zero

C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>

```
1 class Exception4{
2     public static void main(String[] args){
3         try{
4             int a = 2;
5             int b = 42/a;
6             System.out.println("a = " +a);
7             try{
8                 if(a==1) a = a / (a-a);
9                 if(a==2){
10                     int c[]={1};
11                     c[42]=99;
12                 }
13             }catch(ArrayIndexOutOfBoundsException e){
14                 System.out.println("Array out of bound: " +e);
15             }
16             }catch(ArithmeticException e){
17                 System.out.println("Divide by zero: " +e);
18             }
19         }
20     }
```

C:\Windows\System32\cmd.exe + v

```
a = 2
Array out of bound: java.lang.ArrayIndexOutOfBoundsException: Index 42 out of bounds for length 1
C:\Users\Shadil\AppData\Roaming\Sublime Text\Packages>
```

```
class Except7{
    static void second(){
        try{
            throw new ArithmeticException("AIExcept");
        }
        catch(ArithmeticException e){
            System.out.println("Inside second method"+e);
            throw new NullPointerException("NullExcept");
        }
    }
    public static void main(String[] args){
        try{
            second();
        }
        catch (NullPointerException e) {
            System.out.println("In main method " +e);
        }
    }
}
```

Select C:\Windows\System32\cmd.exe

```
Inside second methodjava.lang.ArithmetiException: AIExcept
In main method java.lang.NullPointerException: NullExcept
C:\Windows\System32\cmd.exe + v
```

```
class Except8{
    static void Except() throws ArithmeticException{
        System.out.println("Initiating new exception");
        throw new ArithmeticException("AIExcept");
    }
    public static void main(String[] args){
        try{
            Except();
        }
        catch (ArithmeticException e) {
            System.out.println("New Exception "+e);
        }
    }
}
```

Select C:\Windows\System32\cmd.exe

```
Initiating new exception
New Exception java.lang.ArithmeticException: AIExcept
```

```
class Except9{
    static int num=1;
    static void Test1(){
        try{
            throw new ArithmeticException("AIExcept");
        }
        finally{
            num=3;
        }
    }
    static void Test2(){
        try{
            throw new NegativeArraySizeException("-veIndex");
        }
        catch(NegativeArraySizeException e){
            System.out.println("-ve Array "+e);
        }
        finally{
            num=2;
        }
    }
    static void Test3(){
        try{
            throw new NullPointerException("NullExcept");
        }
        finally{
            num=5;
            System.out.println("Value of num : "+num);
        }
    }
    public static void main(String[] args){
        try{
            Test1();
        }
        catch(ArithmeticException e){
            System.out.println("AIExcept "+e);
        }
        System.out.println("Value of num : "+num);
        Test2();
        System.out.println("Value of num : "+num);
        Test3();
    }
}
```

Select C:\Windows\System32\cmd.exe

```
AIExcept java.lang.ArithmetricException: AIExcept
Value of num : 3
-ve Array java.lang.NegativeArraySizeException: -veIndex
Value of num : 2
Value of num : 5
Exception in thread "main" java.lang.NullPointerException: NullExcept
    at Except9.Test3(Except9.java:24)
    at Except9.main(Except9.java:41)
```

22-04-23

```
1 import java.io.*;
2
3 public class file1{
4     public static void main(String[] args){
5         try{
6             File obj = new File("myfile.txt");
7             if(obj.createNewFile()){
8                 System.out.println("File is Created of name\t"+obj.getName());
9             }
10            else{
11                System.out.println("File already exist");
12            }
13        }
14        catch(IOException e){
15            System.out.println("An error has occurred");
16            e.printStackTrace();
17        }
18
19
20    }
21 }
```

```
1 import java.io.*;
2
3 public class file2{
4     public static void main(String[] args){
5         try{
6             FileWriter Writer= new FileWriter("D:\\java\\javafiles\\myfile.txt");
7             Writer.write("My owner Is the BEST!!");
8             Writer.close();
9             System.out.println("Successfully Written");
10        }
11        catch(IOException e) {
12            System.out.println("An error has occurred");
13            e.printStackTrace();
14        }
15    }
16 }
```

```
1 import java.io.*;
2
3 public class file3{
4     public static void main(String[] args){
5         try{
6             FileWriter Writer= new FileWriter("D:\\java\\javafiles\\myfile.txt");
7             Writer.write("My owner is the GREATEST");
8             Writer.close();
9             System.out.println("Successfully Written");
10        }
11        catch(IOException e) {
12            System.out.println("An error has occurred");
13            e.printStackTrace();
14        }
15    }
16 }
```

```
1 import java.io.File;
2 import java.io.FileNotFoundException;
3 import java.util.*;
4
5 public class file4{
6     public static void main(String[] args){
7         try{
8             File obj = new File("D:\\java\\javafiles\\myfile.txt");
9             Scanner reader = new Scanner(obj);
10            while(reader.hasNextLine()){
11                String Data= reader.nextLine();
12                System.out.println(Data);
13            }
14        }
15        catch(FileNotFoundException e){
16            System.out.println("An error has occurred");
17            e.printStackTrace();
18        }
19    }
20 }
21 }
```

```
1 import java.io.*;
2
3 class file5{
4     public static void main(String[] args){
5         File obj=new File("D:\\java\\\\javafiles\\\\myfile.txt");
6         if(obj.delete()){
7             System.out.println("The deleted file is "+obj.getName());
8         }
9         else{
10            System.out.println("Failed in deleting the file");
11        }
12    }
13}
14
```