

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_47.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_44.java Demonstration\_43.java Demonstration\_45.java Demonstration\_46.java

```
1 /*  
2  * Input with DataInputStream Interest  
3  * //Edit Demonstration_47.java  
4  * import java.io.*;  
5  * class Demonstration_47{  
6  *     public static void main(String[] args){  
7  *         Float principalAmount = new Float(0);  
8  *         Float rateOfInterest = new Float(0);  
9  *         int numberOfYears = 0;  
10 *         //try{  
11 *             DataInputStream in = new DataInputStream(System.in);  
12 *  
13 *             String tempString;  
14 *             System.out.print("Enter Principal Amount: ");  
15 *             System.out.flush();  
16 *             tempString = in.readLine();  
17 *  
18 *             principalAmount = Float.parseFloat(tempString);  
19 *             System.out.print("Enter Rate of Interest: ");  
20 *             System.out.flush();  
21 *             tempString = in.readLine();  
22 *             rateOfInterest = Float.parseFloat(tempString);  
23 *             System.out.print("Enter Number of Years: ");  
24 *             System.out.flush();  
25 *             tempString = in.readLine();  
26 *             numberOfYears = Integer.parseInt(tempString);  
27 *  
28 *             calculateInterest(principalAmount, rateOfInterest,numberOfYears);  
29 *         }  
30 *     }  
31 *     void calculateInterest(Float principalAmount, Float rateOfInterest, int  
32 *  
33 *  
34 *  
35 *  
36 *
```

Select C:\Windows\System32\cmd.exe

```
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration_47  
Enter Principal Amount: 5000  
Enter Rate of Interest: .10  
Enter Number of Years: 5  
Total Interest = 2500.0
```

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_47.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_44.java Demonstration\_43.java Demonstration\_45.java Demonstration\_46.java

```
7     Float principalAmount = new Float(0);
8     Float rateOfInterest = new Float(0);
9     int numberOfYears = 0;
10    try{
11        DataInputStream in = new DataInputStream(System.in);
12
13        String tempString;
14        System.out.print("Enter Principal Amount: ");
15        System.out.flush();
16        tempString = in.readLine();
17
18        principalAmount = Float.valueOf(tempString);
19        System.out.print("Enter Rate of Interest: ");
20        System.out.flush();
21        tempString = in.readLine();
22        rateOfInterest = Float.valueOf(tempString);
23        System.out.print("Enter Number of Years: ");
24        System.out.flush();
25        tempString = in.readLine();
26        numberOfYears = Integer.parseInt(tempString);
27        // Input is over: calculate the interest
28        float interestTotal =
29            principalAmount*rateOfInterest*numberOfYears;
30        System.out.println("Total Interest = " + interestTotal);
31    }
32    catch (Exception ex)
```

Java source file length : 1,208 lines : 36 Ln : 1 Col : 1 Sel : 0 | 0

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_47.java - Notepad++

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Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_44.java Demonstration\_43.java Demonstration\_45.java Demonstration\_46.java

```
4 import java.io.*;
5 class Demonstration_47{
6     public static void main(String args[ ] ) { // throws Exception
7         Float principalAmount = new Float(0);
8         Float rateOfInterest = new Float(0);
9         int numberOfYears = 0;
10        try{
11            DataInputStream in = new DataInputStream(System.in);
12
13            String tempString;
14            System.out.print("Enter Principal Amount: ");
15            System.out.flush();
16            tempString = in.readLine();
17
18            principalAmount = Float.valueOf(tempString);
19            System.out.print("Enter Rate of Interest: ");
20            System.out.flush();
21            tempString = in.readLine();
22            rateOfInterest = Float.valueOf(tempString);
23            System.out.print("Enter Number of Years: ");
24            System.out.flush();
25            tempString = in.readLine();
26            numberOfYears = Integer.parseInt(tempString);
27            // Input is over: calculate the interest
28            float interestTotal =
29            principalAmount*rateOfInterest*numberOfYears;
```

Java source file

length : 1,208 lines : 36

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File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_44.java Demonstration\_43.java Demonstration\_45.java Demonstration\_46.java

```
1 /*  
2  * Input with DataInputStream InterestCalculator Program */  
3 //Edit Demonstration_47.java  
4 import java.io.*;  
5 class Demonstration_47{  
6     public static void main(String args[ ] ) { // throws Exception  
7         Float principalAmount = new Float(0);  
8         Float rateOfInterest = new Float(0);  
9         int numberOfYears = 0;  
10        try{  
11            DataInputStream in = new DataInputStream(System.in);  
12  
13            String tempString;  
14            System.out.print("Enter Principal Amount: ");  
15            System.out.flush();  
16            tempString = in.readLine();  
17  
18            principalAmount = Float.valueOf(tempString);  
19            System.out.print("Enter Rate of Interest: ");  
20            System.out.flush();  
21            tempString = in.readLine();  
22            rateOfInterest = Float.valueOf(tempString);  
23            System.out.print("Enter Number of Years: ");  
24            System.out.flush();  
25            tempString = in.readLine();  
26            numberOfYears = Integer.parseInt(tempString);  
27        }  
28    }  
29}
```

Java source file length : 1,208 lines : 36 Ln : 1 Col : 1 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_46.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_44.java Demonstration\_43.java Demonstration\_45.java Demonstration\_46.java

```
1 /*  
2 | The following program snippet shows how  
3 |/*  
4 //Edit Demonstration_46.java  
5  
6  
7 import java.util.*;  
8  
9 public class Demonstration_46  
10 {  
11     public static void main ( String args )  
12     {  
13         System.out.print ( "Enter the radius: " );  
14         Scanner sc = new Scanner ( System.in );  
15         double radius = sc.nextDouble();  
16         double area = 3.14159 * radius * radius;  
17         System.out.println ( "Area is: " + area );  
18     }  
19 }
```

C:\Windows\System32\cmd.exe - java Demonstration\_46

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_45  
Please enter two numbers to find maximum of two  
45  
54  
Between 45 and 54, maximum number is 54

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration\_46.java

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_46  
Enter the radius: 50  
Area is: 7853.974999999999

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_46  
Enter the radius: ■

Java source file length : 482 lines : 25 Ln : 1 Col : 1 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code>Demonstration-IV>Demonstration\_46.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_44.java Demonstration\_43.java Demonstration\_45.java Demonstration\_46.java

```
1 /*  
2  * The following program snippet shows how to read and write to the console.  
3  */  
4 //Edit Demonstration_46.java  
5  
6  
7 import java.util.*;  
8  
9 public class Demonstration_46  
10 {  
11     public static void main ( String args[] )  
12     {  
13         System.out.print ( "Enter the radius: " );  
14  
15         Scanner sc = new Scanner ( System.in );  
16  
17         double radius = sc.nextDouble();  
18  
19         double area = 3.14159 * radius * radius;  
20  
21         System.out.println ( "Area is: " + area );  
22     }  
23 }
```

I

Java source file length : 482 lines : 25 Ln : 1 Col : 1 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_45.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_45.java

```
1  /*  
2   * The program demonstrates how to  
3   */  
4  //Edit Demonstration_45.java  
5  import java.util.Scanner;  
6  
7  class Demonstration_45 {  
8      public static void main(  
9          Scanner scnr = new  
10         // Calculating the  
11         System.out.println(  
12             int a = scnr.nextInt();  
13             int b = scnr.nextInt();  
14             if (a > b) {  
15                 System.out.print("Between ");  
16                 System.out.println(" and " + b + ", maximum number is " + a);  
17             }  
18             else {  
19                 System.out.print("Between ");  
20                 System.out.println(" and " + a + ", maximum number is " + b);  
21             }  
22         }  
23     }
```

C:\Windows\System32\cmd.exe

```
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration_45.java  
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration_45  
Please enter two numbers to find maximum of two  
45  
54  
Between 45 and 54, maximum number is 54  
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>
```

Java source file length : 669 lines : 22 Ln : 21 Col : 6 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_45.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_44.java Demonstration\_43.java Demonstration\_45.java

```
1  /*  
2  The program demonstrates how to take Input using scanner class  
3  */  
4  //Edit Demonstration_45.java  
5  import java.util.Scanner;  
6  
7  class Demonstration_45 {  
8      public static void main(String args[]) {  
9          Scanner scnr = new Scanner(System.in);  
10         // Calculating the maximum two numbers in Java  
11         System.out.println("Please enter two numbers to find maximum of two");  
12         int a = scnr.nextInt();  
13         int b = scnr.nextInt();  
14         if (a > b) {  
15             System.out.printf("Between %d and %d, maximum is %d \n", a, b, a);  
16         }  
17         else {  
18             System.out.printf("Between %d and %d, maximum number is %d \n", a, b, b);  
19         }  
20     }  
21 }
```

I

Java source file length : 669 lines : 22 Ln:21 Col:6 Sel:0|0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_43.java - Notepad ++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_43.java

C:\Windows\System32\cmd.exe

```
1 /*  
2      Command line input  
3 // Edit Demonstration_4  
4  
5 class Demonstration_43{  
6     public static void main(String args[]){  
7         int i=0;  
8         i=Integer.parseInt(args[0]);  
9         System.out.println("The value of i in Integer is "+i);  
10    }  
11 }  
12 //System.out.print(  
13 //System.exit(0);  
14 }
```

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration\_43.java

Demonstration\_43.java:8: error: cannot find symbol  
 i=Integer.parseInt(args[0]);  
 ^  
 symbol: variable integer  
 location: class Demonstration\_43  
1 error

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration\_43.java

Demonstration\_43.java:8: error: cannot find symbol  
 i=Integer.parseInt(args[0]);  
 ^  
 symbol: method parseInt(String)  
 location: class Integer  
1 error

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_43 123  
The value of i in Integer is 123

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_43 12

Java source file length : 352 lines : 18 Ln : 11 Col : 9 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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```
1  /*  
2   *      Command line input in Java */  
3 // Edit Demonstration_43.java  
4  
5 class Demonstration_43{  
6     public static void main(String args[]){  
7         int i=0;  
8         i=Integer.parseInt(args[0]);  
9         System.out.println("The value of i in Integer is "+ i);  
10  
11    }  
12    //}  
//System.out.print(args[i]+" ");  
//System.exit(0);  
}
```

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_43.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_44.java Demonstration\_43.java

```
1 /*  
2      Command line input in Java */  
3 // Edit Demonstration_43.java  
4  
5 class Demonstration_43{  
6     public static void main(String args[]){  
7         int i=0;  
8         i=Integer.parseInt(args[0]);  
9         System.out.println("The value of i in Integer is "+ i);  
10  
11  
12     }  
//System.out.print(args[i]+" ");  
    System.exit(0);  
}
```

Java source file length : 348 lines : 18 Ln : 9 Col : 67 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_44.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_46.java Demonstration\_44.java

```
1 // Program to check for command line arguments
2 class Demonstration_44
3 {
4     public static void main(String[] args)
5     {
6         // check if length of args array is
7         // greater than 0
8         if (args.length > 0)
9         {
10            System.out.println("The command line"+
11                           " arguments are:");
12
13            // iterating the args array and printing
14            // the command line arguments
15            for (String val:args)
16                System.out.println(val);
17
18        }
19        else
20            System.out.println("No command line "+
21                           "arguments found.");
22    }
23 }
```

Java source file length : 680 lines : 23 Ln : 16 Col : 41 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_44.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_45.java

C:\Windows\System32\cmd.exe

```
1 // Program to check for command line arguments
2 class Demonstration_44
3 {
4     public static void main(String[] args)
5     {
6         // check if length of args
7         // greater than 0
8         if (args.length > 0)
9         {
10            System.out.println("The command line arguments are:");
11            for (int i = 0; i < args.length; i++)
12            {
13                System.out.println("arg" + (i + 1) + " : " + args[i]);
14            }
15        }
16        else
17            System.out.println("No command line arguments found.");
18    }
19 }
```

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration\_44.java

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_44

No command line arguments found.

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_44 Hello JAVA

The command line arguments are:

Hello  
JAVA

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>

Java source file length : 680 lines : 23 Ln : 16 Col : 41 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_44.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

```
1 // Program to check for command line arguments
2 class Demonstration_44
3 {
4     public static void main(String[] args)
5     {
6         // check if length of args array is
7         // greater than 0
8         if (args.length > 0)
9         {
10            System.out.println("The command line"+
11                           " arguments are:");
12
13             // iterating the args array and printing
14             // the command line arguments
15             for (String val:args)
16                 System.out.println(val);
17
18         }
19         else
20             System.out.println("No command line "+
21                               "arguments found.");
22     }
23 }
```

Java source file

length : 680 lines : 23

Ln : 16 Col : 41 Sel : 0 | 0

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_43.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_43.java C:\Windows\System32\cmd.exe

```
1  /*  
2   * Command line input  
3   // Edit Demonstration_43.java  
4  
5   class Demonstration_43 {  
6       public static void main(String[] args) {  
7           //int i=0;  
8           for(int i=0;i<args.length;i++){  
9               System.out.print("Hello ");  
10          System.out.println("World");  
11      }  
12      //System.out.println("Hello World");  
13      System.exit(0);  
14  }  
15  */  
16  
17  //int i=0;  
18  //for(int i=0;i<args.length;i++){  
19  //    System.out.print("Hello ");  
20  //    System.out.println("World");  
21  //}  
22  //System.out.println("Hello World");  
23  //System.exit(0);  
24  
25  //  
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```

length : 323 lines : 17 Ln : 7 Col : 14 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_43.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?



Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_43.java

```
1 /*  
2      Command line input in Java */  
3 // Edit Demonstration_43.java  
4  
5 class Demonstration_43{  
6     public static void main(String args[]){  
7         int i=0;  
8         for(int i=0;i<args.length;i++){  
9             System.out.print(args[i]+" ");  
10  
11     }  
12     //System.out.print(args[i]+" ");  
13     System.exit(0);  
14 }
```



Java source file

length : 319 lines : 17

Ln : 12 Col : 7 Sel : 0 | 0

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration\_43.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_43.java

```
1 /*  
2      Command line input in Java */  
3 // Edit Demonstration_43.java  
4  
5 class Demonstration_43{  
6     public static void main(String args[]){  
7         for(int i=0;i<args.length;i++){  
8             System.out.println(args[i]+" ");  
9         }  
10        System.exit(0);  
11    }  
12}
```

Java source file length : 271 lines : 15 Ln : 15 Col : 1 Sel : 0 | 0

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration\_42.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_42.java

```
4
5 class Demonstration_42
6
7 {
8     public static void main(String args[])
9     {
10         int x = 100;
11         System.out.printf("Printing simple integer: x = %d\n", x);
12
13         // this will print it upto 2 decimal places
14         System.out.printf("Formatted with precision: PI = %.2f\n", 3.14);
15
16         float n = 5.2f;
17
18         // automatically appends zero to the right
19         System.out.printf("Formatted to specific width: n = %010.2f\n", n);
20
21         n = 2324435.3f;
22
23         // here number is formatted from right
24         // width of 20 characters
25         System.out.printf("Formatted to right margin: n = %20.2f\n", n);
26     }
27 }
28
29
```

C:\Windows\System32\cmd.exe

```
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration_41
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration_41
1. println
2. println
1. print
2. print 3. Print 555
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration_42
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration_42
Printing simple integer: x = 100
Formatted with precision: PI = 3.14
Formatted to specific width: n = 5.2000
Formatted to right margin: n = 2324435.2500
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration_42
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration_42
Printing simple integer: x = 100
Formatted with precision: PI = 3.14
Formatted to specific width: n = 5.2
Formatted to right margin: n = 2324435.25
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>
```

Java source file length : 770 lines : 29 Ln:26 Col:5 Sel:0|0 Windows (CR/LF) UTF-8 INS

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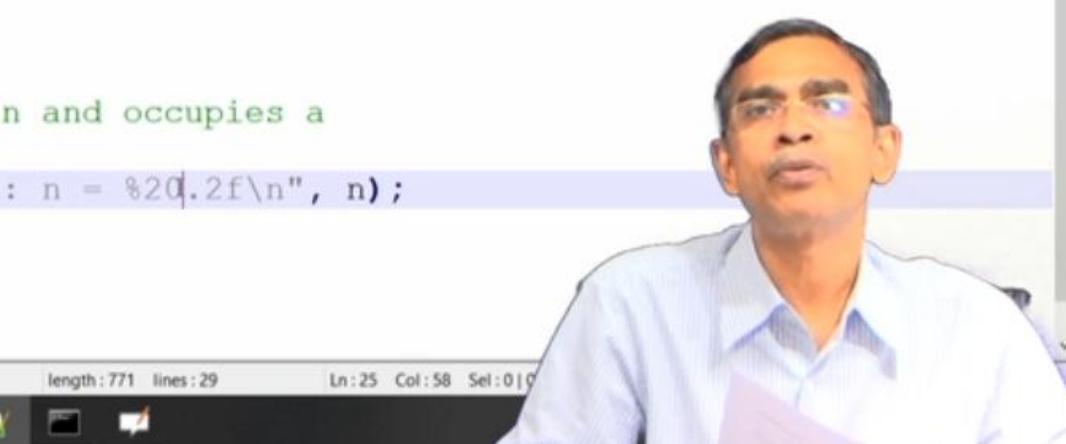
12:59 / 38:55

\*D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_42.java - Notepad++  
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?  
Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_42.java

```
4  
5 class Demonstration_42  
6  
7 {  
8     public static void main(String args[])  
9     {  
10         int x = 100;  
11         System.out.printf("Printing simple integer: x = %d\n", x);  
12  
13         // this will print it upto 2 decimal places  
14         System.out.printf("Formatted with precision: PI = %.2f\n", Math.PI);  
15  
16         float n = 5.2f;  
17  
18         // automatically appends zero to the rightmost part of decimal  
19         System.out.printf("Formatted to specific width: n = %2.1f\n", n);  
20  
21         n = 2324435.3f;  
22  
23         // here number is formatted from right margin and occupies a  
24         // width of 20 characters  
25         System.out.printf("Formatted to right margin: n = %20.2f\n", n);  
26     }  
27 }  
28  
29
```

Java source file length : 771 lines : 29 Ln : 25 Col : 58 Sel : 0 | 0

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration\_42.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_42.java

```
4
5 class Demonstration_42
6
7 {
8     public static void main(St
9     {
10         int x = 100;
11         System.out.printf("Print
12
13 // this will print it up
14         System.out.printf("Format
15
16         float n = 5.2f;
17
18 // automatically appends
19         System.out.printf("Format
20
21         n = 2324435.3f;
22
23 // here number is format
24 // width of 20 character
25         System.out.printf("Format
26
27 }
28
29 }
```

C:\Windows\System32\cmd.exe

```
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration_41.java
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration_41
1. println
2. println
1. print
2. print 3. Print 555
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration_42.java
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration_42
Printing simple integer: x = 100
Formatted with precision: PI = 3.14
Formatted to specific width: n = 5.2000
Formatted to right margin: n = 2324435.2500
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>
```

Java source file length : 770 lines : 29 Ln : 8 Col : 42 Sel : 0 | 0

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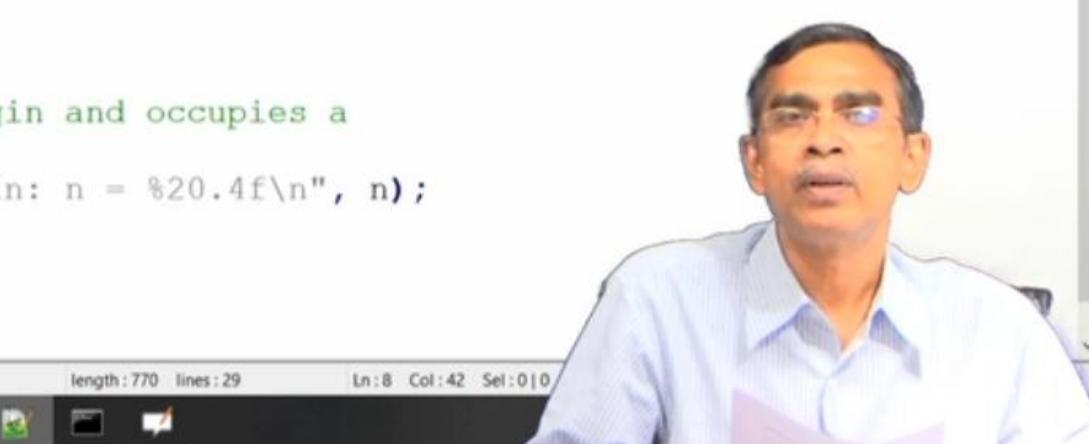
11:44 / 38:55

D:\NPTEL Java\All Final\Week 3\Code>Demonstration-IV>Demonstration\_42.java - Notepad++  
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?  
Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java Demonstration\_42.java

```
4  
5 class Demonstration_42  
6  
7 {  
8     public static void main(String args[])  
9     {  
10         int x = 100;  
11         System.out.printf("Printing simple integer: x = %d\n", x);  
12  
13         // this will print it upto 2 decimal places  
14         System.out.printf("Formatted with precision: PI = %.2f\n", Math.PI);  
15  
16         float n = 5.2f;  
17  
18         // automatically appends zero to the rightmost part of decimal  
19         System.out.printf("Formatted to specific width: n = %.4f\n", n);  
20  
21         n = 2324435.3f;  
22  
23         // here number is formatted from right margin and occupies a  
24         // width of 20 characters  
25         System.out.printf("Formatted to right margin: n = %20.4f\n", n);  
26     }  
27 }  
28  
29
```

Java source file length : 770 lines : 29 Ln : 8 Col : 42 Sel : 0/0

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_41.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java

```
1 // A Java program to demonstrate working of print
2 // Edit Demonstration_41.java
3
4 class Demonstration_41
5 {
6     public static void main(String[] args) {
7         int x=555;
8         System.out.println("1. println ");
9         System.out.println("2. println ");
10
11         System.out.print("1. print ");
12         System.out.print("\n");
13         System.out.print("2. print "+ "3. Print " +
14     }
15
16
17}
```

C:\Windows\System32\cmd.exe

```
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration_41.java
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration_41
1. println
2. println
1. print
2. print 3. Print 555
```

Java source file length : 424 lines : 17 Ln : 13 Col : 56 Sel : 0 | 0

Type here to search 7:19 PM 14-Nov-18

The screenshot shows a Notepad++ window with Java code and its corresponding error output.

**Java Code:**

```
// A Java program to demonstrate working of print() and println() together
// Edit Demonstration_41.java

class Demonstration_41
{
    public static void main(String[] args) {
        int x=555;
        System.out.println("1. println ");
        System.out.println("2. println ");

        System.out.print("1. print ");
        System.out.print("\n");
        System.out.print("2. print "+ "3. Print "+ +x);
    }
}
```

**Error Output:**

```
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t
l Final\Week 3\Code\Demonstration-IV
.java:13: error: non-static variable
ut.print("2. print "+ "3. Print"+ th
^
.java:13: error: cannot find symbol
ut.print("2. print "+ "3. Print"+ th
le x

l Final\Week 3\Code\Demonstration-IV
l Final\Week 3\Code\Demonstration-IV
```

**Notepad++ Status Bar:**

- Java source file
- length: 420 lines: 17
- Ln: 13 Col: 53 Sel: 0 | 0
- Windows (CR LF) UTF-8 INS t555
- Monalisa (E)
- D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV
- 14 items

**Windows Taskbar:**

- Type here to search
- File Explorer
- Task View
- Start
- Google Chrome
- Powerpoint
- Excel
- File Manager
- Notepad++
- System tray icons: Volume, Network, Battery, Date/Time (7:19 PM, 14-Nov-18)

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_41.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java

```
1 // A Java program to demonstrate working of print and println
2 // Edit Demonstration_41.java
3
4 class Demonstration_41
5 {
6     public static void main(String[] args) {
7
8         System.out.println("1. println ");
9         System.out.println("2. println f");
10
11        System.out.print("1. print ");
12        System.out.print("\n");
13        System.out.print("2. print");
14    }
15
16
17}
```

C:\Windows\System32\cmd.exe

Microsoft Windows [Version 10.0.17134.376]  
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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration\_41.java

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_41

1. println  
2. println  
1. print 2. print

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration\_41.java

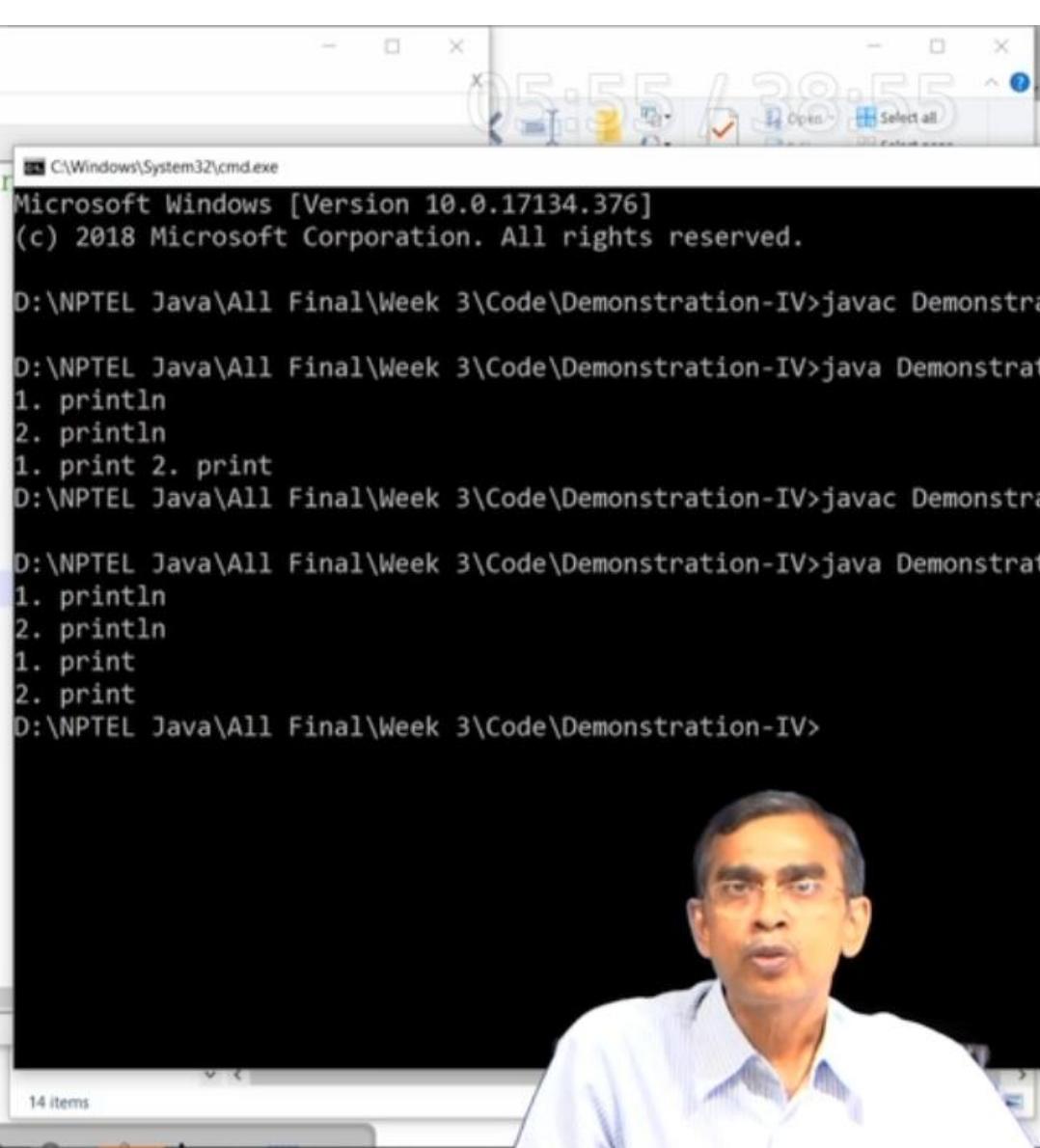
D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_41

1. println  
2. println  
1. print  
2. print

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>

Java source file length : 392 lines : 17 Ln : 12 Col : 28 Sel : 0 | 0

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D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV\Demonstration\_41.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

Demonstration\_314.java Demonstration\_47.java Demonstration\_41.java

```
1 // A Java program to demonstrate working of print and println
2 // Edit Demonstration_41.java
3
4 class Demonstration_41
5 {
6     public static void main(String[] args) {
7
8         System.out.println("1. println ");
9         System.out.println("2. println ");
10
11        System.out.print("1. print ");
12        System.out.print("\n");
13        System.out.print("2. print");
14    }
15
16
17}
```

C:\Windows\System32\cmd.exe

Microsoft Windows [Version 10.0.17134.376]  
(c) 2018 Microsoft Corporation. All rights reserved.

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration\_41.java

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_41

1. println  
2. println  
1. print 2. print

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>javac Demonstration\_41.java

D:\NPTEL Java\All Final\Week 3\Code\Demonstration-IV>java Demonstration\_41

14 items

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# Input with DataInputStream : Calculator Program

```

import java.io.*;

class InterestCalculator{
    public static void main(String args[ ] ) {
        Float principalAmount = new Float(0);
        Float rateOfInterest = new Float(0);
        int numberOfYears = 0;
        DataInputStream in = new DataInputStream(System.in);
        String tempString;
        System.out.println("Enter Principal Amount: ");
        System.out.flush();
        tempString = in.readLine();
        principalAmount = Float.valueOf(tempString);
        System.out.println("Enter Rate of Interest: ");
        System.out.flush();
        tempString = in.readLine();
        rateOfInterest = Float.valueOf(tempString);
        System.out.println("Enter Number of Years: ");
        System.out.flush();
        tempString = in.readLine();
        numberOfYears = Integer.parseInt(tempString);
        // Input is over: calculate the interest
        float interestTotal = principalAmount*rateOfInterest*numberOfYears;
        System.out.println("Total Interest = " + interestTotal);
    }
}

```

C:\Users\Desktop\Java\InterestCalculator>  
 Enter Principal Amount:  
 100.0  
 Enter Rate of Interest:  
 12.5  
 Enter Number of Years:  
 2  
 Total Interest = 25.0



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# Input with DataInputStream : Calculator Program

```
import java.io.*;  
  
class InterestCalculator{  
    public static void main(String args[ ] ) {  
        Float principalAmount = new Float(0);  
        Float rateOfInterest = new Float(0);  
        int numberOfYears = 0;  
        DataInputStream in = new DataInputStream(System.in);  
        String tempString;  
        System.out.println("Enter Principal Amount: ");  
        System.out.flush();  
        tempString = in.readLine();  
        principalAmount = Float.valueOf(tempString);  
        System.out.println("Enter Rate of Interest: ");  
        System.out.flush();  
        tempString = in.readLine();  
        rateOfInterest = Float.valueOf(tempString);  
        System.out.println("Enter Number of Years: ");  
        System.out.flush();  
        tempString = in.readLine();  
        numberOfYears = Integer.parseInt(tempString);  
        // Input is over: calculate the interest  
        float interestTotal = principalAmount*rateOfInterest*numberOfYears;  
        System.out.println("Total Interest = " + interestTotal);  
    }  
}
```



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# Input with DataInputStream : Calculator Program

```
import java.io.*;  
  
class InterestCalculator{  
    public static void main(String args[ ] ) {  
        Float principalAmount = new Float(0);  
        Float rateOfInterest = new Float(0);  
        int numberOfYears = 0;  
        DataInputStream in = new DataInputStream(System.in);  
        String tempString;  
        System.out.println("Enter Principal Amount: ");  
        System.out.flush();  
        tempString = in.readLine();  
        principalAmount = Float.valueOf(tempString);  
        System.out.println("Enter Rate of Interest: ");  
        System.out.flush();  
        tempString = in.readLine();  
        rateOfInterest = Float.valueOf(tempString);  
        System.out.println("Enter Number of Years: ");  
        System.out.flush();  
        tempString = in.readLine();  
        numberOfYears = Integer.parseInt(tempString);  
        // Input is over: calculate the interest  
        float interestTotal = principalAmount*rateOfInterest*numberOfYears;  
        System.out.println("Total Interest = " + interestTotal);  
    }  
}
```



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# Example program with Scanner and array

```
import java.util.*;
class SimpleArrayList{
public static void main(String args[]){
    int sum = 0;
    float avg = 0;
    ArrayList <Integer> l = new ArrayList<Integer>();
    System.out.println("Enter the input ");
    Scanner input = new Scanner(System.in);
    while (input.hasNextInt()) {
        l.add(input.nextInt());
    }
    for (int i = 0; i < l.size(); i++) {
        sum = sum+l.get(i);
    }
    avg = sum/(l.size());
    System.out.println("Average : " + avg);
}
}
```

```
C:\Users\Desktop\Java\SimpleArrayList>Enter the input
5
6
4^Z
Average : 5.0
```

Note:  
Press Ctrl+Z to stop scanning.



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# Example program with Scanner and array

```
import java.util.*;
class SimpleArrayList{
public static void main(String args[]){
    int sum = 0;
    float avg = 0;
    ArrayList<Integer> l = new ArrayList<Integer>();
    System.out.println("Enter the input ");
    Scanner input = new Scanner(System.in);
    while (input.hasNextInt()) {
        l.add(input.nextInt());
    }
    for (int i = 0; i < l.size(); i++) {
        sum = sum+l.get(i);
    }
    avg = sum/(l.size());
    System.out.println("Average : " + avg);
}
}
```



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# Example program for Scanner : Maximum

```
import java.util.Scanner;

public class MaximumCalculator {
    public static void main(String args[]) {
        Scanner scnr = new Scanner(System.in);
        // Calculating the maximum two numbers in Java
        System.out.println("Please enter two numbers to find maximum of two");
        int a = scnr.nextInt();
        int b = scnr.nextInt();
        if (a > b) {
            System.out.printf("Between %d and %d, maximum is %d \n", a, b, a);
        }
        else {
            System.out.printf("Between %d and %d, maximum number is %d \n", a,
        }
    }
}
```



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# Input to Java program with Scanner Class

```
import java.util.Scanner // 1. Import Scanner Class

public class ScannerDemo
{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in); // 2. Construct Scanner class Object
        System.out.println("Enter first no=");

        int num1, num2; // 3. Define Variable to Receive Input
        num1=s.nextInt();
        System.out.println("Enter 2nd no"); // 4. Read Input from Keyboard
        num2=s.nextInt();
        System.out.println("Sum of no is= "+(num1+num2));
    }
}
```

**Scanner** is one of the predefined class which is used for reading the data dynamically from the keyboard.



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# Numeric input to program

Let us run this Java program:

```
import java.lang.*;  
  
class Calculator{  
    double i;  
    double x = Math.sqrt(i);  
}  
class Example{  
    public static void main(String args[]){  
        Calculator a = new Calculator();  
        a.i = Integer.parseInt(args[0]);  
        System.out.println("Square root of "+a.i+" is "+a.x);  
    }  
}
```

```
C:\Users\Desktop\Java\Calculator>56  
Square root of 56 is 7.483319234678
```



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# Numeric input to program

Let us run this Java program:

```
import java.lang.*;  
  
class Calculator{  
    double i;  
    double x = Math.sqrt(i);  
}  
class Example{  
    public static void main(String args[]){  
        Calculator a = new Calculator();  
        a.i = Integer.parseInt(args[0]);  
        System.out.println("Square root of "+a.i+" is "+a.x);  
    }  
}
```





# Practice another Java program

Let us run this Java program:

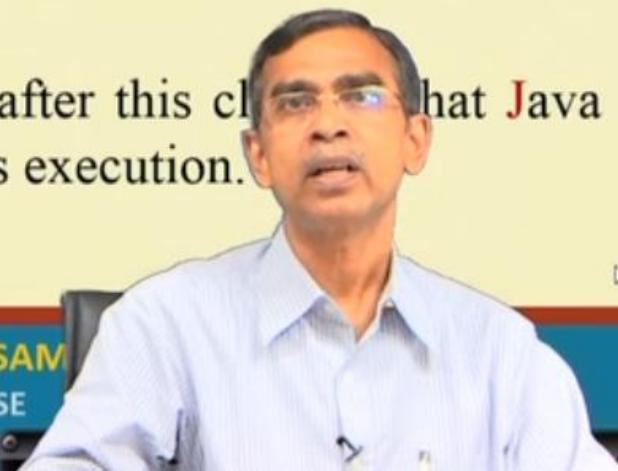
```
public class UserArgument{  
    public static void main(String args[]){  
        System.out.print("Hi ");  
        System.out.print(args[0]);  
        System.out.print(", How are you?");  
    }  
}
```

```
C:\Users\Desktop\Java\UserArguement>Debasis  
Hi Debasis, How are you?
```



# Significance of main class

- Java program starts its execution from a method belongs to a class only.
- The **main ()** method is the starting point of the execution of the main thread.
- If there are multiple classes, then ambiguity is resolved by incorporating a `main()` method into only one special class called main class.
- The name of the Java program should be named after this class so that Java interpreter unanimously choose that class to start its execution.





# A simple Java program

Let us consider a simple program to find the square root of an integer.

```
import java.lang.*; //Math class is defined in this package

class Calculator{
    double i;
    double x = Math.sqrt(i);
}

class Example{
    public static void main(String args[]){
        Calculator a = new Calculator();
        a.i = 20;
        System.out.println("Square root of "+a.i+" is "+a.x);
    }
}
```



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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_314.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_314.java

```
4
5 class Circle {
6     double x,y;
7     double r;
8
9     Circle (double x, double y, double r){
10        this.x = x; this.y = y; this.r = r;
11    }
12
13     Circle (double r){
14        this(0.0, 0.0, r);
15    }
16
17     Circle (Circle c){
18        this(c.x, c.y, c.r);
19    }
20
21     Circle (){
22        this(0.0, 0.0, 1.0);
23    }
24
25     double circumference(){
26        return 2*3.14159*r;
27    }
28     double area(){
29        return (22/7)*r*r;
30    }
31 }
```

Java source file length : 1,115 lines : 53 Ln : 1 Col : 1 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_313.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_313.java

```
1 /*  
2  * Special use of this keyword: No object creation to invoke method  
3 */  
4 //Edit Demonstration_313.java  
5 class A{  
6 A(){  
7 this(5);  
8 System.out.println("hello a");  
9 }  
10 A(int x){  
11 System.out.println(x);  
12 }  
13 }  
  
class Demonstration_313{  
public static void main(String args[]){  
A a=new A();  
}  
}
```

length : 341 lines : 22 Ln : 1 Col : 1 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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29:37 / 34:54

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-lifl,Demonstration\_312.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?



new Demonstration\_312.java

```
1 // Program to demonstrate use of this: to invoke current class method
2 // Edit Demonstration_312.java
3
4
5 class A{
6     void m(){System.out.println("hello m");}
7     void n(){
8         System.out.println("hello n");
9         this.m();
10    }
11 }
12 class Demonstration_312{
13     public static void main(String args[]){
14         A a=new A();
15         a.n();           I
16     }
17 }
```

Java source file

length : 336 lines : 18

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_311.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_311.java

```
1 /*  
2  * Demonstration of constructor Overloading */  
3 // Edit Demonstration_311.java  
4  
5 class Circle {  
6 double x,y;  
7 double r;  
8 Circle (double x, double y, double r){  
9     this.x = x; this.y = y; this.r = r;  
10 }  
11 Circle (double r){  
12     x = 0; y=0; this.r = r;  
13 }  
14 Circle (Circle c){  
15     x = c.x; y = c.y; r = c.r;  
16 }  
17 Circle (){  
18     x = 0.0; y = 0.0; r = 1.0;  
19 }  
20 double circumference(){  
21     return 2*3.14159*r;  
22 }  
23 double area(){  
24     return (22/7)*r*r;  
25 }  
26 }
```

Java source file length : 1,118 lines : 46 Ln : 1 Col : 1 Sel : 0 NS

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_310.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_310.java

```
4
5
6 class Student{
7     int rollno;
8     String name, course;
9     float fee;
10    Student(int rollno, String name, String course) {
11        this.rollno = rollno;
12        this.name = name;
13        this.course = course;
14    }
15
16    Student(int rollno, String name, String course, float fee) {
17        this(rollno, name, course); //reusing constructor
18        this.fee=fee;
19    }
20    void display() {
21        System.out.println(rollno+" "+name+" "+course+" "+fee);
22    }
23}
24 class Demonstration_310{
25    public static void main(String args[]){
26        Student s1=new Student(111,"ankit","java");
27        Student s2=new Student(112,"sumit","java",6000f);
28        s1.display();
29        s2.display();
30    }
31}
```

C:\Windows\System32\cmd.exe

```
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration_310.java
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration_310
Circumference Circle 131.4159
Area Circle 175.0
Circumference Circle 262.8318
Area Circle 2300.0

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration_310.java
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration_310
Circumference Circle 131.4159
Area Circle 175.0
Circumference Circle 231.4159
Area Circle 275.0
Circumference Circle 331.4159
Area Circle 375.0
Circumference Circle 46.28318
Area Circle 43.0

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration_310.java
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration_310
111 ankit java 0.0
112 sumit java 6000.0

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>
```

Java source file

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length : 771 lines : 31 Ln : 1 Col : 1 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_310.java - Notepad++

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27:21 / 34:54

```
4
5
6 class Student{
7     int rollno;
8     String name, course;
9     float fee;
10    Student(int rollno, String name, String course){
11        this.rollno = rollno;
12        this.name = name;
13        this.course = course;
14    }
15
16    Student(int rollno, String name, String course, float fee){
17        this(rollno, name, course); //reusing constructor
18        this.fee=fee;
19    }
20    void display(){
21        System.out.println(rollno+" "+name+" "+course+" "+fee);
22    }
23}
24 class Demonstration_310{
25    public static void main(String args[]){
26        Student s1=new Student(111,"ankit","java");
27        Student s2=new Student(112,"sumit","java",6000f);
28        s1.display();
29        s2.display();
30    }
}
```

Java source file

length : 771 lines : 31 Ln : 1 Col : 1 Sel : 0

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```
1 /*  
2 The following program shows the use of this() to avoid the name-space collision. */  
3 //Edit Demonstration_310.java  
4  
5  
6 class Student{  
7 int rollno;  
8 String name, course;  
9 float fee;  
10 Student(int rollno, String name, String course){  
11     this.rollno = rollno;  
12     this.name = name;  
13     this.course = course;  
14 }  
15  
16 Student(int rollno, String name, String course, float fee){  
17     this(rollno, name, course); //reusing constructor  
18     this.fee=fee;  
19 }  
20 void display(){  
21     System.out.println(rollno+" "+name+" "+course+" "+fee);  
22 }  
23 class Demonstration_310{  
24 public static void main(String args[]){  
25     Student s1=new Student(111,"ankit","java");  
26     Student s2=new Student(112,"sumit","java",6000f);  
27 }
```



D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_39.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new 1 Demonstration\_39.java

```
20    double circumference(){
21        return 2*3.14159*r;
22    }
23    double area(){
24        return (22/7)*r*r;
25    }
26}
27
28 class Demonstration_39{
29     public static void main(String arge[]){
30         Circle c1 = new Circle(3.0,4.0,5.0);
31         Circle c2 = new Circle(5.0);
32         Circle c3 = new Circle(c1);
33         Circle c4 = new Circle();
34         System.out.println("Circumference Circle 1" + c1.circumference());
35         System.out.println("Area Circle 1" + c1.area());
36         System.out.println("Circumference Circle 2" + c2.circumference());
37         System.out.println("Area Circle 2" + c2.area());
38         System.out.println("Circumference Circle 3" + c3.circumference());
39         System.out.println("Area Circle 3" + c3.area());
40         System.out.println("Circumference Circle 4" + c4.circumference());
41         System.out.println("Area Circle 4" + c4.area());
42     }
43 }
```

Java source file

length : 1,093 lines : 44 Ln : 1 Col : 1 Sel : 0

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_39.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?



new Demonstration\_39.java

```
1 /*  
2  * Demonstration of constructor Overloading */  
3 // Edit Demonstration_39.java  
4  
5 class Circle {  
6     double x,y;  
7     double r;  
8     Circle(double a, double b, double c){  
9         x = a; y = b; r = c;  
10    }  
11    Circle(double c){  
12        x = 0; y = 0; r = c;  
13    }  
14    Circle(Circle c){  
15        x = c.x; y = c.y; r = c.r;  
16    }  
17    Circle(){  
18        x = 0.0; y = 0.0; r = 1.0;  
19    }  
20    double circumference(){  
21        return 2*3.14159*r;  
22    }  
23    double area(){  
24        return (22/7)*r*r;  
25    }  
26}
```

Java source file

length : 1,093 lines : 44

Ln : 1 Col : 1 Sel : 0

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_38.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_38.java

```
6 double r;
7 double circumference(){
8     return 2*3.14159*r;
9 }
10 double area(){
11     return (22/7)*r*r;
12 }
13 Circle(double a, double b, double c){
14     x = a; // Set center x-coordinate
15     y = b; // Set center y-coordinate
16     r = c; // Set radius
17 }
18
19 class Demonstration_38{
20     public static void main(String args[]){
21         Circle c1 = new Circle(3.0,4.0,5.0);
22         Circle c2 = new Circle(-4.0,8.0,10.0);
23         System.out.println("Circumference Circle 1" + c1.circumference());
24         System.out.println("Area Circle 1" + c1.area());
25         System.out.println("Circumference Circle 2" + c2.circumference());
26         System.out.println("Area Circle 2" + c2.area());
27     }
28 }
```

C:\Windows\System32\cmd.exe

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration\_38.java

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration\_38

Circumference Circle 131.4159

Area Circle 175.0

Circumference Circle 262.8318

Area Circle 2300.0

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>

Java source file length : 723 lines : 30 Ln : 1 Col : 1 Sel : 0

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_38.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?



new 1 Demonstration\_38.java

```
6 double r;
7 double circumference(){
8     return 2*3.14159*r;
9 }
10 double area(){
11     return (22/7)*r*r;
12 }
13 Circle(double a, double b, double c){
14     x = a; // Set center x-coordinate
15     y = b; // Set center y-coordinate
16     r = c; // Set radius
17 }
18
19 class Demonstration_38{
20     public static void main(String args[]){
21         Circle c1 = new Circle(3.0,4.0,5.0);
22         Circle c2 = new Circle(-4.0,8.0,10.0);
23         System.out.println("Circumference Circle 1" + c1.circumference());
24         System.out.println("Area Circle 1" + c1.area());
25         System.out.println("Circumference Circle 2" + c2.circumference());
26         System.out.println("Area Circle 2" + c2.area());
27     }
28 }
```



Java source file

length : 723 lines : 30

Ln : 1 Col : 1 Sel : 0

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-lifl,Demonstration\_38.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_38.java

```
1 // A Java program to demonstrate working of constructor in Java
2
3
4 class Circle {
5     double x,y;
6     double r;
7     double circumference(){
8         return 2*3.14159*r;
9     }
10    double area(){
11        return (22/7)*r*r;
12    }
13    Circle(double a, double b, double c){
14        x = a; // Set center x-coordinate
15        y = b; // Set center y-coordinate
16        r = c; // Set radius
17    }
18
19 class Demonstration_38{
20     public static void main(String args[]){
21         Circle c1 = new Circle(3.0,4.0,5.0);
22         Circle c2 = new Circle(-4.0,8.0,10.0);
23         System.out.println("Circumference Circle 1" + c1.circumference());
24         System.out.println("Area Circle 1" + c1.area());
25         System.out.println("Circumference Circle 2" + c2.circumference());
26         System.out.println("Area Circle 2" + c2.area());
27     }
28 }
```

length : 723 lines : 30 Ln : 1 Col : 1 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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\*D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_36.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?



new Demonstration\_36.java

```
1 /* Encapsulation: Defining a class having method with parameter */
2 class Point
3 {
4     int x,y;
5     void setPoint( int a, int b ) {
6         x = a;
7         y = b;
8     }
9 }
10
11 // definition of another class. This is a main class
12
13 class Demonstration_36
14 {
15     float distance;
16     public static void main (String args[ ] ) {
17         Point p1 = new Point( );
18         Point p2 = new Point( );
19         p1.setPoint(15, 20);
20         p2.setPoint(0, 0);
21         System.out.println ( " x = "+ p1.x );
22         System.out.println ( " y = "+ p1.y );
23         System.out.println ( " x = "+ p2.x );
24         System.out.println ( " y = "+ p2.y ); I
25     }
26 }
```

Java source file

length : 552 lines : 27

Ln:24 Col:38 Sel:0

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_36.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new 1 Demonstration\_36.java

```
1 /* Encapsulation: Defining a class having method
2 class Point
3 {
4 int x,y;
5 void setPoint( int a, int b ) {
6 x = a;
7 y = b;
8 }
9 }
10
11 // definition of another class. This is a main class
12
13 class Demonstration_36
14 {
15 float distance;
16 public static void main (String args[ ] ) {
17 Point p = new Point( );
18 p.setPoint(15, 20);
19 System.out.println ( " x = "+ p.x );
20 System.out.println ( " y = "+ p.y );
21 }
```

C:\Windows\System32\cmd.exe

```
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration_36
Exception in thread "main" java.lang.NoSuchMethodError: Point.setPoint(I)
                                         at Demonstration_35.main(Demonstration_35.java:18)

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration_35.java
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration_35
x = 10
y = 10

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration_36.java
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration_36
x = 15
y = 20

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>
```

Java source file length : 424 lines : 23 Ln : 1 Col : 1 Sel : 0 | 0 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_35.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new 1 Demonstration\_35.java

```
1 /* Encapsulation: Defining a class w
2 class Point
3 {
4     int x,y;
5     void setPoint( ) {
6         x = 10;
7         y = 10;
8     }
9 }
10
11 // definition of another class. This
12
13 class Demonstration_35
14 {
15     float distance;
16     public static void main (String args)
17     {
18         Point p = new Point( );
19         p.setPoint();
20         System.out.println ( " x = "+ p.x );
21         System.out.println ( " y = "+ p.y );
22     }
23 }
```

C:\Windows\System32\cmd.exe

```
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration_35
Exception in thread "main" java.lang.NoSuchMethodError: Point.setPoint()
    at Demonstration_35.main(Demonstration_35.java:18)

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration_35.java
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration_35
x = 10
y = 10

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>
```

Java source file length : 389 lines : 23 Ln : 6 Col : 1 Sel : 19 | 3 Windows (CR LF) UTF-8 INS

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-lifl,Demonstration\_35.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?



new Demonstration\_35.java

```
1 /* Encapsulation: Defining a class with method */
2 class Point
3 {
4     int x,y;
5     void setPoint( ) {    I
6         x = 10;
7         y = 10;
8     }
9 }
10
11 // definition of another class. This is a main class
12
13 class Demonstration_35
14 {
15     float distance;
16     public static void main (String args[ ] ) {
17         Point p = new Point( );
18         p.setPoint();
19         System.out.println ( " x = "+ p.x );
20         System.out.println ( " y = "+ p.y );
21     }
22 }
```



Java source file

length : 389 lines : 23

Ln : 1 Col : 1 Sel : 0 | 0

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new 1 Demonstration\_34.java

```
1 // A program that uses simple Point class and naïve initialization of its data.
2
3 class Point {
4     int x;
5     int y;
6 }
7
8 // This class declares an object of type Point.
9 class Demonstration_34{
10 public static void main(String args[]) {
11     Point mypoint = new Point();
12
13     // assign values to mypoint's instance variables
14     mypoint.x = 10;
15     mypoint.y = 20;
16
17     // access the values from mypoint's instance variable
18     System.out.println("x " + mypoint.x);
19     System.out.println("x " + mypoint.y);
20
21 }
22 }
```

13:05 / 34:54

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_33.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new 1 Demonstration\_33.java

```
19     a = (width*height + height*depth +  
20         return a;  
21     }  
22     double volume(){  
23         double v;  
24         v = width*height*depth;  
25         return v;  
26     }  
27 }  
28  
29  
30 // Declaring objects of type Circle and Box  
class Demonstration_33 {  
    public static void main(String args[]){  
        Circle c = new Circle();  
        Box b = new Box();  
        // Initialize the circles  
        c.x = 3.0; c.y = 4.0; c.r = 5.0;  
        b.width = 3.0; b.height = 4.0; b.depth = 5.0;  
        System.out.println("Circumference Circle" + c.circumference());  
        System.out.println("Area Circle" + c.area());  
        System.out.println("Area of Box" + b.area());  
        System.out.println("Volume of Box" + b.volume());  
    }  
}
```

C:\Windows\System32\cmd.exe

Microsoft Windows [Version 10.0.17134.375]  
(c) 2018 Microsoft Corporation. All rights reserved.

11:32 / 34:54

D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration\_31.java  
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration\_31  
Circumference31.4159  
Area75.0  
  
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration\_32.java  
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration\_32  
Circumference Circle 131.4159  
Area Circle 175.0  
Circumference Circle 262.8318  
Area Circle 2300.0  
  
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>javac Demonstration\_33.java  
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>java Demonstration\_33  
Circumference Circle31.4159  
Area Circle75.0  
Area of Box94.0  
Volume of Box60.0  
  
D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III>

Java source file

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_33.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_33.java

```
19     a = (width*height + height*depth + width*depth) * 2;
20     return a;
21 }
22 double volume(){
23     double v;
24     v = width*height*depth;
25     return v;
26 }
27 }
28
29
30 // Declaring objects of type Circle and Box
class Demonstration_33 {
    public static void main(String args[]){
        Circle c = new Circle();
        Box b = new Box();
        // Initialize the circles
        c.x = 3.0; c.y = 4.0; c.r = 5.0;
        b.width = 3.0; b.height = 4.0; b.depth = 5.0;
        System.out.println("Circumference Circle" + c.circumference());
        System.out.println("Area Circle" + c.area());
        System.out.println("Area of Box" + b.area());
        System.out.println("Volume of Box" + b.volume());
    }
}
```

Java source file

length : 959 lines : 44 Ln : 1 Col : 1 Sel : 0

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_33.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_33.java

```
4     double circumference(){
5         return 2*3.14159*r;
6     }
7     double area(){
8         return (22/7)*r*r;
9     }
10
11 }
12
13 class Box{
14     double width;
15     double height;
16     double depth;
17     double area(){
18         double a;
19         a = (width*height + height*depth + width*depth) * 2;
20         return a;
21     }
22     double volume(){
23         double v;
24         v = width*height*depth;
25         return v;
26     }
27 }
```

Java source file

length : 959 lines : 44 Ln : 1 Col : 1 Sel : 0

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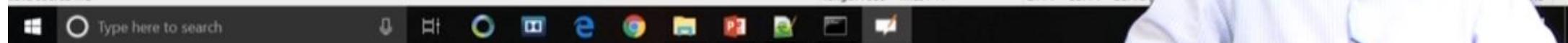


new 1 Demonstration\_33.java

```
1 class Circle {
2     double x,y;
3     double r;
4     double circumference(){
5         return 2*3.14159*r;
6     }
7     double area(){
8         return (22/7)*r*r;
9     }
10
11 }
12
13 class Box{
14     double width;
15     double height;
16     double depth;
17     double area(){
18         double a;
19         a = (width*height + height*depth + width*depth) * 2;
20         return a;
21     }
22     double volume(){
23         double v;
24         v = width*height*depth;
25         return v;
26     }
}
```

length : 959 lines : 44

Ln : 1 Col : 1 Sel : 0



D:\NPTEL Java\All Final\Week 2\Code\Demonstration-lifl,Demonstration\_32.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?



new Demonstration\_32.java

```
8 }
9 double area(){
10 return (22/7)*r*r;
11 }
12 }
13 //The following class declares multiple objects of type Circle
14 class Demonstration_32
15 {
16 public static void main(String args[]){
17 Circle c1 = new Circle();
18 Circle c2 = new Circle();
19 // Initialize the circles
c1.x = 3.0;
c1.y = 4.0;
c1.r = 5.0;
c2.x = -4.0;
c2.y = -8.0;
c2.r = 10.0;
System.out.println("Circumference Circle 1" + c1.circumference());
System.out.println("Area Circle 1" + c1.area());
System.out.println("Circumference Circle 2" + c2.circumference());
System.out.println("Area Circle 2" + c2.area());
}
}
```



Java source file

length : 764 lines : 32

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D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_32.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new 1 Demonstration\_32.java

```
1 // A program that declares two objects of the Circle class
2 // Call this file CircleDemo2.java
3 class Circle {
4     double x, y;
5     double r;
6     double circumference(){
7         return 2*3.14159*r;
8     }
9     double area(){
10        return (22/7)*r*r;
11    }
12 }
13 //The following class declares multiple objects of type Circle
14 class Demonstration_32
15 {
16     public static void main(String args[]){
17         Circle c1 = new Circle();
18         Circle c2 = new Circle();
19         // Initialize the circles
20         c1.x = 3.0;
21         c1.y = 4.0;
22         c1.r = 5.0;
23         c2.x = -4.0;
24         c2.y = -8.0;
25         c2.r = 10.0;
26         System.out.println("Circumference Circle 1" + c1.circumference());
27     }
28 }
```

Java source file length : 764 lines : 32 Ln : 1 Col : 1 Sel : 0

Type here to search



D:\NPTEL Java\All Final\Week 2\Code\Demonstration-III\Demonstration\_31.java - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

new Demonstration\_31.java

```
1 // A program that uses the circle class
2 // Call this file Demonstration_31.java
3 class Circle {
4     double x,y; // The coordinates of the center
5     double r; // The radius
6     // Method that returns circumference
7     double circumference(){
8         return 2*3.14159*r;
9     }
10    // Method that returns area
11    double area(){
12        return (22/7)*r*r;
13    }
14 }

//The following class declares an object of type Circle
class Demonstration_31{
    public static void main(String args[]){
        Circle c = new Circle();
        c.x = 0.0;
        c.y = 0.0;
        c.r = 5.0;
        System.out.println("Circumference" + c.circumference());
        System.out.println("Area" + c.area());
    }
}
```

Java source file length : 641 lines : 27 Ln : 27 Col : 1 Sel : 37 | 4 Windows (CR LF) UTF-8 INS

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# this with multiple constructors : An example

```
class Circle {  
    double x, y;  
    double r;  
    Circle (double x, double y, double r){  
        this.x = x; this.y = y; this.r = r;  
    }  
    Circle (double r){  
        this(0.0, 0.0, r);  
    }  
    Circle (Circle c){  
        this(c.x, c.y, c.r);  
    }  
    Circle (){  
        this(0.0, 0.0, 1.0);  
    }  
    double circumference(){  
        return 2*3.14159*r;  
    }  
    double area(){  
        return (22/7)*r*r;  
    }  
}
```

## Note:

1. There is a very important restriction on the `this` syntax.
2. It should appear only as the first statement in a constructor.



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# Constructor overloading : An example

```
class Circle {
    double x,y;
    double r;
    Circle (double x, double y, double r){
        this.x = x; this.y = y; this.r = r;
    }
    Circle (double r){
        x = 0; y=0; this.r = r;
    }
    Circle (Circle c){
        x = c.x; y = c.y; r = c.r;
    }
    Circle (){
        x = 0.0; y = 0.0; r = 1.0;
    }
    double circumference(){
        return 2*3.14159*r;
    }
    double area(){
        return (22/7)*r*r;
    }
}
```

```
class CircleDemo6 {
    public static void main(String args[]){
        Circle c1 = new Circle(3.0,4.0,5.0);
        Circle c2 = new Circle(5.0);
        Circle c3 = new Circle(c1);
        Circle c4 = new Circle();
        System.out.println("Circumference Circle 1" + c1.circumference());
        System.out.println("Area Circle 1" + c1.area());
        System.out.println("Circumference Circle 2" + c2.circumference());
        System.out.println("Area Circle 2" + c2.area());
        System.out.println("Circumference Circle 3" + c3.circumference());
        System.out.println("Area Circle 3" + c3.area());
        System.out.println("Circumference Circle 4" + c4.circumference());
        System.out.println("Area Circle 4" + c4.area());
    }
}
```

Name the file as [CircleDemo6.java](#)



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