Java Programs

Program 1: Hello World

```
package javaapplication2;

/**
 *
 * @author Neha
 */
class Ques1_Hello_World {
    public static void main(String... args){
        System.out.println("\nHello World");
    }
}
```

Output:

```
run:

Hello World
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program2: Data Type example

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques2_DataTypesEg {
    public static void main(String... args){
        //Integer dataTypes
        long a;
        int b=999999999;
        short c=9999;
        byte d=127;
        a=b*c*d;

        //Floating point numbers
        double e=2354656.896895988958599958595859898999995;
        float f=7689585.8958985f;

        //Character Datatypes
        char g='h';

        //Boolean Datatypes
        boolean h=false;

        //String
        String str="Great World";

        System.out.println("Example of data types: \nLong ="+a+"\nInteger ="+b+"\nShort ="+c+"\nByte
="+d);
        System.out.println("\nDouble ="+e+"\nFloat ="+f+"\nChar ="+g+"\nBoolean ="+h+"\nString ="+str);
    }
}
```

Output: run:

```
Example of data types:
Long =1493158287
Integer =999999999
Short =9999
Byte =127

Double =2354656.896895989
Float =7689586.0
Char =h
Boolean =false
String =Great World
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 3: Reverse of a number

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques3_ReverseNumber {
    public static void main(String... args){
        int a=12345,m,b=0;
        System.out.println("The Original number is: "+a);
        for (int i=0;i<5;i++){
            m=a%10;
            b=b*10+m;
            a=a/10;
        }
        System.out.println("The reversed number is: "+ b);
    }
}
```

Output: run:

```
The Original number is: 12345
The reversed number is: 54321
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 4: Area of a Circle.

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques4_AreaOfCircle {
    public static void main(String args[]){
        int r=5;
        final float PI=3.14f;
        float ar;
        ar=PI*r*r;
        System.out.println("The Area of the circle with radius "+r+" is: "+ar);
    }
}
```

Output:

```
run:
The Area of the circle with radius 5 is: 78.5
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 5: Static variable and method example.

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques5_StaticMembers {
    int i;
    static int j;
    public static void main (String[] args){
        //J is a static data member
        j=10;
        //i cannot be accessed here as it is not a static member
        System.out.println("j ="+j);
        //Check can be accessed as it is Static method
        check();
        //altered value of j by check
        System.out.println("j= "+j);
    }
    static void check(){
        j=49;
    }
}
```

Output:

```
run:
j =10
j= 49
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 6: WAP to swap two numbers.(using third variable and not using third variable)

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques6_SwapTwoNumbers {
    public static void main(String... args){
        int a=10,b=20,c;
        System.out.println("Using third variable");
        System.out.println("Original values of a ="+a+"\nb ="+b);
        c=a;
        a=b;
        b=c;
        System.out.println("Swapped values:\na ="+a+"\nb ="+b);
        a=68;
        b=47;
        System.out.println("\nNot using the third variable");
        System.out.println("Original values of a ="+a+"\nb ="+b);
        a=a+b;
        b=a-b;
        a=a-b;
        System.out.println("Swapped values:\na ="+a+"\nb ="+b);
    }
}
```

Output :

```
run:
Using third variable
Original values of a =10
b =20
Swapped values:
a =20
b =10

Not using the third variable
Original values of a =68
b =47
Swapped values:
a =47
b =68
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 7: Example of Operators.

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques7_JavaOperators {
    public static void main(String... args){
        int a,b,c,add,subt,mul,mod,incrpo,incrpre,addasgn=12;
        int subasgn=12,mulasgn=9,modasgn=6,decrepo,decrepre;
        float div,divasgn=20;
        byte e;
        boolean f,g,h;
        a=210;
        b=90;
        //Arithmetic operators
        add=a+b;
        subt=a-b;
        mul=a*b;
        div=a/b;
        mod=a%b;
        incrpo=a++;
        incrpre= ++a;
        addasgn+=b;
        subasgn-=a;
        mulasgn*=a;
        divasgn/=b;
        modasgn%=a;
        decrepo=b--;
        decrepre=--b;
        System.out.println("a= "+a+"\nb= "+b);
        System.out.println("addition: a+b= "+add+"\nSubtract: a-b= "+subt+"\nMultiplication: a*b= "+mul);
        System.out.println("Division: a/b= "+div+"\nModulus: a%b= "+ mod+"\nPost Increment: a++=
"+incrpo+"\nPre Increment: ++a="+incrpre);
        System.out.println("Addition Assignment: addasgn+=b"+addasgn+"\nSubtaction Assignment:
subasgn-=a"+subasgn);
        System.out.println("Mulplication Assignment: mulasgn*=a "+mulasgn+"\nDivision Assignment:
divasgn/=b "+divasgn);
        System.out.println("Modulus Assignment: modasgn%=a "+modasgn+"\npost drecement: decrepo=b--
"+decrepo+"\nPre Drecement: decrepre=--b "+decrepre);

        //The Trenary Operator, i.e. Conditional operator
        b=(a>0)? 0:23;
        System.out.println("The output of the conditional operator is: "+b);
        a=3;
        b=6;
        c=a|b;
        System.out.println("The output of or operation on \"3|6\" is :" +c);
        c=a&b;
```

```
        System.out.println("The output of And operation on \"3&6\" is :" +c);
        c=a^b;
        System.out.println("The output of Xor operation on \"3^6\" is :" +c);
        c=~a;
        System.out.println("The output of Not operation on \"~3\" is :" +c);

        //Bitwise Operations
        e=(byte)(-127<<2);
        System.out.println("The output of: -127<<2: "+e);
        e=(byte)(127>>1);
        System.out.println("The output of: 127>>1: "+e);
        e=(byte)(-128>>>1);
        System.out.println("The output of: -128>>>>1: "+e);

        //Relational Operators
        if(a==b)
            System.out.println("a is equal to b.");
        if(a<b)
            System.out.println("a is less than b.");
        if(a>b)
            System.out.println("a is greater than b.");
        if(a!=b)
            System.out.println("a is not equal to b.");
    }
}
```

Output :

```
run:
a= 212
b= 88
addition: a+b= 300
Subtract: a-b= 120
Multiplication: a*b= 18900
Division: a/b= 2.0
Modulus: a%b= 30
Post Increment: a++= 210
Pre Increment: ++a=212
Addition Assignment: addasgn+=b102
Subtaction Assignment: subasgn-=a-200
Mulplication Assignment: mulasgn*=a 1908
Division Assignment: divasgn/=b 0.22222222
Modulus Assignment: modasgn%=a 6
post drecement: decrepo=b-- 90
Pre Drecement: decrepre=--b 88
The output of the conditional operator is: 0
The output of or operation on "3|6" is :7
The output of And operation on "3&6" is :2
The output of Xor operation on "3^6" is :5
The output of Not operation on "~3" is :-4
The output of: -127<<2: 4
```

```
The output of: 127>>1: 63
The output of: -128>>>>1: -64
a is less than b.
a is not equal to b.
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 8: Example of Array.

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques8_Arrays {
   public static void main(String... ays){
      //One Dimensional Array
      //Declaring an integer array
      int xyz[];
      xyz=new int[3];
      xyz[0]=1;
      xyz[1]=2;
      xyz[2]=3;
      System.out.println("The array is: ");
      for (int s: xyz){
         System.out.print(s+"\t");
      }

      //Another way of Declaring the array - One Step Declartion
      int abc[] = new int[4];
      abc[0]=11;
      abc[1]=12;
      abc[2]=13;
      abc[3]=14;
      System.out.println("\nThe array is: ");
      for(int s: abc){
         System.out.print(s+"\t");
      }

      //Two Dimensional Array
      int a[][]=new int[2][2];
      for(int i=0;i<2;i++)
         for(int j=0;j<2;j++)
            a[i][j]=22;

      System.out.print("\nThis is multidimensional array\n");
      for(int i=0;i<2;i++){
         for(int s: a[i]){
            System.out.print(s+"\t");
         }
         System.out.print("\n");
      }
   }
}
```

Output :

```
run:
The array is:
1       2       3
The array is:
11      12      13      14
This is multidimensional array
22      22
22      22
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 9: Example of IF then Else.

```
package javaapplication2;
/**
 *
 * @author Neha
 */
public class Ques9_IfThenElse {
    public static void main(String... arh){
        int per=62;

        //Examing the example of if then else
        if(per>75)
            System.out.println("Distinction");
        else if(per<=75&&per>65)
            System.out.println("The grade is A");
        else if(per<=65&&per>55)
            System.out.println("The grade is B+");
        else if(per<=55&&per>45)
            System.out.println("The grade is C");
        else
            System.out.println("There is no grade, you need to work hard.");
    }
}
```

Output:

```
run:
The grade is B+
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 10: Find out whether the number is prime or not.

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques10_PrimeOrNot {
   public static void main(String... srt){
      int i,check=0;
      for(i=0;i<=50;i++){
         check=0;
         for(int j=2;j<i;j++){
            if(i%j==0)
               check++;
         }
         if(check==0)
            System.out.println(i+" is prime.");
      }

   }

}
```

Output :

```
run:
0 is prime.
1 is prime.
2 is prime.
3 is prime.
5 is prime.
7 is prime.
11 is prime.
13 is prime.
17 is prime.
19 is prime.
23 is prime.
29 is prime.
31 is prime.
37 is prime.
41 is prime.
43 is prime.
47 is prime.
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 11: Check whether the number is palindrome or not

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques11_PalindromeNumber {
    public static void main(String... art){
        int a=123454321,b=98800;
        boolean flag=true;
        flag=palindrome(a);
        if(flag)
            System.out.println(a+"\nThe number is a palinder.");
        else
            System.out.println(a+"\nThe number is not a palindrome.");
        flag=palindrome(b);
        if(flag)
            System.out.println(b+"\nThe number is a palinder.");
        else
            System.out.println(b+"\nThe number is not a palindrome.");
    }

    static boolean palindrome(int a){
        int d=1,m,q,check=0,ac;
        boolean flag=true;
        ac=a;
        for (int j=8;j>=5;j--){
            d=1;
            for(int i=1;i<=j;i++){
                d=d*10;
            }
            q=a/d;
            //System.out.println("1q "+q);
            a=a%d;
            //System.out.println("2a "+a);
            m=ac%10;
            ac=ac/10;
            //System.out.println("3m "+m+"\n4ac "+ac);
            if(m!=q){
                flag=false;
                break;
            }
        }
        return flag;
    }
}
```

Output:

```
run:
123454321
The number is a palinder.
98800
The number is not a palindrome.
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 12: Calculate Average value of Array elements using Java Example.

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques12_AverageOfArray {
   public static void main(String... sta){
      int a[]=new int[4],sum=0,i;
      float avg;
      for (i=0;i<4;i++){
         a[i]=i+3;
      }
      for (i=0;i<4;i++){
         sum+=a[i];
      }
      avg=sum/4;
      System.out.println("The array elements are: ");
         for(int s: a){
            System.out.println(s+"\t");
         }
      System.out.println("The average is: "+avg);
   }

}
```

Output:

```
run:
The array elements are:
3
4
5
6
The average is: 4.0
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 13: Generate Pyramid …

```
12345
1234
123
12
1
```

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques13_Pyramid {
   public static void main(String... ays){
      int i,j;
      for(i=5;i>=1;i--){
         for(j=1;j<=i;j++){
            System.out.print(j);
         }
         System.out.println();
      }
   }
}
```

Output:

```
run:
12345
1234
123
12
1
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 14: List Odd Numbers Java Example.

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques14_OddNumbers {
   public static void main(String... s){
      int n=50,check=0;
      for(int i=2;i<=n;i++){
         check=0;
         for(int j=2;j<=i;j++){
            if(i%j==0)
               check++;
         }
         if(check==1)
            System.out.println(i+" is a prime number.");
      }
   }
}
```

Output:

```
run:
2 is a prime number.
3 is a prime number.
5 is a prime number.
7 is a prime number.
11 is a prime number.
13 is a prime number.
17 is a prime number.
19 is a prime number.
23 is a prime number.
29 is a prime number.
31 is a prime number.
37 is a prime number.
41 is a prime number.
43 is a prime number.
47 is a prime number.
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 15: Determine If Year Is Leap Year Java Example

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques15_CheckLeapYezr {
    public static void main(String... args){
        int n=2012,n1=2011;
        if(n%4==0)
            System.out.println("The "+n+" year leap.");
        else
            System.out.println("The "+n+" year is not leap.");
        if(n1%4==0)
            System.out.println("The "+n1+" year is leap.");
        else
            System.out.println("The "+n1+" year is not leap.");
    }
}
```

Output:

```
run:
The 2012 year leap.
The 2011 year is not leap.
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 16: Java continue statement example.

```
package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques16_ContinueStatements {
    public static void main(String... ars){
        for(int i=1;i<=10;i++){
            if(i%3==0)
                System.out.println("The number is a multiple of 3");
            else
                System.out.println(i);
        }
    }
}
```

Output:

```
run:
1
2
The number is a multiple of 3
4
5
The number is a multiple of 3
7
8
The number is a multiple of 3
10
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 17: Java break with label example.

```
package javaapplication2;

/**
 *
 * @author Neha
 */

public class Ques17_BreakWithLabel
 {

  public static void main(String... arg){
   Outer: for(int i=1;i<=15;i++){
  Inner: for(int j=1;j<=i;j++){
  if(i==7){
 System.out.println("i=7\nSo the outer loop is breaked.");
break Outer;
}
System.out.println("\nThe value of j is "+j);
  }
System.out.println("The value of i is "+i);
}
}
}
```

Output:

```
run:

The value of j is 1
The value of i is 1

The value of j is 1

The value of j is 2
The value of i is 2

The value of j is 1

The value of j is 2

The value of j is 3
The value of i is 3

The value of j is 1

The value of j is 2

The value of j is 3
```

The value of j is 4
The value of i is 4

The value of j is 1

The value of j is 2

The value of j is 3

The value of j is 4

The value of j is 5
The value of i is 5

The value of j is 1

The value of j is 2

The value of j is 3

The value of j is 4

The value of j is 5

The value of j is 6
The value of i is 6
i=7
So the outer loop is breaked.
BUILD SUCCESSFUL (total time: 0 seconds)

Program 18:switch case example.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques18_SwitchCase {
    public static void main(String... jkj){
        char alpha[]={'a','b','c','d','e'},ch;
        for(int i=0;i<5;i++){
            ch=alpha[i];
            switch(ch){
                case 'a':
                    System.out.println("This is an \'a\'");
                    break;
                case 'b':
                    System.out.println("This is a \'b\'");
                    break;
                case 'c':
                    System.out.println("This is a \'c\'");
                    break;
                case 'd':
                    System.out.println("This is a \'d\'");
                    break;
                case 'e':
                    System.out.println("This is a \'e\'");
                    break;
            }
        }
    }
}
```

Output:

```
run:
This is an 'a'
This is a 'b'
This is a 'c'
This is a 'd'
This is a 'e'
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 19:Generate table of 2 using while loop.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques19_TableOf2 {
    public static void main(String... ghs){
        byte i=1,tab;
        while(i<=10){
            tab=(byte)(2*i);
            System.out.println("2 * "+i+" = "+tab);
            i++;
        }
    }
}
```

Output:

```
run:
2 * 1 = 2
2 * 2 = 4
2 * 3 = 6
2 * 4 = 8
2 * 5 = 10
2 * 6 = 12
2 * 7 = 14
2 * 8 = 16
2 * 9 = 18
2 * 10 = 20
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 20:Example of java class,object and method.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques20_MoreAboutClasses {
    public static void main(String s[]){
        Checking ob1=new Checking();
        ob1.c=90;
        System.out.println(ob1.c);
        member();
        ob1.init(78);
    }
    static void member(){
        //This method will be accessible by the main method
        System.out.println("This is the member method in the main class.");
    }
}

class Checking{
    //a being private member cant be accessed outside the class
    private int a;
    //c is public so it'll be accessible outside the respective class
    public int c;
    //This method will initialize the private member a

    void init(int num){
        a=num;
        System.out.println("The value of a is: "+a);
    }
}
```

Output:

```
run:
90
This is the member method in the main class.
The value of a is: 78
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 21:Example of constructor in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques21_UseOfConstructors {
    public static void main(String s[]){
        Abc obj=new Abc();
        System.out.println(obj.i+" "+obj.j+" "+obj.ab);
    }
}
class Abc{
    int i,j;
    String ab;
    Abc(){
        System.out.println("This is Default construstor.");
        i=90;
        j=78;
        ab="This is great";
    }
}
```

Output:

```
run:
This is Default construstor.
90 78 This is great
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 22:Example of costructor overloading in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques22_ConstructorOverloading {
    public static void main(String... d){
        ConstructorOverloading ob1=new ConstructorOverloading();
            System.out.println("Showing object1's Contents: \n"+ob1.i+" "+ob1.k+" "+ob1.ch);
        ConstructorOverloading ob2=new ConstructorOverloading(10,60.9f,"Object2");
            System.out.println("Showing object1's Contents: \n"+ob2.i+" "+ob2.k+" "+ob2.ch);
        ConstructorOverloading ob3=new ConstructorOverloading(20,70.9f);
            System.out.println("Showing object1's Contents: \n"+ob3.i+" "+ob3.k+" "+ob3.ch);
    }
}
class ConstructorOverloading{
    int i;
    String ch;
    float k;
    ConstructorOverloading(){
        i=0;
        k=0.0f;
        ch="Hello";
    }
    ConstructorOverloading(int a,float b,String s){
        i=a;
        ch=s;
        k=b;
    }
    ConstructorOverloading(int a,float b){
        i=a;
        k=b;
        ch="Not initialized";
    }
}
```

Output:

```
run:
Showing object1's Contents:
0 0.0 Hello
Showing object1's Contents:
10 60.9 Object2
Showing object1's Contents:
```

20 70.9 Not initialized
BUILD SUCCESSFUL (total time: 0 seconds)

Program 23: Using this keyword in Java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques23_ThisKeyword {
    public static void main(String... b){
        ThisKeyword Thisk=new ThisKeyword();
            Thisk.display();
        ThisKeyword thisk=new ThisKeyword(45,89.90f);
            thisk.display();
    }
}
class ThisKeyword{
    private int i,j;
    private float k,l;
    //we can also use the this keyword to call another constructor in the same class.
    //Doing so is called an explicit constructor invocation.
    ThisKeyword(){
       this(10,20,30.0f,40.0f);
    }
    ThisKeyword(int i,float k){
        //The most common reason for using the this keyword is because a field is shadowed by the same
name of the identifier
        this.i=i;
        this.j=i;
        this.k=k;
        this.l=k;
    }
    ThisKeyword(int a,int b,float c,float d){
        i=a;
        j=b;
        k=c;
        l=d;
    }
    void display(){
        System.out.println("The values of this object are: "+i+" "+j+" "+k+" "+l);
    }
}
```

Output:

```
run:
The values of this object are: 10 20 30.0 40.0
```

```
The values of this object are: 45 45 89.9 89.9
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 24: Create Class using inheritance in Java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
class A {
    private float f;
    int i,j;
    A(){
        i=10;
        j=20;
        f=30.0f;
    }
    void show(){
        System.out.println("This is class A \nThe values are: "+i+" "+j+" "+f);
    }
}
class B extends A{
    int a;
    private int b;
    B(){
     a=10;
     //Can access its private members
     b=20;
     //can access class A's public members
     i=40;
     j=50;
     //cant access class A's public members
     //f=60;        This will give an error.
    }
    void showing(){
            System.out.println("This is class B \nThe values are: "+a+" "+b+" "+i+" "+j);
    }
}
public class Ques24_ClassInherit {

    public static void main(String... args){
        //Object of class A
        A obA=new A();
        obA.show();
        //Object of class B
        B obB=new B();
        //accessing the method of class A
```

```
        obB.show();
        obB.showing();
    }
}
```

Output:

```
run:
This is class A
The values are: 10 20 30.0
This is class A
The values are: 40 50 30.0
This is class B
The values are: 10 20 40 50
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 25: example of method overriding.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
class A {
    private float f;
    int i,j;
    A(){
        i=10;
        j=20;
        f=30.0f;
    }
    void display(){
        System.out.println("This is class A \nThe values are: "+i+" "+j+" "+f);
    }
}
class B extends A{
    int a;
    private int b;
    B(){
     super();   //to iniatize the private members of the base class
     a=10;
     //Can access its private members
     b=20;
     //can access class A's public members
     i=40;
     j=50;
     //cant access class A's public members
     //f=60;        This will give an error.
    }
    //This method will override the method of the base class.
    void display(){
        super.display();
        //To call the method of base class
        System.out.println("This is class B \nThe values are: "+a+" "+b+" ");
    }

}
public class Ques25_MethodOverriding {
    public static void main(String... l){
        B obB= new B();
        obB.display();
```

```
    }
}
```

Output:

```
run:
This is class A
The values are: 40 50 30.0
This is class B
The values are: 10 20
BUILD SUCCESSFUL (total time: 2 seconds)
```

Program 26: example of passing objects in method and in constructor in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
class A{
    int i,j;
    private float s;
    A(){
        i=10;
        j=20;
        s=30.0f;
    }
    void Display(A obj){
        System.out.println("The values are: "+obj.i+" "+obj.j);
        //obj being a object cant access the private data members.
    }
}
public class Ques26_PassingObjects {
    public static void main(String... h){
        A obj=new A();
        obj.Display(obj);
    }
}
```

Output:

```
run:
The values are: 10 20
BUILD SUCCESSFUL (total time: 1 second)
```

Program 27: example of parameterized constructor in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
class ParameterizedConstructor{
    int i,k;
    private float f;
    ParameterizedConstructor(int a,int b){
        i=a;
        k=b;
        f=0.0f;
    }
    ParameterizedConstructor(int a,int b,float c){
        i=a;
        k=b;
        f=c;
    }
    void display(){
        System.out.println("The values are: "+i+" "+k+" "+f);
    }
}
public class Ques27_ParameterizedConstructor {
    public static void main(String... k){
        ParameterizedConstructor ob1=new ParameterizedConstructor(23,89);
            ob1.display();
        ParameterizedConstructor ob2 = new ParameterizedConstructor(34,87,90.8f);
            ob2.display();
    }
}
```

Output:

```
run:
The values are: 23 89 0.0
The values are: 34 87 90.8
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 28: Example of Super keyword in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
class First{
    int a,b;
    private float c;
    First(int i,int j,float k){
        a=i;
        b=j;
        c=k;
    }
    First(){
        a=0;
        b=0;
        c=0.0f;
    }
    void display(){
        System.out.println("The values are: "+a+" "+b+" "+c);
    }
}
class Second extends First{
    int e,f;
    Second(){
        super();
        e=0;
        f=0;
    }
    Second(int i,int j,float l,int m,int n){
        super(i,j,l);
        e=m;
        f=n;
    }
    void show(){
        System.out.println(e+" "+f);
    }
}
public class Ques28_SuperKeyword {
    public static void main(String... l){
        Second ob=new Second(10,20,30.0f,40,50);
        ob.display();
        ob.show();
```

```
    }
}
```

Output:

```
run:
The values are: 10 20 30.0
40 50
BUILD SUCCESSFUL (total time: 1 second)
```

Program 29: example of Final keyword in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
class First{
   int i,j;
   final int calculate(){
      return i+j;
   }
   void display(){
      System.out.println("The Values of this object are: "+i+" "+j);
   }
}
final class Second extends First{
   int a,b;
   int sum(Second s){
     return this.a+this.b;
   }
   void display(){
      System.out.println("The values for this object is: "+a+" "+b);
   }
}
class Third/*cant extend the class Second*/{
   void show(){
      System.out.println("Class Second cannot be inheritted...");
   }
}
public class Ques29_FinalKeyword {
   public static void main(String... s){
      final int P=100;
      int k=90;
      Second sec=new Second();
      sec.a=78;
      sec.b=87;
      k=sec.sum(sec);
      sec.display();
      System.out.println("The sum is: "+k);
   }
}
```

Output:

```
run:
```

```
The values for this object is: 78 87
The sum is: 165
BUILD SUCCESSFUL (total time: 1 second)
```

Program 30: Bubble sort using java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques30_BubbleSort {
   public static void main(String... d){
      int a[]={9,7,6,5,3,4,10,2,12,15,13};
      int i,j,temp;
      System.out.println("The Unsorted array is: ");
         for(int s: a)
            System.out.print(s+" ");
      System.out.println();
      for(i=0;i<a.length;i++){
         for(j=i+1;j<a.length;j++){
            if(a[i]>a[j]){
               temp=a[i];
               a[i]=a[j];
               a[j]=temp;
            }
         }
      }
      System.out.println("The Sorted array is: ");
         for(int s: a)
            System.out.print(s+" ");
   }
}
```

Output:

```
run:
The Unsorted array is:
9 7 6 5 3 4 10 2 12 15 13
The Sorted array is:
2 3 4 5 6 7 9 10 12 13 15 BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 31: Create New thread using Runnable example.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
// PrintNameRunnable implements Runnable interface
class PrintNameRunnable implements Runnable {
    String name;
    PrintNameRunnable(String name) {
        this.name = name;
    }
// Implementation of the run() defined in the
// Runnable interface.
    public void run() {
        for (int i = 0; i < 10; i++) {
            System.out.println(name);
        }
    }
}
public class Ques31_RunnableThread {
    public static void main(String... s){
        Thread thre=new Thread("Theardy");
        PrintNameRunnable pnt1 = new PrintNameRunnable("This is runnable thread");
        Thread t1 = new Thread(pnt1);
        t1.start();
    }
}
```

Ouput:

```
run:
This is runnable thread
This is runnable thread
This is runnable thread
This is runnable thread
This is runnable thread
This is runnable thread
This is runnable thread
This is runnable thread
This is runnable thread
This is runnable thread
This is runnable thread
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 32: Get current thread example.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques32_CurrentThread {
   public static void main(String... l){
      Thread thred=Thread.currentThread();
      System.out.println("The Current Thread is: "+thred);
      thred.setName("Main Thread");
      System.out.println("Current Thread after renaming is: "+thred);
      for(int i=0;i<5;i++)
         System.out.println(i);
   }
}
```

Output:

```
run:
The Current Thread is: Thread[main,5,main]
Current Thread after renaming is: Thread[Main Thread,5,main]
0
1
2
3
4
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 33: pause thread using Sleep method example.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques33_Sleep {
   public static void main(String... s){
      System.out.println("The current thread is "+Thread.currentThread());
      try{
         Thread.sleep(100);
      }
      catch(Exception E){
         System.out.println("Exception occurred....");
      }
   }
}
```

Output:

```
run:
The current thread is Thread[main,5,main]
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 34: Set Thread name example

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques34_SetThreadName {
    public static void main(String... s){
        Thread t =new Thread("Demo");
        System.out.println("The Current Thread is: "+t);
        t.setName("New Demo");
        System.out.println("The new name is "+t);
    }
}
```

Output:

```
run:
The Current Thread is: Thread[Demo,5,main]
The new name is Thread[New Demo,5,main]
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 35: Example of exception handling in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques35_ExceptionHandling {
    static void test(){
        System.out.println("This is NullPointerException");
        throw new NullPointerException("Demo");
        //This is unreachable code
        //System.out.println("This is statement after throwing the exception.");
    }
    static void testThrows() throws Exception{
        System.out.println("This is a program for testing throws keyword.");
        throw new Exception("Check");
    }
    public static void main(String... k){
        int a,b;
        float c;
        a=234;
        b=0;
        try{
            //c=a/b;
            test();
        }
        catch(ArithmeticException E){
            System.out.println("This is divide by 0 error.");
        }
        catch(NullPointerException NPE){
            System.out.println("The Exception is "+NPE);
        }
        try{
            testThrows();
        }
        catch(Exception EE){
            System.out.println("The Exception is :"+EE);
        }
    }
}
```

Output:

```
run:
This is NullPointerException
```

```
The Exception is java.lang.NullPointerException: Demo
This is a program for testing throws keyword.
The Exception is :java.lang.Exception: Check
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 36: WAP to implement packages in java.

```
package Mypack;
public class Back
	{
		String name;
		int roll;
	public Back()
	{
		name="Namrita";
		roll=23;
		System.out.println("Name: "+name);
		System.out.println("Roll: "+roll);
	}
}

import Mypack.*;
class Importing
	{
		public static void main(String args[])
		{
			Back b=new Back();
		}
	}
```

Output:
Name: Namrita
Roll: 23

Program 37: WAP a program to implement interfaces in java.
Interface is:

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public interface InterfaceTest {
      void changeCadence(int newValue);   // wheel revolutions per minute
      void changeGear(int newValue);
      void speedUp(int increment);
      void applyBrakes(int decrement);
}
```

Implementing the interface:

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
class Bicycle implements InterfaceTest {

      int cadence = 0;
      int speed = 0;
      int gear = 1;

      public void changeCadence(int newValue) {
          cadence = newValue;
      }

      public void changeGear(int newValue) {
          gear = newValue;
      }

      public void speedUp(int increment) {
          speed = speed + increment;
      }
```

```
    public void applyBrakes(int decrement) {
        speed = speed - decrement;
    }

    void printStates() {
        System.out.println("cadence:"+cadence+" speed:"+speed+" gear:"+gear);
    }
}
public class Ques37_ImplementingInterface {
   public static void main(String... s){
      Bicycle Bic=new Bicycle();
      Bic.applyBrakes(20);
      Bic.changeCadence(10);
      Bic.changeGear(50);
      Bic.printStates();
   }
}
```

Output:

```
run:
cadence:10 speed:-20 gear:50
BUILD SUCCESSFUL (total time: 1 second)
```

Program 38: Convert binary number to decimal number example.(int decimalNumber = Integer.parseInt(strBinaryNumber,2));

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques38_Change {
        public static void main(String[] args) {
                //declare string containing binary number
                String strBinaryNumber = "111000";

                 int decimalNumber = Integer.parseInt(strBinaryNumber,2);
                 System.out.println("Binary number converted to decimal number");
                 System.out.println("Decimal number is : " + decimalNumber);
        }
}
```

Output:

```
run:
Binary number converted to decimal number
Decimal number is : 56
BUILD SUCCESSFUL (total time: 1 second)
```

Program 39: Convert decimal integer to binary number example.(String strBinaryNumber = Integer.toBinaryString(i);

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques39_Change {
	public static void main(String[] args) {
		String str = Integer.toBinaryString(56);
		System.out.println("Decimal number converted to Binary number");
		System.out.println("Binary number is : " + str);
	}
}
```

Output:

```
run:
Decimal number converted to Binary number
Binary number is : 111000
BUILD SUCCESSFUL (total time: 1 second)
```

Program 40:Convert decimal integer to hexadecimal number example.(String strHexNumber = Integer.toHexString(i);)

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques40_Change {
        public static void main(String[] args) {

                String str= Integer.toHexString(45);
                System.out.println("Binary number is : " + str);

        }
}
```

Output:

```
run:
Binary number is : 2d
BUILD SUCCESSFUL (total time: 1 second)
```

Program 41: Convert decimal integer to octal number example.(String strOctalNumber = Integer.toOctalString(i);)

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques41_Change {
        public static void main(String[] args) {
                String str= Integer.toOctalString(45);
                System.out.println("Octal number is : " + str);
        }
}
```

Output:

```
run:
Octal number is : 55
BUILD SUCCESSFUL (total time: 1 second)
```

Program 42: Convert hexadecimal number to decimal number example.(int decimalNumber = Integer.parseInt(strHexNumber, 16);

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques42_Change {
	public static void main(String[] args) {

		String str= "4d";
		int dec;
		dec=Integer.parseInt(str, 16);
		System.out.println("Decimal number is : " + dec);

	}
}
```

Output:

```
run:
Decimal number is : 77
BUILD SUCCESSFUL (total time: 1 second)
```

Program 43: Convert Integer to Java String object

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques43_Change {
  public static void main(String[] args) {
    Integer intObj = new Integer(10);

    //use toString method of Integer class to conver Integer into String.
    String str = intObj.toString();
    System.out.println("Integer converted to String as " + str);
  }
}
```

Output:

```
run:
Integer converted to String as 10
BUILD SUCCESSFUL (total time: 1 second)
```

Program 44: Convert java int to Integer object Example

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques44_Change {
  public static void main(String[] args) {
    int i = 10;

    Integer intObj = new Integer(i);
    System.out.println(intObj);

  }
}
```

Output:

```
run:
10
BUILD SUCCESSFUL (total time: 1 second)
```

Program 45: Convert Java Integer object to Numeric primitive types

```
Integer intObj = new Integer("10");

   //use byteValue method of Integer class to convert it into byte type.
   byte b = intObj.byteValue();
   System.out.println(b);

   //use shortValue method of Integer class to convert it into short type.
   short s = intObj.shortValue();
   System.out.println(s);

   //use intValue method of Integer class to convert it into int type.
   int i = intObj.intValue();
   System.out.println(i);

   //use floatValue method of Integer class to convert it into float type.
   float f = intObj.floatValue();
   System.out.println(f);

   //use doubleValue method of Integer class to convert it into double type.
   double d = intObj.doubleValue();
   System.out.println(d);

/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques45_Change {
  public static void main(String[] args) {
    int i = 10;

    Integer intObj = new Integer(i);
    System.out.println(intObj);

  }
}
```

Output:

```
run:
10
BUILD SUCCESSFUL (total time: 1 second)
```

Program 46: Convert Java String to Integer object Example

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques46_Change {
  public static void main(String[] args) {
    int i = 10;

                                                Integer intObj = new Integer(10);

       byte b = intObj.byteValue();
    System.out.println(b);

                                                short s = intObj.shortValue();
    System.out.println(s);

                                                float f = intObj.floatValue();
    System.out.println(f);



  }
}
```

Output:

```
run:
10
10
10.0
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 47: Convert octal number to decimal number example.(int decimalNumber = Integer.parseInt(strOctalNumber,8);)

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques47_Change {
  public static void main(String[] args) {
                                                    Integer intObj = new Integer("1000");
                                                    System.out.println(intObj);

  }
}
```

Output:

```
run:
1000
BUILD SUCCESSFUL (total time: 1 second)
```

Program 48: Convert String to java int Example

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques48_Change {
                                                    public static void main(String[] args) {
                                                       String str= "75";
                                                       int dec;
                                                       dec=Integer.parseInt(str, 8);
                                                       System.out.println("Decimal number is : " + dec);
                                                    }
}
```

Output:

```
run:
Decimal number is : 61
BUILD SUCCESSFUL (total time: 1 second)
```

Program 49: Convert String to primitive byte Example.(Byte.parseByte(str))

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques49_Change {
                                                    public static void main(String[] args) {
                                                       String str= "75";
                                                       System.out.println("Integer number is : " +
Integer.parseInt(str));
                                                    }
}
```

Output:

```
run:
Integer number is : 75
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 50: Convert Double object to String object.(String str = dObj.toString();)

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques50_Change {
                                                    public static void main(String[] args) {
                                                       String str= "95";
                                                       System.out.println("Integer number is : " +
Byte.parseByte(str));
                                                    }
}
```

Output:

```
run:
Integer number is : 95
BUILD SUCCESSFUL (total time: 1 second)
```

Program 51: Java Double compare example(double d1 = 5.35;
double d2 = 5.34;
int i1 = Double.compare(d1,d2);)

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques51_Change {
public static void main(String[] args) {
Double dobj=new Double(12.43);
String str = dobj.toString();
System.out.println(str);
}
}
```

Output:

```
run:
12.43
BUILD SUCCESSFUL (total time: 1 second)
```

Program 52: Convert Java String to Float Object Example.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques52_Change {
public static void main(String[] args) {
double d1 = 5.34;
double d2 = 5.34;
int i1 = Double.compare(d1,d2);
System.out.println(i1);
}
}
```

Output:

```
run:
0
BUILD SUCCESSFUL (total time: 1 second)
```

Program 54: WAP to implement Exception handling in java using Try Catch block .

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques54_TryCatchBlock {
    public static void main(String... f){
        int a;
        try{
            a=0;
            a=45/a;
        }
        catch(Exception E){
            System.out.println("This is divide by Zero error.");
        }
    }
}
```

Output:

```
run:
This is divide by Zero error.
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 55: WAP to implement nested try catch blocks in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques55_NestedTryCatchBlock {
   public static void main(String... d){
      int a=0,b=0,c[]=new int[9];
      try{
         try{
            b=10;
            c[b]=89;
         }
         catch(ArrayIndexOutOfBoundsException E){
            System.out.println("The Error is :"+E);
         }
        b=45/a;
      }
      catch(ArithmeticException EE){
         System.out.println("The Exception is "+EE);
      }
   }
}
```

Output:

```
run:
The Error is :java.lang.ArrayIndexOutOfBoundsException: 10
The Exception is java.lang.ArithmeticException: / by zero
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 56: WAP to implement multiple catch statements in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques56_MultiCatch {
    public static void main(String... d){
        int a=0,b[]=new int[5];
        try{
            b[1]=45/a;
            a=6;
            b[a]=87;
        }
        catch(ArithmeticException AE){
            System.out.println("The Exception is "+AE);
        }
        catch(ArrayIndexOutOfBoundsException AIE){
            System.out.println("The Exception is "+AIE);
        }
    }
}
```

Output:

```
run:
The Exception is java.lang.ArithmeticException: / by zero
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 57: WAP to implement throw and throws keyword in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques57_ThrowsNThrowKeyword {
    static void hello() throws Exception{
        int a[]=new int[5];
        int b=6;
        if(b>5)
            throw new ArrayIndexOutOfBoundsException("Oops..");
        else
            a[b]=67;
    }
    public static void main(String... g){
        try{
            hello();
        }
        catch(Exception E){
            System.out.println("The Exception is "+E);
        }
    }
}
```

Output:

```
run:
The Exception is java.lang.ArrayIndexOutOfBoundsException: Oops..
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 58: WAP to implement finally in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
public class Ques58_FinallyKeyword {
   public static void main(String... s){
      int a=0;
      try{
         a=90/a;
      }
      catch(ArithmeticException AE){
         System.out.println("The Exception is :"+AE);
      }
      finally{
         System.out.println("This is Finally Block.");
      }
   }
}
```

Output:

```
run:
The Exception is :java.lang.ArithmeticException: / by zero
This is Finally Block.
BUILD SUCCESSFUL (total time: 0 seconds)
```

Program 60: WAP to create your own exception class in java.

```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package javaapplication2;

/**
 *
 * @author Neha
 */
class MyException extends Exception{
    private String detail;
    MyException(String s){
        detail=s;
    }
    String show(){
        return ("The Exception is: "+detail);
    }
}
public class Ques60_MyException {
    static void tTry(int n) throws MyException{
        System.out.println("We are in tTry method.");
        if(n>100)
            throw new MyException("Value is out of range. i.e."+n);
        else
            System.out.println("The value is: "+n);
    }
    public static void main(String... s){
        try{
            tTry(56);
            tTry(101);

        }
        catch(MyException E){
            System.out.println("Error caught: "+ E);
        }
    }
}
```

Output:

```
run:
We are in tTry method.
The value is: 56
We are in tTry method.
Error caught: javaapplication2.MyException
BUILD SUCCESSFUL (total time: 0 seconds)
```