**PROGRAM:**

Public class Simple{

public static void main(String args[])

{

System.out.println("Hello Java");

}

}

**OUTPUT:**

$javac Student1.java  
$java -Xmx128M -Xms16M Student1  
Hello Java

**RESULT:**

**PROGRAM:**

public class Student1{

int id;//data member (also instance variable)

String name;//data member(also instance variable)

public static void main(String args[]){

Student1 s1=new Student1();//creating an object of Student

System.out.println(s1.id);

System.out.println(s1.name);

}

}

**OUTPUT:**

$javac Student1.java  
$java -Xmx128M -Xms16M Student1  
0

null

**RESULT:**

**PROGRAM:**

public class Student2{

int rollno;

String name;

void insertRecord(int r, String n){ //method

rollno=r;

name=n;

} void displayInformation(){System.out.println(rollno+" "+name);}//method

public static void main(String args[]){

Student2 s1=new Student2();

Student2 s2=new Student2();

s1.insertRecord(111,"SHA");

s2.insertRecord(222,"RIA");

s1.displayInformation();

s2.displayInformation();

}

}

**OUTPUT:**

$javac Student2.java  
$java -Xmx128M -Xms16M Student2  
111 SHA

222 RIA

**RESULT:**

**PROGRAM:**

public class Rectangle{

int length;

int width;

void insert(int l,int w){

length=l;

width=w;

}

void calculateArea(){System.out.println(length\*width);}

public static void main(String args[]){

Rectangle r1=new Rectangle();

Rectangle r2=new Rectangle();

r1.insert(11,5);

r2.insert(3,15);

r1.calculateArea();

r2.calculateArea();

}

}

**OUTPUT:**

**$javac Rectangle.java**  
**$java -Xmx128M -Xms16M Rectangle**  
55

45

**RESULT:**

**PROGRAM:**

public class Calculation{

void fact(int n){

int fact=1;

for(int i=1;i<=n;i++){

fact=fact\*i;

}

System.out.println("factorial is "+fact);

}

public static void main(String args[]){

new Calculation().fact(5);//calling method with annonymous object

}

}

**OUTPUT;**

**$javac Calculation.java**  
**$java -Xmx128M -Xms16M Calculation**  
factorial is 120

**RESULT:**

**PROGRAM:**

public class Rectangle{

int length;

int width;

void insert(int l,int w){

length=l;

width=w;

}

void calculateArea(){System.out.println(length\*width);}

public static void main(String args[]){

Rectangle r1=new Rectangle(),r2=new Rectangle();//creating two objects

r1.insert(16,5);

r2.insert(3,18);

r1.calculateArea();

r2.calculateArea();

}

}

**OUTPUT:**

**$javac Rectangle.java**  
**$java -Xmx128M -Xms16M Rectangle**  
80

54

**RESULT:**

**PROGRAM:**

public class Calculation{

void sum(int a,int b){System.out.println(a+b);}

void sum(int a,int b,int c){System.out.println(a+b+c);}

public static void main(String args[]){

Calculation obj=new Calculation();

obj.sum(10,10,10);

obj.sum(20,20);

}

}

**OUTPUT:**

**$javac Calculation.java**  
**$java -Xmx128M -Xms16M Calculation**  
30

40

**RESULT:**

**PROGRAM:**

public class Calculation2{

void sum(int a,int b){System.out.println(a+b);}

void sum(double a,double b){System.out.println(a+b);}

public static void main(String args[]){

Calculation2 obj=new Calculation2();

obj.sum(10.5,10.5);

obj.sum(20,20);

}

}

**OUTPUT:**

**$javac Calculation2.java**  
**$java -Xmx128M -Xms16M Calculation2**  
21.0

40

**RESULT:**

**PROGRAM:**

public class Overloading1{

public static void main(int a){

System.out.println(a);

}

public static void main(String args[]){

System.out.println("main() method invoked");

main(10);

}

}

**OUTPUT:**

**$javac Overloading1.java**  
**$java -Xmx128M -Xms16M Overloading1**  
main() method invoked

10

**RESULT:**

**PROGRAM:**

public class OverloadingCalculation1{

void sum(int a,long b){System.out.println(a+b);}

void sum(int a,int b,int c){System.out.println(a+b+c);}

public static void main(String args[]){

OverloadingCalculation1 obj=new OverloadingCalculation1();

obj.sum(20,20);//now second int literal will be promoted to long

obj.sum(20,20,20);

}

}

**OUTPUT:**

**$javac OverloadingCalculation1.java**  
**$java -Xmx128M -Xms16M OverloadingCalculation1**  
40

60

**RESULT:**

**PROGRAM:**

public class Bike1{

Bike1(){System.out.println("Bike is created");}

public static void main(String args[]){

Bike1 b=new Bike1();

}

}

**OUTPUT:**

**$javac Bike1.java**  
**$java -Xmx128M -Xms16M Bike1**  
Bike is created

**RESULT:**

**PROGRAM:**

public class Student3{

int id;

String name;

void display(){System.out.println(id+" "+name);}

public static void main(String args[]){

Student3 s1=new Student3();

Student3 s2=new Student3();

s1.display();

s2.display();

}

}

**OUTPUT:**

**$javac Student3.java**  
**$java -Xmx128M -Xms16M Student3**  
0 null

0 null

**RESULT:**

**PROGRAM:**

public class Student4{

int id;

String name;

Student4(int i,String n){

id = i;

name = n;

}

void display(){System.out.println(id+" "+name);}

public static void main(String args[]){

Student4 s1 = new Student4(111,"shazia ");

Student4 s2 = new Student4(222,"ria");

s1.display();

s2.display();

}

}

**OUTPUT:**

**$javac Student4.java**  
**$java -Xmx128M -Xms16M Student4**  
111 shazia

222 ria

**RESULT:**

**PROGRAM:**

public class Student5{

int id;

String name;

int age;

Student5(int i,String n){

id = i;

name = n;

}

Student5(int i,String n,int a){

id = i;

name = n;

age=a;

}

void display(){System.out.println(id+" "+name+" "+age);}

public static void main(String args[]){

Student5 s1 = new Student5(111,"shazia");

Student5 s2 = new Student5(222,"ria",25);

s1.display();

s2.display();

}

}

**OUTPUT:**

**$javac Student5.java**  
**$java -Xmx128M -Xms16M Student5**  
111 shazia 0

222 ria 25

**RESULT:**

**PROGRAM:**

public class Student6{

int id;

String name;

Student6(int i,String n){

id = i;

name = n;

}

Student6(Student6 s){

id = s.id;

name =s.name;

}

void display(){System.out.println(id+" "+name);}

public static void main(String args[]){

Student6 s1 = new Student6(111,"ria");

Student6 s2 = new Student6(s1);

s1.display();

s2.display();

}

}

**OUTPUT:**

**$javac Student6.java**  
**$java -Xmx128M -Xms16M Student6**  
111 ria

111 ria

**RESULT:**

PROGRAM:

public class Counter{

int count=0;//will get memory when instance is created

Counter(){

count++;

System.out.println(count);

}

public static void main(String args[]){

Counter c1=new Counter();

Counter c2=new Counter();

Counter c3=new Counter();

}

}

**OUTPUT:**

**$javac Counter.java**  
**$java -Xmx128M -Xms16M Counter**  
1

1

1

**RESULT:**

PROGRAM:

public class Counter2{

static int count=0;//will get memory only once and retain its value

Counter2(){

count++;

System.out.println(count);

}

public static void main(String args[]){

Counter2 c1=new Counter2();

Counter2 c2=new Counter2();

Counter2 c3=new Counter2();

}

}

**OUTPUT:**

**$javac Counter2.java**  
**$java -Xmx128M -Xms16M Counter2**  
1

2

3

**RESULT:**

**PROGRAM:**

public class Student9{

int rollno;

String name;

static String college = "ITS";

static void change(){

college = "BBDIT";

}

Student9(int r, String n){

rollno = r;

name = n;

}

void display (){System.out.println(rollno+" "+name+" "+college);}

public static void main(String args[]){

Student9.change();

Student9 s1 = new Student9 (111,"ria");

Student9 s2 = new Student9 (222,"shazia");

Student9 s3 = new Student9 (333,"chashu");

s1.display();

s2.display();

s3.display();

}

}

**OUTPUT:**

**$javac Student9.java**  
**$java -Xmx128M -Xms16M Student9**  
111 ria BBDIT

222 shazia BBDIT

333 chashu BBDIT

**RESULT:**

**PROGRAM:**

public class Student10{

int id;

String name;

Student10(int id,String name){

id = id;

name = name;

}

void display(){System.out.println(id+" "+name);}

public static void main(String args[]){

Student10 s1 = new Student10(111,"Karan");

Student10 s2 = new Student10(321,"Aryan");

s1.display();

s2.display();

}

}

**OUTPUT:**

**$javac Student10.java**  
**$java -Xmx128M -Xms16M Student10**  
0 null

0 null

**RESULT:**

**PROGRAM:**

**package** javalab20;

**publicclass** javalab20 {

**int**id;

String name;

javalab20(){System.***out***.println("default constructor is invoked");}

javalab20(**int**id,String name){

**this** ();//it is used to invoked current class constructor.

**this**.id = id;

**this**.name = name;

}

**void** display(){System.***out***.println(id+" "+name);}

**publicstaticvoid** main(String args[]){

javalab20 e1 = **new** javalab20(111,”ria”);

javalab20 e2 = **new** javalab20(222,"shazia”);

e1.display();

e2.display();

}

}

**OUTPUT:**

Ria

SHAZIA

**RESULT:**

**PROGRAM:**

**package** javalab21;

**publicclass** javalab21 {

**int**id;

String name;

String city;

javalab21(**int**id,String name){

**this**.id = id;

**this**.name = name;

}

javalab21(**int**id,String name,String city){

**this**(id,name);//now no need to initialize id and name

**this**.city=city;

}

**void** display(){System.***out***.println(id+" "+name+" "+city);}

**publicstaticvoid** main(String args[]){

javalab21 e1 = **new** javalab21(111,"nive","choolaimedu");

javalab21 e2 = **new** javalab21(222,"ria",”pallavaram");

e1.display();

e2.display();

}

}

**OUTPUT:**

Nive choolaimedu

Ria pallavaram

**RESULT:**

**PROGRAM:**

**package** javalab22;

**publicclass** javalab22 {

**void** m(){

System.***out***.println("method is invoked");

}

**void** n(){

**this**.m();

}

**void** p(){

n();

}

**publicstaticvoid** main(String args[]){

javalab22 s1 = **new** javalab22();

s1.p();

}

}

**OUTPUT:**

Method is invoked .

**RESULT:**

**PROGRAM:**

**package** javalab23;

**publicclass** javalab23 {

**void** m(javalab23 obj){

System.***out***.println("method is invoked");

}

**void** p(){

m(**this**);

}

**publicstaticvoid** main(String args[]){

javalab23 s1 = **new** javalab23();

s1.p();

}

}

**OUTPUT:**

Method is invoked

**RESULT:**

**PROGRAM:**

**package** javalab24;

**publicclass**javalab24 {

A4 obj;

javalab24(A4 obj){

**this**.obj=obj;

}

**void** display(){

System.***out***.println(obj.data);

}

}

**class** A4{

**int**data=10;

A4(){

javalab24b=**new**javalab24(**this**);

b.display();

}

**publicstaticvoid** main(String args[]){

A4 a=**new** A4();

}

}

**OUTPUT:**

Method is invoked.

**RESULT:**

**PROGRAM**

**package** javalab25;

**publicclass** javalab25 {

javalab25 getA(){

**returnthis**;

}

**void** msg(){System.***out***.println("Hello java");}

}

**class** Test1{

**publicstaticvoid** main(String args[]){

**new** javalab25().getA().msg();

}

}

**OUTPUT:**

Hello java

**RESULT:**