

PROGRAM No. 1

```
/* Write a Java Program to define a class, describe its constructor, overload
the Constructors and instantiate its object */
import java.lang.*;
class student
{
String name;
int regno;
int marks1,marks2,marks3;
// null constructor
student()
{
name="raju";
regno=12345;
marks1=56;
marks2=47;
marks3=78;
}
// parameterized constructor
student(String n,int r,int m1,int m2,int m3)
{
name=n;
regno=r;
marks1=m1;
marks2=m2;
marks3=m3;
}
// copy constructor
student(student s)
{
name=s.name;
regno=s.regno;
marks1=s.marks1;
marks2=s.marks2;
marks3=s.marks3;
}
void display()
{
System.out.println(name + "\t" +regno+ "\t" +marks1+ "\t" +marks2+ "\t" + marks3);
}
}
class studentdemo
{
public static void main(String arg[])
{
```

```
student s1=new student();
student s2=new student("john",34266,58,96,84);
student s3=new student(s1);
s1.display();
s2.display();
s3.display();
}
}
```

*****OUTPUT*****

```
c:\jdk1.6.0_26\bin>javac studentdemo.java
```

```
c:\jdk1.6.0_26\bin>java studentdemo
```

```
raju 12345 56 47 78
```

```
john 34266 58 96 84
```

```
raju 12345 56 47 78
```

PROGRAM No.2

/* Write a Java Program to define a class, define instance methods for setting and Retrieving values of instance variables and instantiate its object.*/

```
import java.lang.*;
class emp
{
String name;
int id;
String address;
void getdata(String name,int id,String address)
{
this.name=name;
this.id=id;
this.address=address;
}
void putdata()
{
System.out.println("Employee details are :");
System.out.println("Name :" +name);
System.out.println("ID :" +id);
System.out.println("Address :" +address);
}
}
class empdemo
{
public static void main(String arg[])
{
emp e=new emp();
e.getdata("smith",76859,"gulbarga");
e.putdata();
}
}
```

*****OUTPUT*****

c:\jdk1.6.0_26\bin>javac empdemo.java

c:\jdk1.6.0_26\bin>java empdemo

Employee details are :

Name :smith

ID :76859

Address :Gulbarga

PROGRAM No.3

/* Write a Java Program to define a class, define instance methods and overload them and use them for dynamic method invocation.*/

```
import java.lang.*;
class add
{
void display(int a,int b)
{
int c=a+b;
System.out.println("The sum of " + a + " & " + b + " is " + c);
}
void display(double a,double b)
{ double c=a+b;
System.out.println("The sum of " + a + " & " + b + " is " + c);
}
}
class add_demo
{
public static void main(String arg[])
{
add obj=new add();
obj.display(10,20);
obj.display(10.2,20.2);
}
}
```

*****OUTPUT*****

c:\jdk1.6.0_26\bin>javac add_demo.java

c:\jdk1.6.0_26\bin>java add_demo

The sum of 10 & 20 is 30

The sum of 10.2 & 20.2 is 30.4

PROGRAM No.4

```
/* Write a Java Program to demonstrate use of sub class */
import java.lang.*;
class parent
{
int m;
void get_m(int m)
{
this.m=m; }
void display_m()
{
System.out.println("This is from parent : m = " +m);
}
}
class child extends parent
{
int n;
void get_n(int n)
{
this.n=n;
}
void display_n()
{
System.out.println("This is from child : n = " +n);
}
}
class childdemo
{
public static void main(String arg[])
{
child c=new child();
c.get_m(10);
c.get_n(20);
c.display_m();
c.display_n();
}
}
```

*****OUTPUT*****

C:\jdk1.6.0_26\bin>javac childdemo.java

C:\jdk1.6.0_26\bin>java childdemo

This is from parent : m = 10

This is from child : n = 20

PROGRAM No.5

```
/* Write a Java Program to demonstrate use of nested class.*/
import java.lang.*;
class outer
{
int m=10;
class inner
{
int n=20;
void display()
{ System.out.println("m = "+m); System.out.println("n = "+n);
}
}
}
class nesteddemo
{
public static void main(String arg[])
{
outer outobj=new outer();
outer.inner inobj=outobj.new inner();
inobj.display();
}
}
*****OUTPUT*****
C:\jdk1.6.0_26\bin>javac nesteddemo.java
C:\jdk1.6.0_26\bin>java nesteddemo
m = 10
n = 20
```

PROGRAM No.6

```
/* Write a Java Program to implement array of objects. */
import java.lang.*;
public class EmployeeTest
{
    public static void main(String[] args)
    {
        Employee[] staff = new Employee[3];
        staff[0] = new Employee("Harry Hacker", 3500);
        staff[1] = new Employee("Carl Cracker", 7500);
        staff[2] = new Employee("Tony Tester", 3800);
        for (int i = 0; i < 3; i++)
            staff[i].print();
    }
}
class Employee
{
    private String name;
    private double salary;
    public Employee(String n, double s)
    {
        name = n;
        salary = s;
    }
    public void print()
    {
        System.out.println(name + " " + salary);
    }
}
*****OUTPUT*****
C:\jdk1.6.0_26\bin>javac EmployeeTest.java
C:\jdk1.6.0_26\bin>java EmployeeTest
Harry Hacker 3500.0
Carl Cracker 7500.0
Tony Tester 3800.0
```

PROGRAM No.7

Write a Java program to practice using String class and its methods.

```
import java.lang.String;
class stringdemo
{
public static void main(String arg[])
{
String s1=new String("gpt gulbarga");
String s2="GPT GULBARGA";
System.out.println(" The string s1 is : " +s1);
System.out.println(" The string s1 is : " +s2);
System.out.println(" Length of the string s1 is : " +s1.length());
System.out.println(" The first accurence of r is at the position : " +s1.indexOf('r'));
System.out.println(" The String in Upper Case : " +s1.toUpperCase());
System.out.println(" The String in Lower Case : " +s1.toLowerCase());
System.out.println(" s1 equals to s2 : " +s1.equals(s2));
System.out.println(" s1 equals ignore case to s2 : " +s1.equalsIgnoreCase(s2));
int result=s1.compareTo(s2);
System.out.println("After compareTo()");
if(result==0)
System.out.println( s1 + " is equal to "+s2);
else if(result>0)
System.out.println( s1 + " is greather than to "+s2);
else
System.out.println( s1 + " is smaller than to "+s2);
System.out.println(" Character at an index of 6 is : " +s1.charAt(6));
String s3=s1.substring(4,12);
System.out.println(" Extracted substring is :"+s3);
System.out.println(" After Replacing g with a in s1 : " + s1.replace('g','a'));
String s4=" This is a book ";
System.out.println(" The string s4 is :"+s4);
System.out.println(" After trim() :"+s4.trim());
}
}
```

*****OUTPUT*****

```
c:\jdk1.6.0_26\bin>javac stringdemo.java
c:\jdk1.6.0_26\bin>java stringdemo
The string s1 is : gpt gulbarga
The string s1 is : GPT GULBARGA
Length of the string s1 is : 12
The first accurence of r is at the position : 9
The String in Upper Case : GPT GULBARGA
The String in Lower Case : gpt gulbarga
s1 equals to s2 : false
```


s1 equals ignore case to s2 : true
After compareTo()
gpt gulbarga is greater than to GPT GULBARGA
Character at an index of 6 is :l
Extracted substring is :gulbarga
After Replacing g with a in s1 : apt aulbaraa
The string s4 is : This is a book
After trim() :This is a book

PROGRAM No.8

Write a Java Program to implement Wrapper classes and their methods.

```
import java.io.*;
class wrapperdemo
{
public static void main(String args[])
{
Float P=new Float(0);
Float I=new Float(0);
int y=0;
try
{
DataInputStream ds=new DataInputStream(System.in);
System.out.println("ENTER THE PRINCIPAL AMOUNT");
System.out.flush();
String sp=ds.readLine();
P=Float.valueOf(sp);
System.out.println("ENTER THE INTEREST RATE");
System.out.flush();
String SI=ds.readLine();
I=Float.valueOf(SI);
System.out.println("ENTER THE NUMBER OF YEARS");
System.out.flush();
String sy=ds.readLine();
y=Integer.parseInt(sy);
}
catch(Exception e)
{
System.out.println("INPUT OUTPUT ERROR");
System.exit(1);
}
float value=loan(P.floatValue(),I.floatValue(),y);
System.out.println("FINAL VALUE IS:"+value);
}
static float loan(float P,float I,int y)
{
int year=1;
float sum=P;
while(year<=y)
{
sum=sum+(P*I)/100;
year++;
}
return sum;
```

```
}  
}
```

*****OUTPUT*****

C:\jdk1.6.0_26\bin>javac wrapperdemo.java

Note: wrapperdemo.java uses or overrides a deprecated API.

Note: Recompile with -Xlint:deprecation for details.

C:\jdk1.6.0_26\bin>java wrapperdemo

ENTER THE PRINCIPAL AMOUNT

1000

ENTER THE INTEREST RATE

2

ENTER THE NUMBER OF YEARS

1

FINAL VALUE IS:1020.0

E:\jdk1.6.0_26\bin>java wrapperdemo

ENTER THE PRINCIPAL AMOUNT

1000

ENTER THE INTEREST RATE

2

ENTER THE NUMBER OF YEARS

2

FINAL VALUE IS:1040.0

PROGRAM No.9

*Write a Java Program to implement inheritance and demonstrate use of method overriding.

```
import java.lang.*;
```

```
class A
```

```
{
```

```
void display()
```

```
{
```

```
System.out.println("This is from class A ");
```

```
}
```

```
}
```

```
class B extends A
```

```
{
```

```
void display()
```

```
{
```

```
System.out.println("This is from class B ");
```

```
}
```

```
}
```

```
class AB
```

```
{
```

```
public static void main(String arg[])
```

```
{
```

```
B obj=new B();
```

```
obj.display();
```

```
}
```

```
}
```

```
*****OUTPUT*****
```

```
C:\jdk1.6.0_26\bin>javac AB.java
```

```
C:\jdk1.6.0_26\bin>java AB
```

```
This is from class B
```

PROGRAM No. 10

```
/* Write a Java Program to implement multilevel inheritance by applying various access controls
to its
data members and methods. */
import java.io.DataInputStream;
class Student
{
private int rollno;
private String name;
DataInputStream dis=new DataInputStream(System.in);
public void getrollno()
{
try
{
System.out.println("Enter rollno ");
rollno=Integer.parseInt(dis.readLine());
System.out.println("Enter name ");
name=dis.readLine();
}
catch(Exception e){ }
}
void putrollno()
{
System.out.println("Roll No =" +rollno);
System.out.println("Name =" +name);
}
}
class Marks extends Student
{
protected int m1,m2,m3;
void getmarks()
{
try
{
System.out.println("Enter marks :");
m1=Integer.parseInt(dis.readLine());
m2=Integer.parseInt(dis.readLine());
m3=Integer.parseInt(dis.readLine());
}
catch(Exception e) { }
}
void putmarks()
{
```

```

System.out.println("m1="+m1);
System.out.println("m2="+m2);
System.out.println("m3="+m3);
}
}
class Result extends Marks
{
private float total;
void compute_display()
{
total=m1+m2+m3;
System.out.println("Total marks :"+total);
}
}
class MultilevelDemo
{
public static void main(String arg[])
{
Result r=new Result();
r.getrollno();
r.getmarks();
r.putrollno();
r.putmarks();
r.compute_display();
}
}
*****OUTPUT*****
C:\jdk1.6.0_26\bin>javac MultilevelDemo.java
Note: MultilevelDemo.java uses or overrides a deprecated API.
Note: Recompile with -Xlint:deprecation for details.
C:\jdk1.6.0_26\bin>java MultilevelDemo
Enter rollno
12345
Enter name
Avinash
Enter marks :
54
78
46
Roll No =12345
Name =Avinash
m1=54
m2=78
m3=46
Total marks :178.0

```

PROGRAM No. 11

Write a program to demonstrate use of implementing interfaces.

```
import java.lang.*;
interface Area
{
    final static float pi=3.14F;
    float compute(float x,float y);
}
class rectangle implements Area
{
    public float compute(float x,float y)
    {
        return(pi*x*y);
    }
}
class circle implements Area
{
    public float compute(float x,float x)
    {
        return(pi*x*x);
    }
}
class interfacedemo
{
    public static void main(String a[])
    {
        rectangle rect=new rectangle();
        circle cir=new circle();
        Area A;
        A=rect;
        System.out.println("Area of rectangle="+A.compute(10,20));
        A=cir;
        System.out.println("Area of circle="+A.compute(30,0));
    }
}
*****OUTPUT*****
C:\jdk1.6.0_26\bin>javac interfacedemo.java
C:\jdk1.6.0_26\bin>java interfacedemo
Area of rectangle=628.0
Area of circle=2,827.43
```

PROGRAM No. 12

Write a Java program to implement the concept of importing classes from user defined package and creating packages.

/*Source code of package p1 under the directory C:\jdk1.6.0_26\bin>p1\edit Student.java */

```
package p1;
public class Student
{
    int regno;
    String name;
    public void getdata(int r,String s)
    {
        regno=r;
        name=s;
    }
    public void putdata()
    {
        System.out.println("regno = " +regno);
        System.out.println("name = " + name);
    }
}
```

/* Source code of the main function under C:\jdk1.6.0_26\bin>edit StudentTest.java */

```
import p1.*;
class StudentTest
{
    public static void main(String arg[])
    {
        student s=new student();
        s.getdata(123,"xyz");
        s.putdata();
    }
}
```

*****OUTPUT*****

```
C:\jdk1.6.0_26\bin>javac p1\Student.java
C:\jdk1.6.0_26\bin>javac StudentTest.java
C:\jdk1.6.0_26\bin>java StudentTest
regno = 123
name = xyz
```