PROGRAM 1:

AIM: WRITE A PROGRAM TO FIND ROOTS OF A QUADRATIC EQUATION

SOURCE CODE

```
import java.io.*;
class Quadratic
{
        public static void main (String args[])throws java.io.IOException
    {
        try
        {
          DataInputStream ip=new DataInputStream(System.in);
        double a,b,c,d,r1,r2,m,n,i;
        System.out.println("Enter the Three Numbers:");
        a=Integer.parseInt(ip.readLine());
        b=Integer.parseInt(ip.readLine());
        c=Integer.parseInt(ip.readLine());
        d=(b*b)-(4*a*c);
        if(d==0)
         {
           System.out.println("The roots are equal:");
            r1=-b/(2*a);
           System.out.println("The root is="+r1);
          }
        else if(d>0)
          {
           System.out.println("The roots are equal:");
            r1=+b+Math.sqrt(d)/(2*a);
            r2=-b-Math.sqrt(d)/(2*a);
```

```
            System.out.println("The roots are="+r1);
            System.out.println("The roots are="+r2);
          }
        else if(d<0)
          {
            System.out.println("The roots are imaginary:");
             d=Math.abs(d);
             m=-b/2*a;
             n=Math.sqrt(d)/2*a;
            System.out.println("The root is"+m+"+i"+n);
            System.out.println("The root is"+m+"-i"+n);
          }
    }
        catch(Exception e)
        {
        }
}
    }
```

OUTPUT

Enter the Three Numbers:

1

2

3

The roots are imaginary:

The root is -1.0+i1.4142135;

The root is -1.0-i1.4142135;

PROGRAM 2:

AIM: WRITE A PROGRAM TO PRINT FLOYD TRIANGLE

SOURCE CODE

```
import java.io.*;
class Floyd
{
public static void main(String args[])throws java.io.IOException
    {
try{
  DataInputStream ip=new DataInputStream(System.in);
System.out.println("Enter the Limit:");
          int n=Integer.parseInt(ip.readLine());
          int k=1;
             System.out.println("Floyd's triangle :-");
          for(int i=1;i<=n;i++)
            {
             for(int j=1;j<=i;j++)
               {
             System.out.print(k+" ");
                k++;
               }
          System.out.println();
            }
          }
          catch(Exception e)
          {
          }
}
```

OUTPUT

Enter the Limit:3

Floyd's triangle :-

1

2 3

4 5 6

PROGRAM 3:

AIM: TO READ 'N' NUMBERS FROM AN ARRAY AND FIND THE SUM OF ODD AND EVEN NUMBERS

SOURCE CODE

```
import java.io.*;
class ArrayDemo
{
        public static void main(String args[])throws java.io.IOException
    {
        try
        {
          DataInputStream ip=new DataInputStream(System.in);
        int n;
        System.out.println("Enter the Limit:");
        n=Integer.parseInt(ip.readLine());
        int a[]=new int[n];
        int s=0,e=0;
        System.out.println("Enter the Numbers:");
        for(int i=0;i<n;i++)
         {
           a[i]=Integer.parseInt(ip.readLine());
         }
           for(int i=0;i<n;i++)
             {
                  if((a[i]%2)==0)
                    s=s+a[i];
                  else
```

```
                    e=e+a[i];
                }
              System.out.println("The sum of even numbers="+s);
                    System.out.println("The sum of odd numbers="+e);
                }
       catch(Exception e)
           {
           }
}
    }
```

OUTPUT

Enter the Limit:5

Enter the Numbers:

12

3

5

7

8

The sum of even numbers=20

The sum of odd numbers=15

PROGRAM 4:

AIM: SORT 'N' NUMBERS USING AN ARRAY

SOURCE CODE

```
import java.io.*;
class Sort
{
 public static void main(String args[])throws java.io.IOException
    {
       int j;
          DataInputStream ip=new DataInputStream(System.in);
           System.out.println("Enter the Limit:");
           int n=Integer.parseInt(ip.readLine());
           int a[]=new int[n];
           System.out.println("Enter the Numbers:");
           for(int i=0;i<n;i++)
             {
           a[i]=Integer.parseInt(ip.readLine());
              }
           for(int i=0;i<n;i++)
             {
                for(j=0;j<n;j++)
                      {
                        if(a[i]>a[j])
                                {
                      int t=a[i];
                                 a[i]=a[j];
                                 a[j]=t;
```

```
                        }
}
  }
        System.out.println("Sorted Array is:");
            for(int i=0;i<n;i++)
          {
            System.out.println(a[i]);
          }
        }
}
```

OUTPUT

Enter the Limit: 5

Enter the Numbers:

12

3

4

6

23

Sorted Array is:

3

4

6

12

23

PROGRAM 5:

AIM: WRITE A PROGRAM TO ADD TWO MATRIX

SOURCE CODE

```
import java.io.*;
class Matrix
{
public static void main(String args[])throws java.io.IOException
    {
        try
        {
        int m=2,n=2;
          DataInputStream ip=new DataInputStream(System.in);
        System.out.println("Enter the number of rows and columns of of matrix:");
m=Integer.parseInt(ip.readLine());
        n=Integer.parseInt(ip.readLine());
        int a[][]=new int[m][n];
        int b[][]=new int[m][n];
        int c[][]=new int[m][n];
        System.out.println("Enter the elements of first matrix");
        for(int i=0;i<m;i++)
          {
        for(int j=0;j<n;j++)
        a[i][j]=Integer.parseInt(ip.readLine());
}
        System.out.println("Enter the order of second matrix:");
        m=Integer.parseInt(ip.readLine());
        n=Integer.parseInt(ip.readLine());
       System.out.println("Enter the elements of second matrix");
```

```
            for(int i=0;i<m;i++)
            {
                    for(int j=0;j<n;j++)
              b[i][j]=Integer.parseInt(ip.readLine());
            }
                   for(int i=0;i<m;i++)
            {
                    for(int j=0;j<n;j++)
             c[i][j]=a[i][j]+b[i][j];
            }
             System.out.println("the result of the matrix is");
            for(int i=0;i<m;i++)
            {
                    for(int j=0;j<n;j++)
                      {
          System.out.println(c[i][j]);
                      }
          System.out.println("\t");
          }
}
          catch(Exception e)
          {
          }
}
    }
```

OUTPUT

Enter the number of rows and columns of of matrix:

2

2

Enter the elements of first matrix:

12 2

5 6

Enter the order of second matrix:

2

3

Enter the elements of second matrix:

10 4

5 3

the result of the matrix is:

22 6

10 9

PROGRAM 6:

AIM: CHECK WHETHER A MATRIX IS SYMMETRIC OR NOT

SOURCE CODE

```
import java.io.*;
class Symmetric
{
public static void main(String args[])throws java.io.IOException
{
try
{
        DataInputStream ip=new DataInputStream(System.in);
        System.out.println("Enter the number of rows and columns of matrix:");
        int m=Integer.parseInt(ip.readLine());
        System.out.println("Enter the elements of matrix");
        int a[][]=new int[m][m];
        int b[][]=new int[m][m];
        for(int i=0;i<m;i++)
        {
        for(int j=0;j<m;j++)
        a[i][j]=Integer.parseInt(ip.readLine());
        }
        for(int i=0;i<m;i++)
        {
        for(int j=0;j<m;j++)
        b[i][j]=a[i][j];
        }
        int f=0;
    for(int i=0;i<m;i++)
    {
      for(int j=0;j<m;j++)
        {
            if(a[i][j]!=b[j][i])
          {
              f=1;
              break;
          }
        }
     }
```

```
        if(f= =1)
       {
            System.out.println("the matrix is not symmetric");
        }
       else
       {
            System.out.println("the matrix is symmetric");
        }
}catch(Exception e){}
}
 }
```

OUTPUT

Enter the number of rows and columns of matrix:2

2

Enter the elements of matrix

12 3

4 5

The matrix is not symmetric

PROGRAM 7:

AIM: THE AREA AND PERIMETER OF A RECTANGLE USING CLASSES AND OBJECTS

SOURCE CODE

```
import java.io.*;
class Rectangle
 {
        int l,b;
        void getdata(int x,int y)
        {
           l=x;
           y=b;
         }
        int area()
         {
           int ar;
           ar=l*b;
           return(ar);
         }
        int perimeter()
         {
           int per;
           per=2*(l+b);
           return(per);
         }
 }
class AreaPeri
{
        public static void main(String args[])throws java.io.IOException
        {
        try
        {
              DataInputStream ip=new DataInputStream(System.in);
        int a,p;
        Rectangle r=new Rectangle();
        System.out.println("Enter the length of the rectangle:");
        r.l=Integer.parseInt(ip.readLine());
        System.out.println("Enter the breadth of the rectangle:");
        r.b=Integer.parseInt(ip.readLine());
```

```
        a=r.area();
        p=r.perimeter();
        System.out.println("Area of Rectangle=:"+a);
        System.out.println("perimeter of Rectangle=:"+p);
}catch(Exception e){}
}
 }
```

OUTPUT

```
        Enter the length of the rectangle:3

        Enter the breadth of the rectangle:5

        Area of Rectangle=15

        perimeter of Rectangle=16
```

PROGRAM 8:

AIM: THE AREA AND PERIMETER OF A RECTANGLE AND SQUARE USING METHOD OVERLOADING

SOURCE CODE

```
import java.io.*;
class Square
 {
        int l,b;
        int area(int x,int y)
         {
            return(x*y);
         }
        int area(int x)
         {
           return(x*x);
         }
        int perimeter(int x, int y)
         {
           return(2*(x+y));
         }
        int perimeter(int x)
         {
           return(4*x);
         }
}
 class OverloadingDemo
{
        public static void main(String args[])throws java.io.IOException
    {
        try
        {
        int a,x,y;
        Square s=new Square();
        System.out.println("Enter the side of a square:");
        DataInputStream ip=new DataInputStream(System.in);
        a=Integer.parseInt(ip.readLine());
        System.out.println("Enter the length of a reactangle:");
```

```
            x=Integer.parseInt(ip.readLine());
            System.out.println("Enter the breadth of a reactangle:");
            y=Integer.parseInt(ip.readLine());
            System.out.println("Area of square=:"+s.area(a));
            System.out.println("perimeter of a square=:"+s.perimeter(a));
            System.out.println("Area of a rectangle=:"+s.area(x,y));
            System.out.println("perimeter of a square=:"+s.perimeter(x,y));
}
            catch(Exception e){}
}
    }
```

OUTPUT

Enter the side of a square:5

Enter the length of a reactangle:5

Enter the breadth of a reactangle:4

Area of square=25

perimeter of a square=20

Area of a rectangle=20

perimeter of a reactangle =18

PROGRAM 9:

AIM: WRITE APROGRAM TO FIND FIBONACCI SERIES OF A GIVEN NUMBER

SOURCE CODE

```
import java.io.*;
class Fibonacci
{
  public static void main(String args[])throws   java.io.IOException
  {
          try
          {
           DataInputStream ip=new   DataInputStream(System.in);
          System.out.println("Enter the Limit:");
          int n=Integer.parseInt(ip.readLine());
          int f1=0,f2=1;
          System.out.println("The fibonacci series is:");
          System.out.println(" "+f1+" "+f2);
          for(int i=2;i<n;i++)
          {
         int fib=f1+f2;
         System.out.println(+fib);
         f1=f2;
         f2=fib;
         }
       }catch(Exception e){}
    }
}
```

OUTPUT

```
Enter the Limit:5
The Fibonacci series is:
0
1
1
2
3
```

PROGRAM 10:

AIM: PROGRAM TO IMPLEMENT SINGLE INHERITANCE USING SUPER

SOURCE CODE

```
import java.io.*;
class Point
{
        int x,y;
        Point(int x,int y)
          {
           this.x=x;
           this.y=y;
          }
}
class Point1 extends Point
 {
        int z;
        Point1(int x,int y,int z)
         {
          super(x,y);
        this.z=z;
         }
}
 class SingleInheritance
{
  public static void main(String args[])throws  java.io.IOException
 {
     try
        {
          DataInputStream ip=new DataInputStream(System.in);
        System.out.println("Enter three numbers:");
        int a=Integer.parseInt(ip.readLine());
        int b=Integer.parseInt(ip.readLine());
        int c=Integer.parseInt(ip.readLine());
        Point p1=new Point(a,b);
        Point1 p2=new Point1(a,b,c);
        System.out.println("Base Class Values:");
```

```
            System.out.println("x="+p1.x+"y="+p1.y);
            System.out.println("derived Class Values:");
            System.out.println("x="+p2.x+"y="+p2.y+"z="+p2.z);
            }catch(Exception e){}
        }
}
```

OUTPUT

Enter three numbers:

2

4

5

Base Class Values:

x=2

y=4

derived Class Values:

x=2

y=4

z=5

PROGRAM 11:

AIM:Write a program Using INTERFACES

SOURCE CODE

```
interface Sports
{
final static int sw=6;
public void putweight();
}
class Student
{
int rno;
public void getno(int n)
{
rno=n;
}
public void putno()
{
System.out.println("rollno of student="+rno);
}
}
class Test extends Student
{
int m1,m2;
public void getmark(int x,int y)
{
m1=x;
m2=y;
}
public void putmark()
{
System.out.println("marks of 2 subject="+m1+m2);
}
}
class Result extends Test implements Sports
{
```

```
int total;
public void putweight()
{
System.out.println("weight="+sw);
}
public void display()
{
total=m1+m2+sw;
System.out.println("total is="+total);
putno();
putmark();
putweight();
}
}
class Details
{
   public static void main(String s[])
  {
          Result r=new Result();
          r.getno(15);
          r.getmark(56,85);
          r.display();
   }
}
```

OUTPUT

Roll no of student:15

Mark of two subject:56

85

Total=77

Weight:6

PROGRAM 12

AIM: WRITE A PROGRAM TO IMPLEMENTING AN INTERFACE AND CALCULATE AREA OF ACIRCLE AND RECATNGLE

SOURCE CODE

```
interface Area
{
final static double pi=3.14;
public double computeArea(double x,double y);
}
class Rectangle implements Area
{
        public double computeArea(double x,double y)
{
double a;
a=x*y;
return(a);
}
}
class Circle implements Area
{
        public double computeArea(double x,double y)
{
double b;
b=pi*x*x;
return(b);
}
}
class Inter
{
public static void main(String s[])
{
Rectangle r=new Rectangle();
Circle c=new Circle();
area a;
a=r;
System.out.println("area of rectangle="+a.computeArea(2,3));
a=c;
System.out.println("area of circle="+a.computeArea(4,0));
```

```
}
}
```

OUTPUT

```
area of rectangle=6
area of circle=50.24
```

PROGRAM 13:

AIM: WRITE A PROGRAM TO PERFORM OR IMPLEMENT THREAD

SOURCE CODE

```
class A extends Thread
{
public void run()
{
for(int i=1;i<=5;i++)
{
if(i==3)
yield();
System.out.println("Thread A="+i);
}
System.out.println("Exit from A");
}
}
class B extends Thread
{
public void run()
{
for(int j=1;j<=5;j++)
{
System.out.println("Thread B="+j);
}
System.out.println("Exit fro B");
}
}
class C extends Thread
{
public void run()
{
for(int k=1;k<=5;k++)
{
System.out.println("Thread C="+k);
if(k==3)
try
{
sleep(1000);
}
catch(Exception e)
{
}
System.out.println("Exit from C");
}
}
}
class Thread1
{
public static void main(String args[])
{
A threada=new A();
B threadb=new B();
```

```
C threadc=new C();
System.out.println("start thread A");
threada.start();
System.out.println("start thread B");
threadb.start();
System.out.println("start thread C");
threadc.start();
System.out.println("End of main thread");
}
}
```

OUTPUT

```
start thread A

Thread A=1

Thread A=2

Thread A=3


start thread B

Thread B=1

Thread B=2
Thread B=3
Thread B=4
Thread B=5
Exit from B

start thread C
Thread C=1
Thread C=2

Thread A=4
Thread A=5
Exit From A

Thread C=3
Thread C=4
Thread C=5
Exit From C
```

PROGRAM: 14

AIM:WRITE A PROGRAM TO PRINT EVEN NUMBERS FROM ONE THREAD AND ODD NUMBERS FROM ANOTHER THREAD. DISPLAY EACH THREAD WITH SUITABLE DELAY.

SOURCE CODE

```
class A extends Thread
{
   public void run()
  {
          for(int i=1;i<=10;i++)
          {
          if(i%2==0)
          System.out.println(i);
          }
try
{
          sleep(1000);
}
catch(Exception e)
{}
}
}
class B extends Thread
{
          public void run()
          {
          for(int j=1;j<=10;j++)
          {
          if(j%2!=0)
          System.out.println(j);
          }
          try
          {
          sleep(1000);
          }
          catch(Exception e)
          {}
   }
}
class ThreadOdd
{
   public static void main(String args[])
  {
          A threada=new A();
          B threadb=new B();
          threada.start();
          threadb.start();
  }
}
```

OUTPUT

2
1
4
3
6
5
8
7
10
9

PROGRAM:15

AIM: WRITE A PROGRAM TO PRINT NUMBERS UPTO 10 IN ONE THREAD AND LETTERS FROM A TO Z IN ANOTHER THREAD. DISPLAY THE RESULTS IN AN INTERLEAVED MANNER

SOURCE CODE

```
class A extends Thread
{
public void run()
{
for(int i=1;i<=10;i++)
System.out.println(i);
try
{
sleep(1000);
}
catch(Exception e)
{}
}
}
        class B extends Thread
        {
        public void run()
        {
        for(char c='a';c<='z';c++)
        System.out.println(c);

try
        {
        sleep(1000);
```

```
            }
            catch(Exception e)
            {}
    }
}
class ThreadAlpha
{
   public static void main(String args[])
   {
            A threada=new A();
            B threadb=new B();
            threada.start();
            threadb.start();
   }
}
```

OUTPUT

1
a
2
b
3
c
4
d
5
e
6
f
7
g
8

h

9

i

10

j

k

l

m

n

o

p

q

r

s

t

u

v

w

x

y

z

PROGRAM:16

AIM: WRITE A PACKAGE PROGRAM FOR PERFORMING MATHEMATICAL OPERATION ADDITION, SUBTRACTION, DIVISION, MULTIPLICATION AND MODULUS

SOURCE CODE

```
package Package1;
public class Calculate
{
  int c;
  public int addition(int a,int b)
   {
     c=a+b;
     return(c);
}
 public int subtraction(int a,int b)
   {
     c=a-b;
     return(c);
}
 public int multiply(int a,int b)
   {
     c=a*b;
     return(c);
}
 public int division(int a,int b)
   {
     c=a/b;
```

```
    return(c);
}
 public int modulus(int a,int b)
   {
    c=a%b;
    return(c);
}
}
```

import Package1.Calculate;

```
import Package1.Calculate;
import java.io.*;
class PackageDemo
{
public static void main(String args[])
{
 try
{
int v,y;
DataInputStream ip=new DataInputStream(System.in);
System.out.println("Enter two numbers:");
v=Integer.parseInt(ip.readLine());
y=Integer.parseInt(ip.readLine());
Calculate cal=new Calculate();
int m=cal.addition(v,y);
System.out.println("sum="+m);
int s=cal.subtraction(v,y);
System.out.println("subtraction="+s);
```

```
int mu=cal.multiply(v,y);
System.out.println("multiplication="+mu);
 int di=cal.division(v,y);
System.out.println("quotient="+di);
int f=cal.modulus(v,y);
System.out.println("modulus="+f);
}
catch(Exception e)
{}
}
}
```

OUTPUT

```
Enter two numbers:15
5
Sum=20
Subtraction=10
Multiplication=75
Quotient=3
Modulus=0
```

PROGRAM:17

AIM: WRITE A PROGRAM TO FIND FACTORIAL OF A NUMBER, IMPORT THE PACKAGE TO FIND NC R AND NPR.

SOURCE CODE

```
 package Package1;
public class Fa
{
int f1=1;
public int factorial(int x)
{
  for(int i=1;i<=x;i++)
         f1=f1*i;
      return(f1);
}
}
import Package1.Fa;
import java.io.*;
class ncr
{
  public static void main(String args[])
{
  try
{
  int r,n;
  DataInputStream ip=new DataInputStream(System.in);
  System.out.println("Enter n and r");
   n=Integer.parseInt(ip.readLine());
   r=Integer.parseInt(ip.readLine());
  Fa fact=new Fa();
  int num=fact.factorial(n);
   int c=n-r;
int p=fact.factorial(c);
int k=fact.factorial(r);
```

```
int result=num/(p*k);
System.out.println("NCR="+result);
int p1=n-r;
int k1=fact.factorial(p1);
int ans=num/k1;
System.out.println("NPR="+ans);
}
catch(Exception e)
{}
}
}
```

OUTPUT

```
 Enter n and r=5 3
NCR=10
NPR=60
```

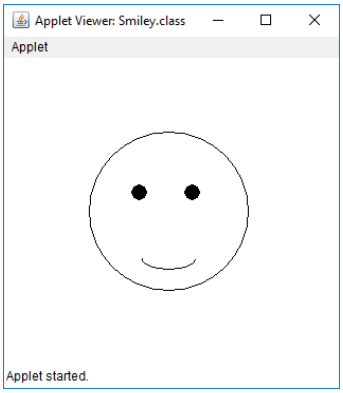
PROGRAM 18:

APPLET PROGRAM TO DRAW FUNNY FACE AND SAD FACE USING ACTION EVENT HANDLING

```
<HTML>
<HEAD>
<TITLE>WELCOME TO JAVA APPLET</TITLE>
</HEAD>
<BODY>
<APPLET CODE=" Faces.class" WIDTH=400 HEIGHT=300>
</APPLET>
</BODY>
</HTML>

import java.awt.*;
import java.applet.Applet;
import java.awt.event.*;

public class Faces extends Applet implements ActionListener
{
        private boolean SMILE = true;
        private Font f = new Font("Helvetica", Font.PLAIN, 9);

        public void init()
        //missing bracket
                Button smileButton = new Button("Smile");
                add(smileButton);
                smileButton.addActionListener(this);
                Button sadButton = new Button("Sad");
                add(sadButton);
                sadButton.addActionListener(this);

                setBackground(Color.yellow);
        }
```

```
	public void actionPerformed(ActionEvent e)
	{
		String cmd = e.getActionCommand();

		if(cmd.equals("Smile"))
		{
			SMILE = true;
			setBackground(Color.yellow);
			repaint();
		}
		else if(cmd.equals("Sad"))
		{
		SMILE = false;
		setBackground(Color.lightGray);
	repaint();
		}
		}
	public void paint(Graphics g)
	{
	g.drawOval(50, 75, 100, 100);
	g.drawLine(100, 110, 100, 130);
	g.drawLine(70, 100, 90, 100);
	g.drawLine(110, 100, 130, 100);
	if(SMILE)
	{
	g.drawArc(70, 95, 60, 60, 225, 90);
	}
	else
	{
	g.drawArc(70, 145, 60, 60, 45, 90);
	}
	g.setFont(f);
	g.drawString("Applet by BCA.", 1, 199);
	}
}
```

OUTPUT



PROGRAM 19:

AIM: JAVA APPLET TO SIMULATE TRAFFIC LIGHT

SOURCE CODE

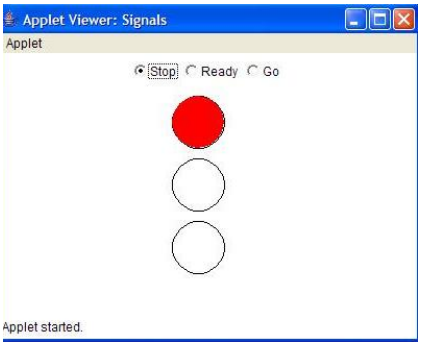
Html file:traffic.html

```
<HTML>
<HEAD>
<TITLE>WELCOME TO JAVA APPLET</TITLE>
</HEAD>
<BODY>
<APPLET CODE=" TrafficLights.class" WIDTH=400 HEIGHT=300>
</APPLET>
</BODY>
</HTML>
```

```
public class TrafficLights extends Applet implements ItemListener
{
String msg="";
Checkbox Red,Green,Yellow;
CheckboxGroup cbg;
public void init()
{
cbg=new CheckboxGroup();
Red=new Checkbox("RED",cbg,false);
Green=new Checkbox("GREEN",cbg,false);
Yellow=new Checkbox("YELLOW",cbg,false);
add(Red);
add(Yellow);
add(Green);
Red.addItemListener(this);
Green.addItemListener(this);
Yellow.addItemListener(this);
}
public void itemStateChanged(ItemEvent ie)
{
repaint();
}
public void paint(Graphics g)
{
//g.drawOval(10,10,50,50);
if(cbg.getSelectedCheckbox().getLabel()=="RED")
```

```
{
g.setColor(Color.red);
g.fillOval(10,10,50,50);
} if(cbg.getSelectedCheckbox().getLabel()=="YELLOW")
{
g.setColor(Color.yellow);
g.fillOval(10,10,50,50);
}
if(cbg.getSelectedCheckbox().getLabel()=="GREEN")
{
g.setColor(Color.green);
g.fillOval(10,10,50,50);
}
}
}
```

OUTPUT



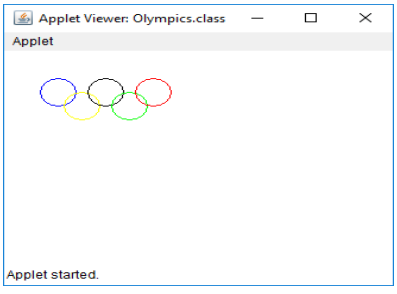
PROGRAM 20

AIM: Java program to Draw an Olympic

```
<HTML>
<HEAD>
<TITLE>WELCOME TO JAVA APPLET</TITLE>
</HEAD>
<BODY>
<APPLET CODE=" Olympics.class" WIDTH=400 HEIGHT=300>
</APPLET>
</BODY>
</HTML>
```

```
import java.awt.*;
import java.applet.*;
 public class Olympics extends Applet
{
   public void paint(Graphics g)
   {
      g.setColor(Color.BLUE);
      g.drawOval(30, 30, 30, 30);
      g.setColor(Color.YELLOW);
      g.drawOval(50, 45, 30, 30);
      g.setColor(Color.BLACK);
      g.drawOval(70, 30, 30, 30);
      g.setColor(Color.GREEN);
      g.drawOval(90, 45, 30, 30);
      g.setColor(Color.RED);
      g.drawOval(110, 30, 30, 30);
   }
}
```

OUTPUT



PROGRAM 21

JAVA JDBC PROGRAMS

```
import java.sql.*;
import java.lang.*;
import java.util.*;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

class javasql
{
public static void main(String args[])throws java.io.IOException
{
try
{
      Class.forName("com.mysql.jdbc.Driver");
           System.out.println("debug 1");
           Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/studdb?autoReconnect=true&useSSL=false","
root","");
      System.out.println("debug 2");
           Statement stmt=con.createStatement();
           System.out.println("debug 3");
           ResultSet rs=stmt.executeQuery("select * from students");
           while(rs.next())
           System.out.println(rs.getInt(1)+" "+rs.getString(2)+" "+rs.getString(3));
           rs.close();
           con.close();
}
catch(Exception e)
{
System.out.println(e);
}
}
}
```

OUTPUT

mysql> insert into students values(1, "merin", "joy");

Query OK, 1 row affected (0.05 sec)

mysql> insert into students values(2, "biju", "joseph");

Query OK, 1 row affected (0.04 sec)

mysql> select * from students;

```
+----+-------+--------+
| id | fname | lname  |
+----+-------+--------+
|  1 | merin | joy    |
|  2 | biju  | joseph |
+----+-------+--------+
```

2 rows in set (0.00 sec)

PROGRAM 22

JAVA PROGRAM TO INSERT DATA TON TABLES USING JDBC

```
import java.sql.*;
import java.lang.*;
import java.util.*;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

class javainsert
{
public static void main(String args[])throws java.io.IOException
{
try
{
      Class.forName("com.mysql.jdbc.Driver");
          System.out.println("debug 1");
          Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/employee?autoReconnect=true&use
SSL=false","root","");
      System.out.println("debug 2");
          Statement stmt=con.createStatement();
          System.out.println("debug 3");
      stmt.executeUpdate("insert into emptable values(4,'ARJUN
THANKACHAN1',23000),(5,'ARJUN THANKACHAN1',25000)");
          //ResultSet rs=stmt.executeQuery("select * from emptable");
          //while(rs.next())
          //System.out.println(rs.getInt(1)+" "+rs.getString(2)+" "+rs.getString(3));
          //rs.close();
          con.close();
}
catch(Exception e)
{
System.out.println(e);
}
}
}
```

OUTPUT

```
mysql> use employee;
mysql> select * from emptable;
+-------+-------------------+--------+
| empid | empname           | salary |
+-------+-------------------+--------+
|     1 | merin joy         |  21000 |
|     2 | biju joseph       |  23000 |
|     3 | ARJUN THANKACHAN  |  23000 |
|     4 | ARJUN THANKACHAN1 |  23000 |
|     5 | Arjuna            |  25000 |
+-------+-------------------+--------+
5 rows in set (0.00 sec)
```

PROGRAM 23

UPDATE RECORDS IN JAVA BY USING JDBC

```
import java.sql.*;
import java.lang.*;
import java.util.*;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

class javaupdate
{
public static void main(String args[])throws java.io.IOException
{
try
{
      Class.forName("com.mysql.jdbc.Driver");
          System.out.println("debug 1");
          Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/employee?autoReconnect=true&use
SSL=false","root","");
      System.out.println("debug 2");
          Statement stmt=con.createStatement();
          System.out.println("debug 3");
      int result=stmt.executeUpdate("update emptable set empname='bethel joe biju' where
empid=5");;

          System.out.println(result+"records are affected");
          con.close();
}
catch(Exception e)
{
System.out.println(e);
}
}
}
```

OUTPUT

```
stthoms@stthoms-desktop:~/merinjdbc$ sudo mysql
mysql> use employee;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from emptable;
+-------+------------------+--------+
| empid | empname          | salary |
+-------+------------------+--------+
|     1 | merin joy        |  21000 |
|     2 | biju joseph      |  23000 |
|     3 | ARJUN THANKACHAN |  23000 |
|     4 | ARJUN THANKACHAN1 |  23000 |
|     5 | bethel joe biju  |  25000 |
+-------+------------------+--------+
5 rows in set (0.00 sec)
```

PROGRAM 25

using delete query

```
import java.sql.*;
import java.lang.*;
import java.util.*;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

class javadelete
{
public static void main(String args[])throws java.io.IOException
{
try
{
      Class.forName("com.mysql.jdbc.Driver");
          System.out.println("debug 1");
          Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/employee?autoReconnect=true&use
SSL=false","root","");
      System.out.println("debug 2");
          Statement stmt=con.createStatement();
          System.out.println("debug 3");
      int result=stmt.executeUpdate("delete from emptable where empid=4");;
          //ResultSet rs=stmt.executeQuery("select * from emptable");
          //while(rs.next())
          //System.out.println(rs.getInt(1)+" "+rs.getString(2)+" "+rs.getString(3));
          //rs.close();
          System.out.println(result+"records are affected");
          con.close();
}
catch(Exception e)
{
System.out.println(e);
}
}
}
```

OUTPUT

```
mysql> select * from emptable;
ERROR 1046 (3D000): No database selected
mysql> use employee;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from emptable;
+-------+------------------+--------+
| empid | empname          | salary |
+-------+------------------+--------+
|     1 | merin joy        |  21000 |
|     2 | biju joseph      |  23000 |
|     3 | ARJUN THANKACHAN |  23000 |
|     5 | bethel joe biju  |  25000 |
+-------+------------------+--------+
4 rows in set (0.00 sec)
```