JAVA LAB PROGRAMS

1. Write a java program to calculate gross salary & net salary taking the following data. [CO-1]

Input : empno,empname,basic
Process: DA=50%of basic
HRA=25%of basic
PF=10%of basic
PT=Rs100/-

PROGRAM EXPLANATION:

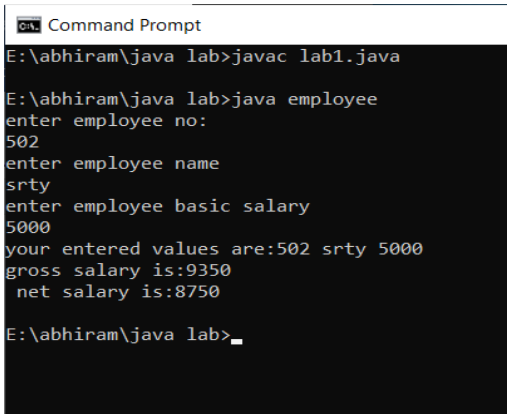
Inorder to sole this 1ST we need to import scanner class to take inputs then create a class and in the main method we have to create objects to take the inputs and to define scanner then after creating we have to store the user given values in the objects and perform the calculations finally print the result.

PROGRAM:

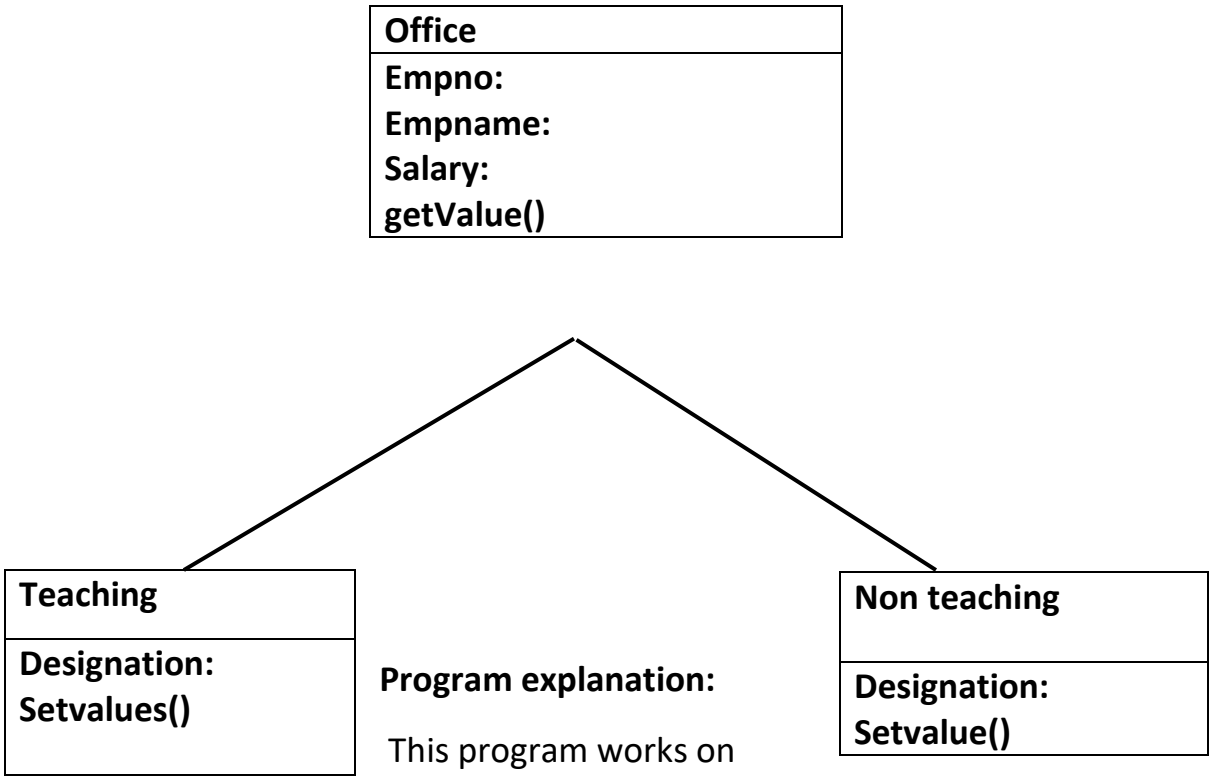
```
import java.util.*;

class employee

{

public static void main(String args[])

{

Scanner s=new Scanner(System.in);

System.out.println("enter employee no:");

int id=s.nextInt();

System.out.println("enter employee name");

String n=s.next();

System.out.println("enter employee basic salary");

int bas=s.nextInt();

System.out.println("your entered values are:"+id+" "+n+" "+bas);

int da=(bas*50)/100;
```

```
int hra=(bas*25)/100;
int pf=(bas*10)/100;
int pt=100;
int gross=bas+hra+da+pf+pt;
int net=gross-pf-pt;
System.out.println("gross salary is:"+gross+"\n net salary is:"+net);
}
}
```

Output:



2.Write a java program that implements educational hierarchy using inheritance. [CO1]



Program explanation:

This program works on heirarical inheritance concept where office is a base class derives teaching class and non-teaching class

Here the child class can access the parent class and itself ,whereas parent class can't access child class objects it access only itself.

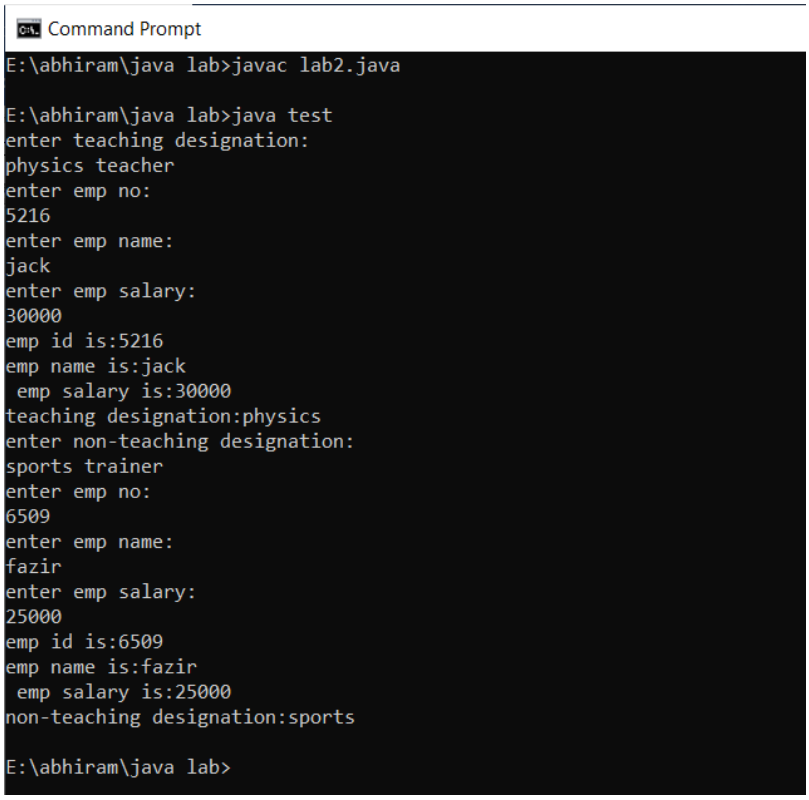
Program:

```
import java.util.*;

class office

{

void getvalue()

{

Scanner s=new Scanner(System.in);

System.out.println("enter emp no:");

int id=s.nextInt();

System.out.println("enter emp name:");

String t=s.next();

System.out.println("enter emp salary:");

int sa=s.nextInt();
```

```
System.out.println("emp id is:"+id+"\nemp name is:"+t+"\n emp salary
is:"+sa);
}
}
class teach extends office
{
void setvalue()
{
Scanner f=new Scanner(System.in);
System.out.println("enter teaching designation:");
String d=f.next();
office i=new office();
i.getvalue();
System.out.println("teaching designation:"+d);
}
}
class non extends office
{
void setvalue()
{
Scanner h=new Scanner(System.in);
System.out.println("enter non-teaching designation:");
String d=h.next();
office g= new office();
g.getvalue();
System.out.println("non-teaching designation:"+d);
}
```

```
}
class test
{
public static void main(String args[])
{
office o=new office();
teach k=new teach();
non w=new non();
k.setvalue();
w.setvalue();
}
}
```

Output:



3.Write a program to identify the accessibility of a variable by means of different access specifies within and outside package. [CO1]

Program explanation:

This program works with the concept of access specifiers.

Access Modifiers:

The access modifiers in Java specifies the accessibility or scope of a field, method, constructor, or class. We can change the access level of fields, constructors, methods, and class by applying the access modifier on it.

Types:

1. **Private**: The access level of a private modifier is only within the class. It cannot be accessed from outside the class.

2.Default: The access level of a default modifier is only within the package. It cannot be accessed from outside the package. If you do not specify any access level, it will be the default.

3.Protected: The access level of a protected modifier is within the package and outside the package through child class. If you do not make the child class, it cannot be accessed from outside the package.

4.Public: The access level of a public modifier is everywhere. It can be accessed from within the class, outside the class, within the package and outside the package.

Let us understand access modifier with simple table:

Access Modifier	within class	**within package**	**outside package by subclass only**	**outside package**
Private	Y	N	N	N
Default	Y	Y	N	N
Protected	Y	Y	Y	N

Public	Y	Y	Y	Y

The given program is related to Public access modifier.

Program:

a - Notepad

File Edit Format View Help

```
package is;
public class a
{
public void lp()
{
System.out.println("my world!");
}
}
```

b - Notepad

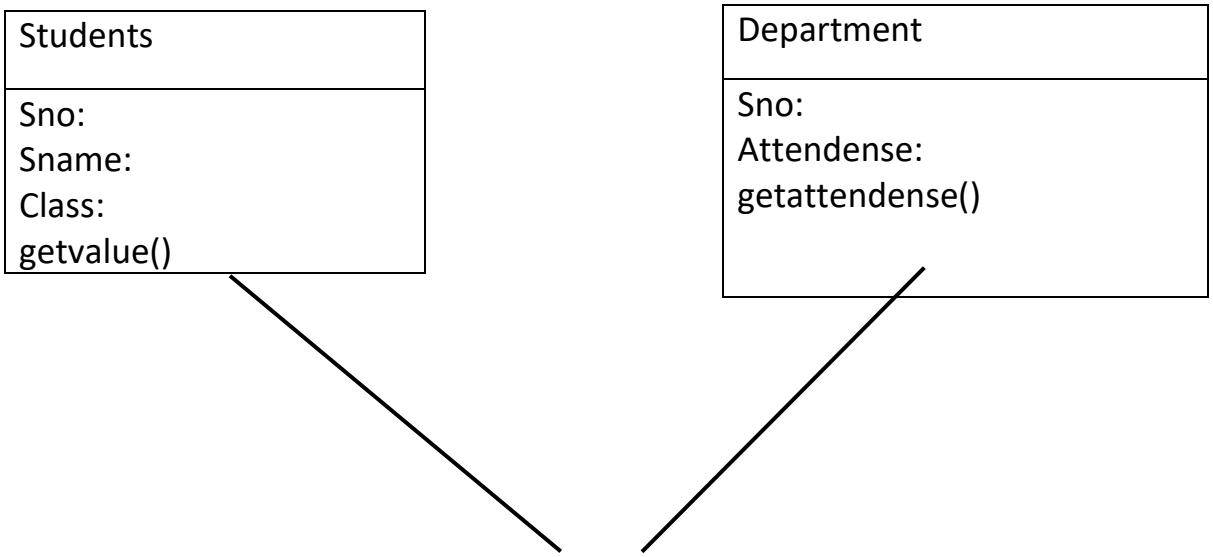
File Edit Format View Help

```
package pack;
import is.*;
class b
{
public static void main(String args[])
{
a ob=new a();
ob.lp();
}
}
```

Command Prompt

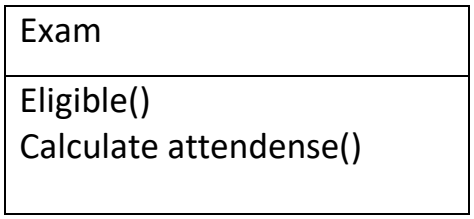
```
E:\abhiram\java lab>javac b.java

E:\abhiram\java lab>javac -d . a.java

E:\abhiram\java lab>java pack.b
my world!

E:\abhiram\java lab>
```

4. Write a java program to find the details of the students eligible to enroll for the examination (Students, Department combined give the eligibility criteria for the enrollment class) using interfaces. [CO1]



Program explanation:

In this program



we use interface concept

Program:

```
import java.util.Scanner;

interface Student

{
```

```
	int studentID = 3;
	String studentName = "ABC";
	String Class = "CE" ;
	void getValue();
}
class Department implements Student
{
	int attendance;
	public void getAttendance()
	{
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter Attendance: ");
		attendance = sc.nextInt();
	}
	public void getValue()
	{
		System.out.println("ID :" + studentID + "\tName :" + studentName
+ "\tClass : " + Class);
	}
}
class Exam extends Department
{
	public void calculateAttendance()
	{
		attendance = attendance;
	}
	public boolean eligible()
```

```
        {
         if(attendance < 60)
                return false;
         else
                return true;
        }
}
public class it95_4
{
        public static void main(String[] args)
        {
                Exam e = new Exam();
                e.getValue();
                e.getAttendance();
                e.calculateAttendance();
                System.out.println("Eligibility :" + e.eligible());
        }
}
```

5. . Write a Java program that displays area of different Figures (Rectangle, Square, Triangle) using the method overloading. [CO1]

Program:

```
class Areas
{
   void area(float x)
   {
      System.out.println("the area of the square is "+Math.pow(x, 2)+" sq units");
   }
   void area(float x, float y)
   {
      System.out.println("the area of the rectangle is "+x*y+" sq units");
   }
   void area(double x)
   {
      double z = 3.14 * x * x;
      System.out.println("the area of the circle is "+z+" sq units");
   }
}
class calc
{
    public static void main(String args[])
        {
          Areas ob = new Areas();
          ob.area(5);
```

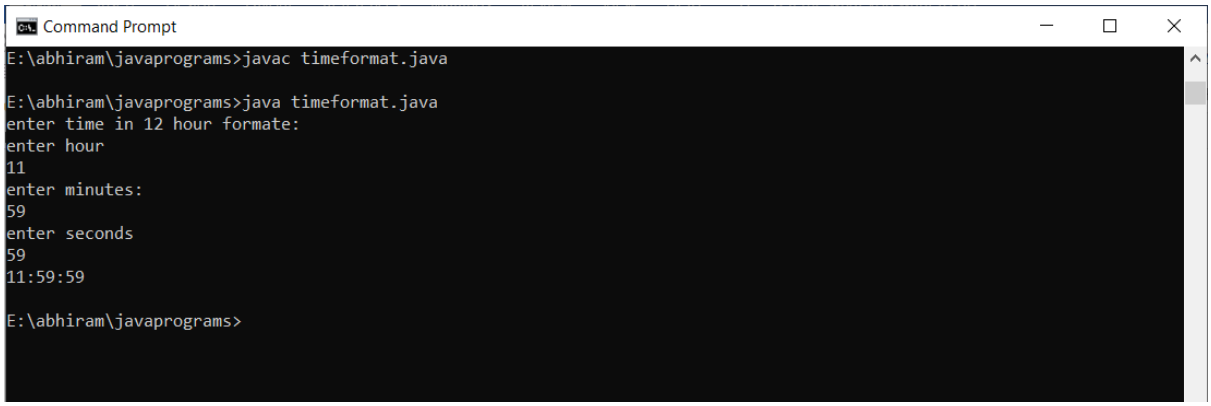
```
        ob.area(11,12);
        ob.area(2.5);
    }
}
```

6. Write a Java program that displays that displays the time in different formats in the form of HH,MM,SS using constructor Overloading. [CO1]

Program:

```
import java.util.*;
public class timeformat
{
public static void main(String args[])
{
int hr,min,sec;
Scanner sc=new Scanner(System.in);
System.out.println("enter time in 12 hour formate:");
System.out.println("enter hour");
hr=sc.nextInt();
System.out.println("enter minutes:");
min=sc.nextInt();
System.out.println("enter seconds");
sec=sc.nextInt();
```

```
time t=new time(hr,min,sec);
}
}
class time
{
int h,m,s;
time(int x,int y,int z)
{
h=x;
m=y;
s=z;
System.out.println(h+":"+m+":"+s);
}
}
```

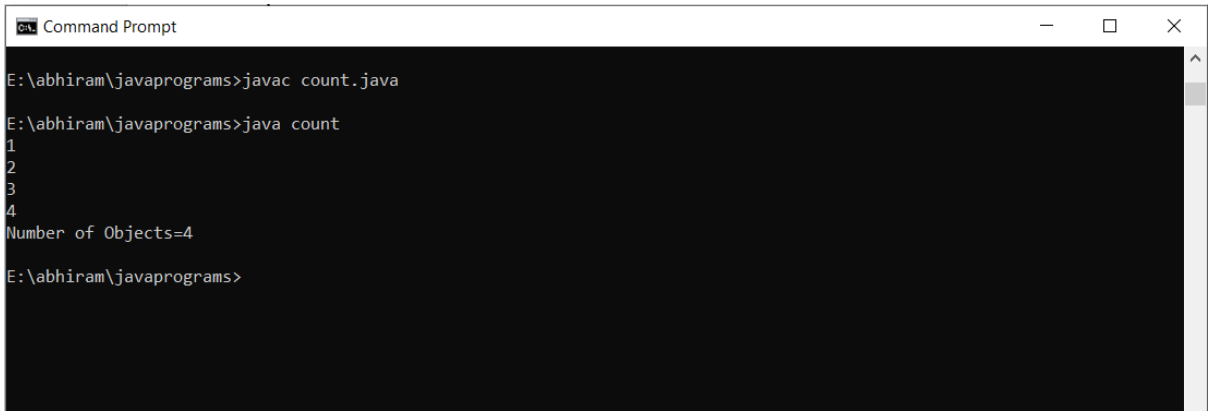


7. Write a Java program that counts the number of objects created by using static variable. [CO1]

Program:

```
class count
{
 static int count=0;
 public static void main(String arg[])
```

```
 {
  count c1=new count();
  count c2=new count();
  count c3=new count();
  count c4=new count();
  System.out.println("Number of Objects="+count);
 }
count()
 {
 count++;
 System.out.println(count);
 }
}
```



8. Write a Java program to count the frequency of words, characters in the given line oftext. [CO3]

Program:

```
import java.util.*;
public class IT319126511095WCFrequency
{
```

```
    public static void main(String[] args) {
      Scanner s=new Scanner(System.in);
      System.out.println("enter your string");
      String str = s.nextLine();
      //String str = "picture perfect";
      int[] freq = new int[str.length()];
      int i, j,k;
      Map<String,Integer> mp=new TreeMap<>();
      String arr[] = str.split(" ");
      for(k=0;k<arr.length;k++)
      {
        if(mp.containsKey(arr[k]))
        {
          mp.put(arr[k],mp.get(arr[k])+1);
        }
        else
        {
          mp.put(arr[k],1);
        }
      }
      System.out.println("***********Words and their corresponding
frequencies***********");
      for(Map.Entry<String,Integer>entry:mp.entrySet())
      {
        System.out.println(entry.getKey()+"-"+entry.getValue());
      }
      //Converts given string into character array
```

```
        char string[] = str.toCharArray();

        for(i = 0; i <str.length(); i++) {
           freq[i] = 1;
           for(j = i+1; j <str.length(); j++) {
              if(string[i] == string[j]) {
                 freq[i]++;

                 //Set string[j] to 0 to avoid printing visited character
                 string[j] = '0';
              }
           }
        }

        //Displays the each character and their corresponding frequency
        System.out.println("***********Characters and their corresponding frequencies***********");
        for(i = 0; i <freq.length; i++) {
           if(string[i] != ' ' && string[i] != '0')
              System.out.println(string[i] + "-" + freq[i]);
        }
     }
```

}

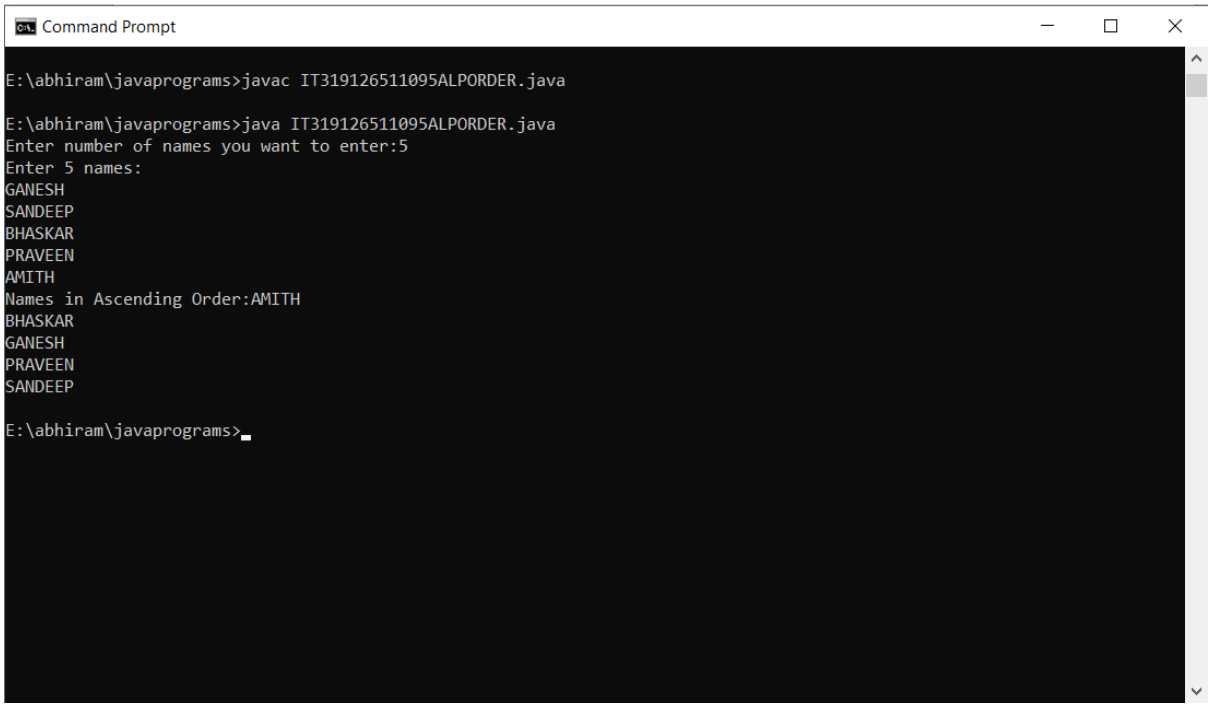
```
E:\abhiram\javaprograms>javac IT319126511095WCFrequency.java

E:\abhiram\javaprograms>java IT319126511095WCFrequency.java
enter your string
abhiram is a waste
**********Words and their corresponding frequencies**********
a-1
abhiram-1
is-1
waste-1
**********Characters and their corresponding frequencies**********
a-4
b-1
h-1
i-2
r-1
m-1
s-2
w-1
t-1
e-1

E:\abhiram\javaprograms>
```

9. Write a Java program for sorting a given list of names in ascending order. [CO3]

Program:

```
import java.util.Scanner;

public class IT319126511095ALPORDER

{

   public static void main(String[] args)

   {

      int n;

      String temp;

      Scanner s = new Scanner(System.in);

      System.out.print("Enter number of names you want to enter:");

      n = s.nextInt();

      String names[] = new String[n];

      Scanner s1 = new Scanner(System.in);

      System.out.println("Enter "+n+" names:");
```

```
        for(int i = 0; i < n; i++)
        {
            names[i] = s1.nextLine();
        }
        for (int i = 0; i < n; i++)
        {
            for (int j = i + 1; j < n; j++)
            {
                if (names[i].compareTo(names[j])>0)
                {
                    temp = names[i];
                    names[i] = names[j];
                    names[j] = temp;
                }
            }
        }
        System.out.print("Names in Ascending Order:");
        for (int i = 0; i < n - 1; i++)
        {
            System.out.println(names[i]);
        }
        System.out.println(names[n - 1]);
    }
}
```

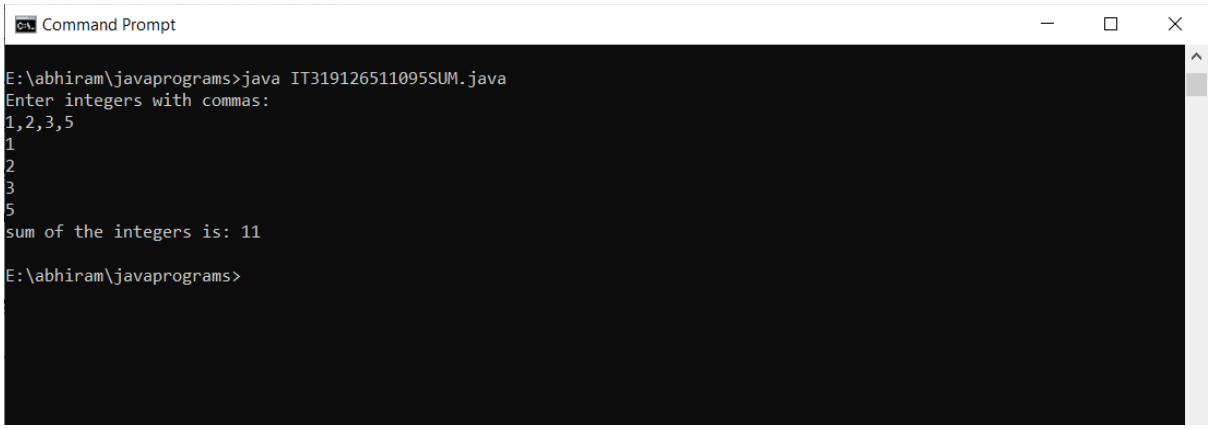


10. Write a Java program that reads a line of integers separated by commas and then displays each integer and fund the sum of he integers (using String Tokenizer). [CO3]

PROGRAM:

```
import java.util.*;
class IT319126511095SUM{
public static void main(String args[]) {
int n;
int sum = 0;
Scanner sc = new Scanner(System.in);
System.out.println("Enter integers with commas:");
String s = sc.nextLine();
StringTokenizer st = new StringTokenizer(s, ",");
while (st.hasMoreTokens()) {
String temp = st.nextToken();
n = Integer.parseInt(temp);
```

```
System.out.println(n);
sum = sum + n;
}
System.out.println("sum of the integers is: " + sum);
sc.close();
}
}
```

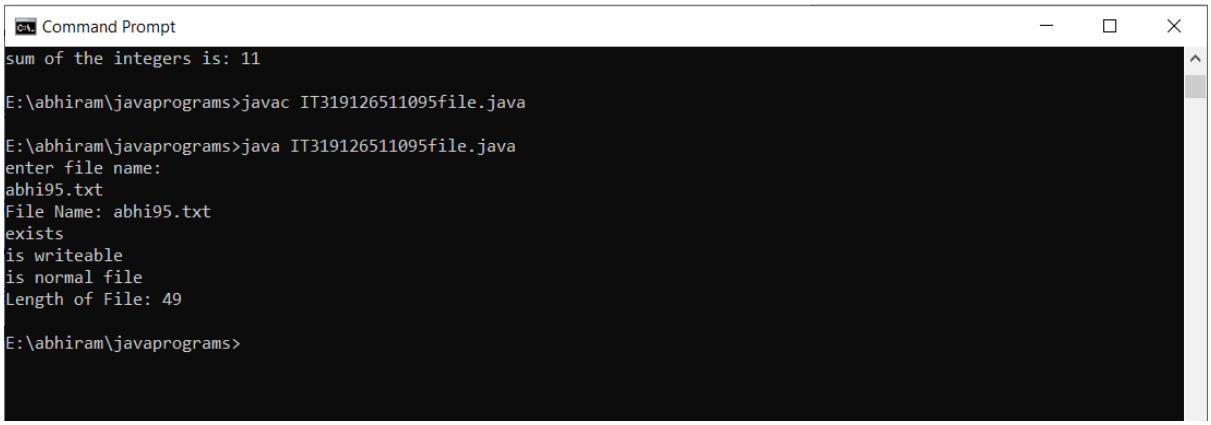


11. Write a Java program that reads a file name from the user then displays information about whether that file exists, file is writable, the type of file and length of the file in bytes. [CO3]

PROGRAM:

```
import java.io.File;
import java.util.*;
class it319126511095file {
        static void p(String s) {
        System.out.println(s);
}
        public static void main(String args[ ]) {
        Scanner s=new Scanner(System.in);
        System.out.println("enter file name:");
```

```
        String name=s.nextLine();
    File f1 = new File(name);
    p("File Name: " + f1.getName());
        p(f1.exists() ? "exists" : "does not exist");
        p(f1.canWrite() ? "is writeable" : "is not writeable");
        p(f1.isFile() ? "is normal file" : "might be a named pipe");
        p("Length of File: " + f1.length());
} }
```

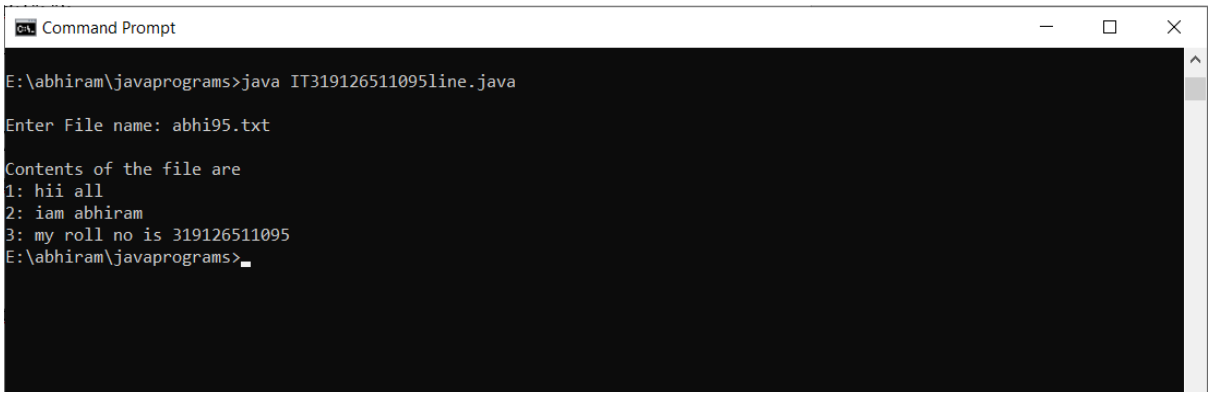


12. Write a Java program that reads a file and displays the file on the screen with a line number before each line. [CO3]

Program:

```
//Program to print the contents of the file along with line number
import java.util.*;
import java.io.*;
class it319126511095line
{
public static void main(String args[])throws IOException
{
int j=1;
```

```
char ch;
Scanner scr=new Scanner(System.in);
System.out.print("\nEnter File name: ");
String str=scr.next();
FileInputStream f=new FileInputStream(str);
System.out.println("\nContents of the file are");
int n=f.available();
System.out.print(j+": ");
for(int i=0;i<n;i++)
{
ch=(char)f.read();
System.out.print(ch);
if(ch=='\n')
{
System.out.print(++j+": ");
}
}
}
}
```

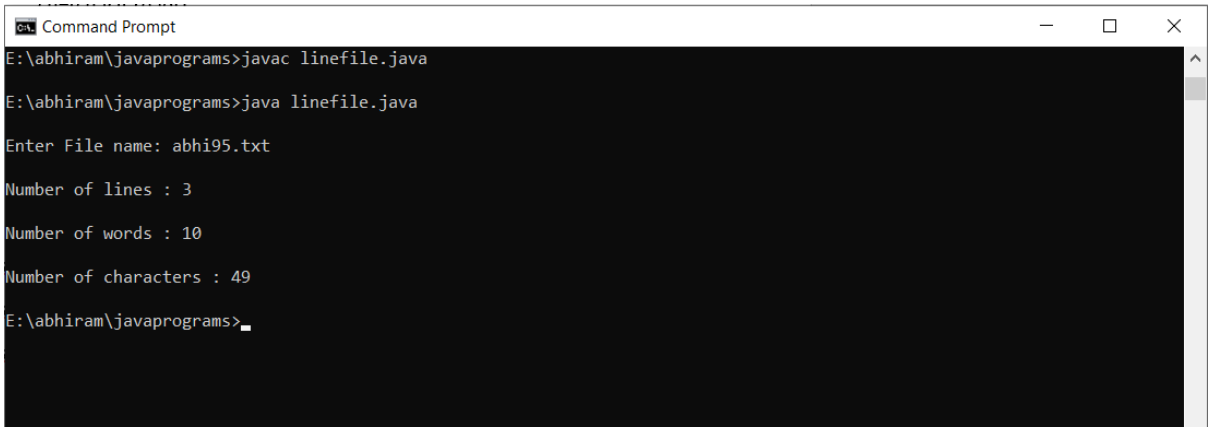


13. Write a Java program that reads a file and displays the no of lines and words in that file.

Program:

```
//Program to count number of lines,characters,and words in a text file
import java.util.*;
import java.io.*;
class Cfile
{
	public static void main(String args[])throws IOException
	{
		int nl=1,nw=0;
		char ch;
		Scanner scr=new Scanner(System.in);
		System.out.print("\nEnter File name: ");
		String str=scr.nextLine();
		FileInputStream f=new FileInputStream(str);
		int n=f.available();
		for(int i=0;i<n;i++)
		{
			ch=(char)f.read();
			if(ch=='\n')
			nl++;
			else if(ch==' ')
				nw++;
		}
		System.out.println("\nNumber of lines : "+nl);
```

```
            System.out.println("\nNumber of words : "+(nl+nw));
            System.out.println("\nNumber of characters : "+n);
           }
}
```



14. Write a Java program that reads to copy source File and display on the console.[CO3]

Program:

```
import java.io.FileInputStream;
import java.io.FileOutputStream;
class Main {
  public static void main(String[] args) {
    byte[] array = new byte[50];
    try {
      FileInputStream sourceFile = new FileInputStream("abhi95.txt");
      FileOutputStream destFile = new FileOutputStream("newFile");
      // reads all data from input.txt
      sourceFile.read(array);
      // writes all data to newFile
      destFile.write(array);
```

```
    System.out.println("The input.txt file is copied to newFile.");
    // closes the stream
    sourceFile.close();
    destFile.close();
   }
   catch (Exception e) {
    e.getStackTrace();
   }
 }
}
```

15. Write a java program that implements Array Index out of bound Exception using built-inException. [CO2]

Program:

```
class index
{
public static void main(String args[])
{
try
{
int a[] =new int[6];
a[8]=11;
}
catch (ArrayIndexOutOfBoundsException e)
```

```
{
System.out.println("Array INdex OUt of BOunds");
}
}
}
```

16. Write a java program that implements bank transactions using user denied exception. [CO2]

Program:

```
import java.util.Scanner;
class it95_16
{
   public static void main(String[]args)
   {
      bank o=new bank();
      Scanner s=new Scanner(System.in);
      int ch;
      if(o.login())
      {
         while(true)
         {
```

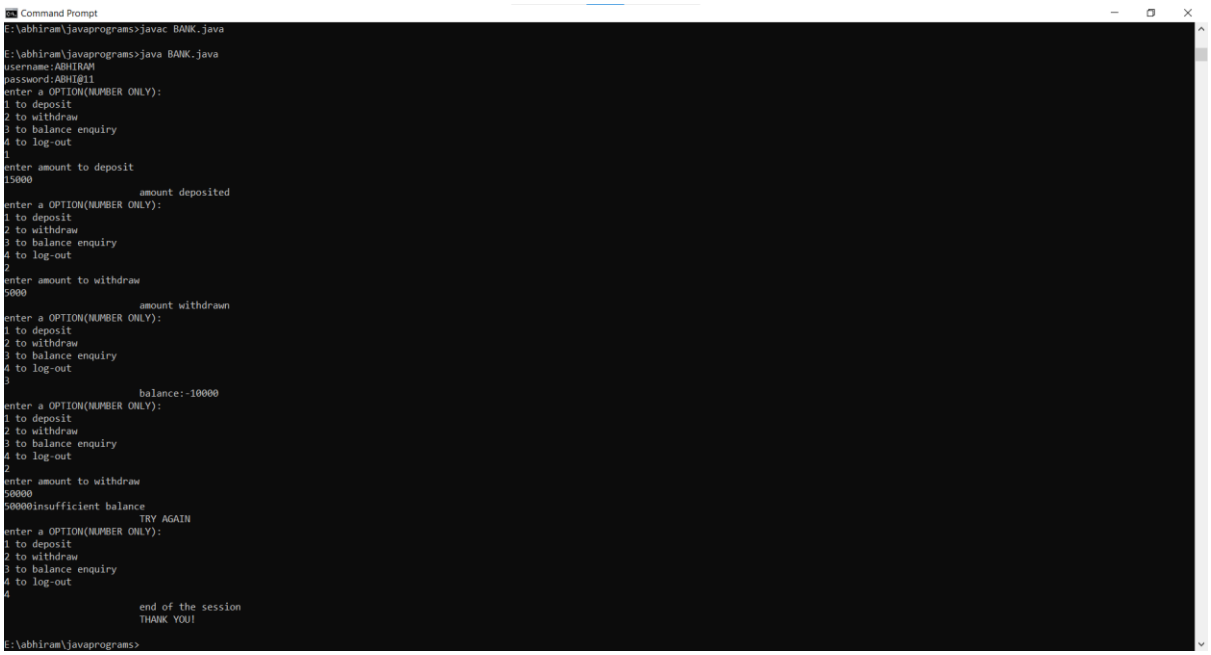
```
            System.out.println("enter a OPTION(NUMBER ONLY):\n1 to
deposit\n2 to withdraw\n3 to balance enquiry\n4 to log-out");
            ch=s.nextInt();
            switch(ch)
            {
               case 1:o.deposit();
                     break;
               case 2:o.withdraw();
                     break;
               case 3:o.balance_enquiry();
                     break;
               case 4:System.out.println("\t\t\tend of the session\n\t\t\tTHANK
YOU!");
                     System.exit(0);
            }
         }
      }
   }
}
class bank
{
   String username;
   String password;
   static int balance;
   boolean login()
   {
      System.out.print("username:");
```

```
    Scanner s=new Scanner(System.in).useDelimiter("\n");
    username=s.nextLine();
    System.out.print("password:");
    password=s.nextLine();
    try
    {
       if(!(password.equals("ABHI@11")))
            throw new user_denied_exception();
       else
            return true;
    }
    catch(user_denied_exception e)
    {
       e.invalid_login(username);
       return false;
    }
}
void deposit()
{
    int amount;
    System.out.println("enter amount to deposit");
    Scanner s=new Scanner(System.in);
    amount=s.nextInt();
    try
    {
       if(amount<0)
```

```
            throw new user_denied_exception();
        else
        {
            balance+=amount;
            System.out.println("\t\t\tamount deposited");
        }

    }
    catch(user_denied_exception e)
    {
        e.invalid_amount(amount);
    }
}
void withdraw()
{
    int amount;
    System.out.println("enter amount to withdraw");
    Scanner s=new Scanner(System.in);
    amount=s.nextInt();
    try
    {
        if(amount>balance)
            throw new user_denied_exception();
        else
        {
            balance-=amount;
```

```
            System.out.println("\t\t\tamount withdrawn");
          }
       }
       catch(user_denied_exception e)
       {
          e.invalid_amount1(amount);
       }
    }
    void balance_enquiry()
    {
       System.out.println("\t\t\tbalance:-"+balance);
    }
}
class user_denied_exception extends Exception
{
    public void invalid_login(String s)
    {
       System.out.println(s+"Invalid Login Details\n\t\t\tTRY AGAIN");
    }
    public void invalid_amount(int s)
    {
       System.out.println(s+"amount cannot be negative\n\t\t\tTRY AGAIN");
    }
    public void invalid_amount1(int s)
    {
       System.out.println(s+"-insufficient balance\n\t\t\tTRY AGAIN");
```

```
    }
}
```



17. Write a java program to identify the significance of finally block in handling exceptions. [CO2]

PROGRAM:

```
import java.io.*;
class finall
{
public static void main(String[] args)
{
try
{
System.out.println("inside try block");
System.out.println(50 / 0);
}
catch (ArithmeticException e)
```

```
{
System.out.println(" can't divided with zero Arithmetic Exception"+e);
}
finally
{
System.out.println("finally : i execute always.");
}
}
}
```

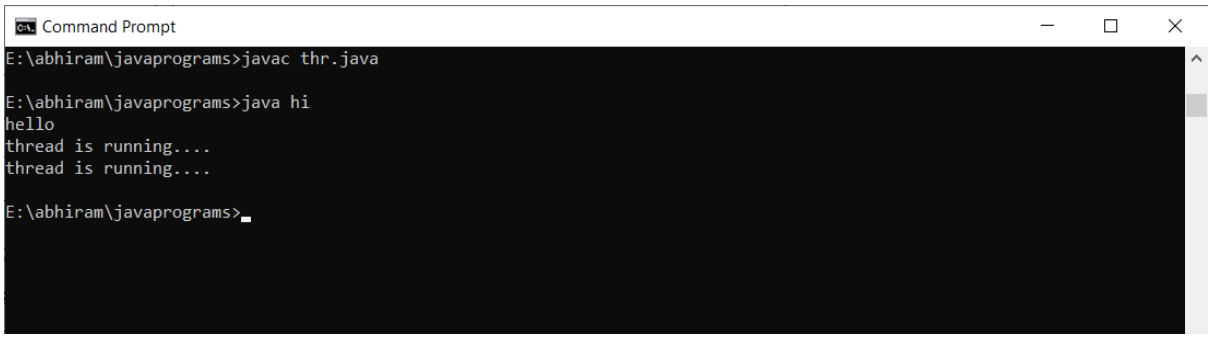
```
E:\abhiram\javaprograms>javac fin.java

E:\abhiram\javaprograms>java fin.java
inside try block
 can't divided with zero Arithmetic Exceptionjava.lang.ArithmeticException: / by zero
finally : i execute always.

E:\abhiram\javaprograms>
```

18. Write a java program to generate multiple threads of creating clock pulses.(using runnable interface). [CO2]

Program:

```
class hi implements Runnable
{
public void run()
{
System.out.println("thread is running....");
}
public static void main(String args[])
{
hi t=new hi();
hi r=new hi();
Thread p=new Thread(t);
```

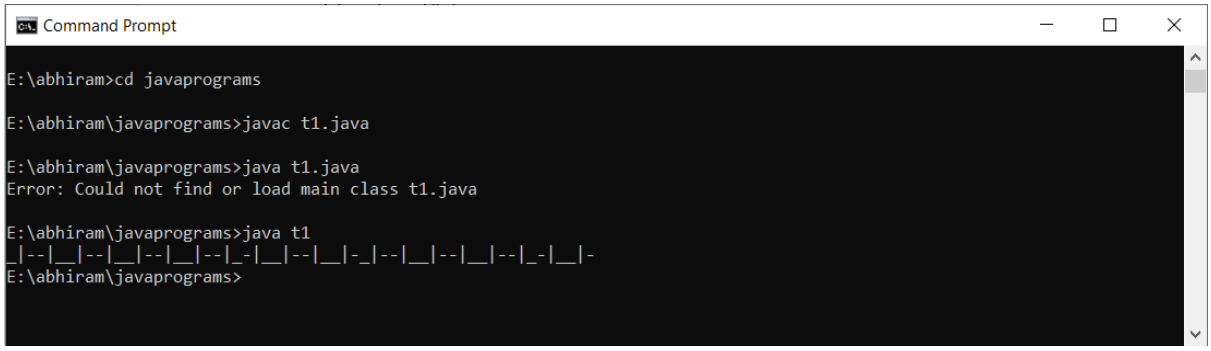
```
Thread k=new Thread(r);
p.start();
k.start();
System.out.println("hello");
}
}
```



OR

```
public class t1 {
public static void main(String[] args) {
// TODO Auto-generated method stub
Thread t=Thread.currentThread();
newthreaddd o1=new newthreaddd("_|-");//positive edge pulse
newthreaddd o2=new newthreaddd("-|_");//negative edge pulse
}
}
class newthreaddd extends Thread
{
Thread t1;
newthreaddd(String s)
{
t1=new Thread(this);
```

```
t1.setName(s);
t1.start();
}
public void run() {
try {
for(int i=0;i<10;i++)
{
System.out.print(t1.getName());
t1.sleep(1000);
}
}
catch(InterruptedException e) {
System.out.println("interrupted"+e);
}
}
}
```



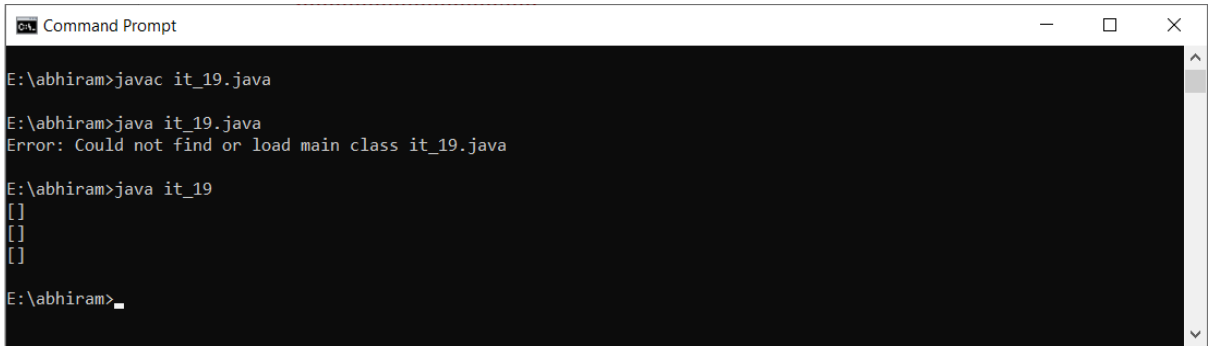
19. Write a java program to identify the use of synchronized blocks to synchronizedmethods. [CO2]

Program:

```
public class it_19 {
public static void main(String[] args) {
```

```
// TODO Auto-generated method stub
newthreadd o1=new newthreadd("child thread1");
newthreadd o2=new newthreadd("child thread2");
newthreadd o3=new newthreadd("child thread3");
}
}
class newthreadd extends Thread
{
Thread t;
static callme temp=new callme();
newthreadd(String s)
{
t=new Thread(this);
t.setName(s);
t.start();
}
public void run()
{
synchronized(temp)
{
temp.call();
}
}
}
class callme
{
```

```
void call()
{
Thread temp=Thread.currentThread();
System.out.print("[");
try
{
temp.sleep(1000);
}
catch(InterruptedException e)
{
System.out.print("Interrupted");
}
System.out.println("]");
//System.out.println(Thread.currentThread()+" terminated");
}
}
```

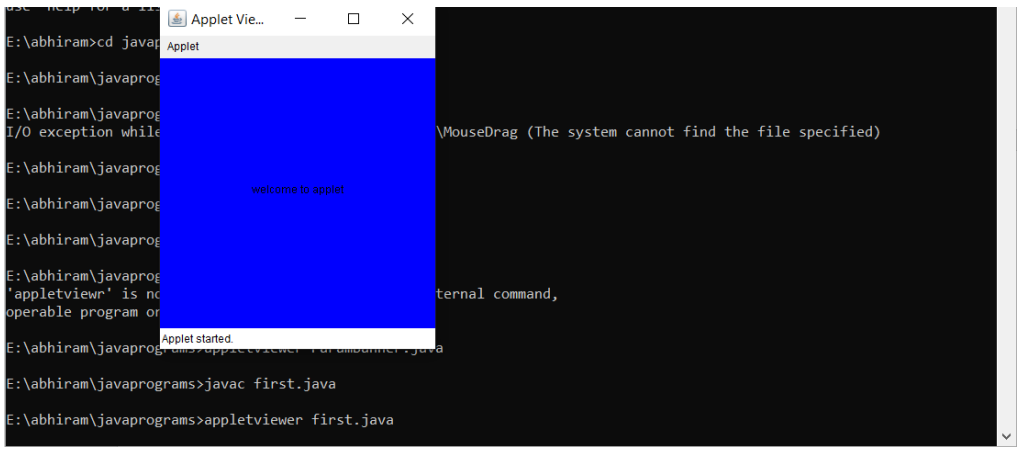


20. Write an applet to display a simple message on a colored background. [CO5]

Program:

```
import java.applet.*;
```

```
import java.awt.*;
public class first extends Applet
{
public void init()
{
setBackground(Color.blue);
}
public void paint(Graphics g)
{
g.setColor(Color.black);
g.drawString("welcome to applet",100,150);
}
}
/*
<applet code="first.class"width="300"height="300">
</applet>*/
```



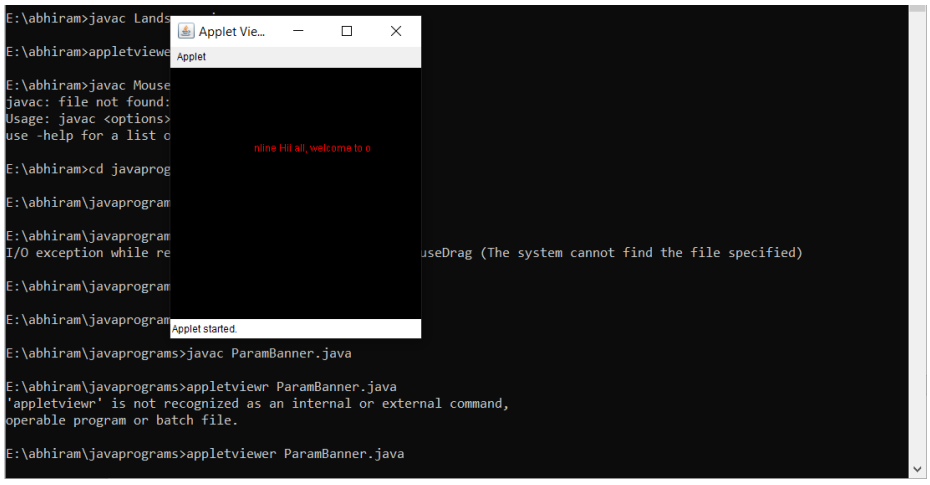
21. Write an applet to display a moving banner showing the status of it. [CO5]

Program:

```
import java.awt.*;
```

```
import java.applet.*;
/*
<applet code="ParamBanner" width=300 height=300>
<param name="message" value="Hii all, welcome to online">
</applet>*/
public class ParamBanner extends Applet implements Runnable {
 String msg;
 Thread t = null;
 int state;
 boolean stopFlag;
 public void init() {
  setBackground(Color.black);
  setForeground(Color.red);
 }
 public void start() {
  msg = getParameter("message");
  if(msg == null) msg = "Message not found.";
   msg = " " + msg;
  t = new Thread(this);
  stopFlag = false;
  t.start();
 }
 public void run() {
  char ch;

  for( ; ; ) {
```

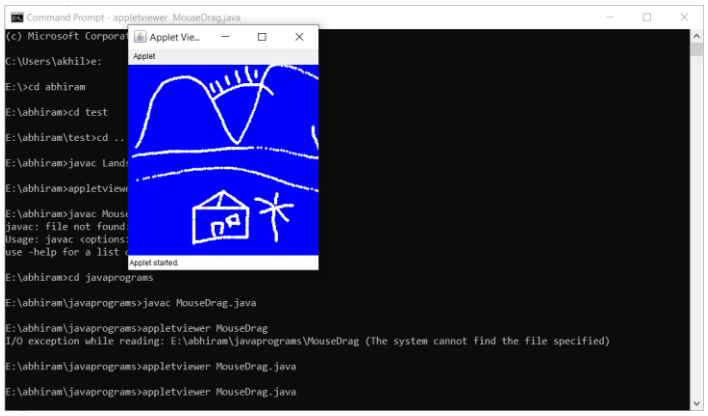
```
  try {
   repaint();
   Thread.sleep(250);
   ch = msg.charAt(0);
   msg = msg.substring(1, msg.length());
   msg += ch;
   if(stopFlag)
    break;
  } catch(InterruptedException e) {}
 }
}
public void stop() {
 stopFlag = true;
 t = null;
}
public void paint(Graphics g) {
 g.drawString(msg,100,100);
}
}
```



22. Write an applet to draw a simple and beautiful landscape. [CO5]

Program:

```
import java.awt.*;
import java.awt.event.*;
import java.applet.*;
public class MouseDrag extends Applet implements MouseMotionListener{
public void init(){
addMouseMotionListener(this);
setBackground(Color.blue);
}
public void mouseDragged(MouseEvent me){
Graphics g=getGraphics();
g.setColor(Color.white);
g.fillOval(me.getX(),me.getY(),5,5);
}
public void mouseMoved(MouseEvent me){}
}
/*  <applet code="MouseDrag.class" width="300" height="300">
</applet>*/
```



OR:

```
import java.awt.*;
import java.applet.*;
public class Landscape extends Applet
{
public void init()
{
setSize(350,300);
}
public void paint(Graphics g)
{
setBackground(Color.cyan);
g.setColor(Color.white);
g.fillOval(30,30,40,40);
g.fillOval(60,30,40,40);
g.fillOval(80,30,40,40);
g.fillOval(40,30,40,40);
g.fillOval(70,30,40,40);
g.fillOval(160,10,20,20);
g.fillOval(175,10,20,20);
g.fillOval(190,10,20,20);
g.fillOval(170,20,20,20);
g.fillOval(185,20,20,20);
g.setColor(Color.blue);
int xs[]={100,160,220};
int ys[]={100,50,100};
Polygon poly=new Polygon(xs,ys,3);
```

```
g.fillPolygon(poly);
g.setColor(Color.blue);
g.fillRect(100,100,120,120);
g.setColor(Color.green);
g.fillRect(145,160,30,60);
g.setColor(Color.yellow);
g.fillOval(240,30,50,50);
g.setColor(Color.white);
g.fillOval(60,30,40,40);
g.fillOval(120,30,40,40);
g.fillOval(80,30,40,40);
g.fillOval(137,30,40,40);
g.fillOval(70,30,40,40);
g.setColor(Color.black);
g.fillRect(120,55,10,30);
g.setColor(Color.black);
g.fillRect(145,160,30,60);
g.setColor(Color.pink);
g.fillPolygon(poly);
g.setColor(Color.white);
g.fillRect(115,125,25,25);
g.setColor(Color.magenta);
g.drawLine(115,137,140,137);
g.drawLine(127,125,127,150);
g.setColor(Color.white);
g.fillRect(180,125,25,25);
```

```
g.setColor(Color.orange);
g.drawLine(180,137,205,137);
g.drawLine(192,125,192,150);
g.setColor(Color.red);
g.fillRect(10,222,400,40);
g.setColor(Color.gray);
g.fillRect(28,100,20,100);
g.setColor(Color.green);
g.fillOval(0,40,80,80);
g.setColor(Color.black);
g.drawString("ABHI RAM",230,230);
}}
/*<applet code = Landscape width = 400 height = 200>
 </applet>*/
```

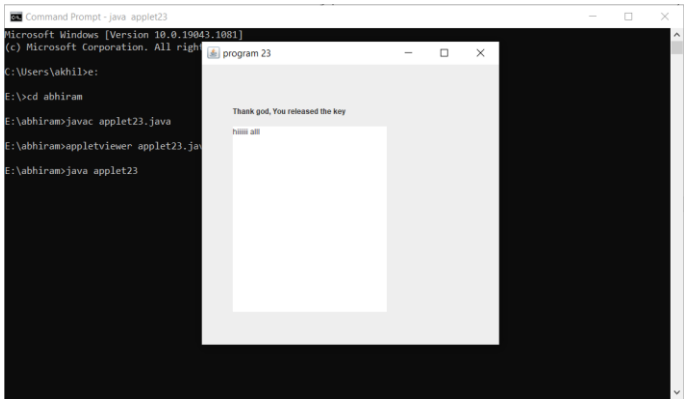
23. . Write a java program to demonstrate key events by using Delegation event model. [CO5]

Program:

```
import javax.swing.*;
import java.awt.event.*;
public class applet23 implements KeyListener {
JLabel l=new JLabel();
```

```
applet23(){
JTextArea ta=new JTextArea("");
JFrame f=new JFrame("program 23");
ta.setBounds(50, 100, 250, 300);
ta.addKeyListener(this);
ta.setLineWrap(true);
ta.setWrapStyleWord(true);
f.add(ta);
l.setBounds(50,50,250,50);
f.add(l);
f.setLayout(null);
f.setSize(500, 500);
f.setVisible(true);
}
public static void main(String args[]) {
new applet23();
}
public void keyTyped(KeyEvent e) {
l.setText("You're typing something!!!");
}
public void keyPressed(KeyEvent e) {
l.setText("You're pressing the arrow button");
}
public void keyReleased(KeyEvent e) {
l.setText("Thank god, You released the key");
}
```

}

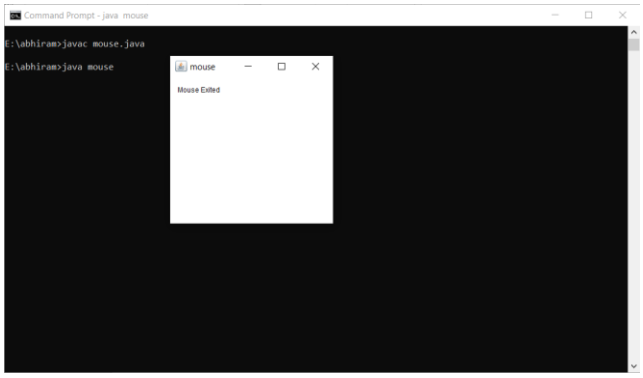


24. Write a java program to implement mouse events like mouse pressed, mouse released and mouse moved by means of adapter classes. [CO5]

Program:

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.SwingUtilities;
public class mouse extends MouseAdapter implements MouseListener{
Label l;
mouse()
{
Frame f=new Frame("mouse");
 f.addMouseListener(this);
 l=new Label();
 l.setBounds(20,50,100,20);
 f.add(l);
 f.setSize(300,300);
 f.setLayout(null);
 f.setVisible(true);
 }
 public void mouseClicked(MouseEvent e) {
```

```
 if(SwingUtilities.isLeftMouseButton(e))
 l.setText("left click");
 else
 l.setText("right click");
 }
 public void mouseEntered(MouseEvent e) {
 l.setText("Mouse Entered");
 }
 public void mouseExited(MouseEvent e) {
 l.setText("Mouse Exited");
 }
 public void mousePressed(MouseEvent e) {
 l.setText("Mouse Pressed");
 }
 public void mouseReleased(MouseEvent e) {
 l.setText("Mouse Released");
 }
public static void main(String[] args)
{
 new mouse();
}
}
```

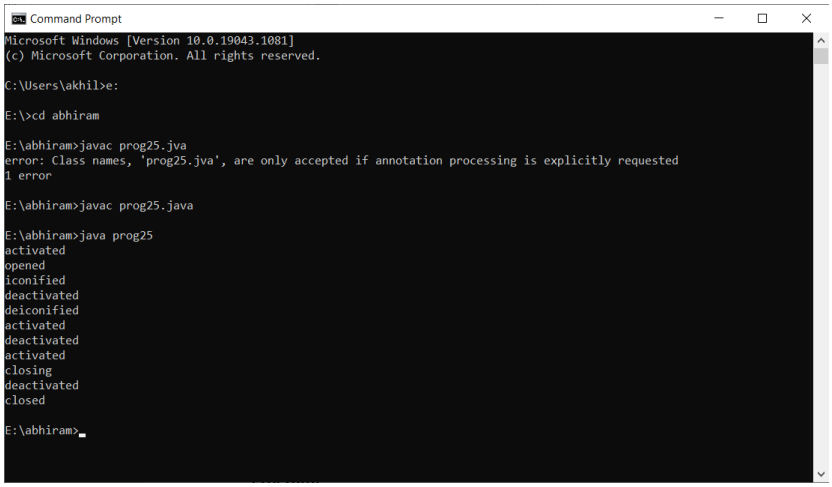


25. . Write a java program to demonstrate window events on frame. [CO5]

Program:

```
import java.applet.*;
import java.awt.event.*;
import java.awt.*;
public class prog25 extends Frame implements WindowListener {
 prog25()
{
 addWindowListener(this);
 setSize(400,400);
 setLayout(null);
 setVisible(true);
}
public static void main(String[] args)
{
 new prog25();
}
public void windowActivated(WindowEvent arg0)
{
 System.out.println("activated");
}
```

```
public void windowClosed(WindowEvent arg0)
{
 System.out.println("closed");
}
public void windowClosing(WindowEvent arg0)
{
 System.out.println("closing");
 dispose();
}
public void windowDeactivated(WindowEvent arg0)
{
 System.out.println("deactivated");
}
public void windowDeiconified(WindowEvent arg0)
{
 System.out.println("deiconified");
}
public void windowIconified(WindowEvent arg0)
{
 System.out.println("iconified");
}
public void windowOpened(WindowEvent arg0)
{
 System.out.println("opened");
}
}
```



26. Write an applet that computes the payment of a loan based on the amount of the loan, interest rate and the number of months. [CO5]

Program:

```
import java.awt.*;
import java.io.*;
import java.util.*;
import java.awt.event.*;
class loan implements ActionListener
{
Frame f=new Frame("Loan Calculation");
Label l1=new Label("Total amount");
TextField tf1=new TextField();
Label l2=new Label("No. of months");
TextField tf2=new TextField();
Label l3=new Label("interest");
TextField tf3=new TextField();
Label l4=new Label("EMI");
TextField tf4=new TextField();
Button b=new Button("Done");
```

```
loan()
{
l1.setBounds(50,100,100,20);
tf1.setBounds(50,140,100,20);
f.add(l1);f.add(tf1);
l2.setBounds(50,180,100,20);
tf2.setBounds(50,220,100,20);
f.add(l2);f.add(tf2);
l3.setBounds(50,240,100,20);
tf3.setBounds(50,280,100,20);
f.add(l3);f.add(tf3);
l4.setBounds(50,320,100,20);
tf4.setBounds(50,360,100,20);
f.add(l4);f.add(tf4);
b.setBounds(50,400,100,20);
f.add(b);
b.addActionListener(this);
f.setLayout(null);
f.setVisible(true);
f.setSize(1000,1000);
}
public void actionPerformed(ActionEvent e)
{
int n1=Integer.parseInt(tf1.getText());
int n2=Integer.parseInt(tf2.getText());
Double n3=Double.parseDouble(tf3.getText());
```

```
n3=(n3/(12*100));
if(e.getSource()==b)
{
tf4.setText(String.valueOf((n1*n3*Math.pow(1+n3,n2))/(Math.pow(1+n3,n2)-1)));
}
}
public static void main(String[] args)
{
new loan();
}
}
```

27. Write an applet to perform the 4 basic arithmetic operations as buttons in a form accepting two integers in textboxes and display their result. [CO5]

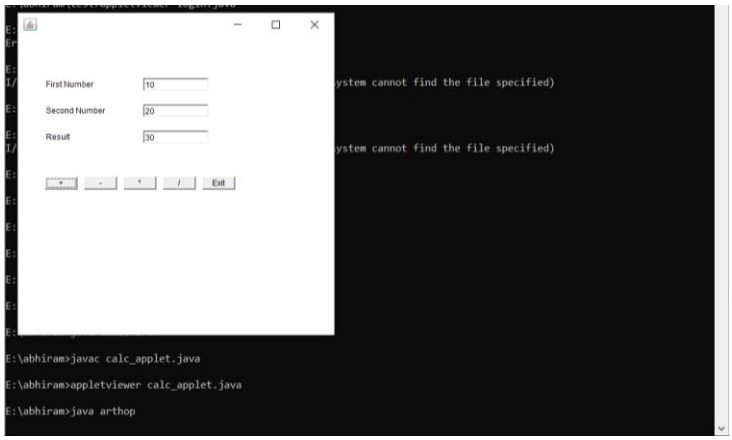
Program:

```
import java.awt.*;
import java.awt.event.*;
class arthop implements ActionListener
{
Frame f=new Frame();
Label l1=new Label("First Number");
Label l2=new Label("Second Number");
```

```
Label l3=new Label("Result");
TextField t1=new TextField();
TextField t2=new TextField();
TextField t3=new TextField();
Button b1=new Button("+");
Button b2=new Button("-");
Button b3=new Button("*");
Button b4=new Button("/");
Button b5=new Button("Exit");
arthop()
{
l1.setBounds(50,100,100,20);
l2.setBounds(50,140,100,20);
l3.setBounds(50,180,100,20);
t1.setBounds(200,100,100,20);
t2.setBounds(200,140,100,20);
t3.setBounds(200,180,100,20);
b1.setBounds(50,250,50,20);
b2.setBounds(110,250,50,20);
b3.setBounds(170,250,50,20);
b4.setBounds(230,250,50,20);
b5.setBounds(290,250,50,20);
f.add(l1);f.add(l2);f.add(l3);
f.add(t1);f.add(t2);f.add(t3);
f.add(b1);f.add(b2);f.add(b3);f.add(b4);f.add(b5);
b1.addActionListener(this);
```

```
b2.addActionListener(this);
b3.addActionListener(this);
b4.addActionListener(this);
b5.addActionListener(this);
f.setLayout(null);
f.setVisible(true);
f.setSize(500,500);
}
public void actionPerformed(ActionEvent e)
{
int n1=Integer.parseInt(t1.getText());
int n2=Integer.parseInt(t2.getText());
if(e.getSource()==b1)
{
t3.setText(String.valueOf(n1+n2));
}
if(e.getSource()==b2)
{
t3.setText(String.valueOf(n1-n2));
}
if(e.getSource()==b3)
{
t3.setText(String.valueOf(n1*n2));
}
if(e.getSource()==b4)
{
```

```
t3.setText(String.valueOf(n1/n2));
}
if(e.getSource()==b5)
{
System.exit(0);
}
}
public static void main(String[] args)
{
new arthop();
}
}
```



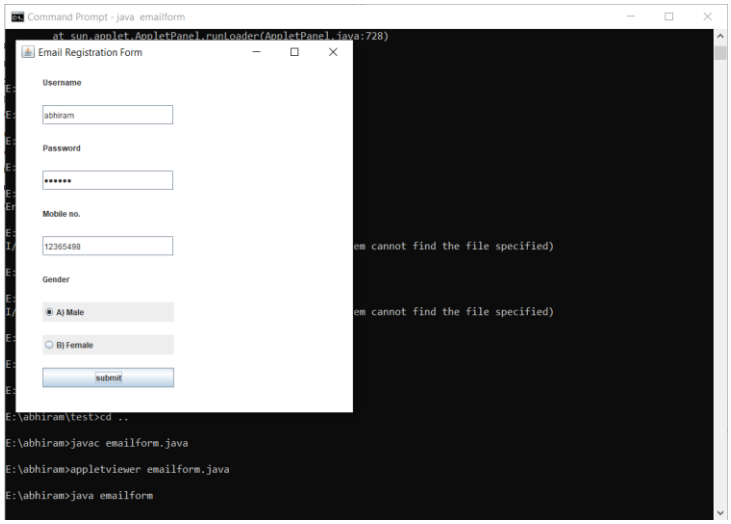
28. Write a java program to design a registration form for creating a new eMail account. [CO4]

Program:

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
public class emailform
{
```

```
public static void main(String[] args)
{
Frame f=new Frame("Email Registration Form");
JLabel jl1,jl2,jl3,jl4;
JButton jb;
JTextField t1,t2;
JPasswordField p;
JRadioButton r1,r2;
jl1=new JLabel("Username");
jl1.setBounds(50,50,200,30);
t1=new JTextField();
t1.setBounds(50,100,200,30);
jl2=new JLabel("Password");
jl2.setBounds(50,150,200,30);
p=new JPasswordField();
p.setBounds(50,200,200,30);
jl3=new JLabel("Mobile no.");
jl3.setBounds(50,250,200,30);
t2=new JTextField();
t2.setBounds(50,300,200,30);
jl4=new JLabel("Gender");
jl4.setBounds(50,350,200,30);
r1=new JRadioButton("A) Male");
r1.setBounds(50,400,200,30);
r2=new JRadioButton("B) Female");
r2.setBounds(50,450,200,30);
```

```
jb=new JButton("submit");
jb.setBounds(50,500,200,30);
ButtonGroup bg=new ButtonGroup();
bg.add(r1);bg.add(r2);
f.add(jl1);f.add(jl2);f.add(jl3);f.add(jl4);
f.add(t1);f.add(t2);f.add(p);f.add(jb);f.add(r1);f.add(r2);
f.setSize(1000,1000);
f.setLayout(null);
f.setVisible(true);
f.addWindowListener(new WindowAdapter()
{
public void windowClosing(WindowEvent e)
{
System.exit(0);
}
});
}
}
```



OR:

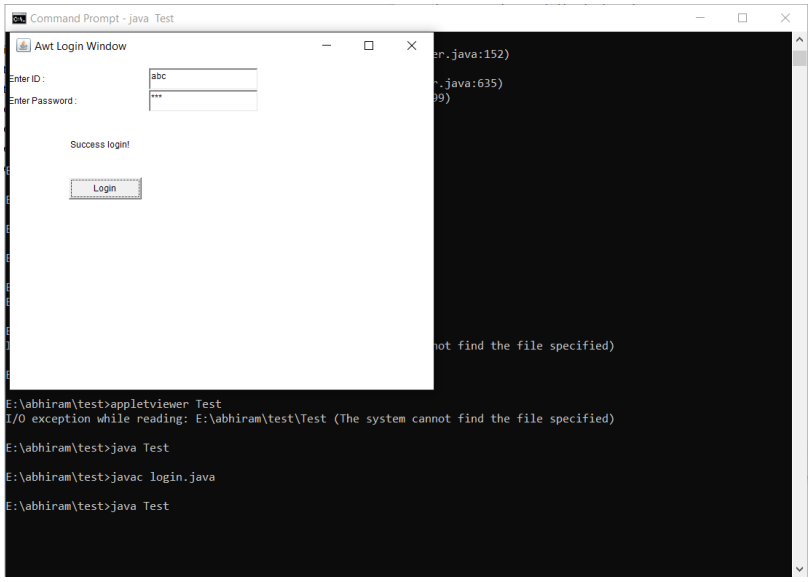
29. Write a java program to design the page authenticating user name and password by using SWING. [CO4]

Program:

```
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.awt.Button;
import java.awt.Frame;
import java.awt.Label;
import java.awt.TextField;
import java.awt.event.WindowAdapter;
import java.awt.event.WindowEvent;
class Test implements ActionListener {
   Button b1;
   TextField t1, t2;
   Label lb1, lb2, lb3;
   Frame f;
   Test() {
      f = new Frame("Awt Login Window");
      lb1 = new Label("Enter ID :");
      lb1.setBounds(5, 50, 150, 30);
      f.add(lb1);
      t1 = new TextField();
      t1.setBounds(200, 50, 150, 30);
      f.add(t1);
      t2 = new TextField();
      t2.setBounds(200, 80, 150, 30);
      f.add(t2);
```

```
    lb2 = new Label("Enter Password :");
    lb2.setBounds(5, 80, 150, 30);
    t2.addActionListener(this);
    t2.setEchoChar('*');
    f.add(lb2);
    lb3 = new Label("Result :");
    lb3.setBounds(90, 140, 150, 30);
    f.add(lb3);
    b1 = new Button("Login");
    b1.setBounds(90, 200, 100, 30);
    f.add(b1);
    b1.addActionListener(this);
    f.addWindowListener(new WindowAdapter() {
        public void windowClosing(WindowEvent we) {
            System.exit(0);
        }
    });
    f.setLayout(null);
    f.setSize(600, 500);
    f.setVisible(true);
}
    public void actionPerformed(ActionEvent e) {
        int c = 0;
        if (e.getSource().equals(b1)) {
            if (t1.getText().equals("abc") && (t2.getText().equals("123"))) {
                lb3.setText(String.valueOf("Success login!"));
```

```
            } else {
                lb3.setText(String.valueOf("Invalid login!"));
            }
        }
    }
    public static void main(String args[]) {
        Test t = new Test();
    }
}
```



30. Write a java program to design a calculator by using Grid Layout. [CO4]

Program:

```
import java.awt.*;
import java.awt.event.*;
/*java header files required to run this program*/
import java.applet.*;

/*<applet code = "calculator.class" width = 260 height = 310></applet>*/
public class calculator extends Applet implements ActionListener
```

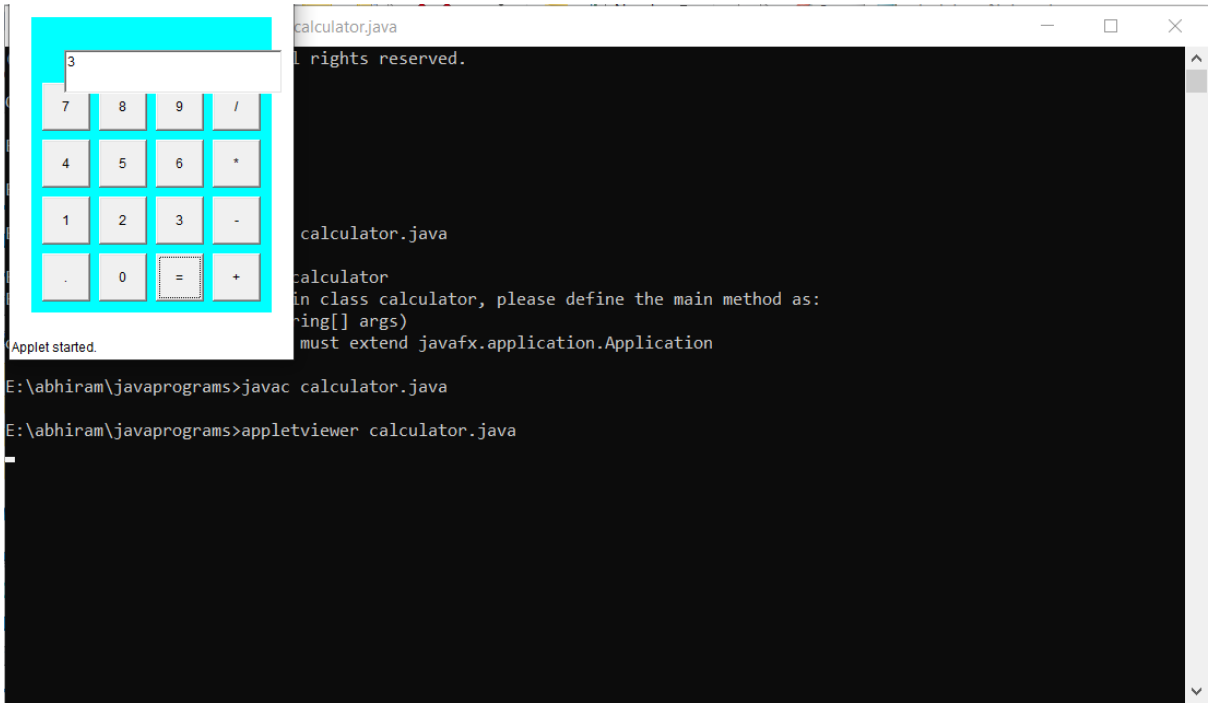
```
{
 TextField t1;
 Button
button1,button2,button3,button4,button5,button6,button7,button8,button9,
button0;
 Button add,sub,mul,div, eql, dot;
 String msg="",tmp;
 int a, b;
 public void init()
 {
  setLayout(null);
  t1=new TextField(20);
  button1=new Button("1");
  button2=new Button("2");
  button3=new Button("3");
  button4=new Button("4");
  button5=new Button("5");
  button6=new Button("6");
  button7=new Button("7");
  button8=new Button("8");
  button9=new Button("9");
  button0=new Button("0");
  /*Initilizing a 0 to 9 number in buttons */
  add=new Button("+");
  sub=new Button("-");
  div=new Button("/");
  mul=new Button("*");
```

```
  dot=new Button(".");
  eql=new Button("=");
  /*Initilizing all the operator to perform all the calculations in java AWT
calculator*/
  add(t1);
  /*result view window */
  add(button7);
  add(button8);
  add(button9);
  add(div);
  /*First show in a calculator*/
  add(button4);
  add(button5);
  add(button6);
  add(mul);
  /*Second show in a calculator*/
  add(button1);
  add(button2);
  add(button3);
  add(sub);
  /*Third show in a calculator*/
  add(dot);
  add(button0);
  add(eql);
  add(add);
  /*Forth show in a calculator*/
  t1.setBounds(50,50,200,40);
```

```
button7.setBounds(30,80,44,44);
button8.setBounds(82,80,44,44);
button9.setBounds(134,80,44,44);
button4.setBounds(30,132,44,44);
button5.setBounds(82,132,44,44);
button6.setBounds(134,132,44,44);
button1.setBounds(30,184,44,44);
button2.setBounds(82,184,44,44);
button3.setBounds(134,184,44,44);
dot.setBounds(30,236,44,44);
button0.setBounds(82,236,44,44);
eql.setBounds(134,236,44,44);
add.setBounds(186,236,44,44);
sub.setBounds(186,184,44,44);
mul.setBounds(186,132,44,44);
div.setBounds(186,80,44,44);
button0.addActionListener(this);
button1.addActionListener(this);
button2.addActionListener(this);
button3.addActionListener(this);
button4.addActionListener(this);
button5.addActionListener(this);
button6.addActionListener(this);
button7.addActionListener(this);
button8.addActionListener(this);
button9.addActionListener(this);
```

```
 //button0.addActionListener(this);
 //button0.addActionListener(this);
 div.addActionListener(this);
 mul.addActionListener(this);
 add.addActionListener(this);
 sub.addActionListener(this);
 eql.addActionListener(this);
}
public void actionPerformed(ActionEvent ae)
{
 String str = ae.getActionCommand();
 if (str.equals("+")||str.equals("-")||str.equals("*")||str.equals("/"))
 {
  String str1 = t1.getText();
  tmp=str;
  a = Integer.parseInt(str1);
  msg="";
 }
 else if(str.equals("="))
 {
  String str2 = t1.getText();
  b = Integer.parseInt(str2);
  int sum=0;
  if(tmp=="+")
   sum=a+b;
  else if(tmp=="-")
```

```
   sum=a-b;
  else if(tmp=="*")
   sum=a*b;
  else if(tmp=="/")
   sum=a/b;
  String str1=String.valueOf(sum);
  t1.setText(""+str1);
  msg="";
 }
 else
 {
  //String ae.getActionCommand();
  //str += ae.getActionCommand();
  msg+=str;
  t1.setText(""+msg);
 }
}
 public void paint(Graphics g)
 {
  g.setColor(Color.cyan);
  g.fillRect(20,20,220,270);
 }
}
```


3
7
8
9
/
4
5
6
*
1
2
3
-
.
0
=
+
Applet started.
calculator.java
l rights reserved.
calculator.java
calculator
in class calculator, please define the main method as:
ring[] args)
must extend javafx.application.Application
E:\abhiram\javaprograms>javac calculator.java
E:\abhiram\javaprograms>appletviewer calculator.java