**Java practical solution for reference only. Covers major programs .**

CORE JAVA

| | |
|---|---|
| Write a java code to get the output as shown below if the user input the String 'D'.<br>A<br>B A<br>C B A<br>D C B A | 20 |

```
import java.util.*;

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

{
int i,j;
Scanner sc=new Scanner(System.in);

System.out.println("Enter string ");
String na=sc.nextLine();

char ch=na.charAt(0);
int n=(int) ch; // ascii code of D    ie 68

for (i=65;i<=n;i++)
{
for (j=i;j>=65;j--)
{
     System.out.print((char)j+ " ");

}

System.out.println();
}

}
}
```

Write a java program to calculate area of rectangle by passing and returning object as a parameter.

```
class Rect
{
int l,w,area;

Rect(int x, int y)
{
l=x;
w=y;

}

Rect calculate(Rect obj)
{
area=l*w;
return obj;
}
void display()
{
System.out.println("area of rectangle is" + area);
}

}


class ReturnObj
{
public static void main(String args[])
{
Rect obj1=new Rect(5,6);
Rect obj2=obj1.calculate(obj1);
obj2.display();

}
}
```

Write a Java code to implement MouseListener and MouseMotionListener.

```
import java.awt.*;
import java.awt.event.*;
public class MouseListenerExample extends Frame implements MouseListener
{
      Label l;
      MouseListenerExample()
{
            addMouseListener(this);

            l=new Label();
            l.setBounds(20,50,100,20);
            add(l);
            setSize(300,300);
            setLayout(null);
            setVisible(true);
      }
      public void mouseClicked(MouseEvent e)
      {
            l.setText("Mouse Clicked");
      }
      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 MouseListenerExample();
}
}


/*
Java MouseListener Interface
The Java MouseListener is notified whenever you change the state of mouse. It is notified against
MouseEvent. The MouseListener interface is found in java.awt.event package. It has five methods.

Methods of MouseListener interface
The signature of 5 methods found in MouseListener interface are given below:

public abstract void mouseClicked(MouseEvent e);
```

```
public abstract void mouseEntered(MouseEvent e);
public abstract void mouseExited(MouseEvent e);
public abstract void mousePressed(MouseEvent e);
public abstract void mouseReleased(MouseEvent e);

*/



import java.awt.*;
import java.awt.event.*;
public class MouseMotionListenerExample extends Frame implements MouseMotionListener

{
	Label l;


	MouseMotionListenerExample()
{
		addMouseMotionListener(this);
			l=new Label();
		l.setBounds(20,50,100,20);
		add(l);
		setSize(300,300);
		setLayout(null);
		setVisible(true);
	}
public void mouseDragged(MouseEvent e)
{
	Graphics g=getGraphics();
	g.setColor(Color.BLUE);
	g.fillOval(e.getX(),e.getY(),20,20);
		l.setText("Mouse Dragged");

}
public void mouseMoved(MouseEvent e)
{
		l.setText("Mouse moved");
}

public static void main(String[] args)
{
	new MouseMotionListenerExample();
}
}
```

Write a Java program that copies content of one file to another. While copying the destination file should be an encrypted file. For example A is represented as C, B as D, C as E, and D as F and so on.

```
import java.io.*;
public class CopyFile {

    public static void main(String args[]) throws IOException {
        FileReader in = null;
        FileWriter out = null;

        try {
            in = new FileReader("abc.txt");
            out = new FileWriter("bbc.txt");

            int c;
      c = in.read();
            while ((c) != -1) {

          out.write((char)(c +2)); // for encrypt add 2 , so A become C and so on…
            c = in.read();
            }
        }finally {
            if (in != null) {
                in.close();
            }
            if (out != null) {
                out.close();
            }
        }
    }
}
```

Write a Java program that translates a letter grade into a number grade. Letter grades are A, B, C, D, and F possibly followed by + or -. Their numeric values are 4,3,2,1 and 0. There is no F+ and F-. + increases the value by 0.3 and – decreases the value by 0.3. However A+ has the value as 4.0 only. For example

Enter the grade : B-
The numeric value is : 2.7

```
import java.io.*;
public class Grade
{

    public static void main(String args[]) throws IOException
{
String st;
st=args[0]; // B+
double gr=0.0;
char ch=st.charAt(0);
char op=st.charAt(1);
if(ch=='A' && op=='+')
{

gr=4.0;
}

else if(ch=='A' && op=='-')
{

gr=3.7;
}

if(ch=='B' && op=='+')
{

gr=3.0;
}

else if(ch=='B' && op=='-')
{

gr=2.7;
}

if(ch=='C' && op=='+')
{

gr=1.0;
}

else if(ch=='C' && op=='-')
{

gr=0.7;
}
```

```
else
{
gr=0.0;
}

System.out.println("grade" +gr);
      }
}
```

Write a Java program for multiplying two matrices and print the product for the same

Explaination

Let the given two files be file1.txt and file2.txt. Our Task is to merge both files into third file say file3.txt. The following are steps to merge.

1. Create PrintWriter object for file3.txt
2. Open BufferedReader for file1.txt
3. Run a loop to copy each line of file1.txt to file3.txt
4. Open BufferedReader for file2.txt
5. Run a loop to copy each line of file2.txt to file3.txt
6. Flush PrintWriter stream and close resources.

To successfully run the below program file1.txt and file2.txt must exits in same folder OR provide full path for them.

```
import java.io.*;

public class MergeFile
{
      public static void main(String[] args) throws IOException
      {
            // PrintWriter object for file3.txt
            PrintWriter pw = new PrintWriter("file3.txt");

            // BufferedReader object for file1.txt
            BufferedReader br = new BufferedReader(new FileReader("file1.txt"));

            String line = br.readLine();

            // loop to copy each line of
            // file1.txt to    file3.txt
            while (line != null)
            {
                  pw.println(line);
                  line = br.readLine();
            }

            br = new BufferedReader(new FileReader("file2.txt"));

            line = br.readLine();
```

```
            // loop to copy each line of
            // file2.txt to    file3.txt
            while(line != null)
            {
                  pw.println(line);
                  line = br.readLine();
            }

            pw.flush();

            // closing resources
            br.close();
            pw.close();

            System.out.println("Merged file1.txt and file2.txt into file3.txt");
      }
}
```

## Write a Java program to convert a decimal number to binary number.

```
/* Java Program Example - Convert Decimal to Binary */

import java.util.*;

public class DeciToBin
{
	public static void main(String args[])
	{
		int decnum, rem, quot, i=0, j;
		int binnum[] = new int[100];
		Scanner sc = new Scanner(System.in);

		System.out.print("Enter any Decimal Number : ");
		decnum = sc.nextInt();

		quot = decnum;

		while(quot != 0)
		{
			binnum[i++] = quot%2;
System.out.println(binnum[i]);
System.out.println(i);
			quot = quot/2;
		}

		System.out.print("Equivalent Binary Value of " + decnum + " is :\n");
		for(j=i-1; j>=0; j--)
		{
			System.out.print(binnum[j]);
		}
	}
}
```

## Write a Java program to implement KeyListener.

```
import java.awt.*;
import java.awt.event.*;
public class KeyListenerExample extends Frame implements KeyListener{
	Label l;
	TextArea area;
	KeyListenerExample(){

		l=new Label();
		l.setBounds(20,50,100,20);
```

```
            area=new TextArea();
            area.setBounds(20,80,300, 300);
            area.addKeyListener(this);

            add(l);add(area);
            setSize(400,400);
            setLayout(null);
            setVisible(true);
      }
      public void keyPressed(KeyEvent e) {
            l.setText("Key Pressed");
      }
      public void keyReleased(KeyEvent e) {
            l.setText("Key Released");
      }
      public void keyTyped(KeyEvent e) {
            l.setText("Key Typed");
      }

      public static void main(String[] args) {
            new KeyListenerExample();
      }
}
```

Write a java program to input a number from user and print the sum of its odd factors only. Example: - If number is 36 then its factors are 1,2,3,4,6,9,12,18 and sum of its odd factors is 1+3+9=13.

```
import java.util.*;

public class Factors
{
public static void main(String[] args)
{
      int Number, i;
      int sum=0;
      Scanner    sc = new Scanner(System.in);

      System.out.println("Please Enter any number to Find Factors: ");
      Number = sc.nextInt();
      for(i = 1; i <= Number; i++)
      {

         if(Number%i == 0)
           {
            System.out.print(i);
            if(i%2!=0)
            {
            sum=sum+i;
            }

                  }
      }

System.out.println("sum of odd factors are" + sum);
```

```
    }

}
```

Write a Java program to convert digit into words.(E.g.: 12 One Two)

```
import java.util.*;

public class No2word
{
    public static void main(String args[])
    {
     int no,r,a,t;
          Scanner sc = new Scanner(System.in);

          System.out.print("Enter any Decimal Number : ");
          no= sc.nextInt();

    t=no;


          while(no != 0) // to reverse a number
          {
            a=no%10;
    r=r*10+a;
    no=no/10;
          }

while(r>0)
{
a=r%10;

switch(a)
{
case 1:
System.out.println("one");
break;

case 2:
System.out.println("two");
break;


case 3:
System.out.println("three");
break;
....

}

r=r/10;

}
```

```
    }
}
```

Write a Java program called CozaLozaWoza which prints the number 1 to 110, 11 numbers per line. The program shall print "Coza" in place of the numbers which are multiples of 3, "Loza" for multiples of 5, "Woza" for multiples of 7, "CozaLoza" for multiples of 3 and 5, and so on. The output shall look like:

1 2 Coza 4 Loza Coza Woza 8 Coza Loza 11
Coza 13 Woza CozaLoza 16 17 Coza 19 Loza CozaWoza 22
23 Coza Loza 26 Coza Woza 29 CozaLoza 31 32 Coza

```
class CozaWozaLoza
{
  public static void main(String args[])
  {
       String a = "Coza";
       String b = "Loza";
       String c = "Woza";
       int count = 1;
       int num = 1;

    for(int i = 1 ; i <= 11 ; i++)
    {
      for(int j = 1 ; j <= count    ; j ++)
       {
              while(count <= 11 && num <= 110)
              {

                if(num % 3 == 0 && num % 5 == 0 && num % 7 == 0 )
                     System.out.print(a+ b+c+" ");
                else if(num % 3 == 0 && num % 5 == 0)
                     System.out.print(a+b + " ");
              else if(num % 5 == 0 && num % 7 == 0)
                        System.out.print(b+c + " ");
              else if(num % 3 == 0 && num % 7 == 0)
                        System.out.print(a+c + " ")
                else if(num % 3 == 0)
                                        System.out.print(a + " ");
                else if(num %    5== 0)
                                        System.out.print(b + " ");
                else if(num %    7== 0)
                                        System.out.print(c + " ");
                else

                                    System.out.print(num + " ");
              count++;
```

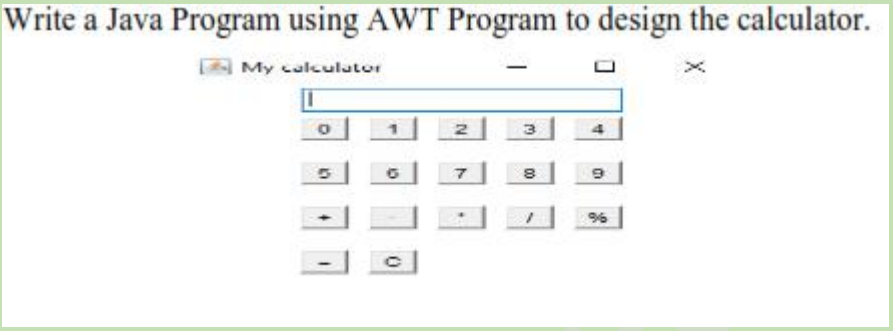
```
                num++;
                }

                  count = 1;
               }
               System.out.println();
   }
  }
}
// still above one is not 100 % correct, but still we can attempt.
```

**Announcing shortly**

**Admission TY Bsc IT , SY BSc IT 2019-20 with Various offers, Early bird offer, Group offer , combo offer.**

Write a Java Program using AWT Program to design the calculator.




```
import java.awt.*;
import java.awt.event.*;
public class calculator implements ActionListener
{
      int c,n;
      String s1,s2,s3,s4,s5;
      Frame f;
      Button b1,b2,b3,b4,b5,b6,b7,b8,b9,b10,b11,b12,b13,b14,b15,b16,b17;
      Panel p;
      TextField tf;
      GridLayout g;
      calculator()
      {
            f = new Frame("My calculator");
            p = new Panel();
            f.setLayout(new FlowLayout());
            b1 = new Button("0");
            b1.addActionListener(this);
            b2 = new Button("1");
            b2.addActionListener(this);
            b3 = new Button("2");
            b3.addActionListener(this);
            b4 = new Button("3");
            b4.addActionListener(this);
            b5 = new Button("4");
            b5.addActionListener(this);
            b6 = new Button("5");
            b6.addActionListener(this);
            b7 = new Button("6");
```

```
            b7.addActionListener(this);
            b8 = new Button("7");
            b8.addActionListener(this);
            b9 = new Button("8");
            b9.addActionListener(this);
            b10 = new Button("9");
            b10.addActionListener(this);
            b11 = new Button("+");
            b11.addActionListener(this);
            b12 = new Button("-");
            b12.addActionListener(this);
            b13 = new Button("*");
            b13.addActionListener(this);
            b14 = new Button("/");
            b14.addActionListener(this);
            b15 = new Button("%");
            b15.addActionListener(this);
            b16 = new Button("=");
            b16.addActionListener(this);
            b17 = new Button("C");
            b17.addActionListener(this);
            tf = new TextField(20);
            f.add(tf);
            g = new GridLayout(4,4,10,20);
            p.setLayout(g);

p.add(b1);p.add(b2);p.add(b3);p.add(b4);p.add(b5);p.add(b6);p.add(b7);p.add(b8);p.add(b9);

p.add(b10);p.add(b11);p.add(b12);p.add(b13);p.add(b14);p.add(b15);p.add(b16);p.add(b17);
            f.add(p);
            f.setSize(300,300);
            f.setVisible(true);
      }
      public void actionPerformed(ActionEvent e)
      {
            if(e.getSource()==b1)
            {
                  s3 = tf.getText();
                  s4 = "0";
                  s5 = s3+s4;
                  tf.setText(s5);
            }
            if(e.getSource()==b2)
            {
                  s3 = tf.getText();
                  s4 = "1";
                  s5 = s3+s4;
                  tf.setText(s5);
            }
            if(e.getSource()==b3)
            {
                  s3 = tf.getText();
                  s4 = "2";
                  s5 = s3+s4;
```

```
            tf.setText(s5);
        }if(e.getSource()==b4)
        {
            s3 = tf.getText();
            s4 = "3";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b5)
        {
            s3 = tf.getText();
            s4 = "4";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b6)
        {
            s3 = tf.getText();
            s4 = "5";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b7)
        {
            s3 = tf.getText();
            s4 = "6";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b8)
        {
            s3 = tf.getText();
            s4 = "7";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b9)
        {
            s3 = tf.getText();
            s4 = "8";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b10)
        {
            s3 = tf.getText();
            s4 = "9";
            s5 = s3+s4;
            tf.setText(s5);
        }
        if(e.getSource()==b11) // for +
        {
            s1 = tf.getText();
            tf.setText("");
```

```
            c=1;

        }
        if(e.getSource()==b12)
        {
            s1 = tf.getText();
            tf.setText("");
            c=2;

        }
        if(e.getSource()==b13)
        {
            s1 = tf.getText();
            tf.setText("");
            c=3;

        }
        if(e.getSource()==b14)
        {
            s1 = tf.getText();
            tf.setText("");
            c=4;

        }
        if(e.getSource()==b15)
        {
            s1 = tf.getText();
            tf.setText("");
            c=5;

        }
        if(e.getSource()==b16)
        {
            s2 = tf.getText();
            if(c==1) // for +
            {
                n = Integer.parseInt(s1)+Integer.parseInt(s2);
                tf.setText(String.valueOf(n));
            }
            else
            if(c==2)
            {
                n = Integer.parseInt(s1)-Integer.parseInt(s2);
                tf.setText(String.valueOf(n));
            }
            else
            if(c==3)
            {
                n = Integer.parseInt(s1)*Integer.parseInt(s2);
                tf.setText(String.valueOf(n));
            }
            if(c==4)
            {
                try
```

```
                    {
                        int p=Integer.parseInt(s2);
                        if(p!=0)
                        {
                                                n = Integer.parseInt(s1)/Integer.parseInt(s2);
                        tf.setText(String.valueOf(n));
                          }
                          else
                              tf.setText("infinite");

                    }
                    catch(Exception i){}
                }
                if(c==5)
                {
                    n = Integer.parseInt(s1)%Integer.parseInt(s2);
                    tf.setText(String.valueOf(n));
                }
            }
            if(e.getSource()==b17)
            {
                tf.setText("");
            }
        }

        public static void main(String[] abc)
        {
            calculator v = new calculator();
        }
}
```