

NETWORK PROGRAMMING LAB

LAB 4

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Q) Write a program in java to display four different images of a given URL in a single frame as four quadrants. The images should change from one quadrant to other quadrant in a cyclic manner, with 5 secs delay

CODE

```
import java.awt.Color;
import java.awt.Dimension;
import java.awt.Graphics;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.awt.image.BufferedImage;
import java.awt.*;

import java.io.IOException;
import java.net.MalformedURLException;
import java.net.URL;
import java.util.Random;
import javax.imageio.ImageIO;
import javax.swing.JFrame;
import javax.swing.JPanel;
import javax.swing.SwingUtilities;
import javax.swing.Timer;
import javax.swing.*;
```

```

public class Main {

    public static void main(String[] args) {
        SwingUtilities.invokeLater(new Runnable(){
            @Override
            public void run() {
                JFrame frame = new JFrame("Image Timer");
                frame.add(new ImagePanel());
                frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
                frame.pack();
                frame.setLocationRelativeTo(null);
                frame.setVisible(true);
            }
        });
    }

    private static class ImagePanel extends JPanel {

        URL[] urls;
        Image[] images;
        Random rand = new Random();

        public ImagePanel() {
            urls = new URL[4];
            try {
                urls[0] = new URL(" https://vitap.ac.in/wp-content/uploads/2021/07/SCOPE_1.jpg");
                urls[1] = new URL(" https://vitap.ac.in/wp-content/uploads/2021/07/VISH_1.jpg");
                urls[2] = new URL("https://vitap.ac.in/wp-content/uploads/2021/07/VISH_1.jpg");
                urls[3] = new URL("https://vitap.ac.in/wp-content/uploads/2021/07/SCOPE_1.jpg");

                images = new Image[4];
            } catch (MalformedURLException e) {
                e.printStackTrace();
            }
        }
    }
}

```

```
images[0] = ImageIO.read(urls[0]);
images[1] = ImageIO.read(urls[1]);
images[2] = ImageIO.read(urls[2]);
images[3] = ImageIO.read(urls[3]);
```

```
} catch (MalformedURLException ex) {
    ex.printStackTrace();
} catch (IOException ex) {
    ex.printStackTrace();
}
setBackground(Color.BLACK);
```

```
Timer timer = new Timer(5000, new ActionListener(){
    @Override
    public void actionPerformed(ActionEvent e) {
        repaint();
    }
});
timer.start();
}
```

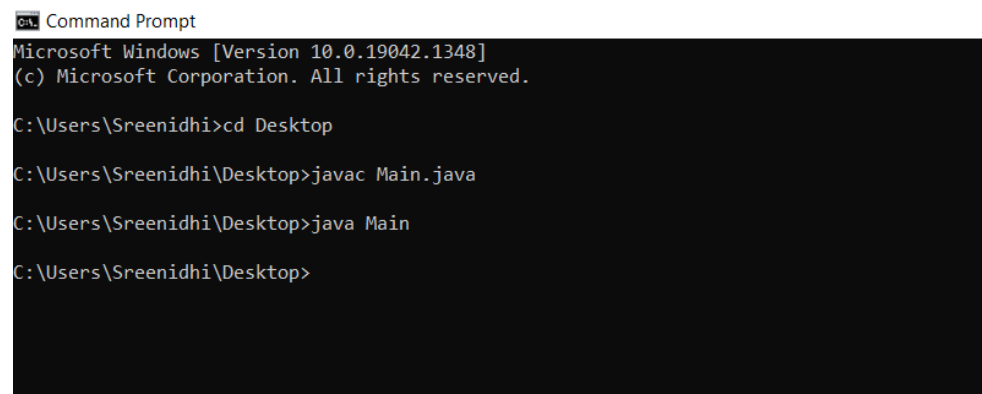
```
//static int a[] = {0,1,2,3};
@Override
protected void paintComponent(Graphics g) {
    super.paintComponent(g);

    g.setColor(Color.WHITE);
    g.drawImage(images[0], 0, 0, 200, 200, this);
    g.drawImage(images[1], 200, 0, 200, 200, this);
    g.drawImage(images[2], 0, 200, 200, 200, this);
```

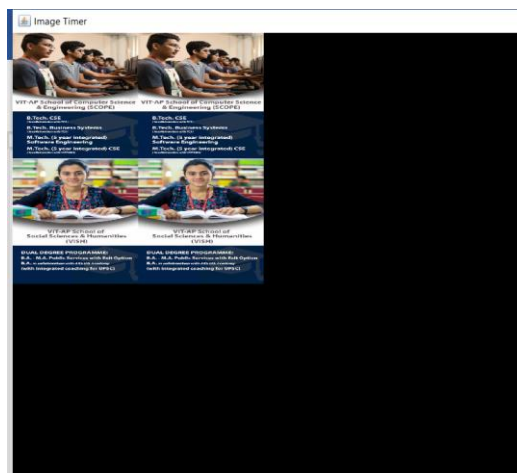
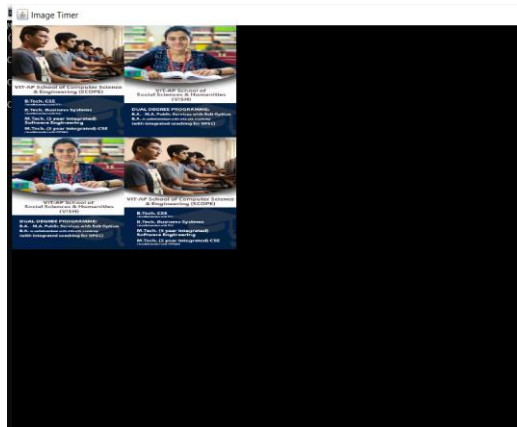
```
g.drawImage(images[3], 200, 200,200,200, this);  
Image temp=images[0];  
for(int i=0;i<3;i++)  
{  
images[i]=images[i+1];  
}  
images[3]=temp;  
  
}
```

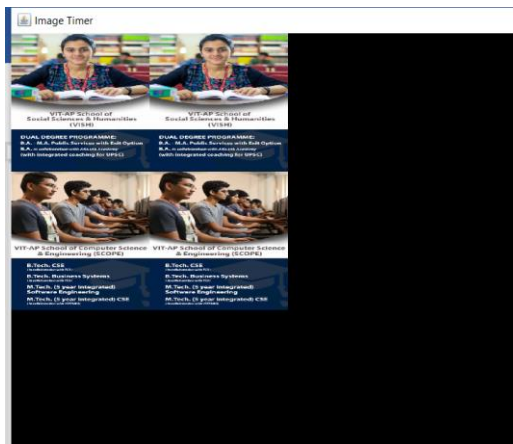
```
@Override  
public Dimension getPreferredSize() {  
return new Dimension(1920, 1080);  
}  
}  
}
```

OUTPUT –



```
Command Prompt  
Microsoft Windows [Version 10.0.19042.1348]  
(c) Microsoft Corporation. All rights reserved.  
C:\Users\Sreenidhi>cd Desktop  
C:\Users\Sreenidhi\Desktop>javac Main.java  
C:\Users\Sreenidhi\Desktop>java Main  
C:\Users\Sreenidhi\Desktop>
```





Q2) Read the information of the given url and count the number of vowels in it. Identify the most used word of the page.

CODE –

```
import java.net.*;
import java.io.*;
import java.util.HashMap;
import java.util.HashSet;

public class VowelURL
{
    static HashSet<Character> hs = new HashSet<Character>(){
        add('A'); add('E'); add('I'); add('O'); add('U');add('a');add('e');add('i');add('o');add('u');
    };

    static HashMap<String,Integer> hm = new HashMap<>();
    public static void main(String[] args) throws IOException
    {
        int vowels = 0;
        try
        {
            URL url = new URL("https://vitap.ac.in/");
            BufferedReader buff = new BufferedReader(new InputStreamReader(url.openStream()));
            String str;
```

```

while((str = buff.readLine()) != null)
{
    addWords(str);
    vowels+=countVowels(str);
    System.out.println("\n");
    System.out.println(str);
}
buff.close();
}
catch(IOException e)
{
    System.err.println(e);
}

System.out.println("count of vowels: "+ vowels);
String res = getMostUsedWord();
System.out.println("most used word: "+ res + " \ncount : "+hm.get(res));
}

private static String getMostUsedWord() {
    int max =Integer.MIN_VALUE;
    String res=null;
    for(String s : hm.keySet())
    {
        if(hm.get(s)>max)
        {
            max=hm.get(s);
            res=s;
        }
    }
    return res;
}

```

```
}
```

```
private static void addWords(String str) {  
    String s[] = str.trim().split("\\s+");  
    for(int i=0;i<s.length;i++)  
    {  
        if(!hm.containsKey(s[i]))  
        {  
            hm.put(s[i],1);  
        }  
        else  
        {  
            hm.put(s[i],hm.get(s[i])+1);  
        }  
    }  
}
```

```
private static int countVowels(String str) {  
    int count=0;  
    for(int i=0;i<str.length();i++)  
    {  
        if(hs.contains(str.charAt(i)))  
        {  
            count++;  
        }  
    }  
    return count;  
}  
}
```

OUTPUT –


```
C:\Users\Sreenidhi>cd Desktop
C:\Users\Sreenidhi\Desktop>javac VowelURL.java
C:\Users\Sreenidhi\Desktop>java VowelURL

<!DOCTYPE html>

<html lang="en-US" class="no-js no-svg">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<meta name="facebook-domain-verification" content="l8y1hs3zzcilrojfwzhlee488y2mnf" />


<link rel="profile" href="http://gmpg.org/xfn/11">


<meta http-equiv="X-UA-Compatible" content="IE=edge">


<script>(function(html){html.className = html.className.replace(/\bno-js\b/,'js'))}(document.documentElement));</script>

<title>VIT-AP &#8211; Apply Knowledge. Improve Life!</title>

<link rel='dns-prefetch' href='//s.w.org' />

<link rel="alternate" type="application/rss+xml" title="VIT-AP &#8211; Feed" href="https://vitap.ac.in/feed/" />
```

```
</html>
count of vowels: 17225
most used word: <div
count : 225
```

```
C:\Users\Sreenidhi\Desktop>
```