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**LAB-4:**

**Q1:** 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://cdn-dmpbo.nitrocdn.com/sTfxmDcplhzyoBVcguAegkZcSjDCGcXk/assets/static/source/rev-19bfa43/wp-content/uploads/2019/09/gopinath.jpg");

urls[1] = new URL(" https://vitap.ac.in/wp-content/uploads/2020/07/Dr.-HUSSAIN-SYED.jpg");

urls[2] = new URL(" https://cdn-dmpbo.nitrocdn.com/sTfxmDcplhzyoBVcguAegkZcSjDCGcXk/assets/static/source/rev-19bfa43/wp-content/uploads/2019/06/Dr.-SUDHAKAR-ILANGO-1.jpg");

urls[3] = new URL(" https://vitap.ac.in/wp-content/uploads/2019/06/Dr.-S.-SIBI-CHAKRAVARTY.jpg");

images = new Image[4];

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);

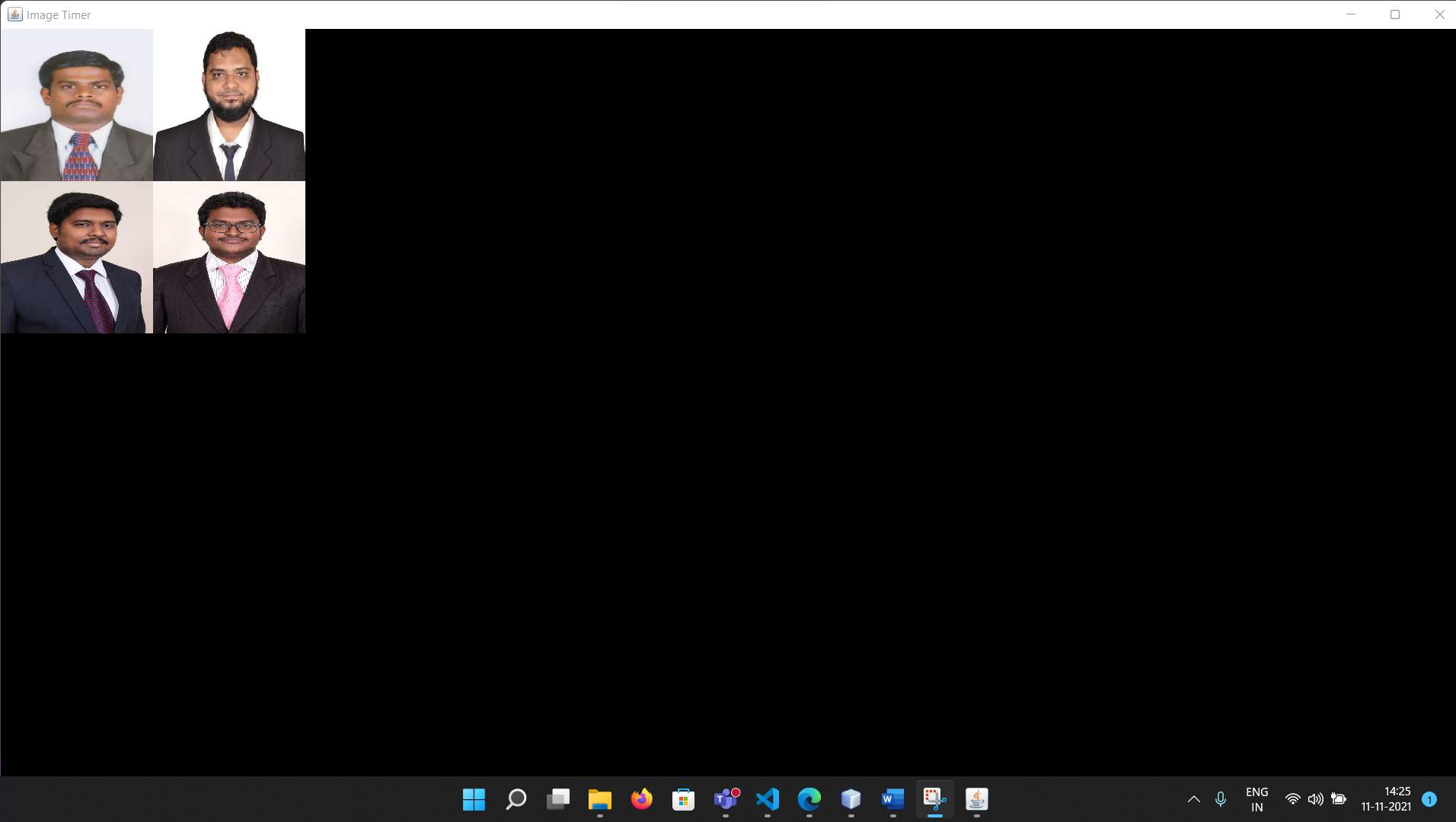
}

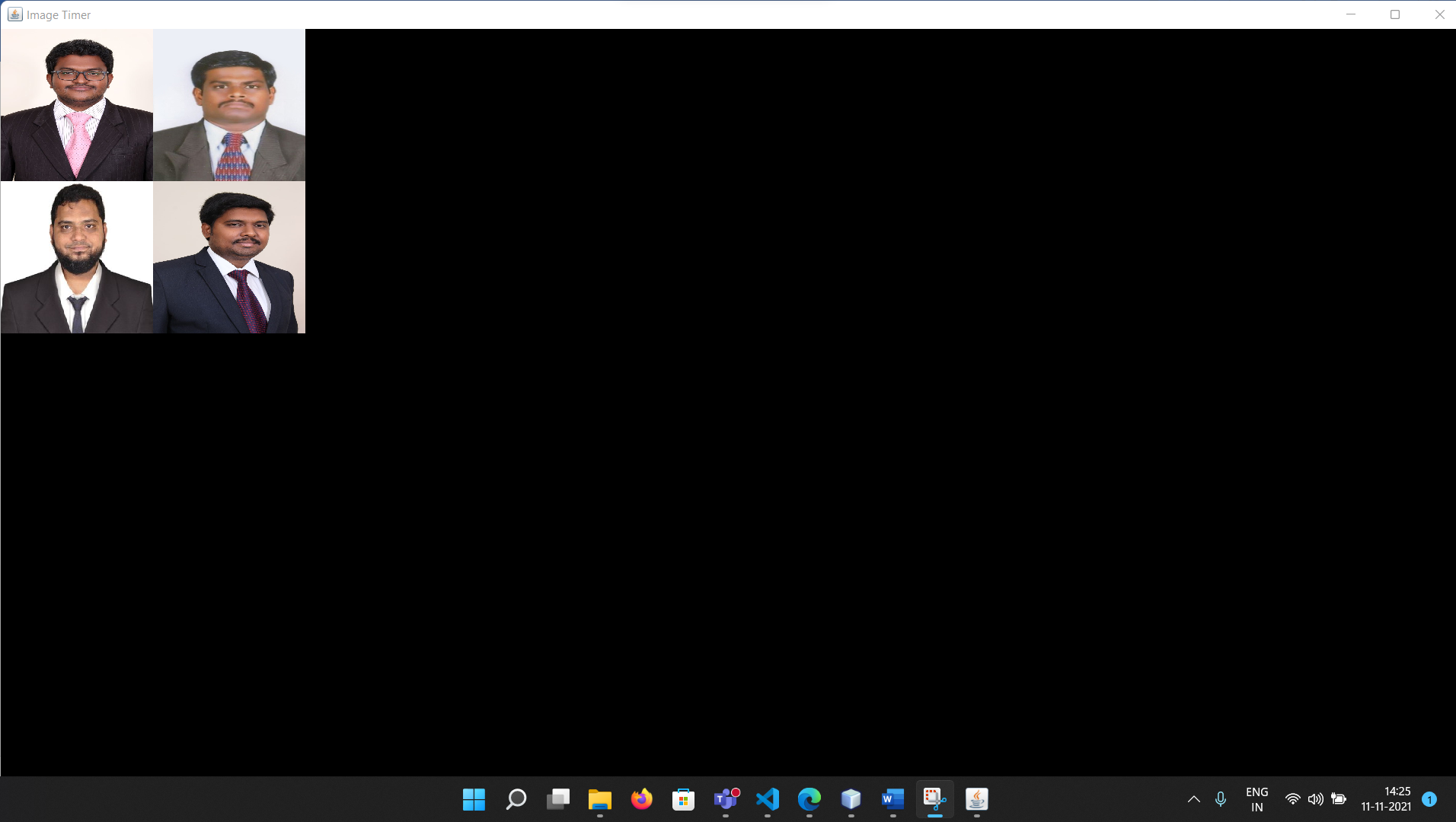
}

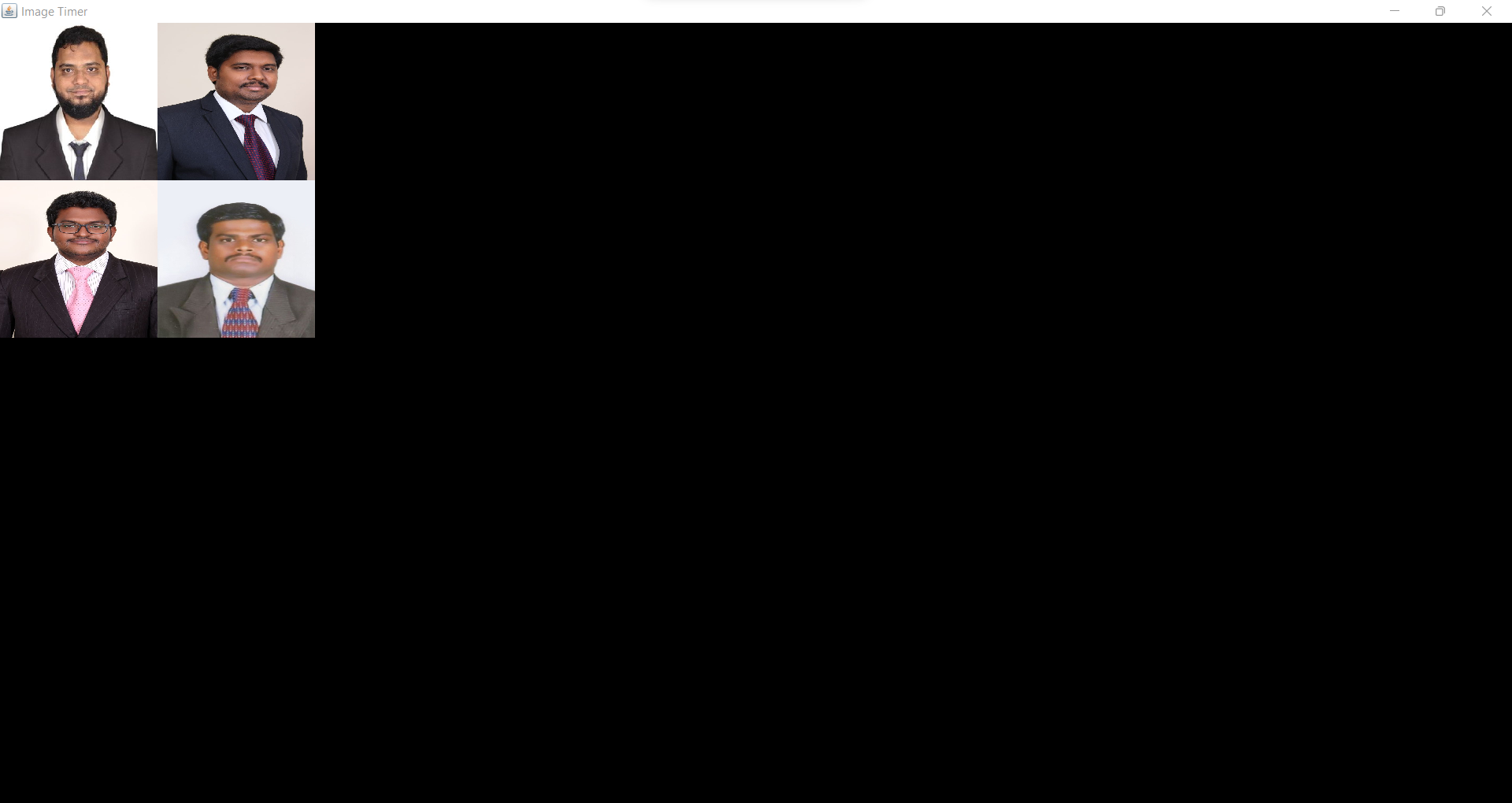
}

**Output:**

**Initial:**

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**Q2:**

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

**/\***

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**\* and open the template in the editor.**

**\*/**

**package httpapp;**

**/\*\***

**\***

**\* @author saima**

**\*/**

**import org.jsoup.\*;**

**import java.util.\*;**

**import java.io.BufferedReader;**

**import java.io.IOException;**

**import java.io.InputStreamReader;**

**import java.net.\*;**

**public class Vowels**

**{**

**static HashMap<Character,Integer> map=new HashMap<>();**

**public static void main(String[] args) throws IOException**

**{**

**URL url=new URL("https://www.vitap.ac.in");**

**BufferedReader in = new BufferedReader(new InputStreamReader(url.openStream()));**

**StringBuilder sb=new StringBuilder();**

**String line;**

**while ((line = in.readLine()) != null)**

**{**

**sb.append(line);**

**}**

**int count=0;**

**String text=GetTextFromHTML(sb.toString());**

**for(int i=0;i<text.length();i++)**

**{**

**if(text.toLowerCase().charAt(i)=='a'|| text.toLowerCase().charAt(i)=='e'||text.toLowerCase().charAt(i)=='u'||text.toLowerCase().charAt(i)=='i'||text.toLowerCase().charAt(i)=='o' ) {**

**count++;**

**}**

**if(text.charAt(i)!=' ')**

**{**

**if(!map.containsKey(text.toLowerCase().charAt(i)))**

**map.put(text.toLowerCase().charAt(i),1);**

**else**

**map.put(text.toLowerCase().charAt(i),map.get(text.toLowerCase().charAt(i))+1);**

**}**

**}**

**System.out.println("TOTAL VOWELS OCCURRED :"+count);**

**getMaxCharater();**

**}**

**public static void getMaxCharater() {**

**int Max=Integer.MIN\_VALUE;**

**char MaxChar=' ';**

**for(Map.Entry<Character, Integer> e:map.entrySet()) {**

**if(Max<e.getValue()) {**

**Max=e.getValue();**

**MaxChar=e.getKey();**

**}**

**}**

**System.out.println("MOST COMMON CHARACTER IS : "+MaxChar+" occurred -> "+Max);**

**}**

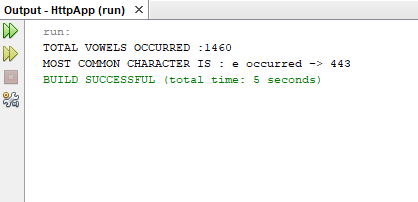
**private static String GetTextFromHTML(String string) {**

**return Jsoup.parse(string).text();**

**}**

**}**

**Output:**

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