1. [20 Pts] Use the file called Input.txt that is given along with this homework assignment file in the portal as input text file for this problem. Write a program that: • Prompts the user to enter a text file name • Count and display the number of vowels in the file • Use the Java HashSet to store the vowels A, E, I, O, and U • The output on the console screen should be as follows:

   Enter a filename: Input.txt The number of vowels is [vowels count from the program]

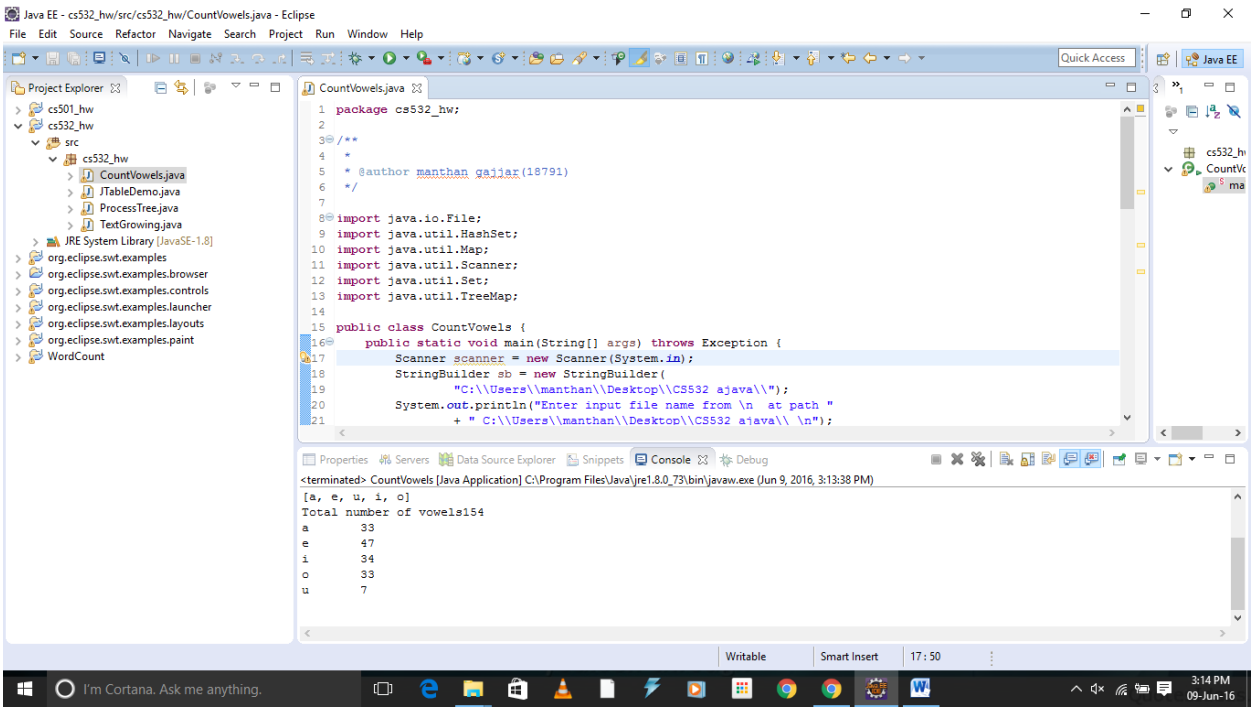
   OUTPUT:

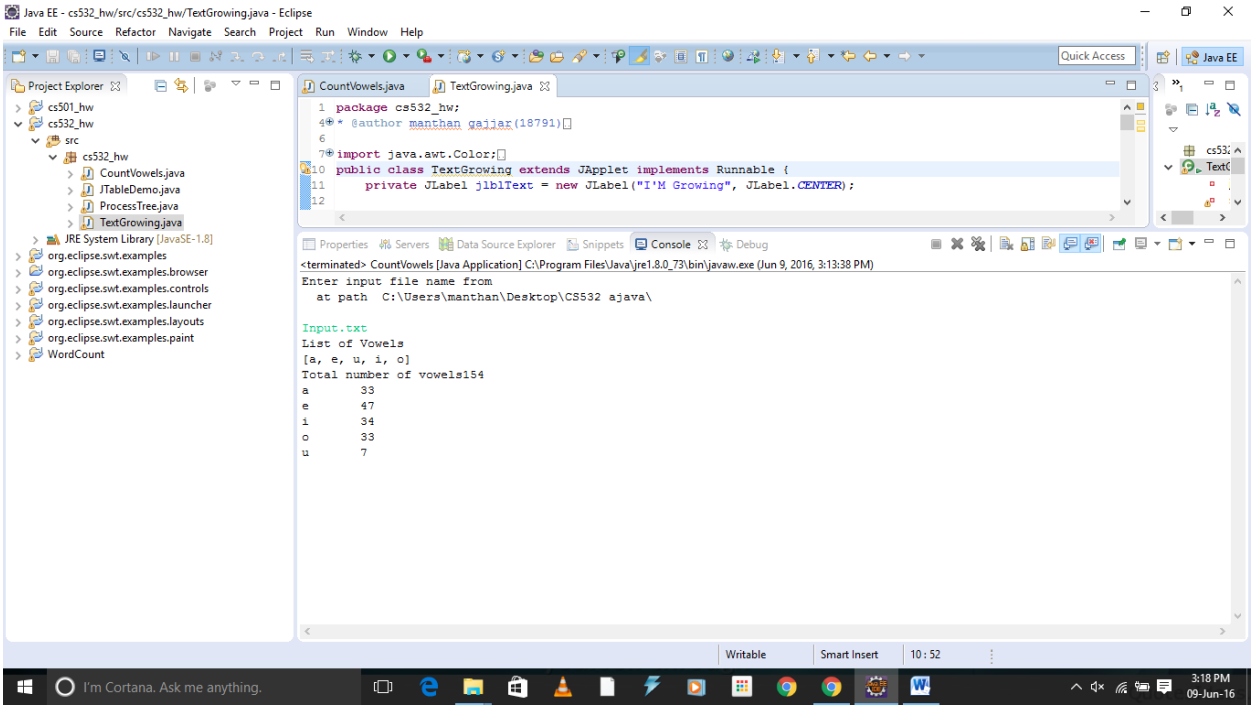
```
package cs532_hw;

/**
 *
 * @author manthan gajjar(18791)
 */

import java.io.File;
import java.util.HashSet;
import java.util.Map;
import java.util.Scanner;
import java.util.Set;
import java.util.TreeMap;

public class CountVowels {
	public static void main(String[] args) throws Exception {
		Scanner scanner = new Scanner(System.in);
		StringBuilder sb = new StringBuilder(
				"C:\\Users\\manthan\\Desktop\\CS532 ajava\\");
		System.out.println("Enter input file name from \n  at path "
				+ " C:\\Users\\manthan\\Desktop\\CS532 ajava\\ \n");
		String inputFileName = scanner.nextLine();

		String filename = sb.append(inputFileName).toString().trim();
		File file = new File(filename);
		Map<Character, Integer> map = new TreeMap<Character, Integer>();
		System.out.println("List of Vowels");
		char[] vowels = { 'a', 'e', 'i', 'o', 'u' };
		int total = 0;
		Set<Character> vowelsSet = new HashSet<Character>();
		for (int i = 0; i < vowels.length; i++) {
			vowelsSet.add(vowels[i]);
		}
		System.out.println(vowelsSet);
		Scanner input = new Scanner(file);
		if (file.exists()) {
			int count = 0;
			while (input.hasNext()) {
				String word = input.next();
				char[] w = word.toLowerCase().toCharArray();
				for (int i = 0; i < w.length; i++) {
```

```
                                    if (vowelsSet.contains(w[i])) {

                                          if (!map.containsKey(w[i])) {
                                                map.put(w[i], 1);
                                                count++;
                                          } else {
                                                int value = map.get(w[i]);
                                                value++;
                                                count++;
                                                map.put(w[i], value);
                                          }
                                    }
                              }
                        }
                        System.out.println("Total number of vowels" + count);
                        Set<Map.Entry<Character, Integer>> entrySet =
map.entrySet();
                        for (Map.Entry<Character, Integer> entry : entrySet)
                              System.out.println(entry.getKey() + "\t" +
entry.getValue());
                  } else {
                        System.out.println("File NPU.txt is does not exist");
                  }
            }

}
```

OUTPUT:

```
Enter input file name from
  at path  C:\Users\manthan\Desktop\CS532 ajava\

Input.txt
List of Vowels
[a, e, u, i, o]
Total number of vowels154
a     33
e     47
i     34
o     33
u     7
```




2. [30 Pts] Modify the program FlashingText.java (given as a sample program for the Java Threading
lecture) :

- Rename the program to GrowingText, instead of FlashingText
- The text “I’M GROWING” starts with font size = 10
- Every 1/2 second (500 milliseconds) the font size increases by 5
- When the font size increases up to 50, the size is reset back to 10
- The GUI application displays the text as shown below:

At the start of the program, font size is 10

After 2 seconds, font size is increased to 30

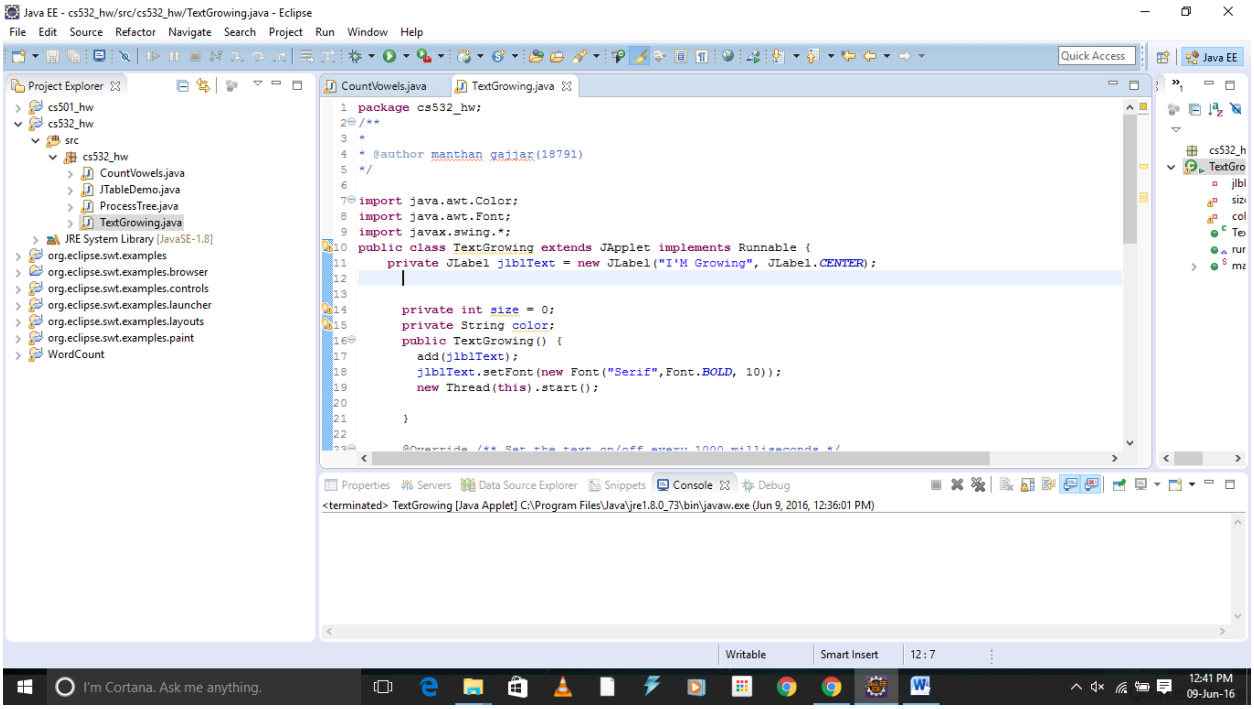
After 4 seconds, font size is increased to 50

After the size reaches 50, font size goes back to 10 and increase by 5 every 1/2 second again

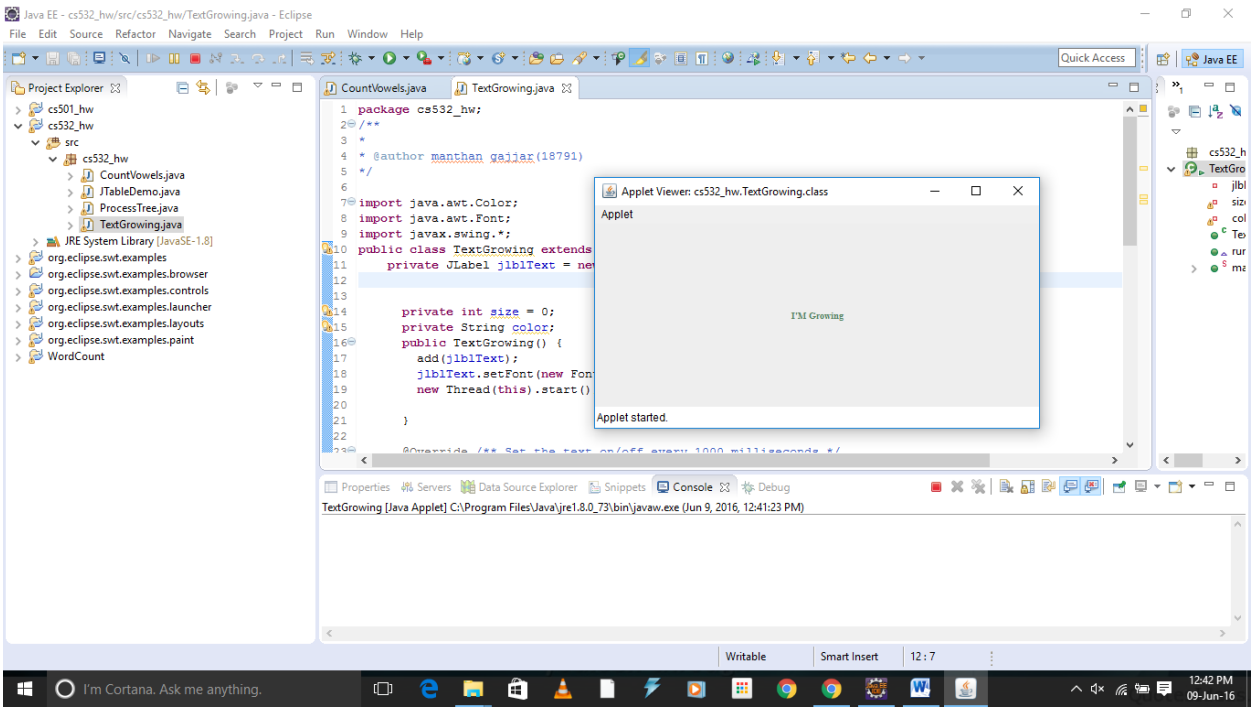
OUTPUT:

```
package cs532_hw;
/**
*
* @author manthan gajjar(18791)
*/

import java.awt.Color;
import java.awt.Font;
import javax.swing.*;
public class TextGrowing extends JApplet implements Runnable {
      private JLabel jlblText = new JLabel("I'M Growing", JLabel.CENTER);


        private int size = 0;
        private String color;
        public TextGrowing() {
          add(jlblText);
          jlblText.setFont(new Font("Serif",Font.BOLD, 10));
          new Thread(this).start();

        }

        @Override /** Set the text on/off every 1000 milliseconds */
        public void run() {
          try {
            while (true) {

                for(int i=10;i<=50;i+=5)
                {
                    Thread.sleep(1000);
                   jlblText.setFont(new Font("Serif",Font.BOLD,i));
                   Color color = new Color((int)(Math.random() *
256),(int)(Math.random() * 256), (int)(Math.random() * 256));
                   jlblText.setForeground(color);
                }
            }
          }
          catch (InterruptedException ex) {
          }
        }
```

```
  /** Main method */
  public static void main(String[] args) {
    SwingUtilities.invokeLater(new Runnable() {
      public void run() {
        JFrame frame = new JFrame("Growing Text With different color");
        frame.add(new TextGrowing());
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(350,350);
        frame.setVisible(true);
      }
    });
  }
```




```
}
```


Java EE - cs532_hw/src/cs532_hw/TextGrowing.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Java EE
Project Explorer
cs501_hw
cs532_hw
src
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CountVowels.java
JTableDemo.java
ProcessTree.java
TextGrowing.java
JRE System Library [JavaSE-1.8]
org.eclipse.swt.examples
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4 * @author manthan gajjar(18791)
5 */
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8 import java.awt.Font;
9 import javax.swing.*;
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11 private JLabel jlblText = ne
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14 private int size = 0;
15 private String color;
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19 new Thread(this).start()
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21 }
22
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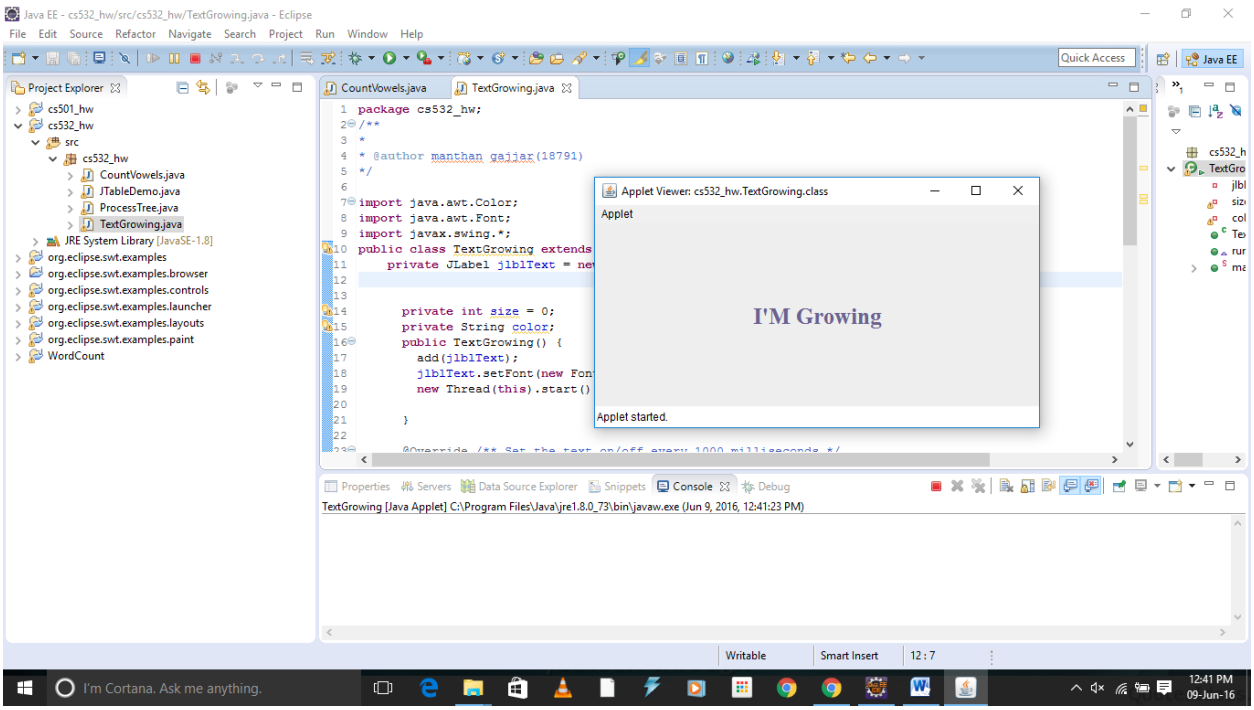
Applet
I'M Growing
Applet started.
Properties Servers Data Source Explorer Snippets Console Debug
TextGrowing [Java Applet] C:\Program Files\Java\jre1.8.0_73\bin\javaw.exe (Jun 9, 2016, 12:41:23 PM)
Writable
Smart Insert
12 : 7
I'm Cortana. Ask me anything.
12:42 PM
09-Jun-16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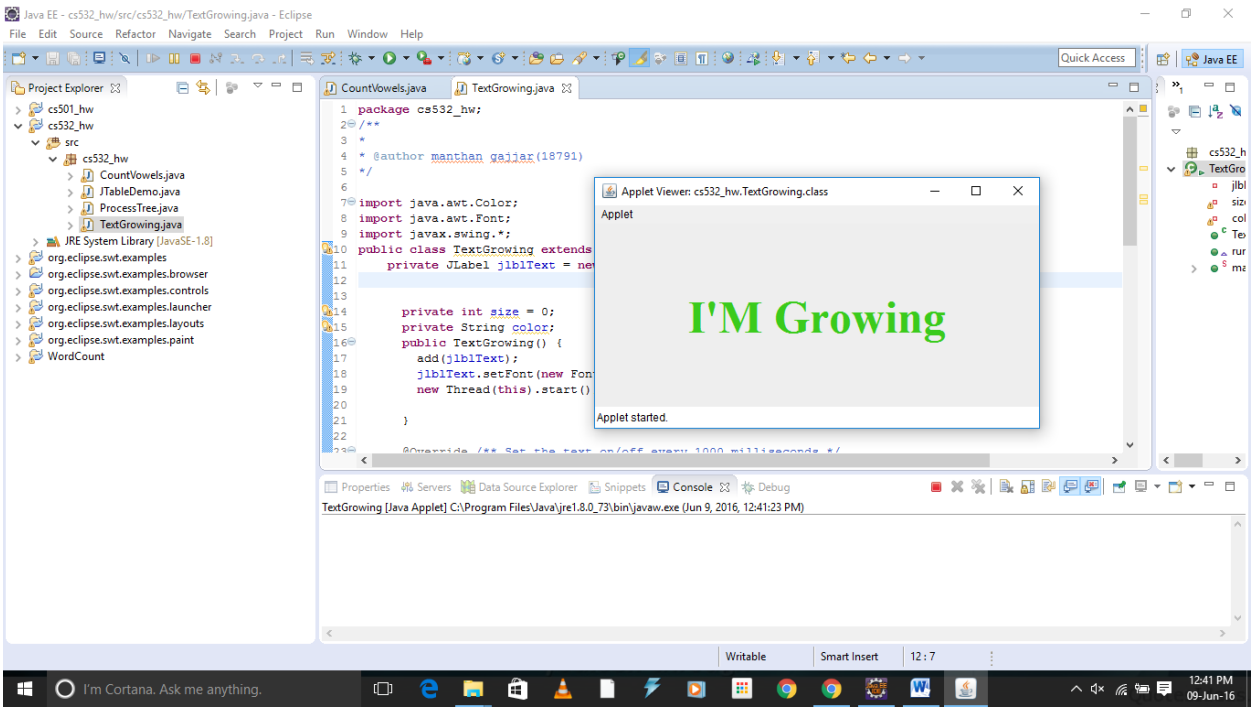
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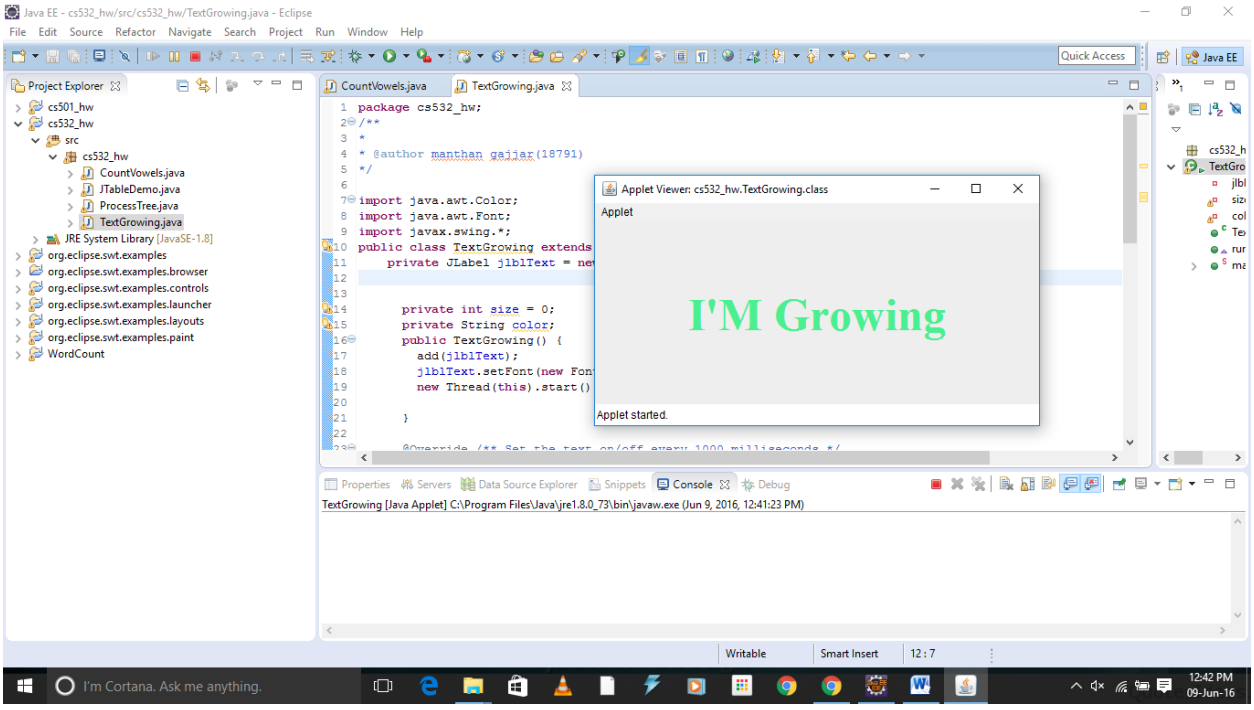
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