

Project 2: Vowels and Consonants

Purpose:

For this project, you will write a class `VowelCons` with a constructor that accepts a `String` object as its argument. The class should have a method that returns the number of vowels in the string, and another method that returns the number of consonants in the string.

Deliverables, Requirements and Timeline

Write a class `VowelCons` with a constructor that accepts a `String` object as its argument. The class should have a method that returns the number of vowels in the string, and another method that returns the number of consonants in the string. Demonstrate the class in a program that performs the following steps:

1. The user is asked to enter a string.
2. The program displays the following menu:
 - a. Count the number of vowels in the string
 - b. Count the number of consonants in the string
 - c. Count both the vowels and consonants in the string
 - d. Enter another string
 - e. Exit the program

VowelCons
- vowels : char[] - consonants : char[] - numVowels : int = 0 - numCons : int = 0
+ VowelCons(str : String) : + getNumVowels() : int + getNumConsonants() : int - countVowelsAndCons() : void

3. The program performs the operation selected by the user and repeats until the user selects “e” to exit the program.

Write a program that demonstrates how `VowelCons` class implements. Here is a sample program:

```
import java.util.Scanner;

public class VowelConsCounter
{
    public static void main(String[] args)
    {
        String input;    // User input
```

```

char selection;    // Menu selection

// Create a Scanner object for keyboard input.
Scanner keyboard = new Scanner(System.in);

// Get the string to start out with.
System.out.print("Enter a string: ");
input = keyboard.nextLine();

// Create a VowelCons object.
VowelCons vc = new VowelCons(input);

do
{
    // Display the menu and get the user's selection.
    selection = getMenuSelection();

    // Act on the selection.
    switch(Character.toLowerCase(selection))
    {
        case 'a' : System.out.println("\nNumber of vowels: " +
            vc.getNumVowels());
            break;
        case 'b' : System.out.println("\nNumber of consonants: " +
            vc.getNumConsonants());
            break;
        case 'c' : System.out.println("\nNumber of vowels: " +
            vc.getNumVowels());
            System.out.println("Number of consonants: " +
            vc.getNumConsonants());
            break;
        case 'd' : System.out.print("Enter a string: ");
            input = keyboard.nextLine();
            vc = new VowelCons(input);
    }

} while (Character.toLowerCase(selection) != 'e');

}

/**
The getMenuSelection method displays the menu and
gets the user's choice.
@return The user's choice.
*/

```

```
public static char getMenuSelection()
{
    String input;    // To hold keyboard input
    char selection;  // The user's selection

    // Create a Scanner object for keyboard input.
    Scanner keyboard = new Scanner(System.in);

    // Display the menu.
    System.out.println("a) Count the number of vowels in the string.");
    System.out.println("b) Count the number of consonants in the string.");
    System.out.println("c) Count both the vowels and consonants in the
string.");
    System.out.println("d) Enter another string.");
    System.out.println("e) Exit the program.");

    // Get the user's selection.
    input = keyboard.nextLine();
    selection = input.charAt(0);

    // Validate the input.
    while (Character.toLowerCase(selection) < 'a' ||
Character.toLowerCase(selection) > 'e')
    {
        System.out.print("Only enter a, b, c, d, or e: ");
        input = keyboard.nextLine();
        selection = input.charAt(0);
    }

    return selection;
}
```

Here is a sample output of the program:

```

C:\WINDOWS\system32\cmd.exe
owelConsCounter
Enter a string: ITT Technical Institute
a) Count the number of vowels in the string.
b) Count the number of consonats in the string.
c) Count both the vowels and consonants in the string.
d) Enter another string.
e) Exit the program.
a
Number of vowels: 8
a) Count the number of vowels in the string.
b) Count the number of consonats in the string.
c) Count both the vowels and consonants in the string.
d) Enter another string.
e) Exit the program.
b
Number of consonats: 13
a) Count the number of vowels in the string.
b) Count the number of consonats in the string.
c) Count both the vowels and consonants in the string.
d) Enter another string.
e) Exit the program.
c
Number of vowels: 8
Number of consonants: 13
a) Count the number of vowels in the string.
b) Count the number of consonats in the string.
c) Count both the vowels and consonants in the string.
d) Enter another string.
e) Exit the program.
d
Enter a string: ABC News
a) Count the number of vowels in the string.
b) Count the number of consonats in the string.
c) Count both the vowels and consonants in the string.
d) Enter another string.
e) Exit the program.
a
Number of vowels: 2
a) Count the number of vowels in the string.
b) Count the number of consonats in the string.
c) Count both the vowels and consonants in the string.

```

Submit your project on a floppy disk or CD, or print out the source code with screen shots.

Assigned and Due Date:

Assigned: Unit 6

Due: Unit 7