Applications Programming

Lab - Methods and Strings

The process:

1. Break it down
2. Build it up
3. Submit your project to PLATE incrementally

In these exercises, we do not require you to test for invalid input.

Tutor demo #1

Main class: ZCount

Specification: Read a string. Show the number of "z"'s in the string.

Sample I/O

```
String: the zebra gazed at the azure sea
z count = 3
```

Break it down

PROCEDURES

Level 1: top

Goal	
Method header	public static void main(String[] args)
Plan	{
	}

FUNCTIONS

Level 2:

Goal	
Method header	public static ... method_name(...)
Plan	{
	}

Your tutor will work through a solution to this specification.

Tutor demo #2

Main class: ZWordCount

Specification: Consider these sentences:

1. green ideas Zleep furiously
2. a zebra graZed
3. zorro WAZ zore
4. I feel snoozy

Show each sentence on a new line. Show the number of words containing a "z".

Sample I/O

```
green ideas Zleep furiously
a zebra graZed
zorro WAZ zore
I feel snoozy
Words containing a 'z' = 7
```

Break it down

PROCEDURES

Level 1: `top`

Goal	
Method header	public static void main(String[] args)
Plan	

FUNCTIONS

Level 2: `          `

Goal	
Method header	public static ... method_name(...)
Plan	

Level 3: `          `

Goal	
Method header	public static ... method_name(...)
Plan	

Level 4: `          `

Goal	
Method header	public static ... method_name(...)
Plan	

Your tutor will work through a solution to this specification.

Student Specification

Main class: StretchWith2Vowels

Read sentences from the user until * is entered. Show the number of words in each sentence that contain a stretch of non-z characters with exactly 2 vowels. A stretch starts from the start of the word or after a 'z'. A stretch terminates just before another 'z' or at the end of the word.

Examples:

1. Matching words: zoo, azozooza, GONZALEZ
2. Non-matching words: ozo, azoooza

The sentences contain no punctuation, the words are separated by one or more spaces, and the characters may be upper or lower case. Keep reading sentences until the user enters "*".

Sample I/O:

```
Sentence: azoooza azooza zoo azoo
Matching words = 3
Sentence: GONZALEZ passes the ball to VAZQUEZ
Matching words = 3
Sentence: azozototzeti
Matching words = 1
Sentence: *
```

Visualisation

A word matches if... [   ]

A word:

		z				z		

Break it down

PROCEDURES

Level 1: [top]

Goal	
Method header	public static void main(String[] args)
Plan	

FUNCTIONS

Level 2: [   ]

Goal	
Method header	public static ... method_name(...)
Plan	

Level 3: [   ]

Goal	
Method header	public static ... method_name(...)
Plan	

Level 4: [   ]

Goal	
Method header	public static ... method_name(...)
Plan	

Level 5: [   ]

Goal	
Method header	public static ... method_name(...)
Plan	

Coding

Start coding the methods from the bottom to top so that your program compiles at each stage. Submit to PLATE after completing each method to receive marks incrementally.