EASY 1:

PROBLEM STATEMENT:

Given a string s consisting of words and spaces, return *the length of the* ***last*** *word in the string.*A **word** is a maximal substring consisting of non-space characters only.

SOLUTION:

public class LastWordLength {

public static int lengthOfLastWord(String s) {

s = s.trim();

int length = 0;

int index = s.length() - 1;

while (index >= 0 && s.charAt(index) != ' ') {

length++;

index--;

}

return length;

}

public static void main(String[] args) {

System.out.println(lengthOfLastWord("Hello World")); // Output: 5

System.out.println(lengthOfLastWord(" fly me to the moon ")); // Output: 4

System.out.println(lengthOfLastWord("luffy is still joyboy")); // Output: 6

}

}

SUMMARY AND ALGORITHM:

The provided Java code defines a class named `LastWordLength` that contains a method `lengthOfLastWord` designed to calculate the length of the last word in a given string. The main method includes several test cases to demonstrate the functionality of the `lengthOfLastWord` method.

Algorithm:

1. lengthOfLastWord Method:

- The input string `s` is first trimmed to remove leading and trailing spaces.

- Initialize variables `length` to 0 and `index` to the last index of the string (`s.length() - 1`).

- A while loop iterates backward from the end of the string (`index`) until it encounters a space character or reaches the beginning of the string.

- Inside the loop, the `length` variable is incremented for each character that is not a space.

- The final length of the last word is returned.

2. main Method:

- Test cases are provided to demonstrate the functionality of the `lengthOfLastWord` method.

- The results of the test cases are printed using `System.out.println`.

Example Test Cases and Expected Outputs:

System.out.println(lengthOfLastWord("Hello World")); // Output: 5

System.out.println(lengthOfLastWord(" fly me to the moon ")); // Output: 4

System.out.println(lengthOfLastWord("luffy is still joyboy")); // Output: 6

These test cases cover scenarios with leading/trailing spaces, multiple spaces between words, and different word lengths. The `lengthOfLastWord` method is expected to accurately calculate the length of the last word in each case.