Part 1

Text

Description automatically generated

Graphical user interface, text, application, chat or text message

Description automatically generated

HandleRequest is called.

Add and pineapple are relevant arguments, relevant field is List, it is empty now

List is where the word stored, hence when we using the “add” function, the list is changed, and a new word is added into this list.

Graphical user interface, text, application, chat or text message

Description automatically generated

HandleRequest is called.

Search and app are relevant arguments, relevant field is List, it has an item called “pineapple”now

List is where the word stored, hence when we using the “search” function, the list is iterated, and return a the result when we get the pineapple from the list.

Part 2:

reverseInPlace method in ArrayExample.java

Junit Test:

Text

Description automatically generated

Failure inducing input:

The point of this input is to give five items with duplicates as the input of the function, to see if it can reverse it in place and handle the situation of duplicate items.

A picture containing graphical user interface

Description automatically generated

Symptoms:

Input[3] is not changed as desired output. It should be 1 but is 2, and 2 is the item that at original place, which means that the last half of the array is not reversed.

Text

Description automatically generated

Bug:

The part in red underline needs to be fixed, it should changed to

int[] sub = new int[arr.length];

and arr[i] = sub[arr.length - i - 1];

Text

Description automatically generated

Explanation:

The variables “1” was not stored in the array, and it is lost after sorting the array, resulting in the bug like above.

2.

Test merge in ListExamples.java

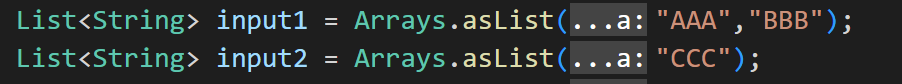
Junit Test

A screenshot of a computer

Description automatically generated with medium confidence

Failure inducing input:

The point of the input is to give two inputs with different content and length, to see if the function can handle this condition successfully



Symptoms:

The error message tells us that we ran into a out of memory error, which means that there could potentially have an infinite loop in the code.

Text

Description automatically generated

Bug:

The part in red underline needs to be fixed, it should changed to

Index2 +=1;

Text

Description automatically generated

Explanation:

The second item of input1 was added to the list2 at the second iteration, it should be added to the result and returned when index2 reach the list2.size, hence when index2 < list2.size, it should be added by one, but the function adds one to the index1 instead, which caused the index1 keep increasing while index2 remains the same, causing the out of memory error