GIT Department of Computer Engineering
CSE 222/505 - Spring 2022
Homework #4 Report

Ufukcan Erdem
1901042686

1. SYSTEM REQUIREMENTS

4.1 Non-functional Requirements

- Java as a programming language.

4.2 Functional Requirements

- A method recursively searchs a string in a longer string

-A method recursively searchs two different value in an integer array with Binary Search algorithm.

4.3 User Requirements

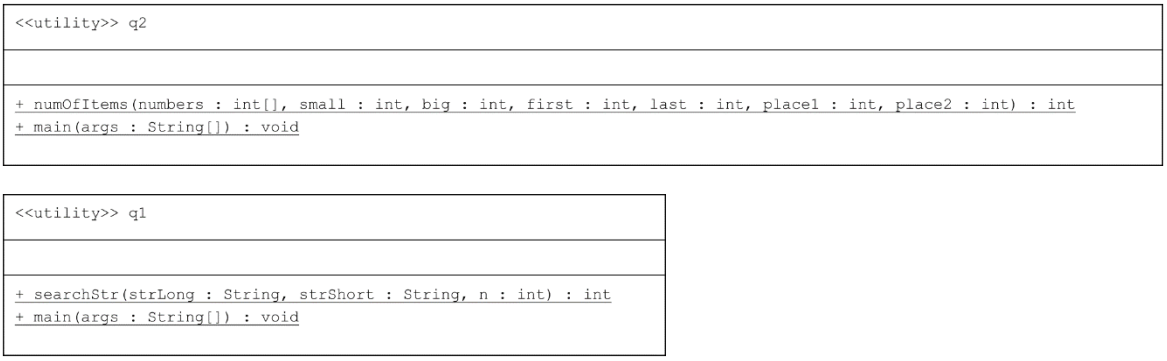
- There is no user req.

4.4 System requirements

-“ShortStr” always must be shorter than “LongStr” in Q1.

-Parameters must be filled respectfully according to their names in Q2.

- **CLASS DIAGRAM**



2. PROBLEM SOLUTION APPROACH

In Q1 I firstly checking the parameters for is them valid. If they are not it returns -1. Then its splits bigStr to as a length of shortStr and checks is it equal to ShortStr in every recursive call. If it same it returns first occurrence of it.

In Q2 I firstly find small value with Binary search and keep that index in parameter “place1”. Then I find big value with Binary search and keep that index in “place2”. Then I return the number of items between that two indexes which is “place2-place1-1”.

3. TEST CASES / RUNNING AND RESULTS

Q1:

```
43  public static void main(String args[]){
44
45      //Must find and return the value 7.
46      String str1long = "bjbjstrbjkxds";
47      String str2short = "bjk";
48
49      System.out.println("1)First occurence index of query string is -> " + searchStr(str1long,str2short,0) );
50
51      //Can Not find so must return -1
52      str1long= "asjfkafnjansnjfnsjsfnnnfdjkdafd";
53      str2short= "cantfind";
54
55      System.out.println("2)First occurence index of query string is -> " + searchStr(str1long,str2short,0) );
56
57      //Must return 0
58      str1long= "asj";
59      str2short= "asj";
60
61      System.out.println("3)First occurence index of query string is -> " + searchStr(str1long,str2short,0) );
62
63      //strShort is longer than strLong so must return -1
64      str1long= "asj";
65      str2short= "longerthanlong";
66
67      System.out.println("4)First occurence index of query string is -> " + searchStr(str1long,str2short,0) );
68  }
69
70
```

Problems Javadoc Declaration Console

```
<terminated> q1 [Java Application] C:\Users\UFUK\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.2.v20220201-1208\jre\bin\java
1)First occurence index of query string is -> 7
2)First occurence index of query string is -> -1
3)First occurence index of query string is -> 0
4)First occurence index of query string is -> -1
```

Q2:

```
72  public static void main(String args[]){
73      int[] sortedArr = {1,3,7,11,13,14,17,19,22,23,24,27,45,48,88,93,111};
74
75      int smallItem=7;
76      int bigItem=88;
77
78      System.out.println("Number of Items between "+ smallItem + " and " + bigItem + " is -> " + numOfItems(s
79  }
80 }
81
```

Problems Javadoc Declaration Console

```
<terminated> q2 [Java Application] C:\Users\UFUK\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.2.v20220201-1208\jre\bin\javaw.ex
Number of Items between 7 and 88 is -> 11
```