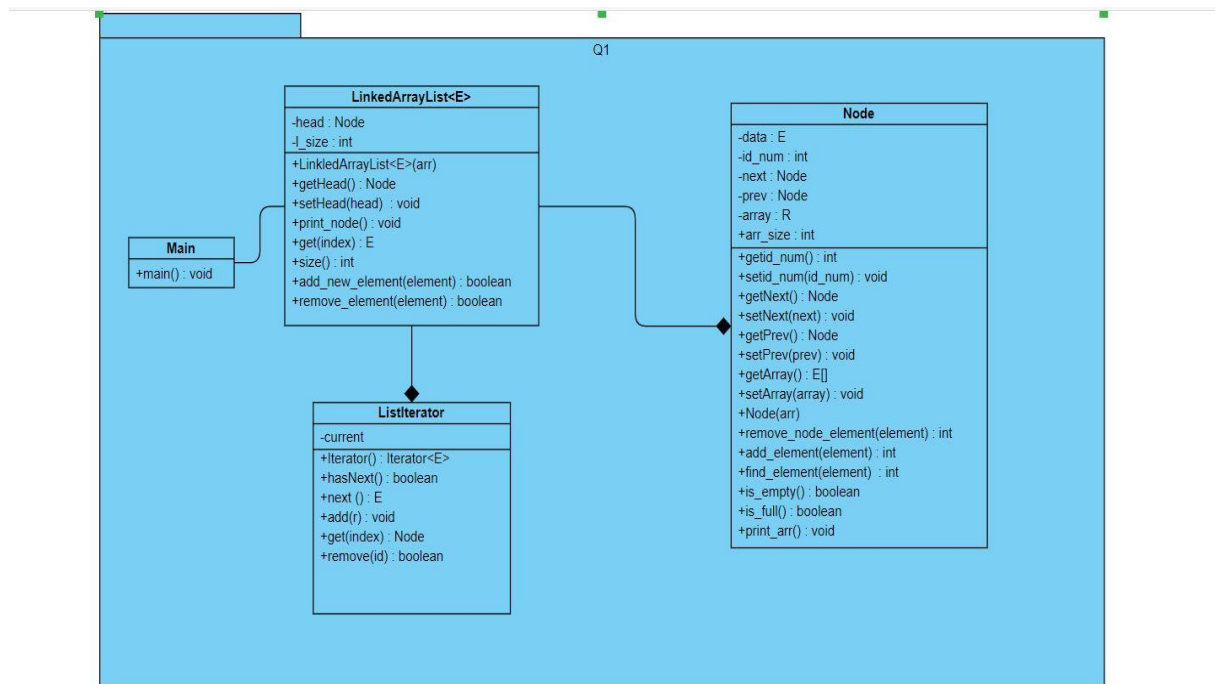# GTU Department of Computer Engineering
CSE 222/505 - Spring 2020
Homework 3 Report

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Q1

CLASS DIAGRAM

TEST CASES AND RESULTS

Firstly system tested without any exception and program run correctly:

```java
String [] temp = new String [10];
LinkedArrayList<String> L_a_r= new LinkedArrayList<String>(temp);
for(int i1=0;i1<10;i1++) { //ADD ELEMENT
    L_a_r.add_new_element(Integer.toString(i1+1));
}

L_a_r.add_new_element("53");
L_a_r.add_new_element("54");
L_a_r.add_new_element("55");
L_a_r.add_new_element("56");
L_a_r.remove_element("5");

for(int i1=10;i1<20;i1++) { //ADD ELEMENT
    L_a_r.add_new_element(Integer.toString(i1+1));
}

L_a_r.remove_element("54");
L_a_r.remove_element("20");


L_a_r.print_node();
```

Result:

```
Number of node : 3

------ 1. node elements  ------
 1 :  "1" -- 2 :  "2" -- 3 :  "3" -- 4 :  "4" -- 5 :  "6" -- 6 :  "7" -- 7 :  "8" -- 8 :  "9" -- 9 :  "10" -- 10 :  "11" --
------ 2. node elements  ------
 1 :  "53" -- 2 :  "55" -- 3 :  "56" -- 4 :  "12" -- 5 :  "13" -- 6 :  "14" -- 7 :  "15" -- 8 :  "16" -- 9 :  "17" -- 10 :  "null" --
------ 3. node elements  ------
 1 :  "18" -- 2 :  "19" -- 3 :  "null" -- 4 :  "null" -- 5 :  "null" -- 6 :  "null" -- 7 :  "null" -- 8 :  "null" -- 9 :  "null" -- 10 :  "null" --
```

If array in node is empty , program remove this node:

```
String [] temp = new String [10];
LinkedArrayList<String> L_a_r= new LinkedArrayList<String>(temp);
for(int i1=0;i1<10;i1++) { //ADD ELEMENT
    L_a_r.add_new_element(Integer.toString(i1+1));
}

L_a_r.add_new_element("53");
L_a_r.add_new_element("54");
L_a_r.add_new_element("55");
L_a_r.add_new_element("56");
L_a_r.remove_element("5");

for(int i1=10;i1<20;i1++) { //ADD ELEMENT
    L_a_r.add_new_element(Integer.toString(i1+1));
}

L_a_r.remove_element("54");
L_a_r.remove_element("20");
L_a_r.remove_element("18");
L_a_r.remove_element("19");

L_a_r.print_node();
```

Result:

```
Number of node : 2

------ 1. node elements  ------
 1 :  "1" -- 2 :  "2" -- 3 :  "3" -- 4 :  "4" -- 5 :  "6" -- 6 :  "7" -- 7 :  "8" -- 8 :  "9" -- 9 :  "10" -- 10 :  "11" --
------ 2. node elements  ------
 1 :  "53" -- 2 :  "55" -- 3 :  "56" -- 4 :  "12" -- 5 :  "13" -- 6 :  "14" -- 7 :  "15" -- 8 :  "16" -- 9 :  "17" -- 10 :  "null" --
```

If remove element in empty list and non-existent element program warn user :

```
39          // Remove element in empty list
40          L_a_r.remove_element("54");
41          |
42
```

🖳 Console ✖ 🔍 Problems 🗊 Debug Shell ✳ Debug
<terminated> Main [Java Application] C:\Program Files\Java\jre1.8.0_2
There is no element

```
41          //Remove non-existent element
42          L_a_r.add_new_element("cse");
43          L_a_r.add_new_element("data");
44          L_a_r.add_new_element("structure");
45          L_a_r.remove_element("element");|
46      }
```

🖳 Console ✖ 🔍 Problems 🗊 Debug Shell ✳ Debug
<terminated> Main [Java Application] C:\Program Files\Java\jre1.8.0_23
There is no element

There   is   some   node   methods   test   at   bottom:

```
58      //----------------- NODE COMPONENT TEST ----------------|
59      Integer [] temp = new Integer [10];
60      LinkedArrayList<Integer> L_a_r= new LinkedArrayList<Integer>(temp);
61      L_a_r.getHead().add_element(1);
62      L_a_r.getHead().add_element(2);
63      L_a_r.getHead().add_element(3);
64      L_a_r.getHead().remove_node_element(3);
65      L_a_r.getHead().remove_node_element(4);
66      System.out.println("search \"2\"  index result: "+L_a_r.getHead().find_element(2));
67      System.out.println("search \"3\"  index result: "+L_a_r.getHead().find_element(3));
68      L_a_r.getHead().print_arr();
69
70      }
71
```
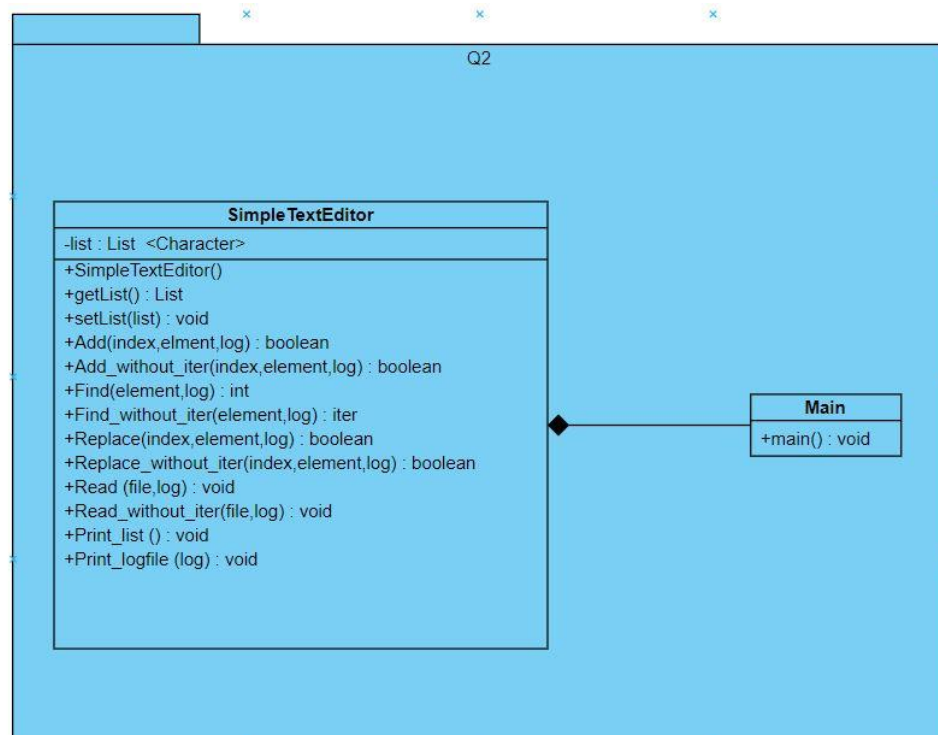
🖳 Console ✖ 🔍 Problems 🗊 Debug Shell ✳ Debug
<terminated> Main [Java Application] C:\Program Files\Java\jre1.8.0_231\bin\javaw.exe (2 Nis 2020 21:58:37)
There is no 4 in array !!
search "2" index result: 1
search "3" index result: -1
 1 : "1" -- 2 : "2" -- 3 : "null" -- 4 : "null" -- 5 : "null" -- 6 : "null" -- 7 : "null" -- 8 : "null" -- 9 : "null" -- 10 : "null" --

Q2

CLASS DIAGRAM

TEST CASES AND RESULTS

If user want to create ArrayList he/she has to send "ArrayList" parameter,if create LinkedList , she/he has to "LinkedList" parameter.

Test and results of this package are in the log file.log_file_short there is short input data test and result , in log_file_longer there is longer data test and result and in log_file_longest there is longest data test and result.Tested all methods with and without iterator.

This program throw exceptions if give to program invalid input .There is some exception test at bottom .

If user want to add or remove bigger index than list size,program throw IndexOutOfBoundsException :

```
135
136    text.Add(10, "some", logger);
137    text.Add(100, "addelelement", logger);
```

☐ Console ⊠ ⚙ Problems ⒥ Debug Shell ✦ Debug

<terminated> main [Java Application] C:\Program Files\Java\jre1.8.0_231\bin\java

Nis 02, 2020 7:10:10 PM q2.SimpleTextEditor Read
INFO: Data read from "text.txt" file with using iterator
Nis 02, 2020 7:10:10 PM q2.SimpleTextEditor print_logfile
INFO: Current list stuation :   F,o,r,o,v,e,r,t,h,o,u,s,a,n,
Nis 02, 2020 7:10:10 PM q2.SimpleTextEditor Add
INFO: "some" element added to list with using iterator at 1(
Nis 02, 2020 7:10:10 PM q2.SimpleTextEditor print_logfile
INFO: Current list stuation :   F,o,r,o,v,e,r,t,h,o,s,o,m,e,
Index out of size

```
145    text.Replace_without_iter(1,"tryreplace", logger);
146    text.Replace_without_iter(1000,"bigindexnumber", logger);
```

☐ Console ⊠ ⚙ Problems ⒥ Debug Shell ✦ Debug

<terminated> main [Java Application] C:\Program Files\Java\jre1.8.0_231\bin\javaw.exe (2 Nis 2020

INFO: Program replaces 1. element to "tryreplace" without using iterator.
Nis 02, 2020 7:15:57 PM q2.SimpleTextEditor print_logfile
INFO: Current list stuation :   F,t,r,y,r,e,p,l,a,c,e,s,a,n,d,s,o,f,y,e,a,
Nis 02, 2020 7:15:57 PM q2.SimpleTextEditor Replace_without_iter
INFO: User want to replace 1000. element to "bigindexnumber" without using
Nis 02, 2020 7:15:57 PM q2.SimpleTextEditor Replace_without_iter
WARNING: User enter invalid index value
Index out of size
Nis 02, 2020 7:15:57 PM q2.Main main
INFO: Program is end

If user want to find non-existent element , program warn user:

```
140
141    text.Find("thousands", logger);
142    text.Find("noelement", logger);
1 4 3
```

```
INFO: Program searchs "thousands" with using iterator.
Nis 02, 2020 7:06:03 PM q2.SimpleTextEditor Find
INFO: Program finds "thousands" ,index is 7
thousands index is 7
Nis 02, 2020 7:06:03 PM q2.SimpleTextEditor Find
INFO: Program searchs "noelement" with using iterator.
There is no "noelement" in list !!!
Nis 02, 2020 7:06:03 PM q2.SimpleTextEditor Find
```