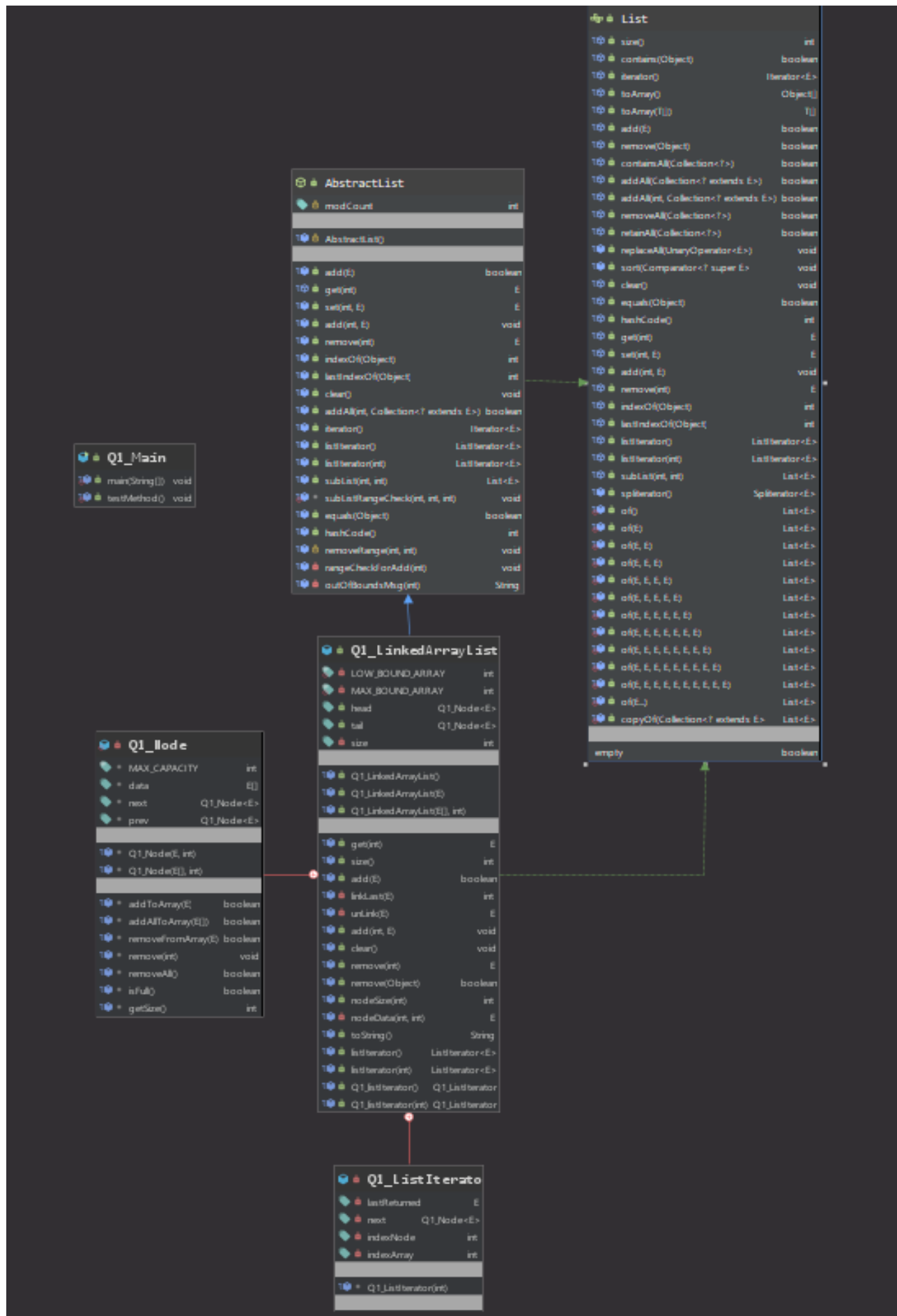


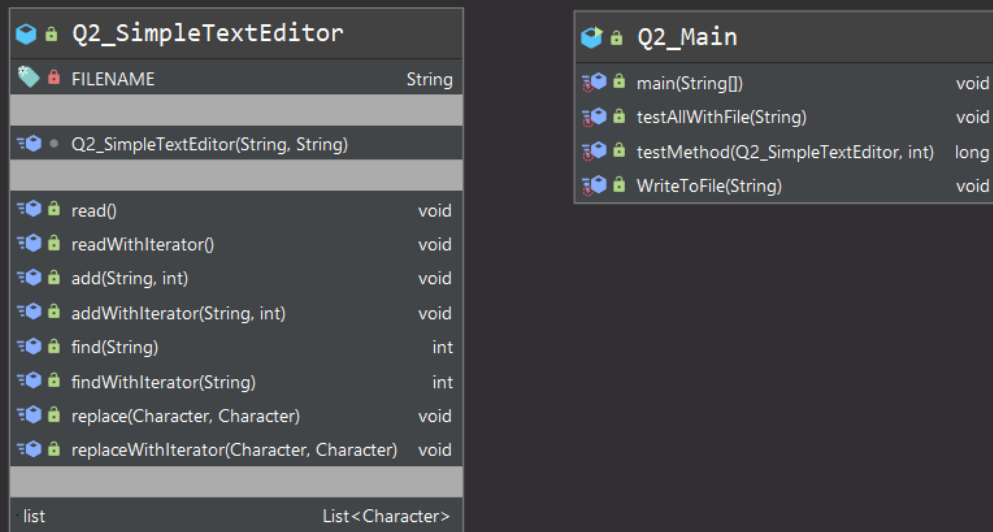
**GIT Department of Computer Engineering**  
**CSE 222/505 - Spring 2020**  
**Homework #3 Report**

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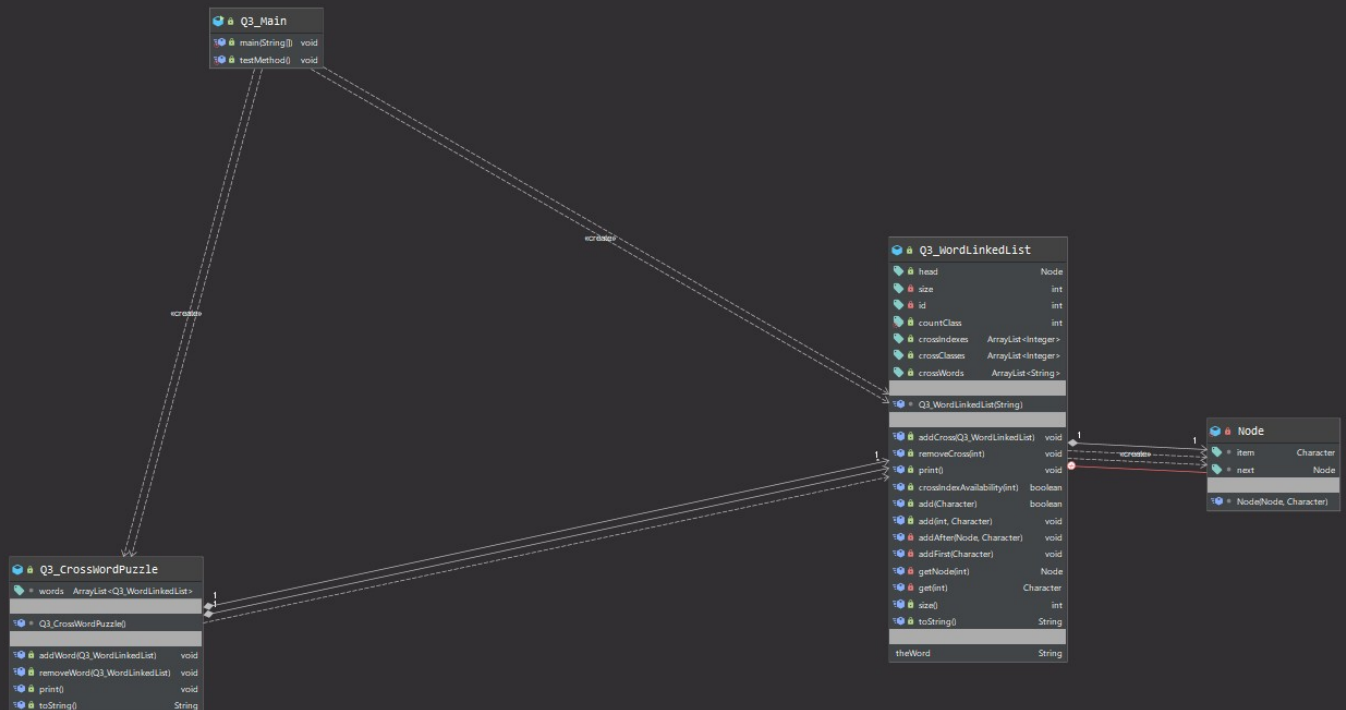
**Q1)**



Q2)



Q3)



## 2-PROGRAM SOLUTION APPROACH

**Q1)** I created a LinkedList class with an array in the node. There are 2 variables in this class and these variables are maximum and minimum values of the arrays and can be changed. The size of the Arrays is determined randomly among these values. In addition, this class extends the abstractlist and implements the List interface. This class is a double linked list. And it override some methods. It also includes a list iterator.

**Q2)** I created a SimpleTextEditor class. These class's fields are the filename to read the string, and a list. This class also has 8 methods. Four of them is without iterator, and other four includes iterator. In the main class, the time of each of these methods is measured and written to a log file.

ArrayList

-----

Read =  $O(n^2)$

ReadWithIterator =  $O(n^2)$

Add =  $O(n^2)$

AddWithIterator =  $O(n^2)$

Find =  $O(n^2)$

FindWithIterator =  $O(n)$

Replace =  $O(n)$

ReplaceWithIterator =  $O(n)$

## LinkedList

-----

Read =  $O(n)$

ReadWithIterator =  $O(n)$

Add =  $O(n^2)$

AddWithIterator =  $O(n^2)$

Find =  $O(n^2)$

FindWithIterator =  $O(n)$

Replace =  $O(n^3)$

ReplaceWithIterator =  $O(n)$

**Q3)** I created WordLinkedList class and CrossWordPuzzle class. WordLinkedList class has a word. It also has and indexes of cross words of this word, cross words and id of classes of cross words. Each WordLinkedList class has an id, because this id indicates which class the cross word belongs to. WordLinkedList class has add cross method and remove cross method.

And CrossWordPuzzle class has a ArrayList of the WordLinkedList class. CrossWordPuzzle also has add word and remove word method and these methods execute its task.

## 3-TEST CASES

### Q1

Test Scenario	Expected Results	Actual Results	Pass/Fail
Prints the size of the node and node's array's size	Printing values correctly	It has printed correctly	Pass
Prints the nodes and its arrays	Printing values correctly	It has printed correctly	Pass
Iterator(next) prints values in the arrays in the node	Printing values correctly	It has printed correctly	Pass
Iterator(next) prints values in the arrays in the node	Printing values correctly	It has printed correctly	Pass

### Q2

Test Scenario	Expected Results	Actual Results	Pass/Fail
Successful reading of all methods from the file	Reading values correctly	It has read correctly	Pass
Creating a log file successfully and writing the duration of the methods tested.	Writing values correctly	It has written correctly	Pass

### Q3

Test Scenario	Expected Results	Actual Results	Pass/Fail
Printing words to the terminal.	Writing values correctly	It has written correctly	Pass
Writing its cross words and indexes to the terminal.	Writing values correctly	It has written correctly	Pass
Printing the entire puzzle on the terminal.	Writing values correctly	It has written correctly	Pass

## 4)RUNNING AND RESULTS

Q1)

```
Size of Nodes: 3
Size of Array(0.node): 5
Size of Array(1.node): 5
Size of Array(2.node): 2
-----
0.Node : Harun0 Harun1 Harun2 Harun3 Albayrak0
1.Node : Albayrak1 Albayrak2 Albayrak3 CSE0 CSE1
2.Node : CSE2 CSE3
-----
The iterator(next) : Harun2 Harun3 Albayrak0 Albayrak3 CSE0 CSE1 CSE2 CSE3
-----
0.Node : Harun2 Harun3 Albayrak0 EklenenString AddingIter2
1.Node : Albayrak3 CSE0 CSE1 AddingIter3 AddingIter4
2.Node : CSE2 CSE3
-----
The iterator(previous) : CSE3 CSE2 AddingIter4 AddingIter3 CSE1 CSE0 Albayrak3 AddingIter2 EklenenString Albayrak0 Harun3 Harun2
The iterator(next) : Harun2 Harun3 Albayrak0 EklenenString AddingIter2 Albayrak3 CSE0 CSE1 AddingIter3 AddingIter4 CSE2 CSE3
Process finished with exit code 0
```

Q2)

```
It may take a bit longer to read the 2nd and 3rd files.
String found!: 44.index
String found!: 44.index
String found!: 44.index
String found!: 44.index
String not found!
String not found!
String not found!
String not found!
String found!: 11.index
String found!: 11.index
String found!: 11.index
String found!: 11.index
THE LOG FILE WAS CREATED!

Process finished with exit code 0
```

## Q2 – LogFile\_Q2.txt)

```
List is an ArrayList( Read ): 7 ms
List is an ArrayList( Add ): 0 ms
List is an ArrayList( Find ): 53 ms
List is an ArrayList( Replace ): 17 ms
-----
List is an ArrayList( Read(Iterator) ): 10 ms
List is an ArrayList( Add(Iterator) ): 0 ms
List is an ArrayList( Find(Iterator) ): 0 ms
List is an ArrayList( Replace(Iterator) ): 2 ms
-----
List is an LinkedList( Read ): 8 ms
List is an LinkedList( Add ): 0 ms
List is an LinkedList( Find ): 16 ms
List is an LinkedList( Replace ): 588 ms
-----
List is an LinkedList( Read(Iterator) ): 4 ms
List is an LinkedList( Add(Iterator) ): 0 ms
List is an LinkedList( Find(Iterator) ): 0 ms
List is an LinkedList( Replace(Iterator) ): 3 ms
THE FILENAME : src/test3.txt | THE SIZE: 31757 Characters
-----
List is an ArrayList( Read ): 13 ms
List is an ArrayList( Add ): 1 ms
List is an ArrayList( Find ): 118 ms
List is an ArrayList( Replace ): 49 ms
-----
List is an ArrayList( Read(Iterator) ): 9 ms
List is an ArrayList( Add(Iterator) ): 0 ms
List is an ArrayList( Find(Iterator) ): 9 ms
List is an ArrayList( Replace(Iterator) ): 6 ms
-----
List is an LinkedList( Read ): 13 ms
List is an LinkedList( Add ): 0 ms
List is an LinkedList( Find ): 31 ms
```



Q3)

The Word: HARUN  
-----  
Its cross words  
ALBAYRAK - in 1.index  
RESİM - in 2.index

The Word: ALBAYRAK  
-----  
Its cross words  
HARUN - in 0.index  
MEKAN - in 3.index  
LALE - in 1.index

The Word: MEKAN  
-----  
Its cross words  
ALBAYRAK - in 3.index  
ONUR - in 4.index

The Word: ONUR  
-----  
Its cross words  
MEKAN - in 1.index  
OSMAN - in 0.index

The Word: RESİM  
-----  
Its cross words  
HARUN - in 0.index  
SAMSUN - in 2.index

The Word: LALE  
-----  
Its cross words  
ALBAYRAK - in 0.index

The Word: SAMSUN  
-----  
Its cross words  
RESİM - in 0.index

The Word: OSMAN  
-----  
Its cross words  
ONUR - in 0.index

The Word: HARUN  
-----  
Its cross words  
ALBAYRAK - in 1.index  
RESİM - in 2.index

The Word: ALBAYRAK  
-----  
Its cross words  
HARUN - in 0.index  
MEKAN - in 3.index  
LALE - in 1.index

The Word: MEKAN  
-----  
Its cross words  
ALBAYRAK - in 3.index  
ONUR - in 4.index

The Word: RESİM  
-----  
Its cross words  
HARUN - in 0.index  
SAMSUN - in 2.index

The Word: LALE  
-----  
Its cross words  
ALBAYRAK - in 0.index

The Word: SAMSUN  
-----  
Its cross words  
RESİM - in 0.index

The Word: OSMAN  
-----  
Its cross words  
ONUR - in 0.index