Gebze Technical University
Computer Engineering

CSE 222 - 2018 Spring

HOMEWORK 03 REPORT

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1 INTRODUCTION

1.1 Problem Definition

Part 1:

Design a courses structer, so that read courses info from csv file, and push them in a java link list. The program will have 3 ability that **getByCode, listSemester, getByRange**. getByCode will take a course code as paramter and return list of matched courses. listSemester will take a semester value as parameter and return list of matched courses. getByRange will take a range that first one first is index and second one is last index as parameter, so that will return list of courses which in range first and last.

Part2:

Extend a java class. The class will have some abilty that disable and enable spesification. İf we disabled some elements in linked list, We don't see this elements in list but they won't remove becouse of that. In similar, we can enable element which is disabeled. After enable items, they will take old position in linked list.

Part3:

Implement a custom linked list without use Java linkedList. This class will create course structure like part 1. Courses in same semester are also linked together as circular list. List have 2 next node that first one is next element second one is next elemen which have same semester nearest.
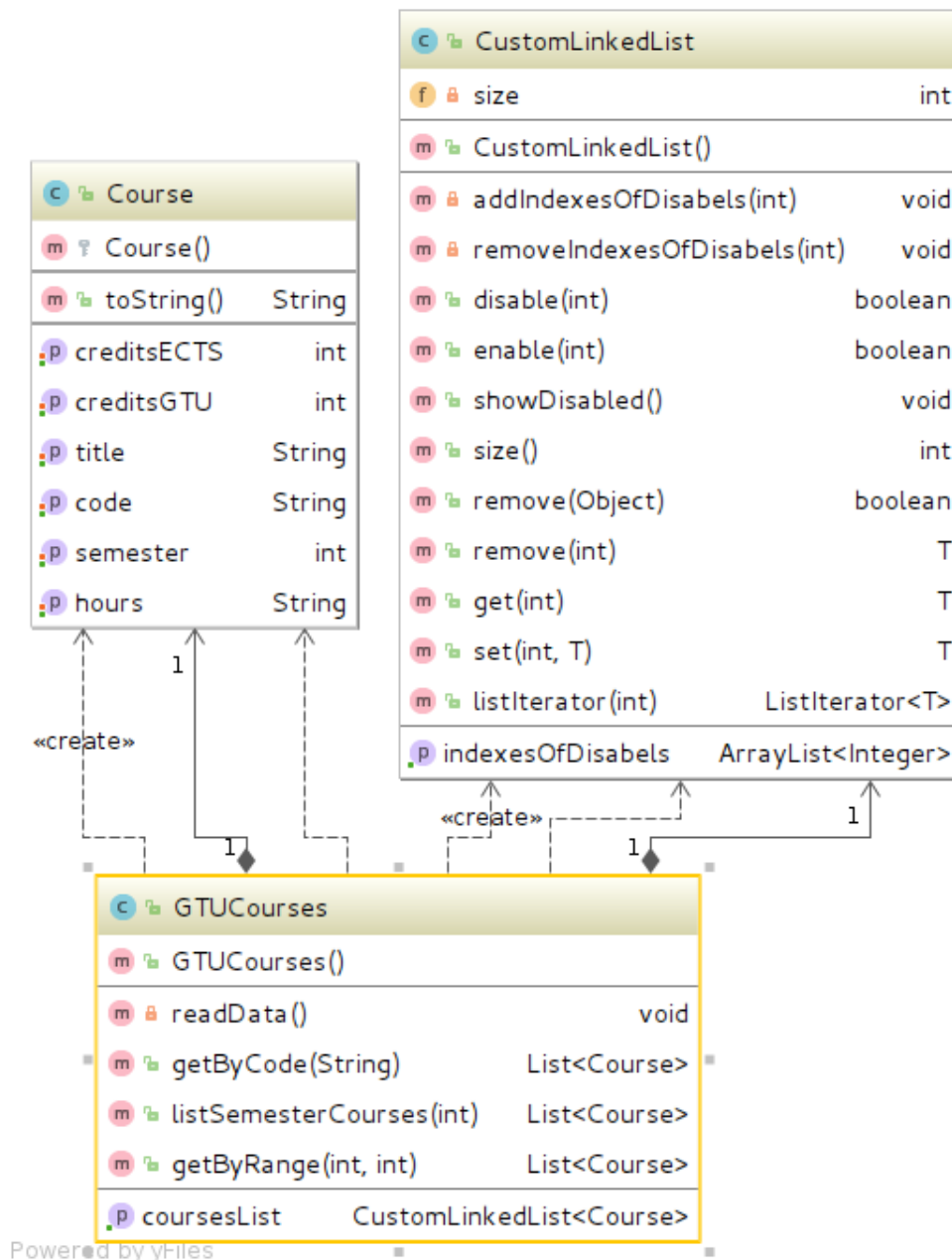
1.2 System Requirements

Program have 3 classes. First one is push course info named Course. Course will take info from csv file. Courses info are ECTS Credits, GTU Credits, Course Title, Course Code, Course Semester, Course Hours. GTUCourses class that second class is creating linked list and fill it with Course info as object. This class can disable or enable any index. CustomLinkedList Class is 3th class. This class have 2 next node first one is next element, second one is element which is same semester nearest in next.

I actually did not implement this class of part 3 becouse of I have no time.

2 METHOD

2.1 Class Diagrams

3 classes for part 1 and part 2. GTUCourses using Course class for create linkedlist of courses.In part 2, so CustomLinkList class using GTUCourses class for test it. Actually Linked List decalered via CustomLinkedList not LinkedList.

2.2 Use Case Diagrams

There are no need Use Case Diagrams.

2.3 Other Diagrams (optional)

There are no diagrams more.

2.4 Problem Solution Approach

Firstly, I created a class named Course for push the course info as column by column in csv file. In GTUCourses class, I used Course object for create a linked list. Actually I declared CustomLinkedList becouse of homework text, anyway I know it is working both linked list.

For disable() part, I didn't remove any index, I only do them visible with using index. I mean when a element is disabled, I push the index of this element in an array. And when I use other method like Size(), I assumed there are no this element, I ignored it. For example, when size() method called;

Checking errors

increase size (+1) if there are a match while compare disabled element index and this index. (I push all disabled element's size in array list named indexesOfDisabels)

Finally there are no problem part 1 and part 2. They are working correctly, I tested it via unit and drive test. I have no time for implement to 3th part, so you won't see 3th part in this program.

3 RESULT

3.1 Test Cases

Unit test:
    Okay
Main test
    Okay
Course Class:

toString() tested in Main class

getter & setter tested in other classes

GTUCourses Class:

readData() tested, so csv file has been read correctly

getByCode() tested,so working correctly

listSemesterCourses() tested, so working correctly

getByRAnge() tested, so working correctly

CustomLinkedList()

       disabled() tested, so working correctly

       enable() tested, so working correctly

       showDisable() tested, so working correctly

       size() tested, so working correctly

       remove() tested, so working correctly

       get() tested, so working correctly

       disabled() tested, so working correctly

       set() tested, so working correctly

       listIterator() tested, so working correctly

3.2 Running Results

       I tested step by step in main test.You can follow program's flow.

Importan : You have to rename your csv data file as "**Courses(CSV)(Updated).csv**"
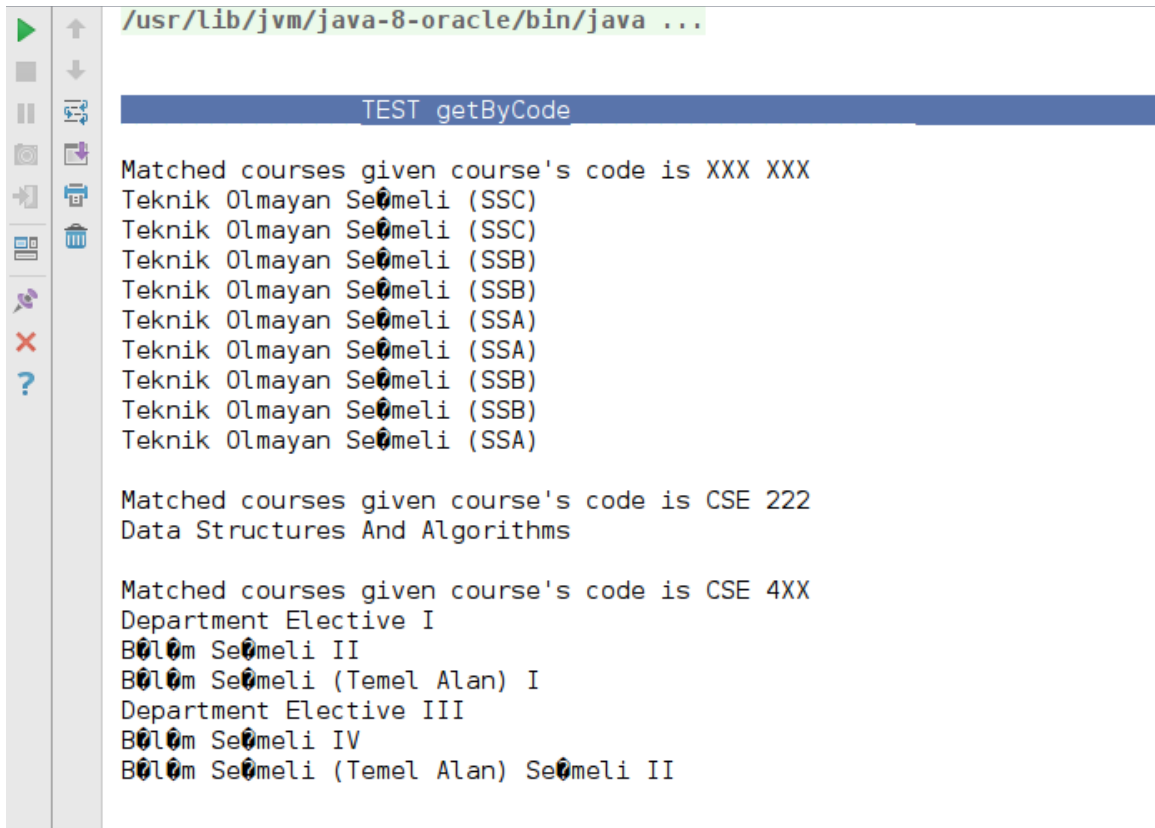
Other wise you must change it in class ->com/ElverenGTUCourses/GTUCourses.java:49

->Creaate GTUCourses, and test get by code of part1
Searched "XXX XXX" code of course.
And   "CSE 222"
And   "CSE 4XX" … returned courses's list and shows title..

```
/usr/lib/jvm/java-8-oracle/bin/java ...


                    TEST getByCode


Matched courses given course's code is XXX XXX
Teknik Olmayan Seçmeli (SSC)
Teknik Olmayan Seçmeli (SSC)
Teknik Olmayan Seçmeli (SSB)
Teknik Olmayan Seçmeli (SSB)
Teknik Olmayan Seçmeli (SSA)
Teknik Olmayan Seçmeli (SSA)
Teknik Olmayan Seçmeli (SSB)
Teknik Olmayan Seçmeli (SSB)
Teknik Olmayan Seçmeli (SSA)

Matched courses given course's code is CSE 222
Data Structures And Algorithms

Matched courses given course's code is CSE 4XX
Department Elective I
Bölüm Seçmeli II
Bölüm Seçmeli (Temel Alan) I
Department Elective III
Bölüm Seçmeli IV
Bölüm Seçmeli (Temel Alan) Seçmeli II
```

->Creaate GTUCourses, and test listSemesterCourses() of part1

Searched 4 which have semester number 4 and list tittle of courses after return courses.

```
_____TEST listSemesterCourses_____

Matched courses given semester is 4
Data Structures And Algorithms
Linearr Algebra and Differantial Equations
Logic Circuits And Design
Logic Circuits And Design Laboratory
Teknik Olmayan Seçmeli (SSB)
Academic English
```

->Creaate GTUCourses, and test getByRange() of part1

Searched 1 & 3 and returned courses... So listed 3 element's tittle

```
_____TEST getByRange_____

Matched courses given range between 1 & 3
Introduction To Computer Engineering
Introduction To Computer Science Laboratory
Calculus I
**1 XXX XXX Teknik Olmayan Seçmeli (SSC) 2 1 2+0+0**
**1 CSE 101 Introduction To Computer Engineering 8 3 3+0+0**
**1 CSE 107 Introduction To Computer Science Laboratory 2 1 0+0+2**
**1 MATH 101 Calculus I 7 5 5+0+0**
**1 PHYS 121 Physics I 6 4 3+0+0**
**1 PHYS 151 Physics Laboratory I 1 1 0+0+2**
**1 SSTR 101 Principles Of Atatürk And The History Of Turkish Revolution I 2 2
**1 TUR 101 Turkish I 2 2 2+0+0**
```

->Test Disable()

You can see, you can not disable same disabeled element.
Disabled list is shown

```
**8 XXX XXX Teknik Olmayan Seçmeli (SSA) 3 2 2+0+0**
SIZE : 54
_____DISABLE_____
Disabled(3) : 3

Disabled(4) : 4

NOT Disabled(4) : 4


Disabeled list, size :2
3.  **1 MATH 101 Calculus I 7 5 5+0+0**
4.  **1 PHYS 121 Physics I 6 4 3+0+0**
SIZE : 52
```

->Test Remove()

Removed which have index 1 and 2. So you cant see CSE 108 in list. Returned "true".

```
SIZE : 52
_____REMOVE_____

Removed(1) : Introduction To Computer Engineering

Removed(2) : Physics Laboratory I

is cse108  Removed ? : true

Disabeled list, size :2
2.  **1 MATH 101 Calculus I 7 5 5+0+0**
3.  **1 PHYS 121 Physics I 6 4 3+0+0**
SIZE : 49
                              SET
```

->Test Set()

CSE 108 is not there.. But after Set(3, CSE 108(course class)), You can see this course in list. İndex actually 5 but you will see 3 becouse of two disabeled elements.

```
SIZE : 49
_____SET_____
CSE 108is exist? : -1
Set (3, cse108) ? returned: Turkish I
CSE 108is exist? index is : 5
get(5) : CSE 108

is 10 Removed ? : true
                              ENABLE
```

->Test Enable()
You can't enable an element more from one. You can see disabled element in disabeled list. There are no enable element that PHYS 121.

```
_____ENABLE_____
Enable(3) 3.index : **1 PHYS 121 Physics I 6 4 3+0+0**

NOT Enable(3) 3.index: **1 PHYS 121 Physics I 6 4 3+0+0**


Remove(0) Teknik Olmayan Seçmeli (SSC)

Disabeled list, size :1
1.  **1 MATH 101 Calculus I 7 5 5+0+0**
SIZE : 48

                    TEST via ITERATOR
```

->Test ListIterator

Firt one is listing via get(i).toString, but second one is listing via iterator.next().

```
_____TEST via ITERATOR_____
0. **1 CSE 107 Introduction To Computer Science Laboratory 2 1 0+0+2**
1. **1 PHYS 121 Physics I 6 4 3+0+0**
2. **1 SSTR 101 Principles Of Atatürk And The History Of Turkish Revolution I 2 2 2+0+0**
3. **2 XXX XXX Teknik Olmayan Seçmeli (SSC) 2 1 2+0+0**
4. **2 CSE 102 Computer Programming 8 4 4+0+0**
5. **2 MATH 102 Calculus II 7 5 5+0+0**
6. **2 PHYS 122 Physics II 6 4 3+0+0**
7. **2 PHYS 152 Physics Laboratory II 1 1 0+0+2**
8. **2 SSTR 102 Principles Of Atatürk And The History Of Turkish Revolution II 2 2 2+0+0**
9. **2 TUR 102 Turkish II 2 2 2+0+0**
...
First 10 record
0. **1 CSE 107 Introduction To Computer Science Laboratory 2 1 0+0+2**
1. **1 PHYS 121 Physics I 6 4 3+0+0**
2. **1 SSTR 101 Principles Of Atatürk And The History Of Turkish Revolution I 2 2 2+0+0**
3. **2 XXX XXX Teknik Olmayan Seçmeli (SSC) 2 1 2+0+0**
4. **2 CSE 102 Computer Programming 8 4 4+0+0**
5. **2 MATH 102 Calculus II 7 5 5+0+0**
6. **2 PHYS 122 Physics II 6 4 3+0+0**
7. **2 PHYS 152 Physics Laboratory II 1 1 0+0+2**
8. **2 SSTR 102 Principles Of Atatürk And The History Of Turkish Revolution II 2 2 2+0+0**
9. **2 TUR 102 Turkish II 2 2 2+0+0**
...
Tested- ITERATOR**
```

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