GTU Department of Computer Engineering
CSE 222/505 - Spring 2022
Homework 3 Report

Ömer Kaan Uslu
1801042642

1. **SYSTEM REQUIREMENTS**

1.Software Specification

Opera&ng System : Windows 10 , macOS Catalina

Front End : Eclipse, Sublime Text

Rear End : Oracle SQL

Design Tool : UML

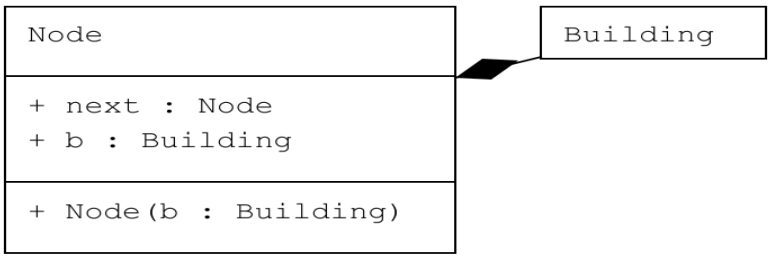
2.Hardware Specification

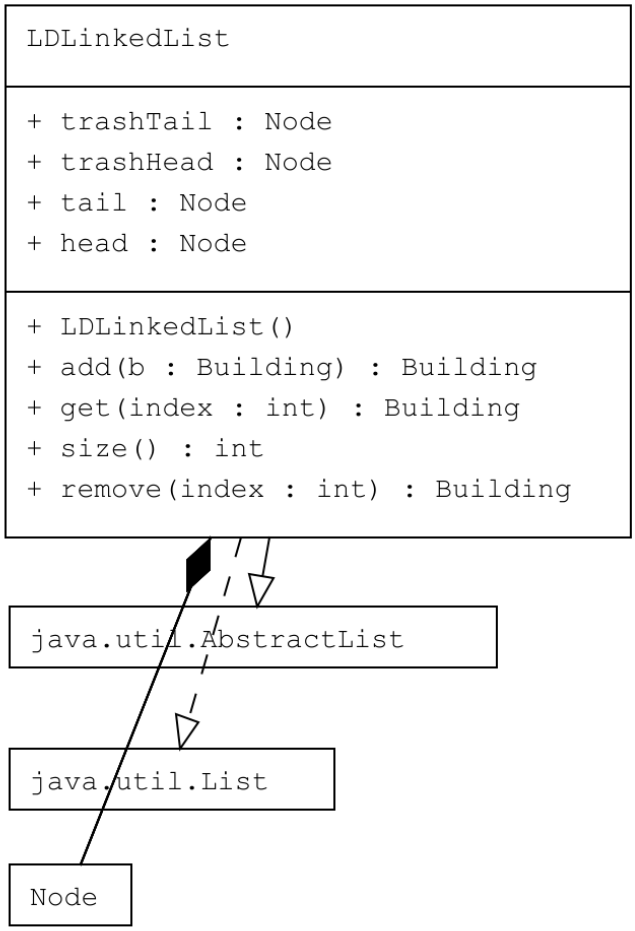
Processor : x86 processor

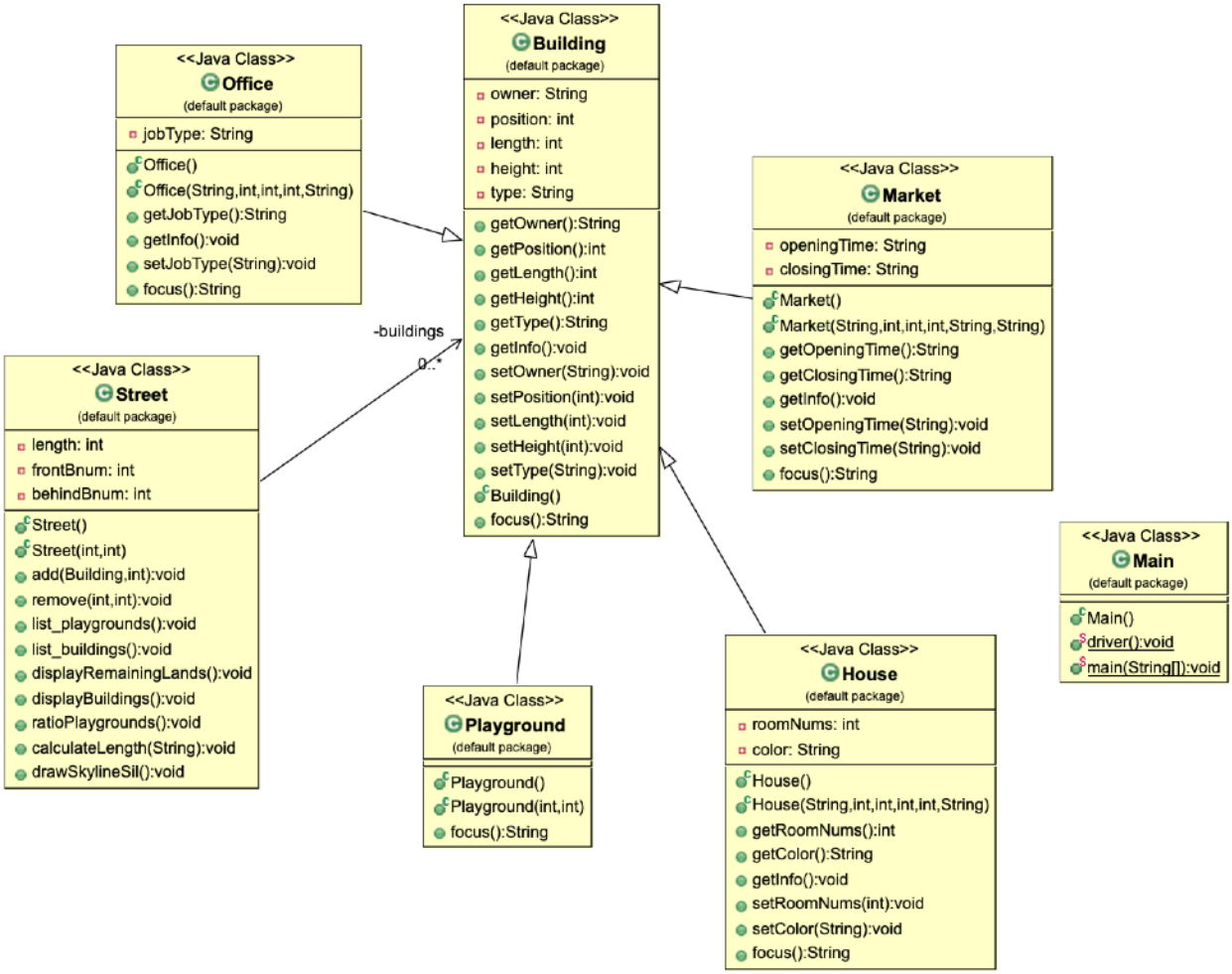
RAM : 512 MB or greater

Hard Disk : 20 GB or greater

2. USE CASE AND CLASS DIAGRAMS







3. PROBLEM SOLUTION APPROACH

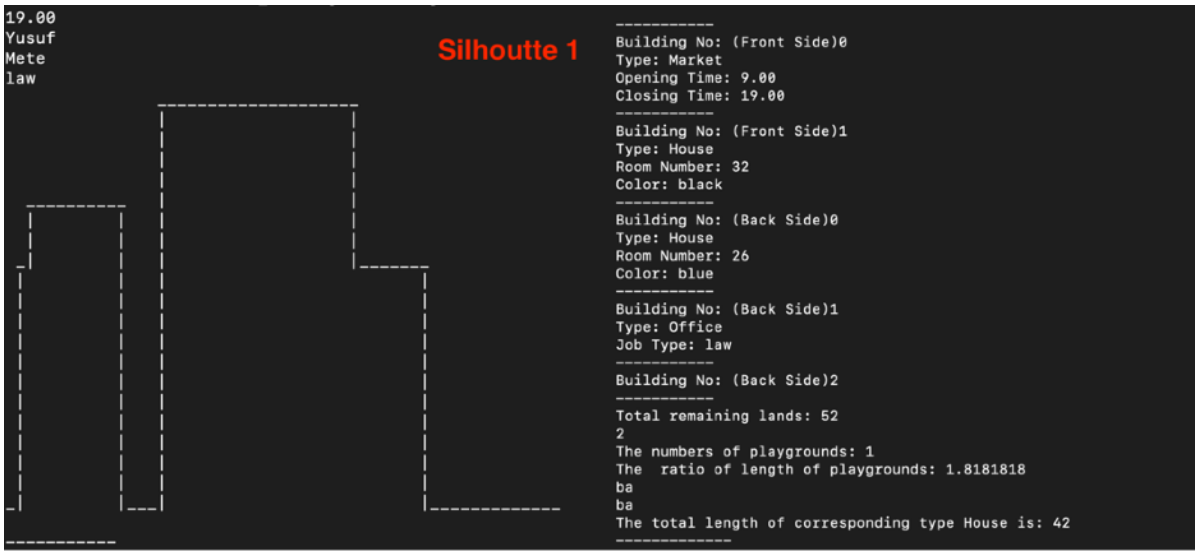
First and Second part is clearly understandable and easy to apply. I simply use Collections Frameworks' Linked List and Array List specifications in Street Class' Building storing part. and use methods.

In third part, firstly I tried to write generic linked list which is type specified. And I did not continue with that approach and wrote an basic Building Linked List and it's method such as size, get etc.. In lazy deletion part I added LDLinkedList 2 extra Nodes. These are trashHead and TrashTail, in case of any removing item from linked list, removed element basically stored at the other tails which controlled by trashTail and trashHead.
In adding part, it controls whether parameter element is removed once, and do operation with respect that.

4. **TEST CASES**

Test Case No	Test Scenario	Test Steps	Test Data	Expected Result	Actual result	Pass/Fail
1	Add building with valid data	Run driver code	Position = 0 Length = 10	Building is added	As expected	Pass
2	Add building with invalid data	Run driver code	Position = -5 Length = 10	Building is not added	As expected	Pass
3	Remove building with valid data	Run driver code	Index = 1	Building is removed	As expected	Pass
4	Remove building with invalid data	Run driver code	Index = -5	Building is not removed	As expected	Pass

5. **RUNNING AND RESULTS(All are same)**



RUNTIMES

(THEROTICAL AND PRACTICAL)

THEROTICAL

HW1	HW3_1	HW3_2	HW3_3
O(N^2)	O(N^2)	O(N^2)	O(N^3)

PRACTICAL

HW1	HW3_1	HW3_2	HW3_3
0,177 sec	0,1708 sec	0,174 sec	0,173 sec