

**GTU Department of Computer Engineering**  
**CSE 222/505 - Spring 2022**  
**Homework 1 Report**

**Ömer Kaan Uslu**  
**1801042642**

## 1. SYSTEM REQUIREMENTS

### 1. Software Specification

Operating System : Windows 10 , macOS Catalina

Front End : Eclipse, Sublime Text

Rear End : Oracle SQL

Design Tool : UML

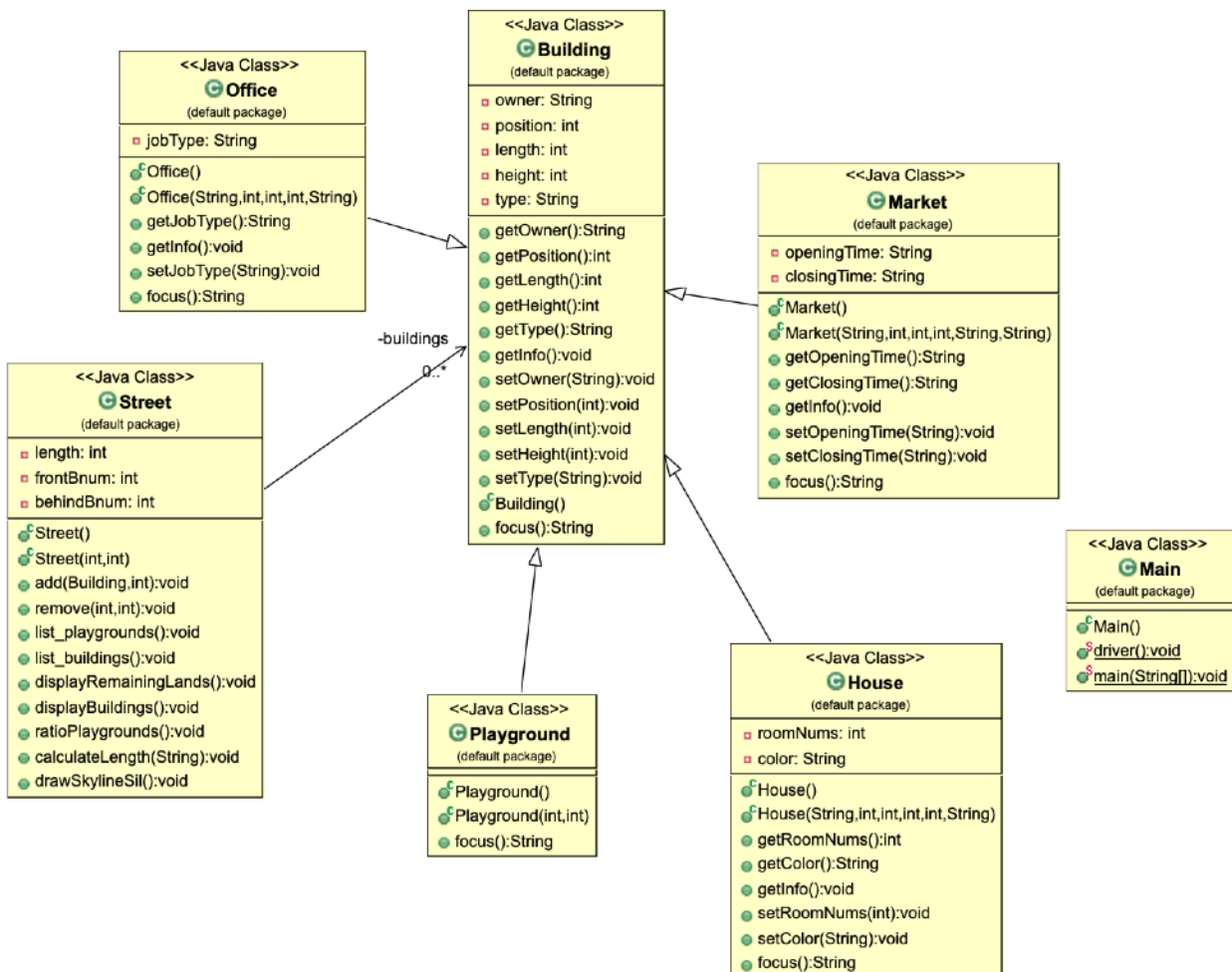
### 2. Hardware Specification

Processor : x86 processor

RAM : 512 MB or greater

Hard Disk : 20 GB or greater

## 2. USE CASE AND CLASS DIAGRAMS



### 3. PROBLEM SOLUTION APPROACH

As I understand, this homework have a goal that teach applying basic. OOP principles. In general there was less algorithm parts, and more concepts. I had to solve how to handle 2 side in one street situation.

I define a class Building which represents all buildings in one class. The 3 types of buildings have same attributes such as(position, length). And I defined 'type' variable to get which type I work at the moment. The playground part is simple because playground have same attributes and have less elements.

I defined Street Class, this class has double array buildings. buildings' first row represents a side, second row represents another side. It does not have an importance anyway, because I use it in skyline silhouette part and all 2 views are same. The other parts have basic algorithm approaches and does not have anything different but for loops.

#### **Skyline Silhouette Part**

Firstly I defined array 'maxHeights' filled with all 0's with size of 'length of street'. And suppose that we have building with position=10 and height=5, from 10th element to its' length+10 all elements become 5. If next building have same values and bigger height, elements changes. If it have smaller height, it does not change because it does not effect silhouette anyway.

I defined a double array which has maximum of maxHeight array with 'length of street' columns. If there is 0 on maxHeight array, last row's elements filled with '\_'. If it has bigger height on maxHeight array, it jumps to upper, and draw '\_'. After that if silhouette double array has jumps, such as 0->20it draws '|' 0 to 20 with columns elements.

If jump is to the down, it draws it to the lower indexes. And function prints this double array.

#### 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

```

19.00
Yusuf
Mete
law
law

Silhoutte 1

Building No: (Front Side)0
Type: Market
Opening Time: 9.00
Closing Time: 19.00
-----
Building No: (Front Side)1
Type: House
Room Number: 32
Color: black
-----
Building No: (Back Side)0
Type: House
Room Number: 26
Color: blue
-----
Building No: (Back Side)1
Type: Office
Job Type: law
-----
Building No: (Back Side)2
-----
Total remaining lands: 52
2
The numbers of playgrounds: 1
The ratio of length of playgrounds: 1.8181818
ba
ba
The total length of corresponding type House is: 42
-----

```

```

-----
19.00
Mete
law
2

Silhoutte 2
(After remove)

Building No: (Front Side)0
Type: Market
Opening Time: 9.00
Closing Time: 19.00
-----
Building No: (Back Side)0
Type: House
Room Number: 26
Color: blue
-----
Building No: (Back Side)1
Type: Office
Job Type: law
-----
Building No: (Back Side)2
-----
ba
The total length of corresponding type Market is: 4
-----

```