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

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1. SYSTEM REQUIREMENTS

The Street class has a standalone UI method for interacting with the program through the console.

The Street class uses an abstract inner class to store buildings in it called "AbstractBuilding", any class derived from this abstract class can be accepted as a building in the street class.

The following information is the minimum for the program to perform as expected:

1- Length of the street.
2- Length of the building.
3- Height of the building.
4- Position of the building.

The position of the building in the street is stored inside the AbstractBuilding class but cannot be modified directly, only modified through add and remove methods from the Street class.

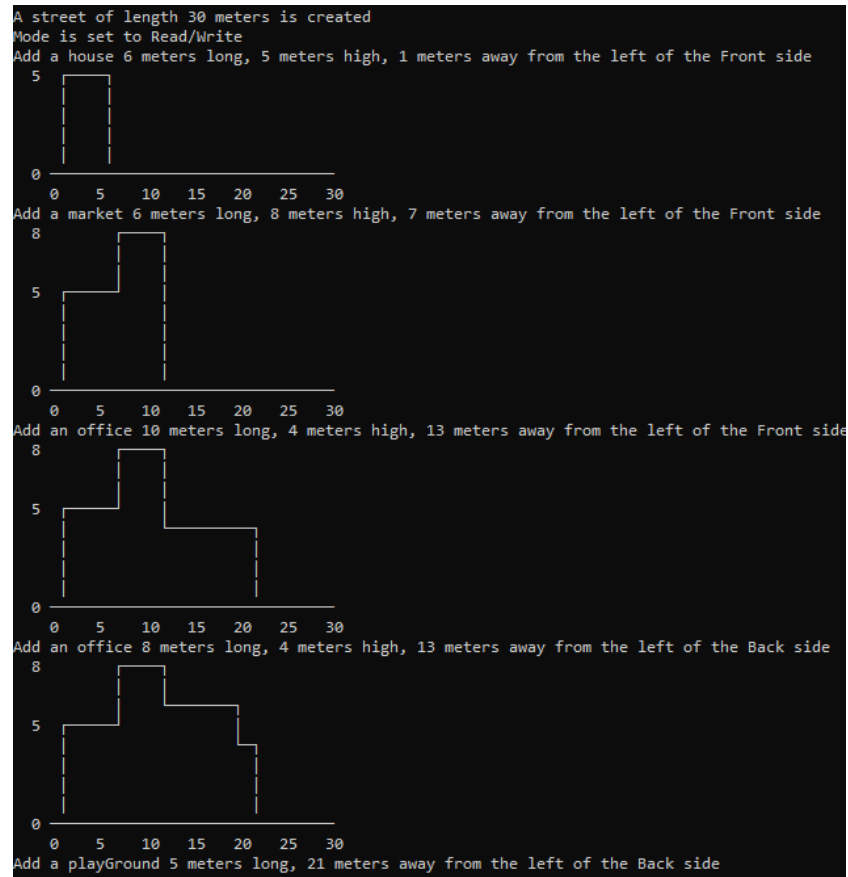The maximum length of the street is not constrained, as well as the maximum height of the buildings.
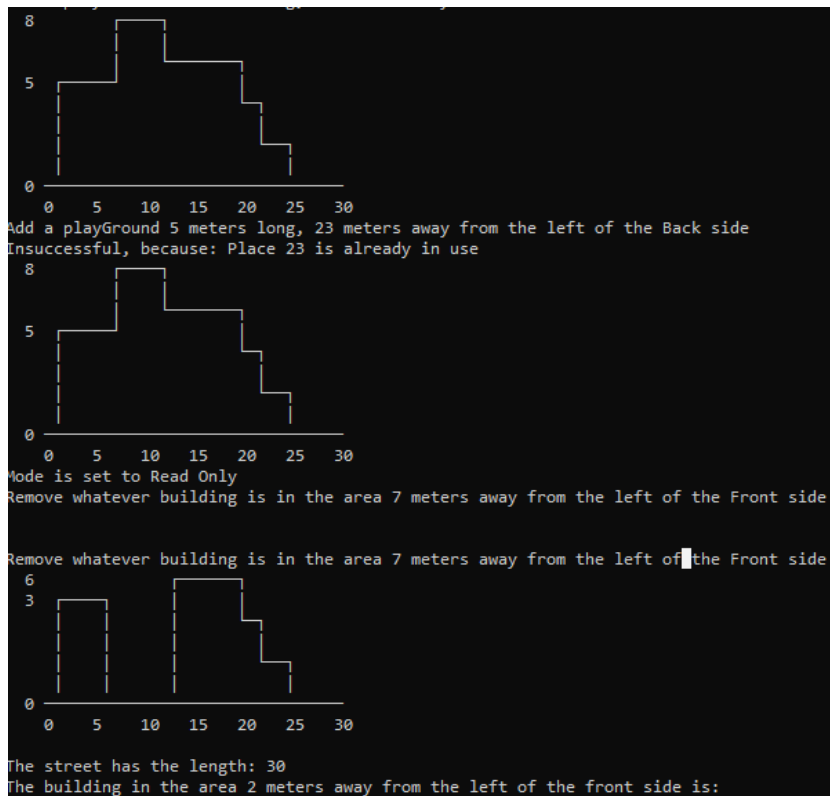
2. PROBLEM SOLUTION APPROACH

To make a city made of a single street, a class is made which represents a street and has a front and a back side when shown from a perspective. A very simple and abstract building type is used to represent any building that could be on the street, even an empty space.

RUNNING AND RESULTS

Adding buildings:

```
A street of length 30 meters is created
Mode is set to Read/Write
Add a house 6 meters long, 5 meters high, 1 meters away from the left of the Front side
  5   ┌──┐
      │  │
      │  │
      │  │
      │  │
  0 ──┴──┴──────────────────────────
    0   5   10  15  20  25  30
Add a market 6 meters long, 8 meters high, 7 meters away from the left of the Front side
  8         ┌──┐
            │  │
            │  │
  5   ┌─────┘  │
      │        │
      │        │
      │        │
  0 ──┴────────┴──────────────────────
    0   5   10  15  20  25  30
Add an office 10 meters long, 4 meters high, 13 meters away from the left of the Front side
  8         ┌──┐
            │  │
            │  │
  5   ┌─────┘  └─────┐
      │              │
      │              │
      │              │
  0 ──┴──────────────┴────────────────
    0   5   10  15  20  25  30
Add an office 8 meters long, 4 meters high, 13 meters away from the left of the Back side
  8         ┌──┐
            │  │
            │  │
  5   ┌─────┘  └───┐
      │            └──┐
      │               │
      │               │
  0 ──┴───────────────┴───────────────
    0   5   10  15  20  25  30
Add a playGround 5 meters long, 21 meters away from the left of the Back side
```

```
 8
 5
 0
    0   5   10  15  20  25  30
Add a playGround 5 meters long, 23 meters away from the left of the Back side
Insuccessful, because: Place 23 is already in use
 8
 5
 0
    0   5   10  15  20  25  30
Mode is set to Read Only
Remove whatever building is in the area 7 meters away from the left of the Front side

Remove whatever building is in the area 7 meters away from the left of the Front side
 6
 3
 0
    0   5   10  15  20  25  30
The street has the length: 30
The building in the area 2 meters away from the left of the front side is:
```

Getting dome data:


```
The street has the length: 30
The building in the area 2 meters away from the left of the front side is:

Type: House
Number of rooms: 10
Color: Blue
Owner: owner man
Length (meters): 6
Height (meters): 5
Position (meters away from left): 1

The number of playgrounds in the back side is: 1
The ratio of playgrounds in the street is: 0.083333
Focus on the building in the position 14 in the back side: Useless Job
```

Listing the buildings:

```
Type: House
Number of rooms: 10
Color: Blue
Owner: owner man
Length (meters): 6
Height (meters): 5
Position (meters away from left): 1

Type: Office
Owner: owner man
Length (meters): 10
Height (meters): 4
Position (meters away from left): 13

Back side:

Type: Office
Owner: owner man
Length (meters): 8
Height (meters): 6
Position (meters away from left): 13

Type: Playgorund
Length (meters): 5
Height (meters): 2
Position (meters away from left): 21
```