

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

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# 1. SYSTEM REQUIREMENTS

## 1.1 Problem Definition

City planning software that will be used for designing a small one street town. There will be user. User can add/delete building such as House, Office, Market and Playground on side of the street and can also access the following information:

- The total remaining length of lands on the street.
- The list of buildings on the street.
- The number and ratio of length of playgrounds in the street.
- The total length of street occupied by the markets, houses or offices.
- The skyline silhouette of the street

## 1.2 Functional Requirements

User has to determine length of the street

```
public Street(int len){
```

User can add building such as House, Office, Market and Playground on one side of the street. The user must specify on which side and in which position the building will be added.

```
public void add(Construction obj,int side,int position){
```

User can delete from one side of the street. The user must specify on which side and in which position the building will be deleted.

```
public void delete(int side,int position){
```

User can access the total remaining length of lands on the street.

```
public int totalRemainingLengthOfLands(){
```

User can access list of buildings on the street.

```
public void listOfStreet(){
```

User can access number and ratio of length of playgrounds in the street.

```
public int totalNumberOfPlayground(){
```

```
public double ratioOfPlayground(){
```

User can access total length of street occupied by the markets, houses or offices.

```
public int occupiedByBuldings(){
```

User can see skyline silhouette of the street

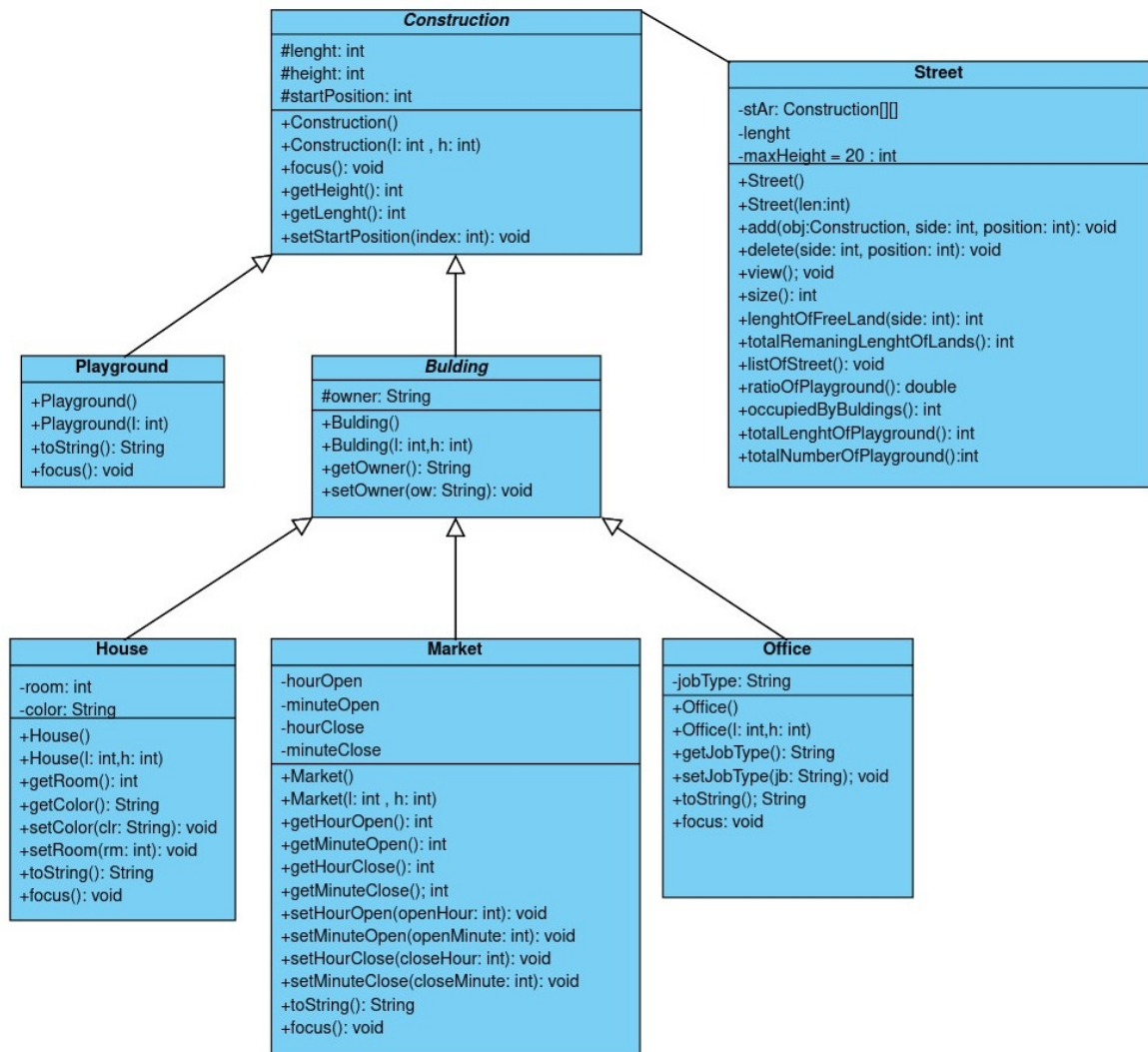
```
public void view(){
```

### **1.3 Non-Functional Requirements**

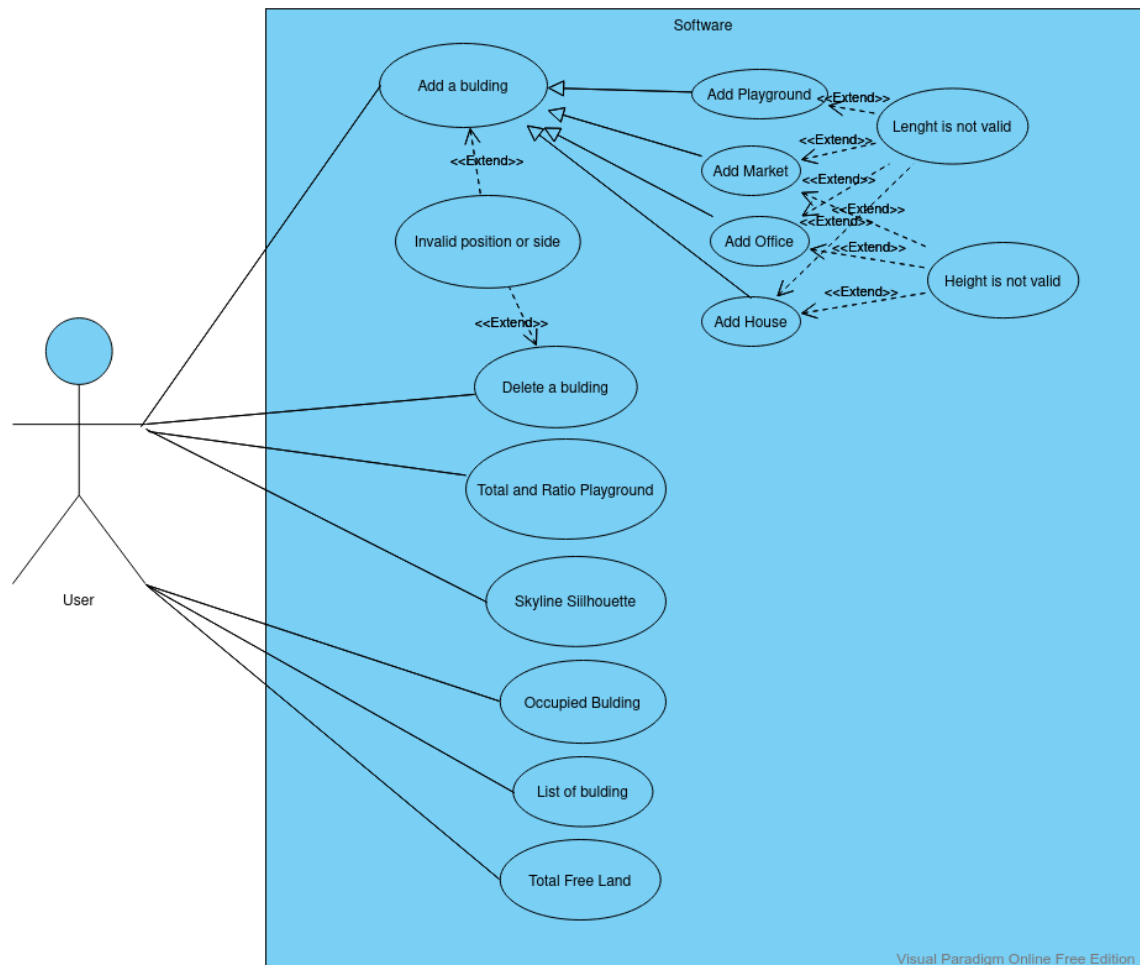
- The interface is provided by using menus.
- Invalid inputs should be handled

## 2. USE CASE AND CLASS DIAGRAMS

### 2.1 Class Diagrams



## 2.2 Use Case Diagrams



## 3. PROBLEM SOLUTION APPROACH

Write your problem solution approach. To solve a problem, you should define the problem, divide it into sub-problems, create a plan of steps, try if your approach works, etc. You can find useful articles on problem solving by googling "problem solving in software engineering".

#### 4. TEST CASES

Test Case ID	Test Case	Test Data	Expected Result	Pass/Fail
T01	Check Determine Lenght of Street with Valid Input	100	Construct Street	PASS
T02	Check Determine Lenght of Street with Invalid Input	-5	Give Error	PASS
T03	Add House	Lenght: 5 Height:10 Side: 0 Position: 0	Add on the Street	PASS
T04	Add Office	Lenght: 8 Height:8 Side: 1 Position: 3	Add on the Street	PASS
T05	Add Market	Lenght: 3 Height:2 Side: 0 Position: 20	Add on the Street	PASS
T06	Add Playground	Lenght: 3 Side: 1 Position: 35	Add on the Street	PASS
T07	Add Bulding with Invalid Position	Position: 0	Give Error	PASS
T08	Delete a Bulding	Side: 0 Position: 21	Delete bulding	PASS
T09	Delete Invalid Position	Position: 98	Give Error	PASS

T10	Accesses Total Remaining Length of Lands on the Street	-	184	PASS
T11	List of Buildings on the Street.	-	1 House 1 Office 1 Playground	PASS
T12	The Number and Ratio of Length of Playgrounds in the Street.	-	Playground number :1 Ratio:%1.5	PASS
T13	The Total Length of Street Occupied by the Markets, Houses or Offices	-	13	PASS
T14	Display the Skyline Silhouette of the Street	-	Display the skyline silhouette of the street	PASS

## 5. RUNNING AND RESULTS

Test Case Id	Test Case Result		
T01	<pre>Enter lenght of street(-1 for exit):100 1.Editing Mode 2.Viewing Mode 0.Exit Choose:█</pre>		
T02	<pre>Enter lenght of street(-1 for exit):-5 Street lenght has to be positive Enter lenght of street(-1 for exit):█</pre>		

T03	<pre> 1.Editing Mode 2.Viewing Mode 0.Exit Choose:1  1.Add 2.Delete 0.Exit Choose:1  1.House 2.Office 3.Market 4.Playground 0.Exit Choose:1 </pre>	<pre> Lenght:5 Height:10 Side(0/1):0 Position:0  --House Added-- </pre>
T04	<pre> 1.Add 2.Delete 0.Exit Choose:1  1.House 2.Office 3.Market 4.Playground 0.Exit Choose:2 </pre>	<pre> Lenght:15 Height:8 Side(0/1):1 Position:3  --Office Added-- </pre>
T05	<pre> 1.Add 2.Delete 0.Exit Choose:1  1.House 2.Office 3.Market 4.Playground 0.Exit Choose:3 </pre>	<pre> Lenght:3 Height:2 Side(0/1):0 Position:20  --Market Added-- </pre>
T06	<pre> 1.Add 2.Delete 0.Exit Choose:1  1.House 2.Office 3.Market 4.Playground 0.Exit Choose:4 </pre>	<pre> Lenght:3 Side(0/1):1 Position:35  --Playground Added-- </pre>



T07	<pre> 1.Add 2.Delete 0.Exit Choose:1  1.House 2.Office 3.Market 4.Playground 0.Exit Choose:1  Lenght:10  Height:10  Side(0/1):0  Position:0 Error: Invalid Position,There is no space to add a building </pre>
T08	<div> <pre> 1.Add 2.Delete 0.Exit Choose:2 </pre> </div> <div> <pre> Side(0/1):0  Position:21  ---Deleted--- </pre> </div>
T09	<pre> 1.Add 2.Delete 0.Exit Choose:2  Side(0/1):0  Position:98 Error: Invalid Position,There is no bulding to delete it </pre>
T10	<pre> 1.Editing Mode 2.Viewing Mode 0.Exit Choose:2  1.Total remaining length of lands on the street 2.List of buildings on the street. 3.The number and ratio of length of playgrounds in the street. 4.the total length of street occupied by the markets, houses or offices 5.Display the skyline silhouette of the street 0.Exit Choose:1 ----- Total remaining length of lands on the street: 184 </pre>

T11	<pre> 1.Total remaining length of lands on the street 2.List of buildings on the street. 3.The number and ratio of length of playgrounds in the street. 4.the total length of street occupied by the markets, houses or offices 5.Display the skyline silhouette of the street 0.Exit Choose:2 ----- List of buildings on the street Number of Playground:1 Number of House:1 Number of Office:1 Number of Market:0 </pre>
T12	<pre> 1.Total remaining length of lands on the street 2.List of buildings on the street. 3.The number and ratio of length of playgrounds in the street. 4.the total length of street occupied by the markets, houses or offices 5.Display the skyline silhouette of the street 0.Exit Choose:3 ----- The number of playgrounds in the street: 1 Ratio of length of playgrounds in the street: 1.5 </pre>
T13	<pre> 1.Total remaining length of lands on the street 2.List of buildings on the street. 3.The number and ratio of length of playgrounds in the street. 4.the total length of street occupied by the markets, houses or offices 5.Display the skyline silhouette of the street 0.Exit Choose:4 ----- The total length of street occupied by the markets, houses or offices: 13 </pre>

```

1.Total remaining length of lands on the street
2.List of buildings on the street.
3.The number and ratio of length of playgrounds in the street.
4.the total length of street occupied by the markets, houses or offices
5.Display the skyline silhouette of the street
0.Exit
Choose:5

```

T14

[illegible]