

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

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1. SYSTEM REQUIREMENTS

First of all, it has to be software. The software should simulate a street town. The software should be able to add and remove buildings on the street. If the area is full on this street, the building should not be built. Buildings to be built are Market House, Office and Playground. Except for the Playground, all others must take height. Each building has its own characteristics.

Features of the building have the number of rooms, color, and owner.

Office must-have features have job-type and owner.

The properties that the market should have, have owner and opening/closing times properties.

The software can process these buildings in 2 modes.

1) Edit Mode,

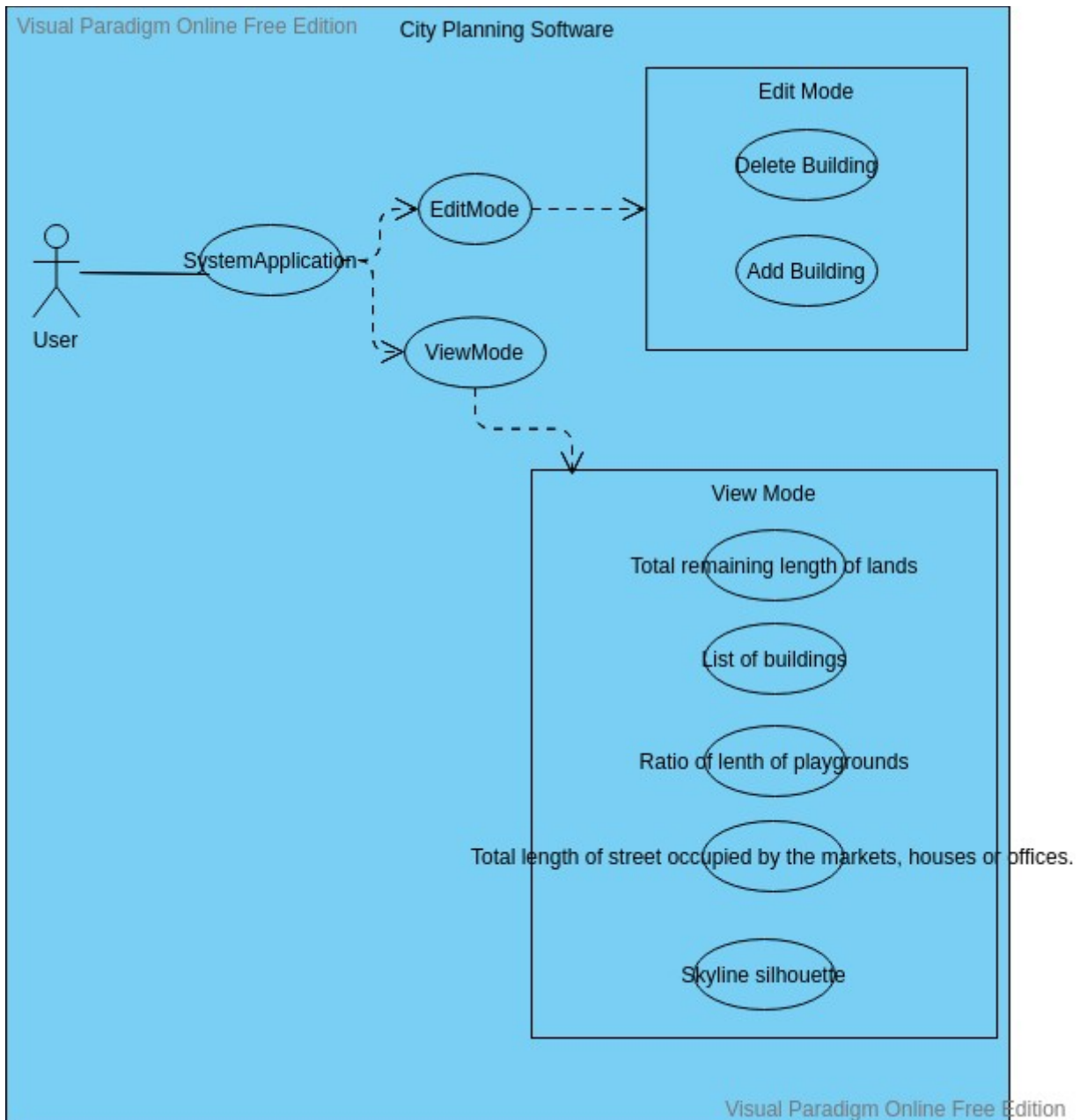
Buildings can be added and properties of buildings can be entered in Edit Mode. These buildings can be removed.

2) ViewMode.

- o display the total remaining length of lands on the street.
- he display the list of buildings on the street.
- o display the number and ratio of lenth of playgrounds in the street.
- he calculates the total length of street occupied by the markets, houses or offices. or offices. Display the skyline silhouette of the street

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USE CASE AND CLASS DIAGRAMS



Class Diagram is in Zip File

2. PROBLEM SOLUTION APPROACH

Regarding my system's requirements and problems, i created a container class to keep and modift the data easily. Then I was able to set up a hierarchy and find a solution, by correctly determining the class relationships and the ease provided by my container class.

PROBLEM SOLUTION APPROACH My Problem solution steps are;

1. - Specify the problem requirements
2. - Analyze the problem
3. - Design an algorithm and Program
4. - Implement the algorithm
5. - Test and verify the program
6. - Maintain and update the program

TEST CASES

Create every building (House,Market, Office Building)

```
House house1 = new House(10,2,5,"blue","Berkan"); // lenght,height,roomNumber, color, owner
Market market1 = new Market(15,4,10,30,18,30,"Ahmet");
Office office1 = new Office(10,4,"Software","Hatice");

House house2 = new House(10,2,5,"blue","Bilal"); // lenght,height,roomNumber, color, owner
Market market2 = new Market(15,4,10,30,18,30,"Mahmut");
Office office2 = new Office(10,4,"Software","Ferhat");
Playground pg = new Playground(10,"Hamdi");
```

City Building Test

```
City city = new City();
```

Building add on street test

```

city.getStreet().addBuildingSide1(house1, 0);
city.getStreet().addBuildingSide1(market1, 20);
city.getStreet().addBuildingSide1(office1, 50);
city.getStreet().addBuildingSide1(pg, 80);

city.getStreet().addBuildingSide2(house2, 0);
city.getStreet().addBuildingSide2(market2, 20);
city.getStreet().addBuildingSide2(office2, 50);

```

Building delete Test

```

city.getStreet().printBuildings();
System.out.println("-----");
System.out.println("Delete Test");
city.getStreet().deleteBuildings("Berkan");
city.getStreet().deleteBuildings("Mahmut");

```

Edit mode add test

```

System.out.println("-----");
System.out.println("Edit Mode Test");
EditMode emode = new EditMode(city); // EditMode Test
emode.addBuildingHouse("Alp", "blue", 5, 15, 5, 1, 70);
emode.addBuildingMarket("Ali", 10, 30, 18, 30, 5, 2, 3, 45);
emode.addBuildingOffice("Burak", "Software", 4, 3, 2, 90);
emode.addBuildingPlayground("Gazi", 10, 20, 30);

```

Edit mode remove test

```

System.out.println("Edit Delete Test");
emode.removeBuilding("Ali");
emode.removeBuilding("Burak");
emode.removeBuilding("Hasan"); // there arent in street

```

View mode test

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

- display the skyline silhouette of the street (Please see the figure below).

```
vmode.printListofStreet();  
vmode.printRatioOfPlayground();  
vmode.printRemaingLenght();  
vmode.printStreetAccupied();  
vmode.printSilhouette();
```

3. RUNNING AND RESULTS

Output

Test

Results

<pre> Side 1 Building Position:0-9 House Building Owner: Berkan House color: blue Room Number: 5 Building Height: 2 ----- Building Position:20-34 Market Building Owner: Ahmet Open time: 10:30 Closing Time: 18:30 Building Height: 4 ----- Building Position:50-59 Office Building Owner: Hatice JobType: Software Building Height: 4 ----- Building Position:80-89 Playground Building Name: Hamdi ----- </pre>	Add Building Side 1	Pass
<pre> Side 2 Building Position:0-10 House Building Owner: Bilal House color: blue Room Number: 5 Building Height: 2 ----- Building Position:20-35 Market Building Owner: Mahmut Open time: 10:30 Closing Time: 18:30 Building Height: 4 ----- Building Position:50-60 Office Building Owner: Ferhat JobType: Software Building Height: 4 ----- </pre>	Add Building Side 2	Pass
<pre> Side 1 Building Position:20-34 Market Building Owner: Ahmet Open time: 10:30 Closing Time: 18:30 Building Height: 4 ----- Building Position:50-59 Office Building Owner: Hatice JobType: Software Building Height: 4 ----- Building Position:80-89 Playground Building Name: Hamdi ----- Side 2 Building Position:0-10 House Building Owner: Bilal House color: blue Room Number: 5 Building Height: 2 ----- </pre>	Delete Building Test <pre> city.getStreet().deleteBuildings("Berkan"); city.getStreet().deleteBuildings("Mahmut"); city.getStreet().printBuildings(); </pre>	Pass

<pre> Side 2 Building Position:0-10 House Building Owner: Bilal House color: blue Room Number: 5 Building Height: 2 ----- Building Position:50-60 Office Building Owner: Ferhat JobType: Software Building Height: 4 ----- </pre>	Delete Building Test <pre> city.getStreet().deleteBuildings("Berkan"); city.getStreet().deleteBuildings("Mahmut"); city.getStreet().printBuildings(); </pre>	Pass
<pre> Edit Mode Test The field is Full Side 1 Building Position:20-34 Market Building Owner: Ahmet Open time: 10:30 Closing Time: 18:30 Building Height: 4 ----- Building Position:50-59 Office Building Owner: Hatice JobType: Software Building Height: 4 ----- Building Position:80-89 Playground Building Name: Hamdi ----- </pre>	Edit mode add test <pre> System.out.println("....."); System.out.println("Edit Mode Test"); EditMode emode = new EditMode(city); // EditMode Test emode.addBuildingHouse("Alp", "blue", 5, 15, 5, 1, 70); emode.addBuildingMarket("Ali", 10, 30, 18, 30, 5, 2, 3, 45); emode.addBuildingOffice("Burak", "Software", 4, 3, 2, 90); emode.addBuildingPlayground("Gazi", 10, 20, 30); </pre>	Pass

<pre> Side 2 Building Position:0-10 House Building Owner: Bilal House color: blue Room Number: 5 Building Height: 2 ----- Building Position:50-60 Office Building Owner: Ferhat JobType: Software Building Height: 4 ----- Building Position:90-94 Office Building Owner: Burak JobType: Software Building Height: 3 ----- </pre>	<p>Edit mode add test</p> <pre> System.out.println("....."); System.out.println("Edit Mode Test"); EditMode emode = new EditMode(city); // EditMode Test emode.addBuildingHouse("Ali", "blue", 5, 15, 5, 1, 70); emode.addBuildingMarket("Ali", 10, 30, 10, 30, 5, 2, 3, 45); emode.addBuildingOffice("Burak", "Software", 4, 3, 2, 90); emode.addBuildingPlayground("Gazi", 10, 20, 30); </pre> <p>Ali did not appear in the system because his field was full. There is another building</p>	<p>Pass</p>
<pre> Edit Delete Test Side 1 Building Position:20-34 Market Building Owner: Ahmet Open time: 10:30 Closing Time: 18:30 Building Height: 4 ----- Building Position:50-59 Office Building Owner: Hatice JobType: Software Building Height: 4 ----- Building Position:80-89 Playground Building Name: Hamdi ----- </pre>	<p>Delete Building Test</p> <pre> System.out.println("Edit Delete Test"); emode.removeBuilding("Ali"); emode.removeBuilding("Burak"); emode.removeBuilding("Hasan"); // there arent in street </pre> <p>Hasan There arent in street</p>	<p>Pass</p>
<pre> Side 2 Building Position:0-10 House Building Owner: Bilal House color: blue Room Number: 5 Building Height: 2 ----- Building Position:50-60 Office Building Owner: Ferhat JobType: Software Building Height: 4 ----- </pre>	<p>Delete Building Test</p> <pre> System.out.println("Edit Delete Test"); emode.removeBuilding("Ali"); emode.removeBuilding("Burak"); emode.removeBuilding("Hasan"); // there arent in street </pre>	<p>pass</p>

<pre> Side 1 Building Position:20-34 Market Building Owner: Ahmet Open time: 10:30 Closing Time: 18:30 Building Height: 4 ----- Building Position:50-59 Office Building Owner: Hatice JobType: Software Building Height: 4 ----- Building Position:80-89 Playground Building Name: Hamdi ----- </pre>	View mode print all buildings <pre>vmode.printListofStreet();</pre>	Pass
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<pre> Side 2 Building Position:0-10 House Building Owner: Bilal House color: blue Room Number: 5 Building Height: 2 ----- Building Position:50-60 Office Building Owner: Ferhat JobType: Software Building Height: 4 </pre>	View mode print all buildings <pre>vmode.printListofStreet();</pre>	Pass
<pre> Ratio of Playground: 0.05 Number of Playground: 1 Total Remaining Length: 116 Street Accupied: 45 ----- </pre>	View Mode Test Number and Ratio Playground, Remain Lenght(emty area), Street Acupied Area <pre> vmode.printRatioOfPlayground(); vmode.printRemaingLenght(); vmode.printStreetAccupied(); </pre>	Pass