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1.SYSTEM REQUIREMENTS

First of all, this is a designing and implementing a city planning. Therefore we need a Street to build our buildings or structures.

```
Street LakeStreet = new Street();  
LakeStreet.setLength(50);
```

As you can see, we created a Street above. After that we create some buildings and try to put into the Street.

When you add buildings you need to write which Street you want to put as a parameter.

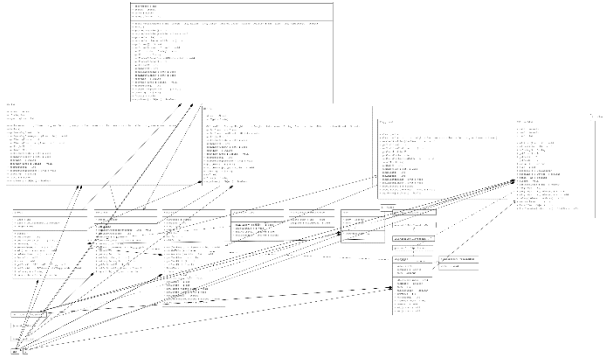
```
House house1=new House( numberOfRooms: 5, length: 5, height: 10, Owner: "Cagri Yilmaz", Color: "Blue", Position: 0, Side: 1,LakeStreet);  
LakeStreet.add(house1);  
LakeStreet.add(new House( numberOfRooms: 10, length: 10, height: 10, Owner: "Emir Yilmaz", Color: "Yellow", Position: 10, Side: 1,LakeStreet));  
House house2=new House( numberOfRooms: 5, length: 5, height: 10, Owner: "Furkan Yilmaz", Color: "Blue", Position: 0, Side: 1,LakeStreet);  
LakeStreet.add(new House( numberOfRooms: 16, length: 10, height: 10, Owner: "Onur Akbay", Color: "Red", Position: 10, Side: 2,LakeStreet));  
LakeStreet.add(new House( numberOfRooms: 20, length: 10, height: 10, Owner: "Gokhan Digircibasi", Color: "Yellow", Position: 20, Side: 1,LakeStreet));  
LakeStreet.add(new Office( Job: "Pharmacy", Height: 10, Length: 10, owner: "Omer Faruk Istemihan", Position: 17, Side: 1,LakeStreet));  
LakeStreet.add(new Market( Open: 8, Close: 20, Height: 10, Length: 10, owner: "Atakan Yilmaz", Position: 35, Side: 2,LakeStreet));
```

After this process, your Street is ready to some operations (View,delete,list of buildings).

But there is a rule you cannot build a structure in other building doesn't matter how many buildings have.

2. USE CASE AND CLASS DIAGRAMS

(You can find more HD version in folder)



3. PROBLEM SOLUTION APPROACH

Firstly, When I was doing homework 1, I thought I hold all informations because if we change array to other data structure , It will be easier for me. Thanks to that, implementing ArrayList and in Java Collections Framework is not hard for me. After that, LDLinkedList was a bit. Because I have to implement custom iterator and Node. However, thanks to Yusuf Sinan lecturer, I learnt itearator well. I studied LinkedList lecture book and I watched mr Erdogan Sevilgen's LinkedList lecturers and I understood what I will do.

Here is my solution. I draw a plan on a paper what I do or which linkedList is useful for me and I decided using doubly linkedList because Iterator has previous method so on.

I created LDLinkedList class and I have 2 classes one of them is Node the other one is LDListIter.

Node class is private and static.

I had a problem and I tried to find whole night the problem was that incompatible types Node<E> cannot be converted Node<E> I compiled at Linux and I realized that yes this problem is about referring different top level type one of them is trying to use LDListIter template other one is LDLinkedList template.

4.TEST CASES

I created a Street, length of the Street is 50.

```
Street LakeStreet = new Street();  
LakeStreet.setLength(50);
```

We need to put playground

```
Playground ground=new Playground(LakeStreet.getLength(), height: 2, position: 0, side: 1,LakeStreet);  
LakeStreet.add(ground);
```

Add some houses

```
LakeStreet.add(new House( numberOfRooms: 10, length: 10, height: 10, Owner: "Emir Yilmaz", Color: "Yellow", Position: 10, Side: 1,LakeStreet));  
House house2=new House( numberOfRooms: 5, length: 10, height: 5, Owner: "Furkan Yilmaz", Color: "Blue", Position: 0, Side: 1,LakeStreet);  
LakeStreet.add(house2);  
  
LakeStreet.add(new House( numberOfRooms: 16, length: 10, height: 10, Owner: "Onur Akbay", Color: "Red", Position: 10, Side: 2,LakeStreet));  
LakeStreet.add(new House( numberOfRooms: 20, length: 10, height: 10, Owner: "Gokhan Digircibasi", Color: "Yellow", Position: 20, Side: 1,LakeStreet));
```

Add office

```
LakeStreet.add(new Office( Job: "Pharmacy", Height: 10, Length: 10, owner: "Omer Faruk Istemihan", Position: 17, Side: 1,LakeStreet));
```

Add market

```
LakeStreet.add(new Market( Open: 8, Close: 20, Height: 10, Length: 10, owner: "Atakan Yilmaz", Position: 35, Side: 2,LakeStreet));
```

And View method we can see sky silluet

```
LakeStreet.View();  
LakeStreet.delete( item: 3);  
LakeStreet.View();
```

5. RUNNING AND RESULTS

There are several choices. You can see menu section in this part of the report.

When the program runs.

```
----- Welcome -----  
<-- Design and Implementing a city planning  
1-) Add your building to the street  
2-) Remove your building from the street  
3-) View your street  
4-) Quick Example  
5-) Exit  
Enter a value  
First Menu Choice _
```

You can add buildings

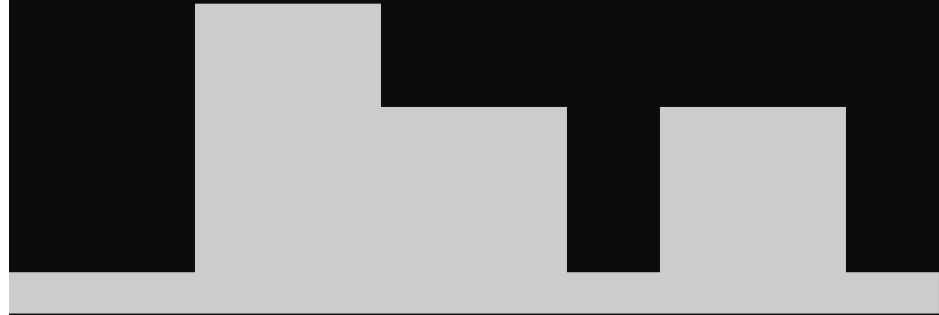
```
Enter a value  
First Menu Choice 1  
1-) Add a Market  
2-) Add a Office  
3-) Add a House  
4-) Exit  
Second Menu
```

You can remove building if it exists

```
Enter a value  
First Menu Choice 2  
Deleted Value
```

This is the test case

First Menu Choice 4



Ratio playground %100.0

Remaining of lands for Right Side 30 for Left Side 30

Playground Position 0 Side 1 Width 50 Length 2

Playground Position 0 Side 2 Width 50 Length 2

House Number of rooms 10 Color Yellow Height 10 Length 10 Owner Emir Yilmaz Position 10 Side 1

House Number of rooms 16 Color Red Height 15 Length 10 Owner Onur Akbay Position 10 Side 2

House Number of rooms 20 Color Yellow Height 10 Length 10 Owner Gokhan Digircibasi Position 20 Side 1

Market Openning Time 8 Closing Time 20 Length 10 Height 10 Position 35 Owner Atakan Yilmaz Side 2

the total length of street occupied by markets houses or offices : 40



Ratio playground %100.0

Remaining of lands for Right Side 40 for Left Side 30

Playground Position 0 Side 1 Width 50 Length 2

Playground Position 0 Side 2 Width 50 Length 2

House Number of rooms 10 Color Yellow Height 10 Length 10 Owner Emir Yilmaz Position 10 Side 1

House Number of rooms 16 Color Red Height 15 Length 10 Owner Onur Akbay Position 10 Side 2

Market Openning Time 8 Closing Time 20 Length 10 Height 10 Position 35 Owner Atakan Yilmaz Side 2

the total length of street occupied by markets houses or offices : 30