

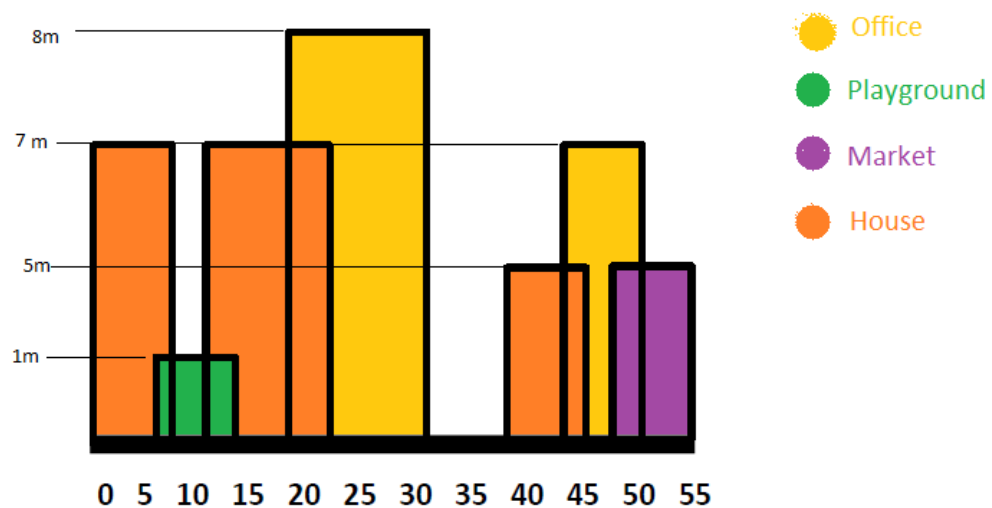
GIT Department of Computer Engineering
CSE 222/505 - Spring 2022
Homework 1 Report

Tuba Toprak
161044116

1. SYSTEM REQUIREMENTS

User requirements and Functional Requirements

This system was written for Architects to design a street. There are 2 ways to use this system. The first way is to use the menus actively. Here, the driver `_menu()` is run and the menus are actively used, and the program is exited with the Menu options and the silhouette image is printed. The second way directly prints the completed image of the street and terminates the program. When the program starts running, the user is directly asked the length of the street. If the user enters the length 0, the software sets the length of the street as 55 meters and the street given in the pdf is designed. The building and playground on this street are included in the system as follows.



All land on the street at the length entered by the user is empty. User can add or delete buildings on the street with Menu options. If no length has been entered by the user, When an architect wants to add a building, she -he must first see if there is a suitable place. Otherwise, the program will warn and the building will not be added. If the architect cannot find a suitable land, she can delete a building by first selecting the right land or left land, and then entering an index. And the architect can add the building type she -he wants from the menu options. When the architect wants to add a building, she- he must first select the edit menu. . Then, after determining the right or left direction, architect can add the building type she- he wants. The architect can see the buildings of the street in the viewing mode, which is the 2nd menu option. If option 1 is used in the menus here, architect can display the total remaining length of lands on the street. If option 2 is used in the menus here, architect can display the list of buildings on the street. If option 3 is used in the menus here, architect can display the number and ratio of length of playgrounds in the street. If option 4 is used in the menus here, architect can calculate the total length of street occupied by the

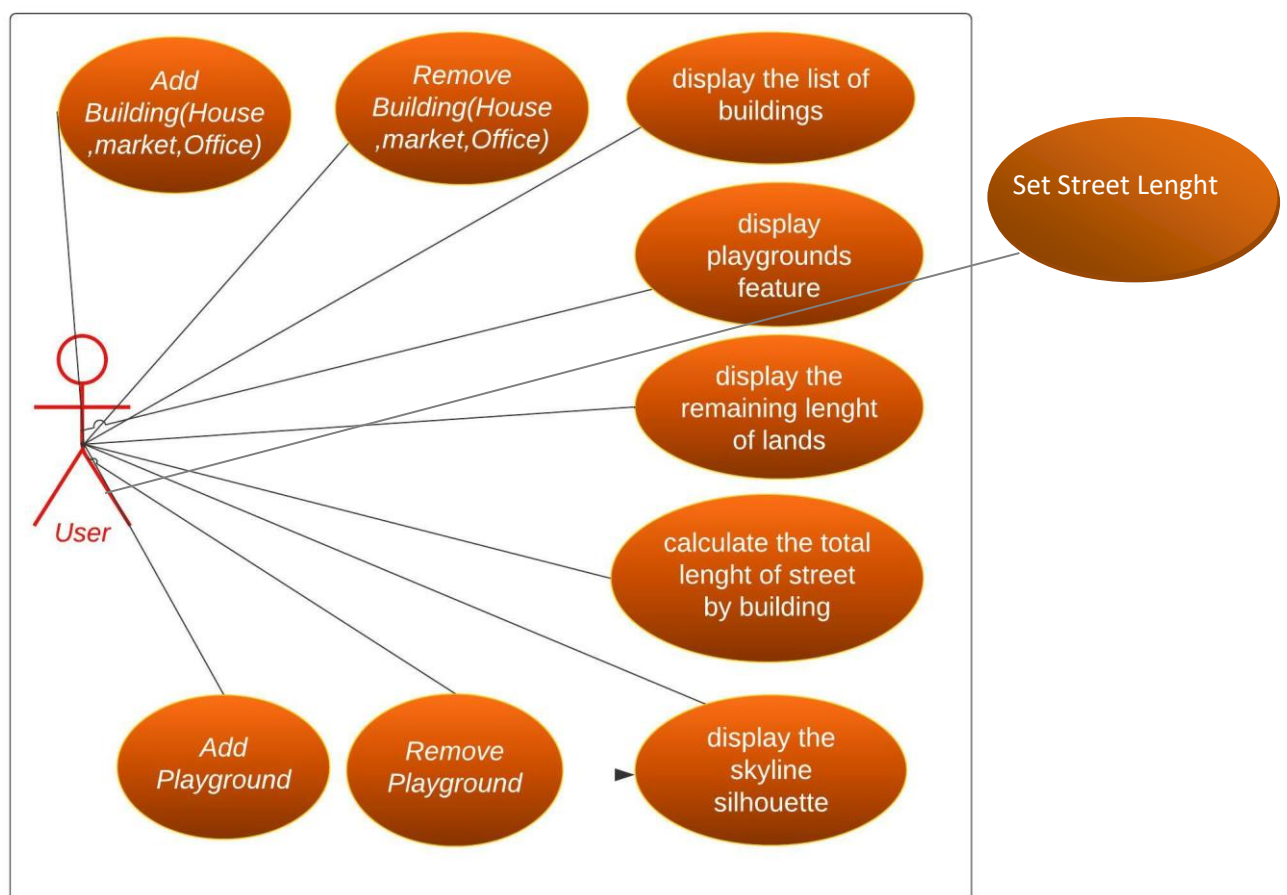
markets, houses or offices. if option 5 is used in the menus here, architect can display the skyline silhouette of the street.

if option 6 is used in the menus here, Architect can be focussing a build. If the architect wants to exit the program, she can exit the first menu by backing from the internal menus.

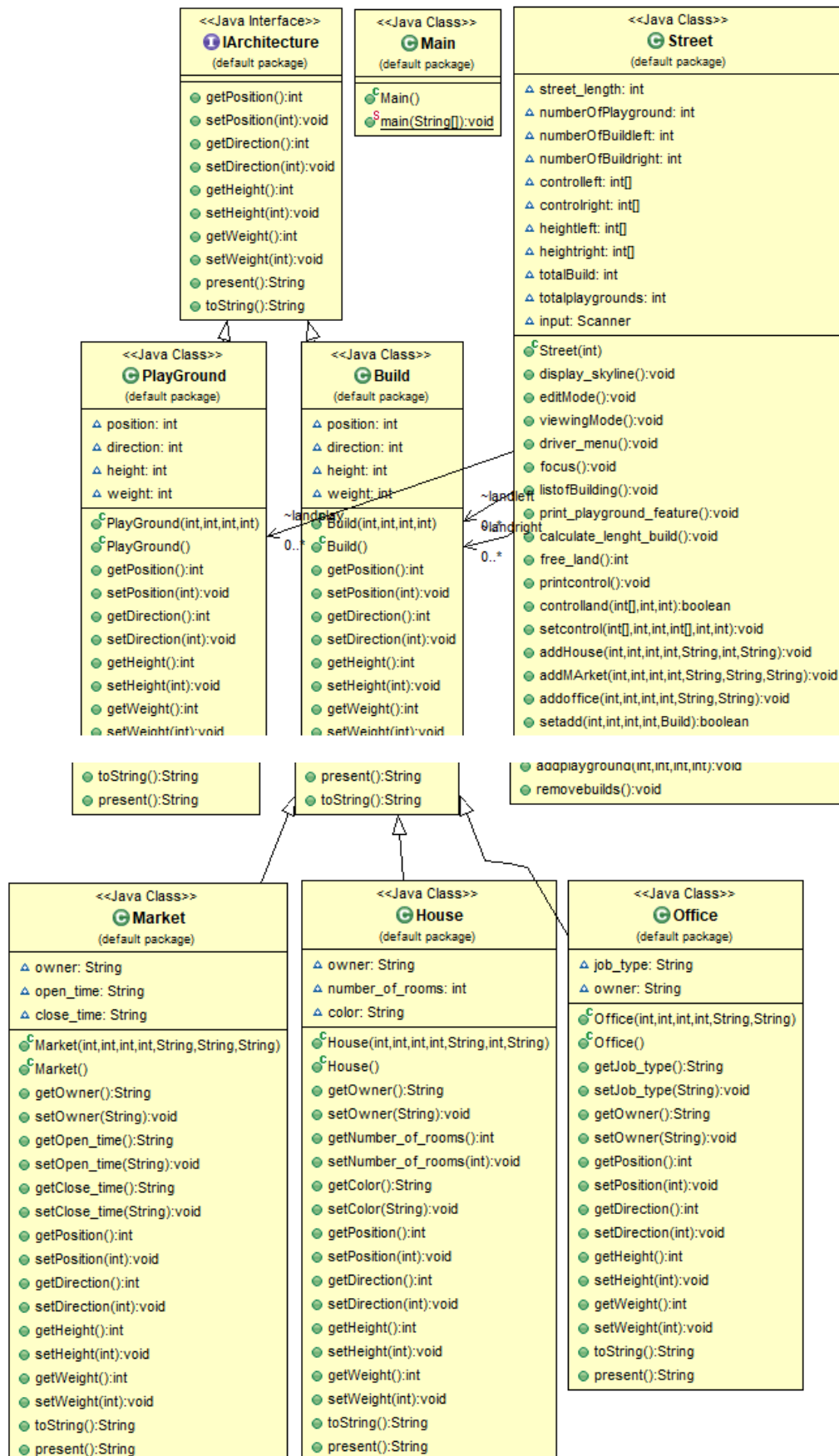
Software requirements

This system is designed in IntelliJ idea. Version is java 15.0.2. The software runs on any operating system and IDE.

2.USE CASE AND CLASS DIAGRAMS



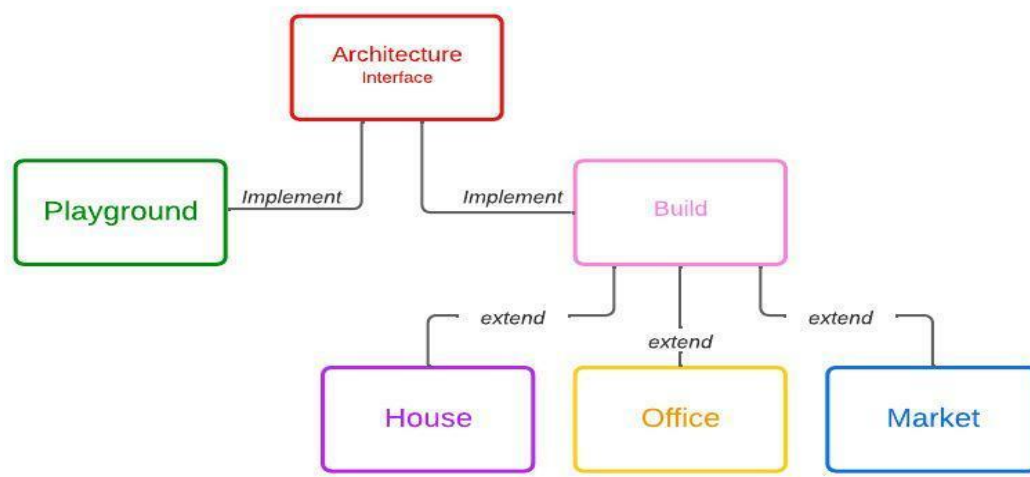
Class Diagram



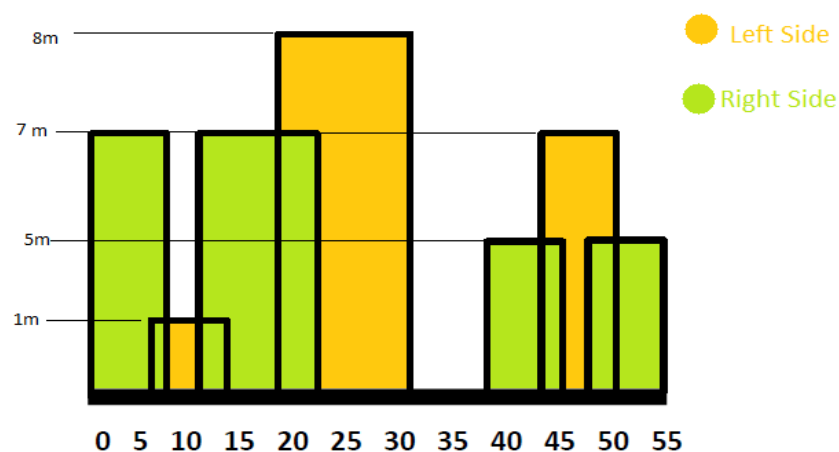
2. OTHER DIAGRAMS

3. PROBLEM SOLUTION APPROACH

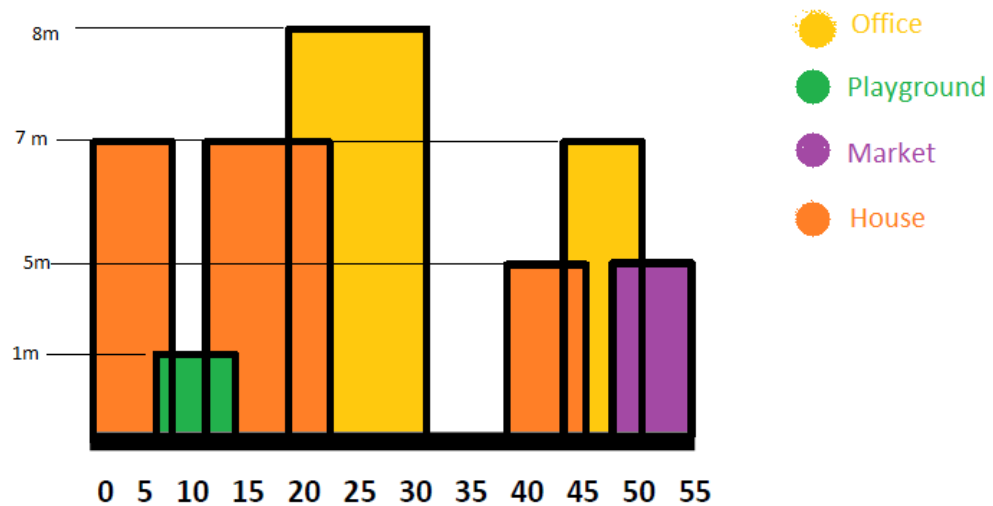
As for the assignment, I first reviewed OOP concepts and Java programming. After I refreshed my knowledge, I determined the construction by drawing the figure below, which is suitable for the OOP concept.



After the structure was determined, the functions of the interface class were determined. Then the Playground and Build classes were made. Getter-Setter functions and constructors were written. After the whole construction was completed, a class was created to hold the street information. Two Building type arrays have been created to hold the right and left building information of the street. When I want to add a new building to the street, right and left check arrays are created so that I can see if the space is available. also, arrays were created that hide the right and left building heights to print the silhouette image of the street. Then I used the image in the pdf to run the program. First, I separated the building in the picture as left and right.



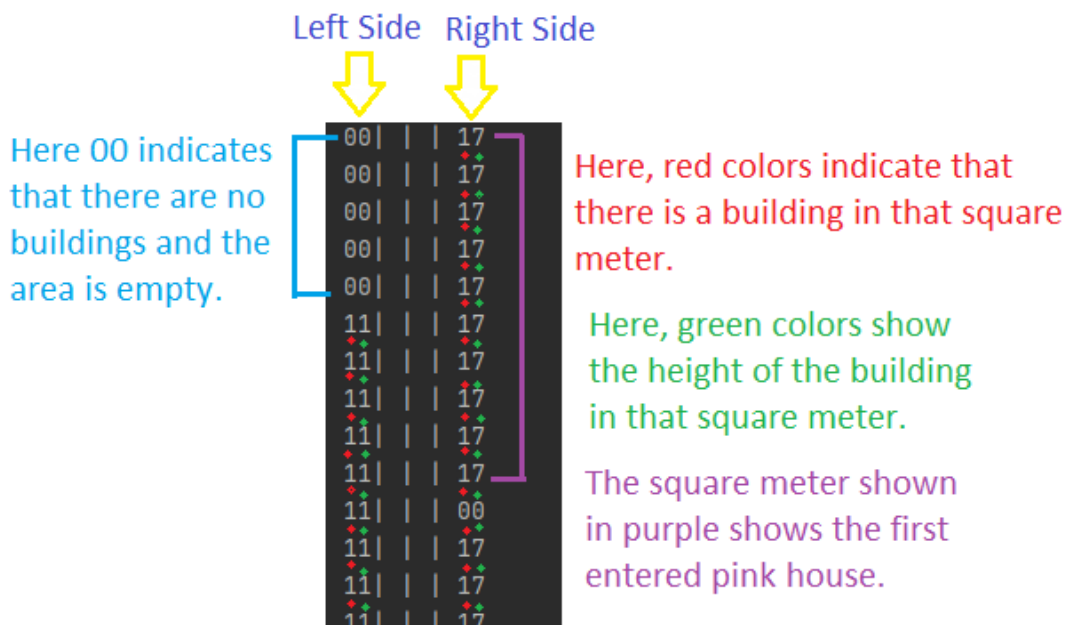
I marked them as below to avoid confusing buildings and to try all building types.



```
addHouse( position: 0, direction: 1, height: 7, weight: 10, owner: "Tuba Toprak", rooms: 4, color: "Pink");
addHouse( position: 11, direction: 1, height: 7, weight: 14, owner: "Ali Ağaoğlu", rooms: 5, color: "White");
addHouse( position: 40, direction: 1, height: 5, weight: 5, owner: "Han Derenoğlu", rooms: 2, color: "Black");
addMarket( position: 50, direction: 1, height: 5, weight: 5, owner: "Carrefoursa AŞ.", open_time: "08:55", close_time: "23:55");

addplayground( position: 5, direction: 0, height: 1, weight: 15);
addoffice( position: 20, direction: 0, height: 8, weight: 10, job_type: "Finans", owner: "Sakıp Sabancı");
addoffice( position: 45, direction: 0, height: 7, weight: 5, job_type: "Transportation", owner: "Turkish Airlines");
```

After adding the buildings, I pressed the screen to check their location.



Then the function for the silhouette image was written and the homework was completed.

4. TEST CASES

```

-----Welcome to StrangerVille Street-----
1-- Edit Mode
2-- View Mode
3-- Exit
Please enter choice: 4
Invalid Choice...

```

Passed

```

----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 2
Please select the direction you want to delete.
Please select the direction you want to focus on (0-Left Side,1- Right Side,2- Back): 3
Invalid Choice..
Please select the direction you want to delete.
Please select the direction you want to focus on (0-Left Side,1- Right Side,2- Back): |

```

Passed

adding a building to unoccupied land

```

Please enter choice: 1
----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 1
1- House
2- Market
3- Office
4- Exit
Please select type Building: 1
Please enter position: 0
Please select the direction (0-Left ,1- Right): 1
Please enter the height: 7
Please enter the lenght: 0
Please enter owner: Veli
Please enter number of rooms: 3
Please enter color: White
The area you want to build is not available.

```

delete a nonexistent building

```

----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 2
Please select the direction you want to delete on (0-Left Side,1- Right Side,2- Back): 1
---Buildings to the right of the street---
0. House--> position= 0, direction= Right, height= 7, weight= 8, owner= 'Tuba Toprak', number_of_rooms= 4, color= 'Pink'
1. House--> position= 12, direction= Right, height= 7, weight= 14, owner= 'Ali Agaoğlu', number_of_rooms= 5, color= 'White'
2. House--> position= 40, direction= Right, height= 5, weight= 5, owner= 'Han Derenoglu', number_of_rooms= 2, color= 'Black'
3. Market--> position= 50, direction= Right, height= 5, weight= 5, owner= 'Carrefoursa As.', open_time= '08:55', close_time= '23:55'
Please select the building you want to delete: 4
You entered the wrong index. The building could not be deleted.

```

Passed

```

----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 1
1- House
2- Market
3- Office
4- Exit
Please select type Building: 5
Invalid Choice..

```

```

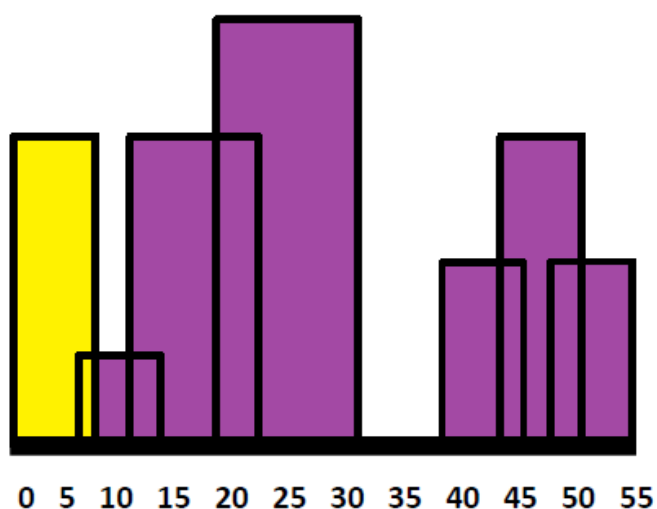
----Viewing Mode----
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.
3- display the number and ratio of lenth of playgrounds in the street.
4- calculate the total length of street occupied by the markets, houses or offices.
5- display the skyline silhouette of the street
6- Focus Mode
7- Back
Please enter choice: 8
Invalid Choice...

```

5. RUNNING AND RESULTS

1.Mode

I start the software according to the format in pdf. the length of the street is 55 meters and the buildings are placed. The building painted in yellow in the picture below was first deleted and added later. The results are below. Then viewing mode was tried and the silhouette image was printed.




```

If you do not want to enter the length of the street, enter 0
Please enter street lenght: 0
A House has been added in the street.
A House has been added in the street.
A House has been added in the street.
A Market has been added in the street.
A Playground has been added in the street.
A Office has been added in the street.
A Office has been added in the street.
-----Welcome to StrangerVille Street-----
1-- Edit Mode
2-- View Mode
3-- Exit
Please enter choice: 1
----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice:

```

Remove

```

----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 2
Please select the direction you want to delete on (0-Left Side,1- Right Side,2- Back): 3
Invalid Choice..
Please select the direction you want to delete on (0-Left Side,1- Right Side,2- Back): 1
---Buildings to the right of the street---
0. House---> position= 0, direction= Right, height= 7, weight= 8, owner= 'Tuba Toprak', number_of_rooms= 4, color= 'Pink'
1. House---> position= 12, direction= Right, height= 7, weight= 14, owner= 'Ali Agaoğlu', number_of_rooms= 5, color= 'White'
2. House---> position= 40, direction= Right, height= 5, weight= 5, owner= 'Han Derenoglu', number_of_rooms= 2, color= 'Black'
3. Market---> position= 50, direction= Right, height= 5, weight= 5, owner= 'Carrefoursa As.', open_time= '08:55', close_time= '23:55'
Please select the building you want to delete: 0
Please select the direction you want to delete on (0-Left Side,1- Right Side,2- Back): 2

```

```

----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 3
-----Welcome to StrangerVille Street-----
1-- Edit Mode
2-- View Mode
3-- Exit
Please enter choice: 2
----Viewing Mode----
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.
3- display the number and ratio of lenth of playgrounds in the street.
4- calculate the total length of street occupied by the markets, houses or offices.
5- display the skyline silhouvette of the street
6- Focus Mode
7- Back
Please enter choice: 2

```

```

---Viewing Mode---
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.
3- display the number and ratio of lenth of playgrounds in the street.
4- calculate the total length of street occupied by the markets, houses or offices.
5- display the skyline silhouette of the street
6- Focus Mode
7- Back
Please enter choice: 2
---Buildings to the left of the street---
Office--> position= 20, direction= Left, height= 10, weight= 10, job_type= 'Finans', owner= 'Sakıp Sabancı'
Office--> position= 45, direction= Left, height= 7, weight= 5, job_type= 'Transportation', owner= 'Turkish Airlines'
---Buildings to the right of the street---
House--> position= 12, direction= Right, height= 7, weight= 14, owner= 'Ali Agaoğlu', number_of_rooms= 5, color= 'White'
House--> position= 40, direction= Right, height= 5, weight= 5, owner= 'Han Derenoglu', number_of_rooms= 2, color= 'Black'
Market--> position= 50, direction= Right, height= 5, weight= 5, owner= 'Carrefoursa As.', open_time= '08:55', close_time= '23:55'

```

Add

```

5- display the skyline silhouette of the street
6- Focus Mode
7- Back
Please enter choice: 7
-----Welcome to StrangerVille Street-----
1-- Edit Mode
2-- View Mode
3-- Exit
Please enter choice: 1
----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 1
1- House
2- Market
3- Office
4- Exit
Please select type Building: 1

```

```

Please select type Building: 1
Please enter position: 0
Please select the direction (0-Left ,1- Right): 1
Please enter the height: 7
Please enter the lenght: 8
Please enter owner: Tuba Toprak
Please enter number of rooms: 4
Please enter color: New-Pink
A House has been added in the street.
1- House
2- Market
3- Office
4- Exit
Please select type Building: |

```

Viewing Mode

```

A House has been added in the street.
1- House
2- Market
3- Office
4- Exit
Please select type Building: 4
----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 3
-----Welcome to StrangerVille Street-----
1-- Edit Mode
2-- View Mode
3-- Exit
Please enter choice: 2
----Viewing Mode----
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.
3- display the number and ratio of lenth of playgrounds in the street.
4- calculate the total length of street occupied by the markets, houses or offices.
5- display the skyline silhouvette of the street
6- Focus Mode
7- Back
Please enter choice: 1
Length of free land on the street: 110 metre2

```

```

7- Back
Please enter choice: 2
---Buildings to the left of the street---
Office--> position= 20, direction= Left, height= 10, weight= 10, job_type= 'Finans', owner= 'Sakıp Sabancı'
Office--> position= 45, direction= Left, height= 7, weight= 5, job_type= 'Transportation', owner= 'Turkish Airlines'
---Buildings to the right of the street---
House--> position= 12, direction= Right, height= 7, weight= 14, owner= 'Ali Agaoğlu', number_of_rooms= 5, color= 'White'
House--> position= 40, direction= Right, height= 5, weight= 5, owner= 'Han Derenoglu', number_of_rooms= 2, color= 'Black'
Market--> position= 50, direction= Right, height= 5, weight= 5, owner= 'Carrefoursa As.', open_time= '08:55', close_time= '23:55'
House--> position= 0, direction= Right, height= 7, weight= 8, owner= 'Tuba Toprak', number_of_rooms= 4, color= 'New-Pink'

```

```

----Viewing Mode----
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.
3- display the number and ratio of lenth of playgrounds in the street.
4- calculate the total length of street occupied by the markets, houses or offices.
5- display the skyline silhouvette of the street
6- Focus Mode
7- Back
Please enter choice: 3
1. Playground Lenght 15
There are 1 playgrounds on the street.
Total length of playgrounds on the street: 15 metre2
Ratio of lenth of playgrounds: 15/110 metre2
----Viewing Mode----

```

```

----Viewing Mode----
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.
3- display the number and ratio of lenth of playgrounds in the street.
4- calculate the total length of street occupied by the markets, houses or offices.
5- display the skyline silhouvette of the street
6- Focus Mode
7- Back
Please enter choice: 4
Total length of street occupied by Markets: 5 metre2
Total length of street occupied by Offices: 15 metre2
Total length of street occupied by Houses: 27 metre2
----Viewing Mode----

```

```

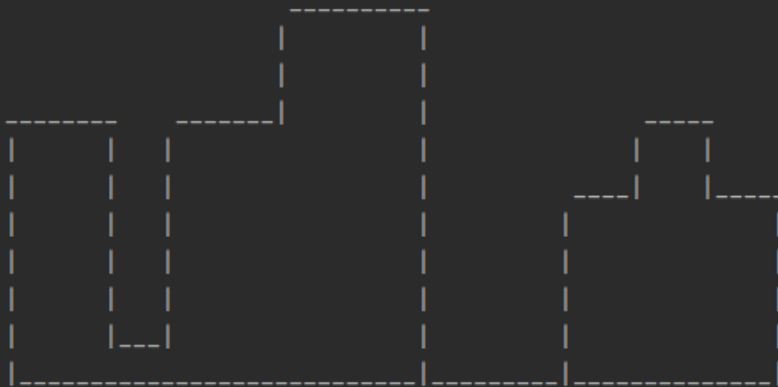
----Viewing Mode----
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.
3- display the number and ratio of lenth of playgrounds in the street.
4- calculate the total length of street occupied by the markets, houses or offices.
5- display the skyline silhouvette of the street
6- Focus Mode
7- Back
Please enter choice: 6
Please select the direction you want to focus on (0-Left Side,1- Right Side,2- Back): 0
the number of Building on the left of the street: 2
Please select the number of the build you want to focus on: 1
Job Types: Finans
Please select the direction you want to focus on (0-Left Side,1- Right Side,2- Back): 1
the number of Building on the left of the street: 4
Please select the number of the build you want to focus on: 2
Owner: Han Derenoglu
Please select the direction you want to focus on (0-Left Side,1- Right Side,2- Back):
Owner: Han Derenoglu
Please select the direction you want to focus on (0-Left Side,1- Right Side,2- Back): 3
Invalid Choice...
Please select the direction you want to focus on (0-Left Side,1- Right Side,2- Back): 2
----Viewing Mode----

```

```

----Viewing Mode----
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.
3- display the number and ratio of lenth of playgrounds in the street.
4- calculate the total length of street occupied by the markets, houses or offices.
5- display the skyline silhouvette of the street
6- Focus Mode
7- Back
Please enter choice: 5

```



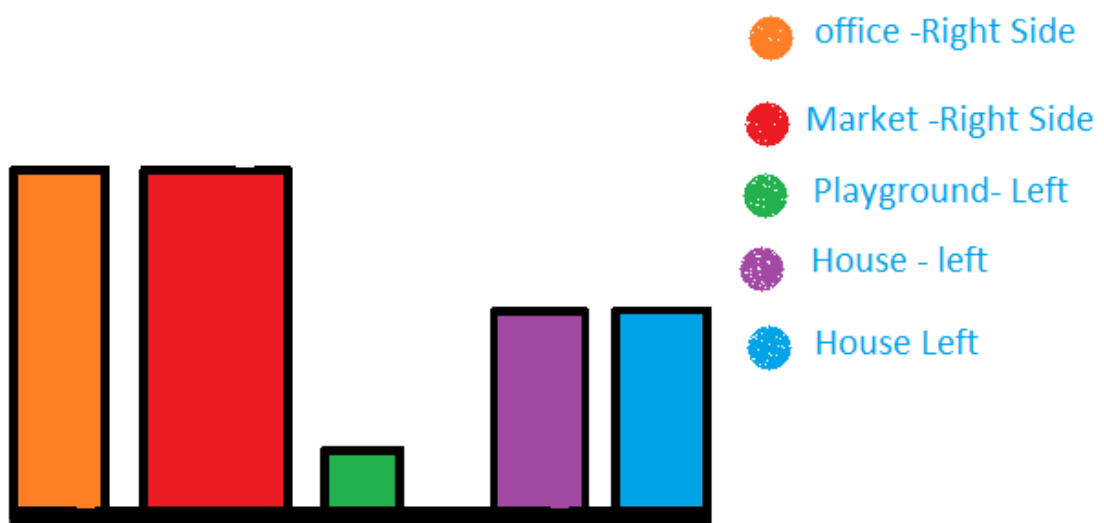
```

----Viewing Mode----
1- display the total remaining length of lands on the street
2- display the list of buildings on the street.

```

2.Mode

Suppose the user wants to enter the length of the street and wants to design the street. Apply the following model to the street and the results of all **add methods**



Add

```
If you do not want to enter the length of the street, enter 0
Please enter street lenght: 27
-----Welcome to StrangerVille Street-----
1-- Edit Mode
2-- View Mode
3-- Exit
Please enter choice: 1
----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 1
1- House
2- Market
3- Office
4- PlayGround
5- Exit
Please select type Building: 3
Please enter position: 0
Please select the direction (0-Left ,1- Right): 1
Please enter the height: 8
Please enter the lenght: 4
Please enter owner: koc
Please enter job_type: 18
A Office has been added in  the street.
```

```
A Office has been added in  the street.
1- House
2- Market
3- Office
4- PlayGround
5- Exit
Please select type Building: 2
Please enter position: 7
Please select the direction (0-Left ,1- Right): 1
Please enter the height: 8
Please enter the lenght: 5
Please enter owner: migros
Please enter open_time: 9:55

Please enter close_time: 23:55

A Market has been added in  the street.
1- House
2- Market
3- Office
4- PlayGround
5- Exit
Please select type Building: 4
Please enter position: 14
Please select the direction (0-Left ,1- Right): 0
Please enter the height: 1
```

```

Please enter the height: 1
Please enter the lenght: 3
A Playground has been added in the street.
1- House
2- Market
3- Office
4- PlayGround
5- Exit
Please select type Building: 1
Please enter position: 19
Please select the direction (0-Left ,1- Right): 0
Please enter the height: 5
Please enter the lenght: 3
Please enter owner: deniz
Please enter number of rooms: 2
Please enter color: orange
A House has been added in the street.
1- House
2- Market
3- Office
4- PlayGround
5- Exit
Please select type Building: 1
Please enter position: 24
Please select the direction (0-Left ,1- Right): 0

```

```

Please enter the height: 5
Please enter the lenght: 3
Please enter owner: ali
Please enter number of rooms: 6
Please enter color: yellow
A House has been added in the street.
1- House
2- Market
3- Office
4- PlayGround
5- Exit
Please select type Building: 5
----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 3
----Welcome to StrangerVille Street----
1-- Edit Mode
2-- View Mode
3-- Exit
Please enter choice: 2
----Viewing Mode----
1- display the total remaining length of lands on the street

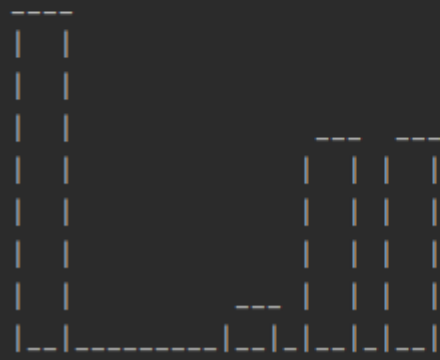
```



```

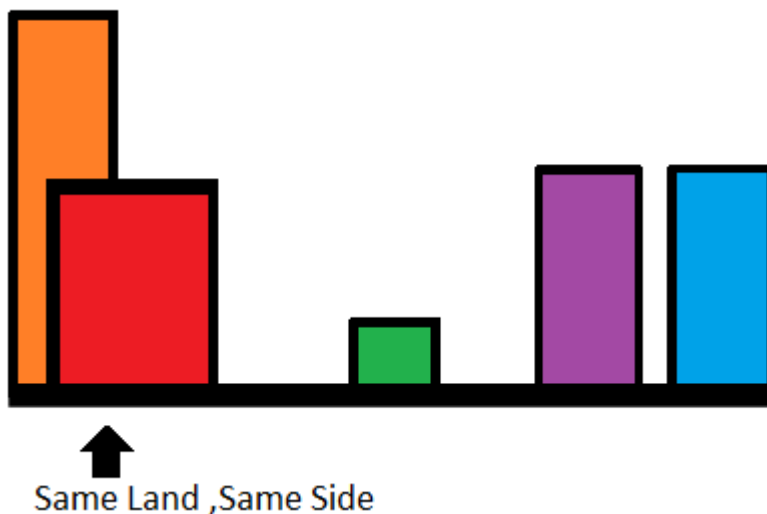
3-- Exit
Please enter choice: 2
----Viewing Mode----
1- display the total remaining length of lands
2- display the list of buildings on the street
3- display the number and ratio of length of plots
4- calculate the total length of street occupied
5- display the skyline silhouette of the street
6- Focus Mode
7- Back
Please enter choice: 5

```



Land conflict

Now suppose we want to add a building where there is a building. Let's continue with the same example. Let's try to add a larger building instead of the office in the example. The software will give a warning.



```
----Edit Mode----
1- Add Building
2- Remove Building
3- Back
Please enter choice: 1
1- House
2- Market
3- Office
4- PlayGround
5- Exit
Please select type Building: 1
Please enter position: 0
Please select the direction (0-Left ,1- Right): 1
Please enter the height: 5
Please enter the lenght: 5
Please enter owner: seda
Please enter number of rooms: 2
Please enter color: red
The area you want to build is not available.
```