GTU Department of Computer Engineering

CSE 222/505 - Spring 2022

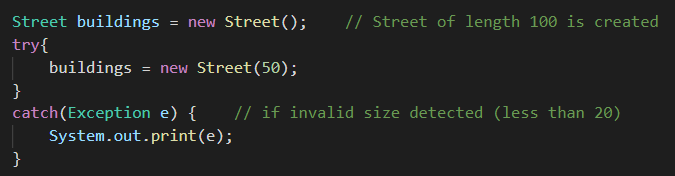
Homework #03 Report

Şiyar Tarık Özcaner

20010400421

1. System requirements

JDK, JRM and JVM are necessary to run the program.



First of all a street size is needed to create the street.

The rest is left to user.

1. Class diagrams

* Is in the directory

1. Problem solutions approach

So, we are asked to create a city planning tool for designing a street which has 2 modes, edit and view and is very basic 2d-ish street which will have buildings of 4 types: houses, offices, markets & playgrounds.

Well since we are limited to work with standard arrays I found it a good practice to go with dynamic implementation because it is way more flexible to work with compared to fixed size arrays.

So, we need to have two of these (left and right) and dynamic operations (mentioned before) on these (add and remove methods). So after implementing “Building” class, it was only appropriate to create a Building[] for those operations hence “Street” class.

This really tidied up all of implementations of the view mode’s functions (list etc.) too. All you need to do is call necessary methods to get these tasks to get performed.

And finally thing is to derive building types and implement stuff like “toString” etc.

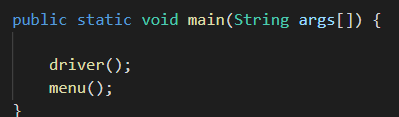
Well this time we are supposed to implement three new ways of street 1- ArrayList, 2- Linkedlist and final our own implementation of LinkedList called LD, first two was pretty much straight forward since it did not required much changes over the array one for LDLinkedList it is not the case.

LDLinkedList is nothing special, standard LinkedList implementation with lazy deletion; this class has a collection linkedlist for lazy deletion part and this list holds removed nodes for later use and uses when appropriate and *only implements used methods of abstractlist*.

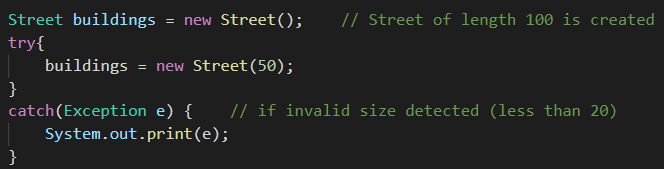
After all of these you have everything, you need to use this “city planning” tool.

1. Test cases

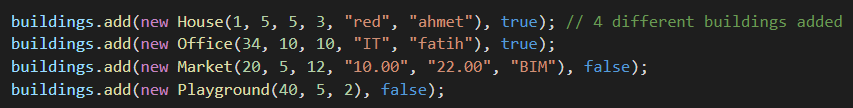
Test starts



First of all the street is created.

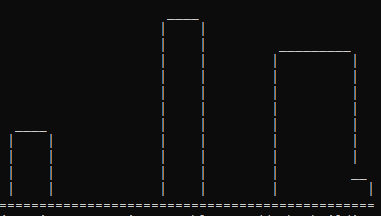


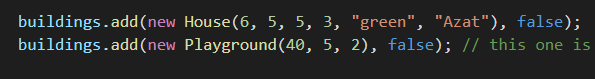
4 different building are added



Skyline silhouette is drawn for comparison purposes,

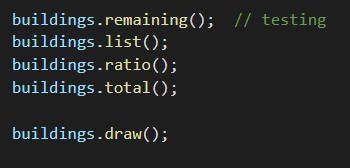




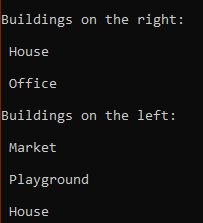
Two more building added but beware that second new one is a duplicate and causes an exception to be thrown



After latest additions full test is done

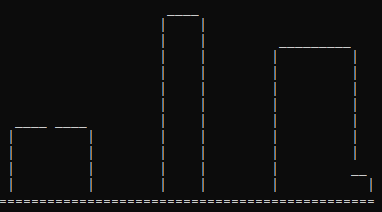




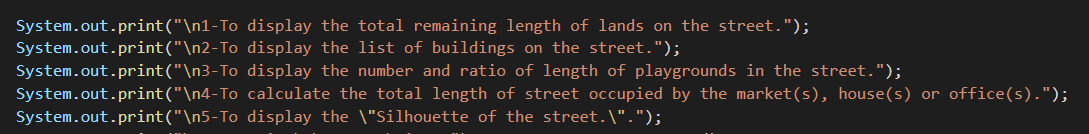




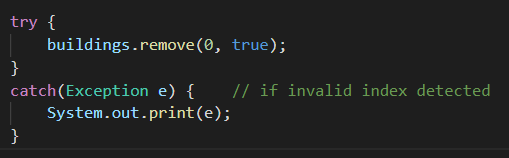




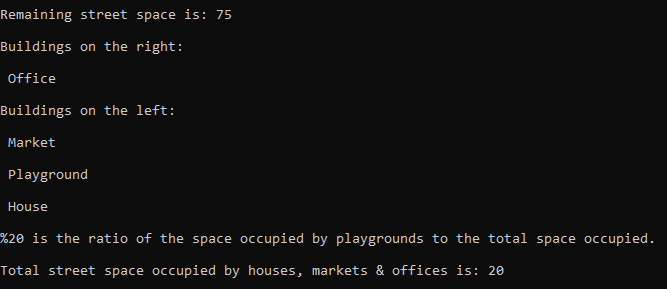
Respectively all of the view methods are tested.

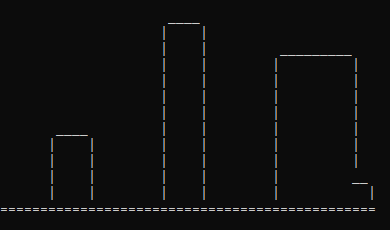


A removal is done

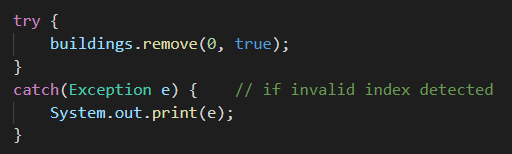


Outputs of a complete test of view



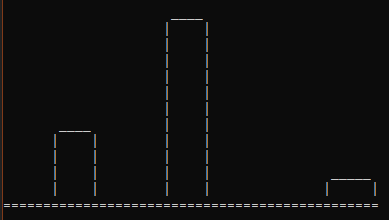


Another removal

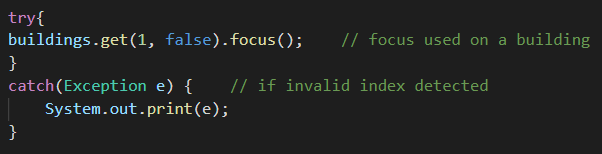


Last drawing





Focus is tested on a building with an index and side (“false” for left and “true” for right side)



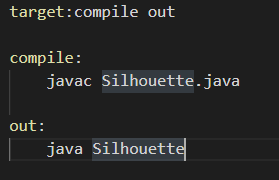
End of test now menu is called



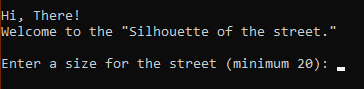
1. Running command and results

Only “make” command is enough for all of this (test and after menu)

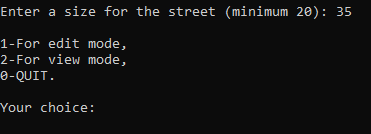
Contents of makefile

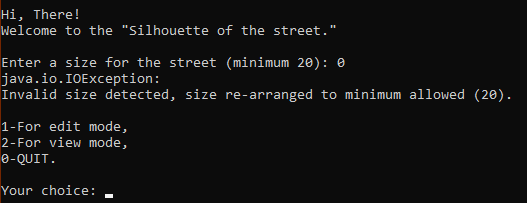


Menu asks for a valid street size

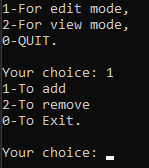


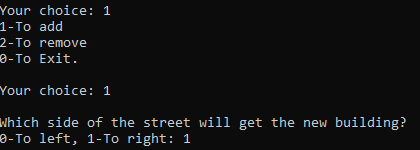
Valid vs invalid size

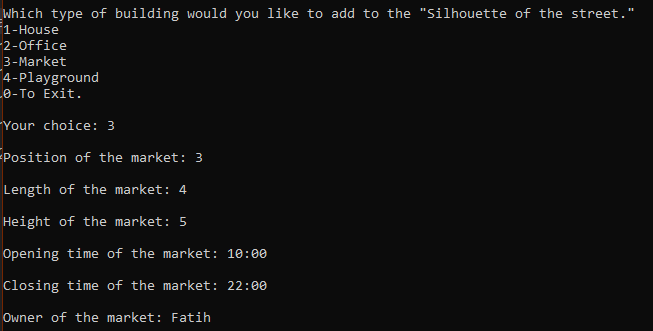




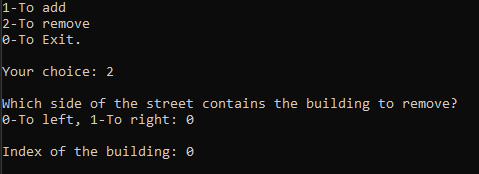
Edit mode



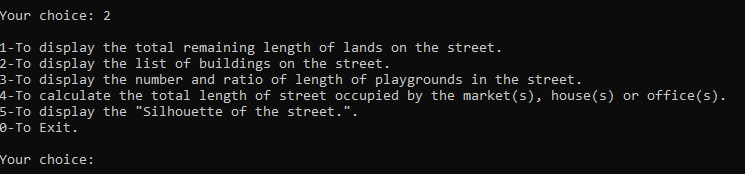




Removing



View mode



(modes are demonstrated in demo)

Additionally Test function tests and prints measured times for example (calculations and measurements are in the directory)



