Faculty of Computers, Informatics and Microelectronics

Technical University of Moldova

WINDOWS PROGRAMMING

Laboratory work #5

Collaboration. Complex application: Traffic light.

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1 Laboratory Work Requirements

– **Basic Level (grade 5 - 6) you should be able to:**

a) Simulate the work of a traffic light for an intersection with 4 traffic lights.

b) The user should be able to increase the speed of traffic light (interval when colors are changed).

c) The user may be able to increase the number of generated random cars.

– **Normal Level (grade 7 - 8) you should be able to:**

a) Realize the tasks from *Basic Level*.

b) In the simulation should be present 2 crosswalks with people passing.

c) Random special cars crossing (at least2; ex. ambulance, president care, police car, etc).

– **Advanced Level (grade 9 - 10) you should be able to:**

a) Realize the tasks from *Normal Level*.

b) Introducing of the car accident generated by the wrong crossing of the car/pedestrian or presence of drunk driver

– **for Bonus Point Tasks:**

a) 1 point per each new added creative idea.

2 Laboratory work implementation

2.1 Tasks and Points

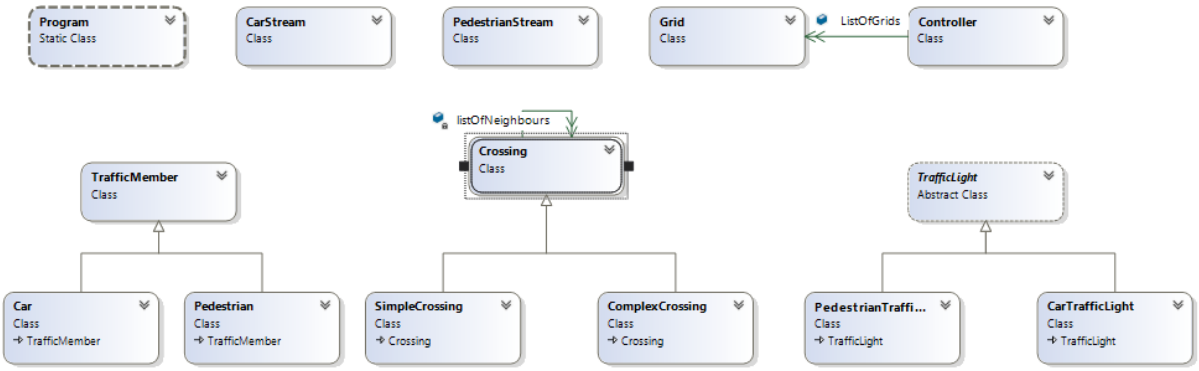
a) A 4 light intersection and adjustable number of generated cars from the Basic Task.

b) Crosswalks with pedestrians from the Normal Task.

c) Features for the bonus points part:

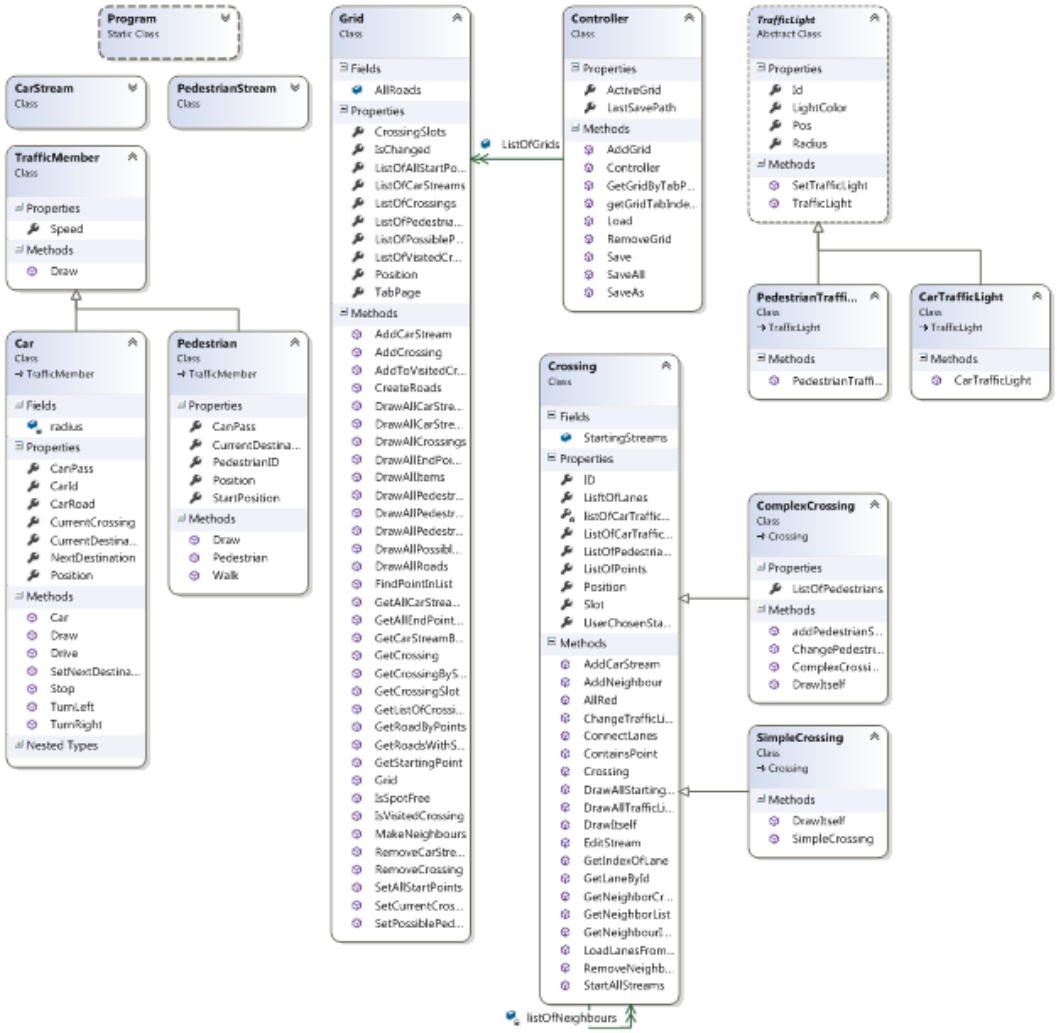
1) The possibility to connect multiple intersections.
2) The ability to pick the path of the car.
3) The ability to save/load systems of crossroads
4) Multiple tabs

2.2 Class diagram



Shows all the classes used in this app, as well as their inheritance, proprieties, and methods.

2.3 Class diagram (unfolded)



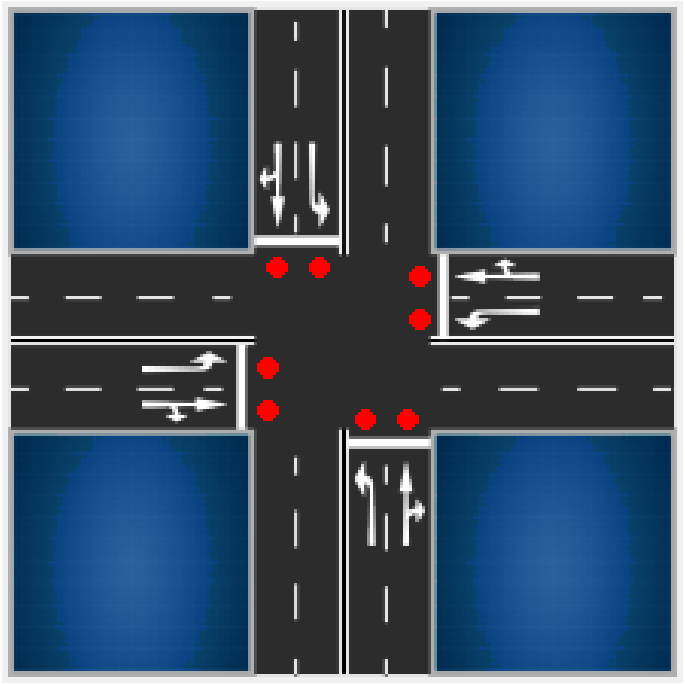
Displays proprieties and methods.

2.4 Laboratory work analysis

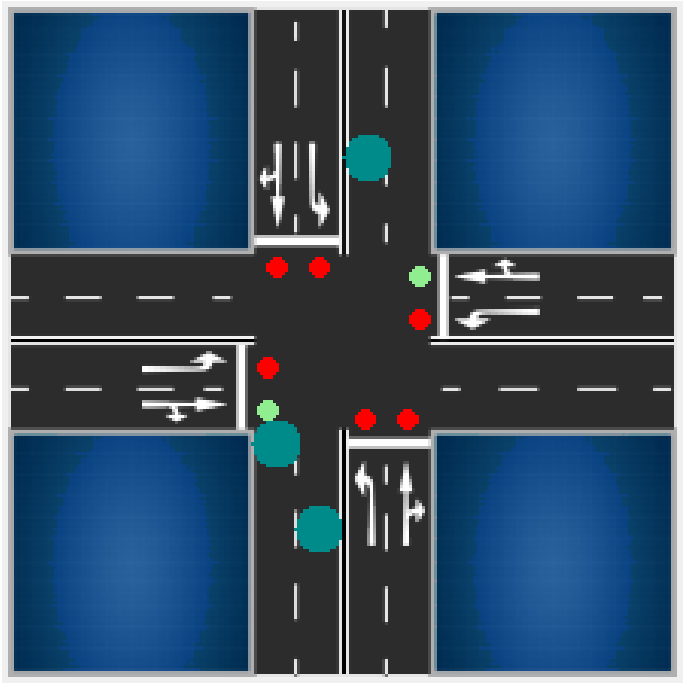
Link to our repo on github: https://github.com/alexeydariev/WP-LAB5

3 Proof

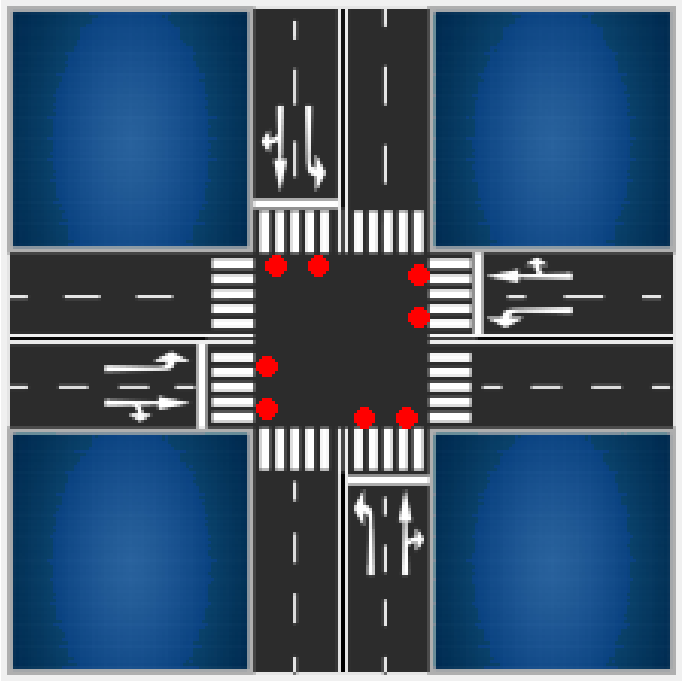
3.1 A simple 4 light intersection (only cars)



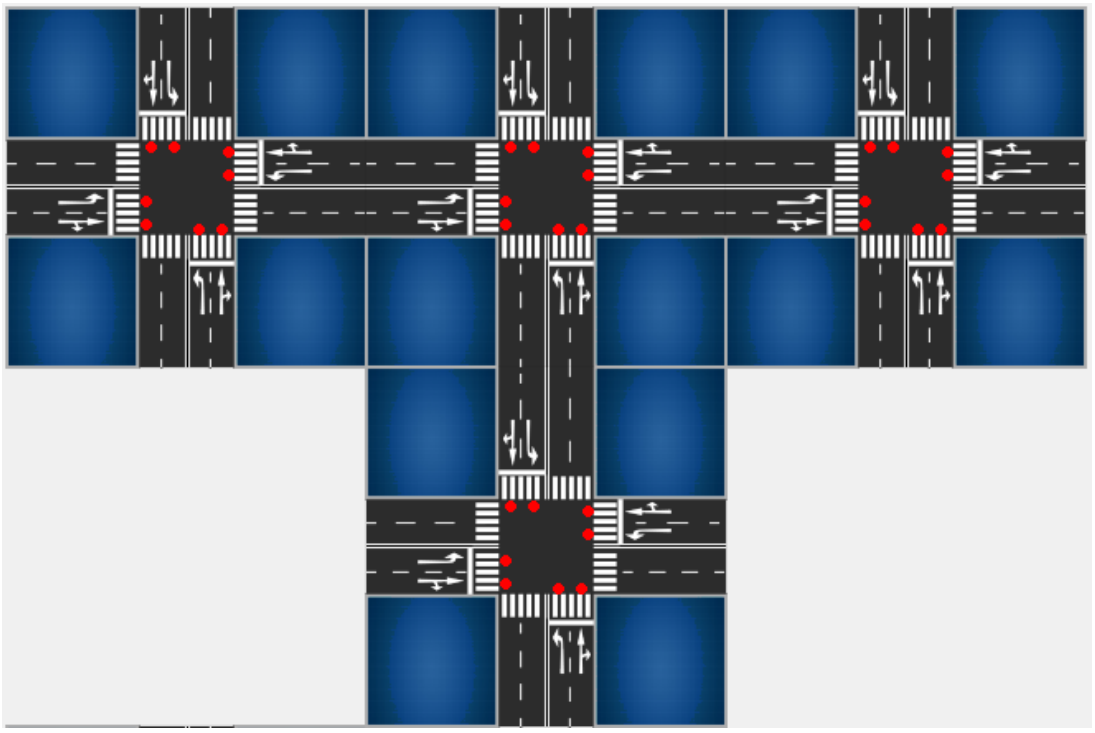
3.2 Adjustable number of generated cars



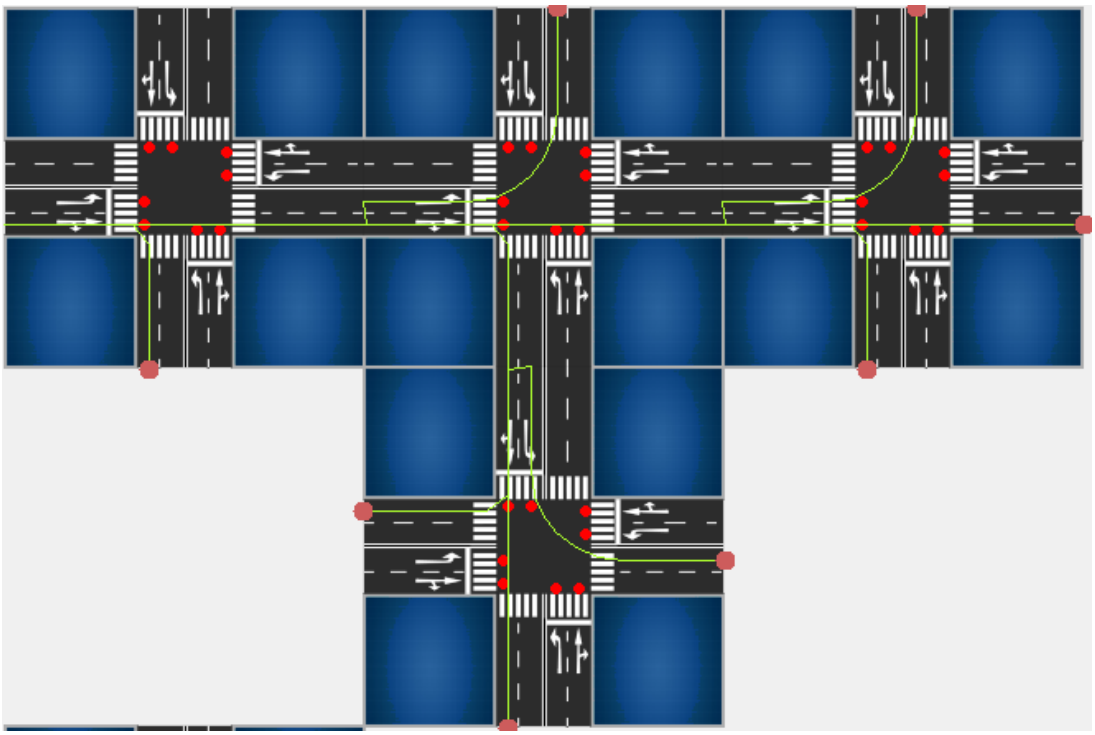
3.3 A light intersection with crosswalks for pedestrians



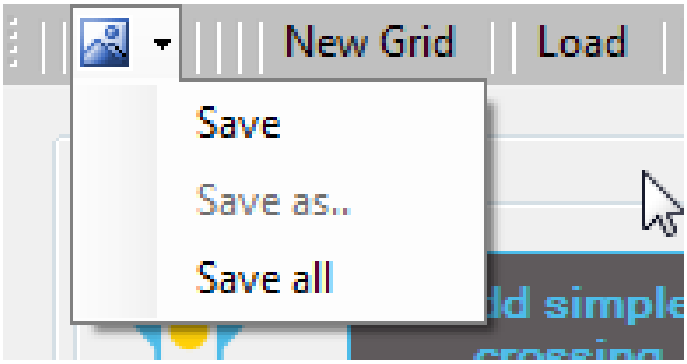
3.4 Connecting multiple intersections



3.5 The ability to pick the path that a car will follow



3.6 Save/Load functions



3.7 Running multiple instances of grids

Conclusions

The main point of this laboratory work was to teach us to work as a team, each with a particular task working towards a common goal (making this a traffic light application work as intended). And overcoming difficulties of sharing workload between teammates and then connecting the little parts of the project to work as a whole. It provided for a nice final laboratory work which rounds up all the previously learned abilities.