Faculty of Computers, Informatics and Microelectronics

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WINDOWS PROGRAMMING

Laboratory work #4

Windows Timer. Animation.

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Laboratory work #1

1 Purpose of the laboratory

Gain knowledge about basics of event-driven programming, understanding of drawing inside a window,processing mouse commands.

2 Laboratory Work Requirements

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

a) Draw 5 lines of different colors and weights

b) Create an animation based on Windows timer which involves at least 5 different drawn objects

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

a) Realize the tasks from *Basic Level*.

b) Increase and decrease animation speed using mouse wheel/from keyboard

c) Solve flicking problem describe in your readme/report the way you had implemented this.

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

a) Realize the tasks from *Normal Level*.

b) Add 2 animated objects which will interact with each other. Balls that have different velocity and moving angles. They should behave based on following rules:

1) At the begining you should have 3 bals of different colours of the same size

2) On interaction with each other, if they are of the same class (circle, square), they shuld change their color and be multiplied.

3) On interaction with the right and left wall (the margins of the window), they should be transformed into squares.

4) On interaction with the top and bottom of the window - the figures should increase their velocity.

5) Please, take into consideration that the user can increase and decrease animation speed using mouse wheel/from keyboard

Link to my git repository,`https://github.com/LordOfNightmares/WP-LABS`

2.1 Laboratory work analysis

The features added are:

- Added 2 Balls
- Added a Collision.
- On collision with other objects or a fixed border the balls change direction to opposite.

On the following pics below i show example of program execution.

2.2 Prove your work with screens

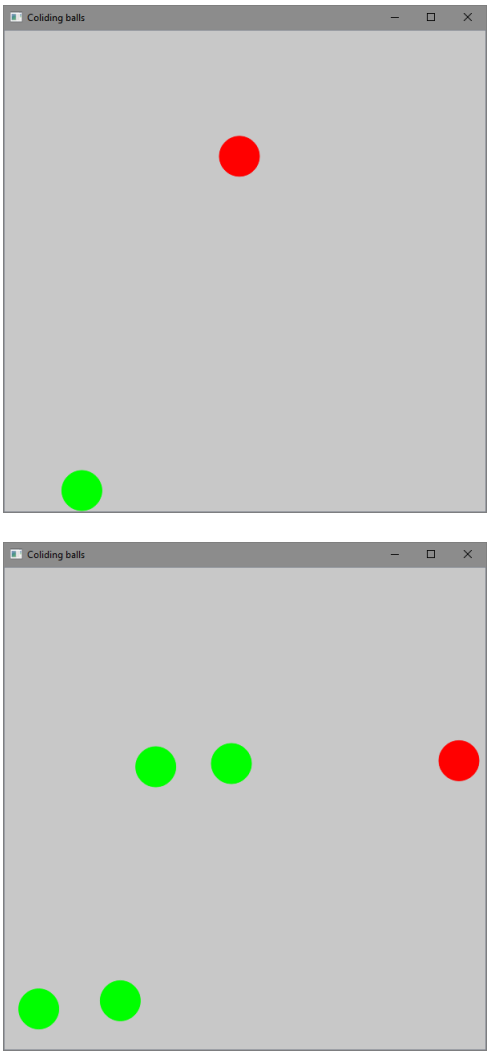

Figure 2.2– Default

Conclusions

I learned how to make animations based on the timer function.Solved the flickering effect by adding anti aliasing.

References

1 Qt Examples And Tutorials,http://doc.qt.io/qt-5/qtexamplesandtutorials.html

2 Google,https://www.google.com