Ministry of Education of the Republic of Moldova
Technical University of Moldova
Department of Applied Informatics

Report

Laboratory Work Nr.5
on Event-Driven Programming

Collaboration. Complex Application.

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Laboratory Work Nr.5

Laboratory Work Requirements:

Mandatory Objectives:

- Create an application which has:
  - Child windows controls
  - GDI animation
- Animation should be controlled by controls

Objectives With Points:

- (2pt) Work on this project in a team of 2-4
  - (1pt) Divide tasks and describe them in report
- (0-3pt) Make it useful
- (1pt) First create a sketch, then work on code

Laboratory Work Implementation

Tasks and Points

Mandatory Objectives:

- Create an application which has:
  - Child windows controls
  - GDI animation
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Objectives With Points:

- (2pt) Work on this project in a team of 2-4
  - (1pt) Divide tasks and describe them in report
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- (1pt) First create a sketch, then work on code

Total Points: All Mandatory Points + All Bonus Points + Early Submission

Laboratory Work Analysis

Because this laboratory work requires to develop a complex application and having the application ideas given by the supervisor, my team and I decided to create a game. Its name is "Ball vs Block".

First of all we passed the sketching process. Here we tried to give answers to following questions:

- How will be the playing process?
- What is the main purpose of the game?
- Which are conditions of loss?

That's why our game will be structured on the levels. Just because of the time insufficiency we have created only 1 level. In near future, we will add some more. The main purpose will be to destroy all the block without violating the loss condition. There are several loss conditions, the main one occurs when the ball hit the bottom margin of the window, in other words when the ball is not caught with the racket.

Speaking about usefulness "Ball and Block" is the game which goal is to relax computer users from the things or tasks they are dealing with. Also it is a nice way to confront the boredom. Playing our game you will free your mind and you will be able to continue your work.

Our game contains a lot of things previously studied such as: basic window's form elements and controls, menus, working with keyboard, working with mouse, GDI drawing, timer, animations.

On of the requirements of this laboratory work is collaboration, that's why we have divided the tasks. Bellow are given description of the tasks and who is responsible for it.

Tasks:

- Vasile Metei
  - Ball movement
  - Racket movement
  - Collision detection between ball and racket
  - Collision detection between ball and blocks
  - Collision detection between ball and margins of the client zone
  - Speed selection
- Gabriel Zaharia
  - Score viewing
  - Pause and Reload commands
  - Level selection
  - Meaningful menu
  - Keyboard controls
  - Application design

As you run the application a simple window will show up. That window is empty, it has only a menu. In order to start the game go to menu select: Game-Start-Level1. Now the game will start, all the objects will be drawn and the animations will start.

The player's goal is to destroy all the blocks, which can be of 3 types: small, medium and big. In order to destroy a small block it will be sufficient 1 hit, for the big block 3 hits are necessary. When all the blocks are destroyed a message shows up.

Another thing the player should keep in mind is that the collision between the ball and bottom margin of the client size will be fatal. The game will be over a message will show up.

In the right top corner the score will be displayed. When a hit between the ball and the block will occur the score will increase by one.

Another functionality performed here is ball speed. It can be increased or decreased. I implemented 3 level of speed for my application: Low, Medium and High.

Another 2 commands presented in our game are: Pause and Reload. From our point of view are mandatory for such kind of games. They give possibility to stop the timer and to start it again in case that the player desire.

All interaction between player and game can be performed using keyboard controls. For example: in order to move the racket press left and right arrows, in order to change the speed check L, M and H keys, Pause and Reload can be requested by pressing P or R correspondingly.

Screens

Below will find attached some screen of my application within an appropriate caption, in order to have a better understanding about how the application works.

Figure 1: Window which will show up at the begining of the application and its menu.

Figure 2: First level of the game where are presented 3 types of blocks, red ball and blue racket. At that moment the score was 4.

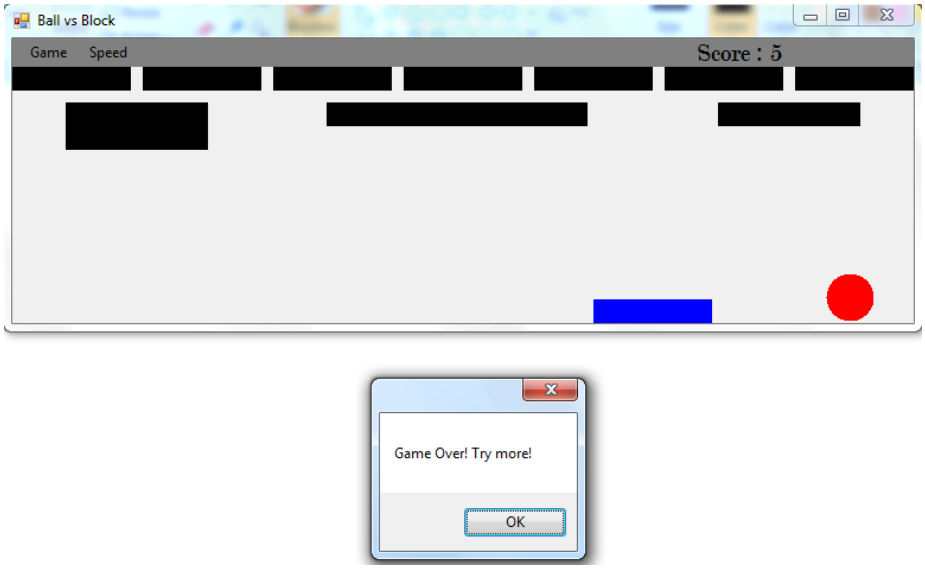

Figure 3: Game Over

Conclusion

This laboratory work made us to apply all our Event Driven Programming knowledge in order to build a complex application, in our case a game.

Another thing is the team working spirit developed during this laboratory work. Collaboration between team members is a key factor in creation process of the application. We learned how to establish and divide tasks correctly.