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

Report

Laboratory Work Nr.1
on Event-Driven Programming

Window. Window handling. Basic windows form elements

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Laboratory Work Nr.1

1. Purpose of the laboratory:

Gain knowledge about basics of event-driven programming, understanding of window's class and basic possibilities of WIN32 API. Also she will try to understand and process OS messages.

2. Laboratory Work Requirements:

Mandatory Objectives:

-Choose a Programming Style Guideline that you'll follow

-Create a Windows Application

-Add 2 buttons to window: one with default styles, one with default, one with custom styles(size, back-ground, text color, font family, font size)

-Add 2 text elements to window: one with default styles, one with custom styles(size, back-ground, text color, font family, font size)

-On windows resize, one of the texts should "reflow" and be in window's center(vertically and horizontally)

Objectives With Points:

-(1pt) Add 2 text inputs to window: one with default styles, one with custom styles(size, background, text color, font family, font size)

-(1pt) Make elements to fit window on resize(hint: you can limit minimal window width and height)

-(0-2pt) Make elements to interact or change other elements (1pt each different interactions)

-(1pt) Change behavior of different window actions (at least 3). For ex.: on clicking close button, move window to a random location on display's working space.

-(1pt) Write your own PSG (you can take existent one and modify it) and argue why it is better.

3. Laboratory Work implementation

3.1 Tasks and Points

Mandatory Objectives:

-Choose a Programming Style Guideline
-Create a Windows application
-Add 2 buttons to window: one with default styles, one with custom styles
-Add 2 text elements to window: one with default styles, one with custom styles
-On windows resize, one of the text should "reflow" and be in windows's center

Objectives with points:

-Add 2 text inputs to window: one with default styles, one with custom styles (1pt)
-Make elements to fit window resize (1pt)
-Make elements to interact or change other elements (2pt)
-Change behavior of different window actions (at least 3) (1pt)
-Write your own PSG and argue why it is better (1pt)

3.2 Laboratory Work Analysis

First I want to speak about Programming Style Guide I chose. It is C++ Programming Style. Why? Because I have experience while working with it and is widely known. I am using it because it increase the readability of my code. Of course while working with it I introduced some features that refers to me. That's why I can consider that the Objective which give us 1pt is respected. Basically I use C++ Programming Style but there are features introduced by me which makes it my own PSG.

In order to execute this laboratory work we have to create a Windows application, so it's done automatically. First step I realized is creating a simple window. After that I add different elements to it. Firstly I introduced two buttons of different types and with different characteristics. For example button "Quit" aligns its text in the center but button "Go" alligns its text to the right. Also first mentioned button has a 3D view which was obtained by using FLAT Button Style.

One the first row of the window appears a piece of text. But in the center of the window appears another one. First one will keep the same place while the window is resized while the second one will always be in the center of the

window. Also I created a button which give us the possibility to change the style of text, by this I mean: font, size, color and background. And here we are with all mandatory objectives.

In order to implement 2 text inputs, to be more exactly 3 I created "Edit" controls. Two of them have the same size but they are initialized. When they appear on the screen in their fields appears some text, which gives user the possibility to have a better understanding about what he should introduce. Also I added to them Window Style BORDER to make them visible. Third control is used to display the Name of the student and how many points he or she gained for this laboratory work.

I fixed minimal height and width of my window. This allow me not to make the window to small such that nothing of its contained will be visible. I done this by using Windows Message GETMINMAXINFO.

One of the most interesting part was to change the behavior of different window action. For example I changed the behavior of ESC button now it will move window in another place instead of closing it. Also, when clicking on close button there will be displayed a message that tell you that is too early. Last tricky thing was implement with button "Quit". It will ask you if you want to leave and will give 2 possibilities "Ok" and "Cancel". The problem is that their functionalities are changed.

3.3 Screens

You will be able to find screens in my repository in folder "Screens".

Conclusion

In this laboratory work I got introduced in Event-Driven Programming by using of Windows Programming. I have created my first Windows application. I observed the difference between a console application and a windows one. Also I want to mention the new things which was not that easy to understand at first time, such as: window messages, message queue, entry point in the windows application "WinMain" function, "WndProc" function which handles the messages.

I played arround with different elements of a window and see how they can be displayed on my window. Also I implemented some functionalities for them.