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

Report

Laboratory Work Nr.3
on Event-Driven Programming

Basics of Working with Mouse. GDI Primitves. Bezier
Curve.

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April 09, 2018

Laboratory Work Nr.3

Laboratory Work Requirements:

Mandatory Objectives:

- Draw few lines of different colors and weights

- Draw a Bezier curve

- Draw few plane objects(ex. circle, square, pie, polygon...) of different colors, weights, filled and not

- Draw 2 different objects using mouse

Objectives With Points:

- (1pt) Draw a custom bitmap image

- (2pt) Add a switch(button, select list...) that will change mouse ability to draw objects

- (1pt) Draw a Bezier curve using mouse

- (1pt) Fill an object with a gradient

- (2pt) Delete objects using mouse clicking

- Use mouse as an eraser of:
    - (1pt) a fixed width
    - (2pt) a adjustable width

- (2pt) Zoom in and out application working area using keyboard

Laboratory Work Implementation

Tasks and Points

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- Use mouse as an eraser of:

    - (1pt) a fixed width
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- (2pt) Zoom in and out application working area using keyboard

Laboratory Work Analysis

When you'll run my application, a simple window containing a button will be displayed. At the beginning you will not be able to do anything with my windows. In order to see how it works you will have to choose from options listed in the menu.

Choosing first option, you will be able to draw in the client area one of those figures listed below "Draw" popup menu. The figures you may find there are: line, square, ellipse, pie and Bezier curve. The chosen figure will be displayed randomly on the window. You can add more figures.

Second and third options from the menu give user the possibility to choose how the figures will appear. Under "Brush" option are 3 colors: red, green and blue. After you choose one of them you will be able to draw a figure filled with the desired color. Also there is the default brush or the white one.

"Pen" option helps us to choose what pencil to use while drawing. Here, first you have to choose the size of the pencil. It may be small, medium or large. After you are done with the size you have to choose the color. As for brushes I added here the same 3 colors followed by the black one. The last option in "Pen" option is "Default", its description is obvious.

Next option is "Draw with Mouse". This option give users the possibility to draw some objects of desired size and at desired place. As the previous options this one has some subitems. They are: line, rectangle, ellipse and Bezier curve. First 3 work the same, when you click the left mouse button the start point is taken and when button is up the end point is established. Having these 2 points the above mentioned figures are drawn. In order to draw the Bezier curve you should choose 4 points. First one will be the start point and the last point will be considered the end point. The middle two will serve as control points.

The last option is "Eraser". It is used in order to erase the content of the client area. Eraser's size can be selected by user. In order to erase something all you have to do is to click on that something.

Because this application allows the users to draw in the client area, sometimes a clean screen option will be welcome. That's why I added a button called "Clean". Clicking on it the content of the window will be deleted.

Screens

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

Conclusion

This laboratory work introduced me to Graphical Device Interface. I have learned how to obtain a Device Context, how to draw in the client area and how finally to release that DC. One thing I want to mention is that drawing will not be performed until the DC is obtained. In other words DC gives us the permission to draw.

In order to display the desired figures I used a lot of GDI functions.

The application developed in this laboratory work helped me to understand how mouse events are handled.