Faculty of Computers, Informatics and Microelectronics

Technical University of Moldova

WINDOWS PROGRAMMING

Laboratory work #3

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

Authors:
Stanislav Spatari

Supervisor:
Irina Cojanu

Laboratory work #1

1 Purpose of the laboratory

Gain knowledge about how to draw lines, curves, planes. bitmap images, and especially bezier curves.

2 Laboratory Work Requirements

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

a) Draw 5 lines of different colors and weights

b) Draw 2 Bezier curves

c) Draw 4 plane objects (ex. circle, square, pie, polygon...) of different colors, weights, filled and not

d) Draw 2 different objects using mouse

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

a) Realize the tasks from *Basic Level*.

b) Draw a custom bitmap image

c) Fill 2 object with gradient

d) Hook keyboard input. Add 2 different keyboard combinations that will change mouse ability to draw objects (ex. on Ctrl+C will draw circles, on Alt+R will continue to draw circles but of read color)

e) Draw a Bezier curve using mouse

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

a) Realize the tasks from *Normal Level*.

b) Zoom in and out application working area using keyboard or mouse wheel

c) Use mouse as an eraser

3 Laboratory work implementation

3.1 Tasks and Points

a) Basic level all done

b) Normal level all done

c) Advanced level all done

3.2 Laboratory work analysis

Link to my repository: https://github.com/sspatari/WP/tree/master/lab

Brief description of what I did: 1. The Window application displays 5 lines with random generated colors 2. Drawn 2 Bezier curves 3. Drawn 4 figures(1 circle, 1 triangle, 1 ractangle and 1 pie figure 4. With the Left Mouse Button you can draw a circle and with Right Mouse button you can draw a square if the eraser. 5. Drawn a bitmap image 6. Filled the tiangle and the mouse drawn square with with a gradient. 7. Use Left Mouse button to change one of the bezier curves. 8. If Alt + Space is pressed the mouse drawn circle will be drawn with red, if press you press again it will go to the default black pen colour. 9. If Ctrl + Space is pressed the mouse drawn square is given a gradient when redrawn. 10.If Ctrl + Tab is pressed you will move between being able to move the Bezier Curve and drawn the 2 figures on the screen with the mouse. 11.If Ctrl + Plus and Ctrl + Minus to increase and decrease the size of all figures except the bitmap. 12.Ctrl + F1 in order to toggle the eraser.

3.3 Prove your work with screens

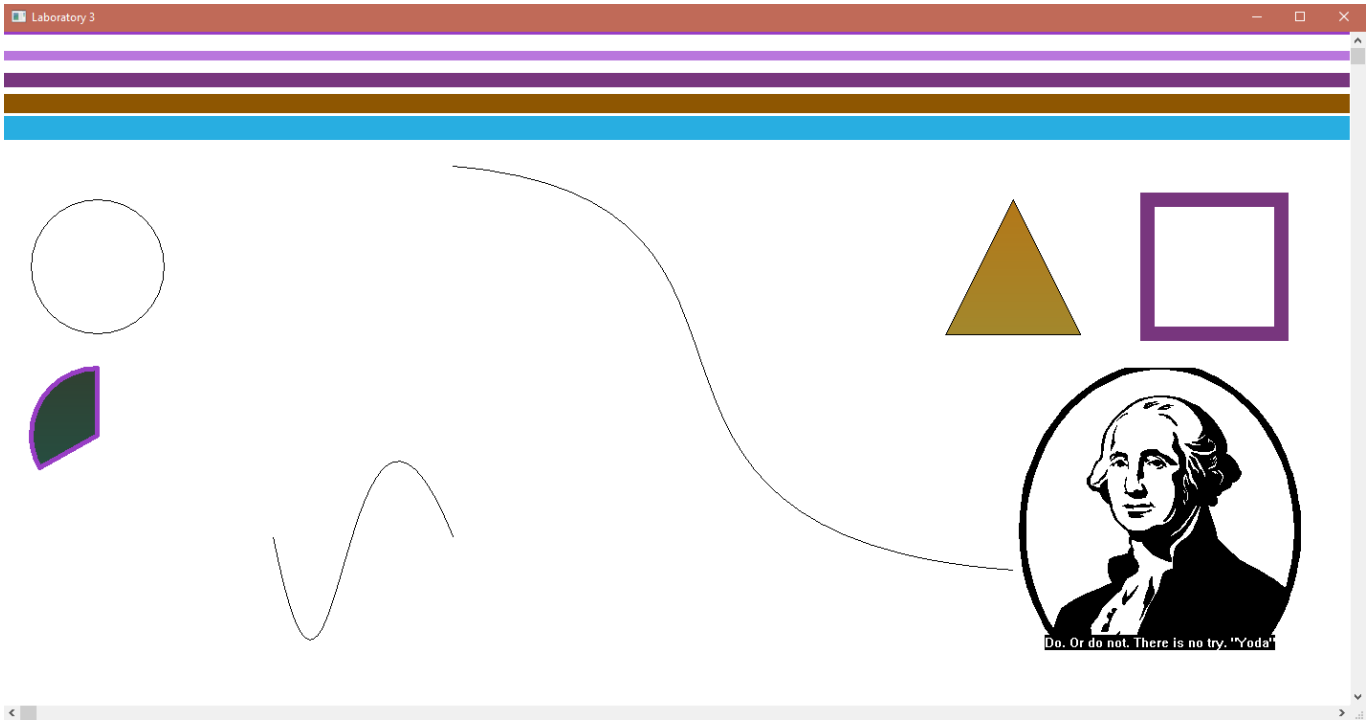

Figure 3.1– Main Elements of task

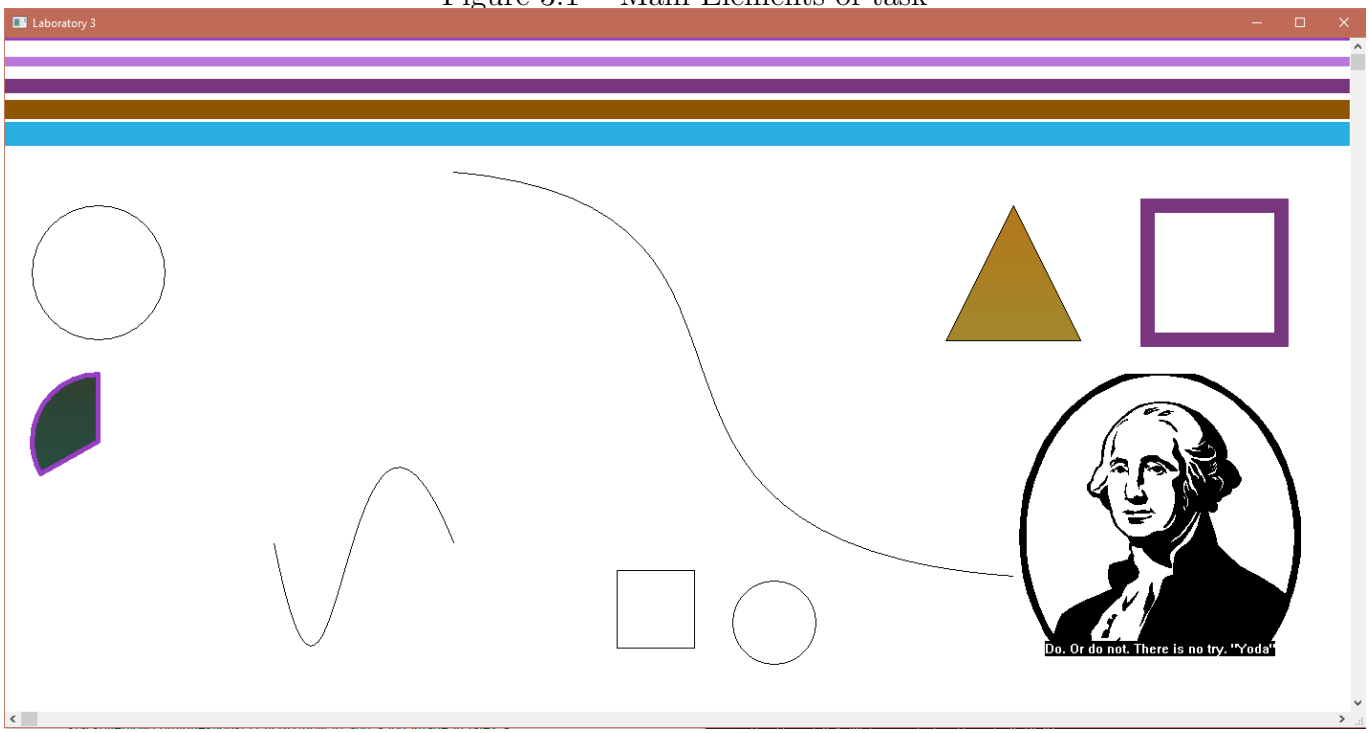

Figure 3.2– Drawing the circle and square with the mouse at bottom side of screen

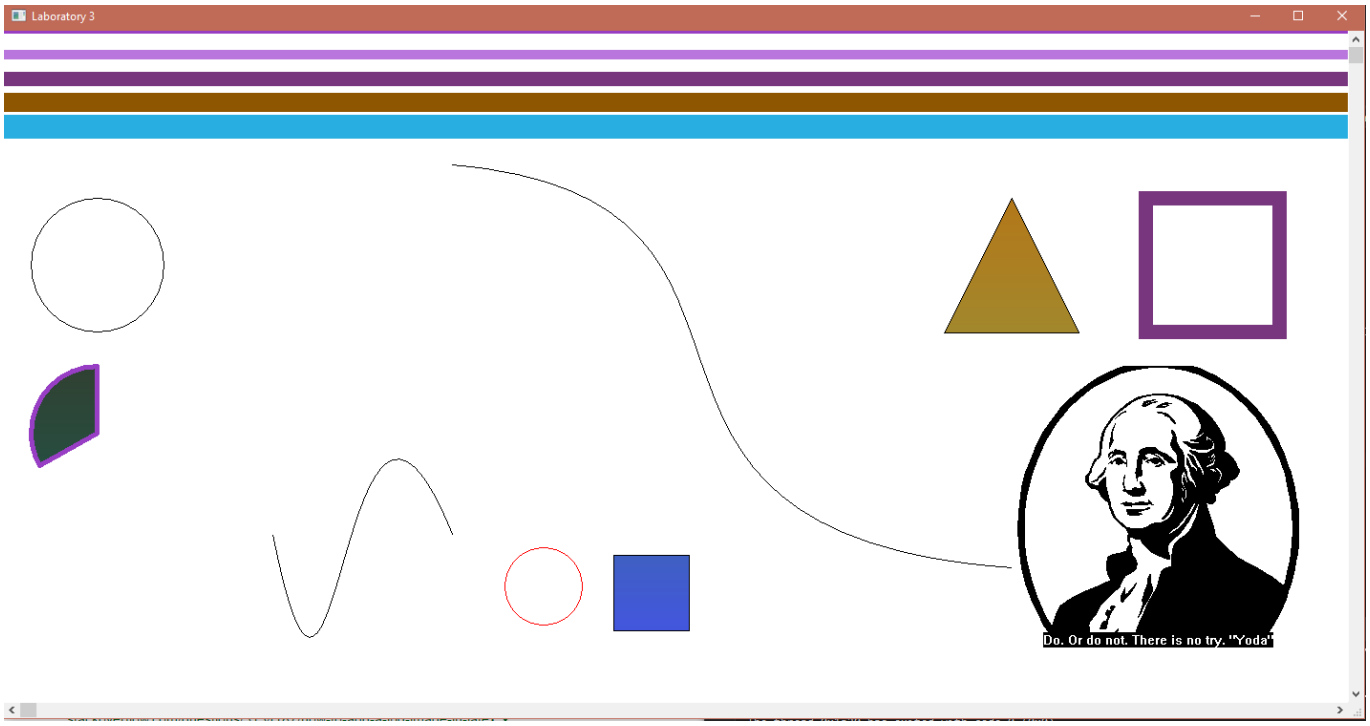

Figure 3.3– The behavior of mouse clicks and move

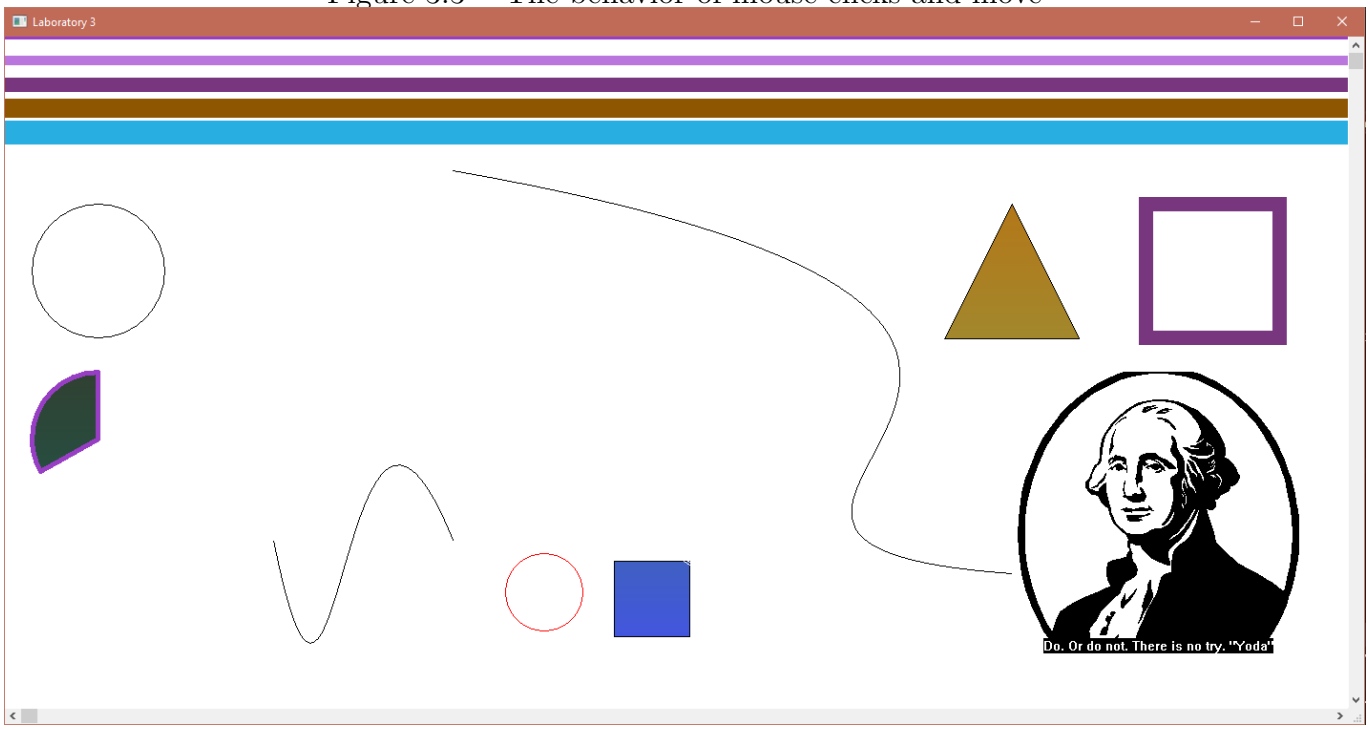

Figure 3.4– Changing the Bezier Curve with mouse

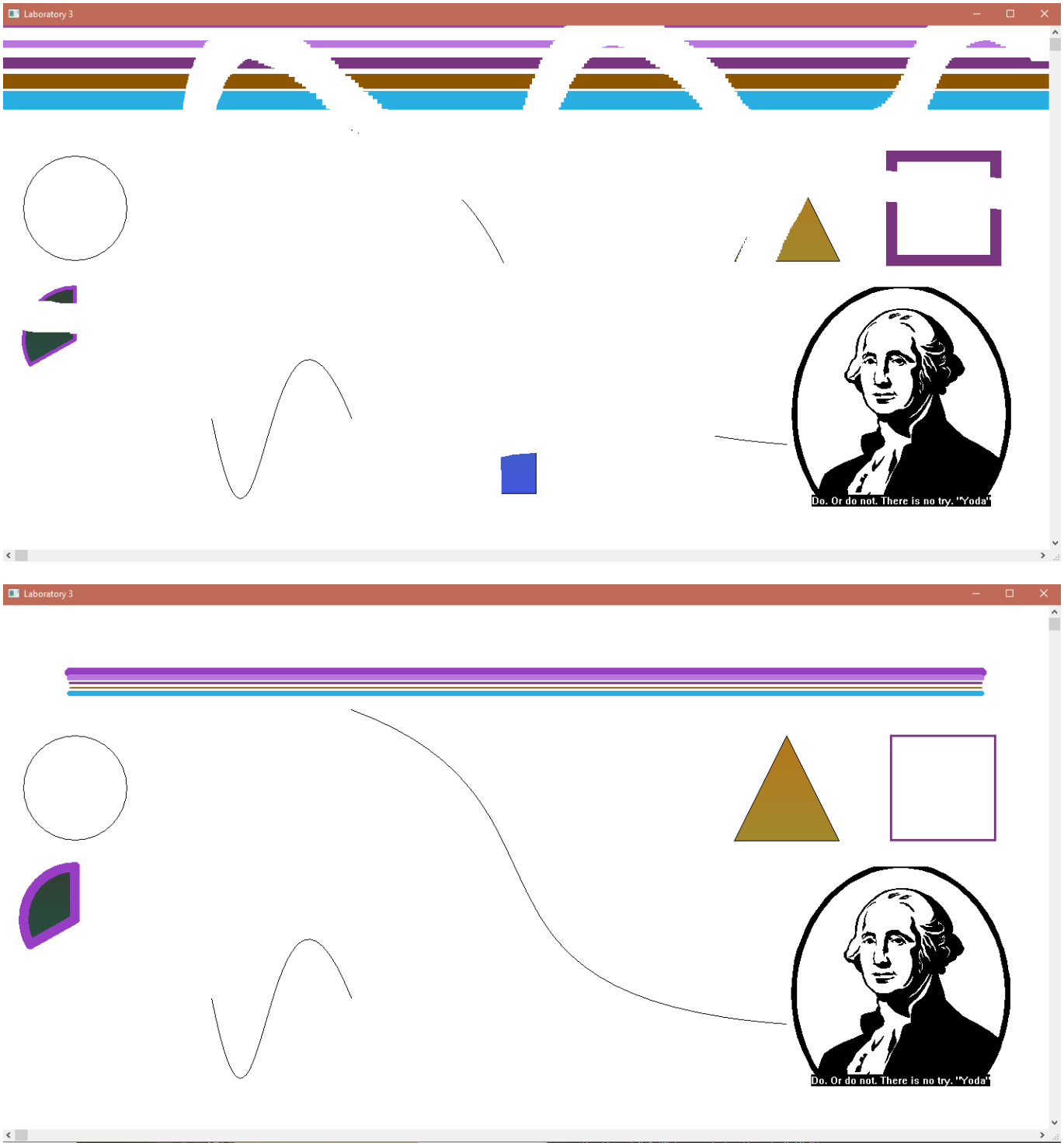

Figure 3.6– Changing size of the pen when pressing alt+plus

Conclusions

This laboratory work show us how we can draw cool thing on the screen and to make them interact with buttons and mouse movement. It was basically easy because we have read about this thing when doing the previous labs and just learned some new thing.

References

1 *official page*, `http://msdn.microsoft.com`

2 Charles Petzolt, *Programming Windows - 5th Edition*, 2002