

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:

Denis POSTICA

Supervisor:

Irina COJANU

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Laboratory work #3

1 Purpose of the laboratory

Gain knowledge about basics of Working with mouse, GDI Primitives, 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
 - c) Use mouse as an eraser
- **for Bonus Point Tasks :**
 - a) Realize the task with mouse eraser for all 3 cases listed above. In order to choose one of them, add 3 buttons/icons or check boxes.

3 Laboratory work implementation

3.1 Tasks and Points

I have created a Windows application that can draw lines, bezier curves, plane objects. You also can fill objects with gradient and change the color of the lines. The mouse can be used as an eraser.

3.2 Laboratory work analysis

<https://github.com/TUM-FAF/FAF-141-Postica-Denis> . I have created a Windows application with 6 tools (pencil, line, bezier, rectangle, ellipse and eraser). Also, some more elements to fill with gradient, change the color of the lines, change the width of the lines and a clear button.

3.3 Prove your work with screens

Figure 3.1 – General view of Windows application

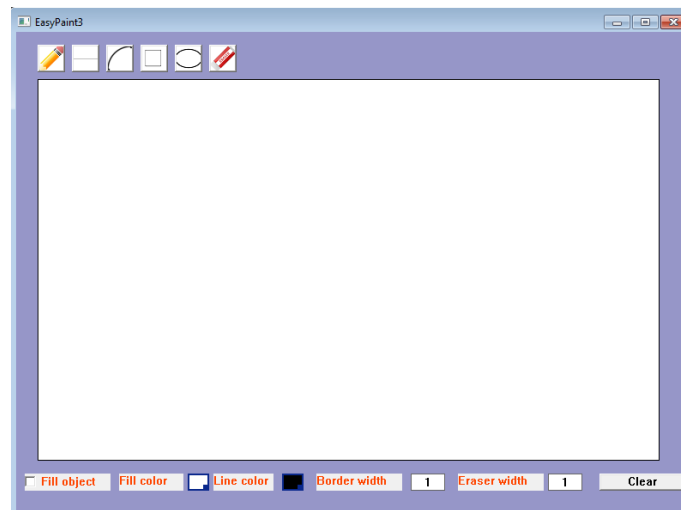


Figure 3.2 – Lines of different colors and weights

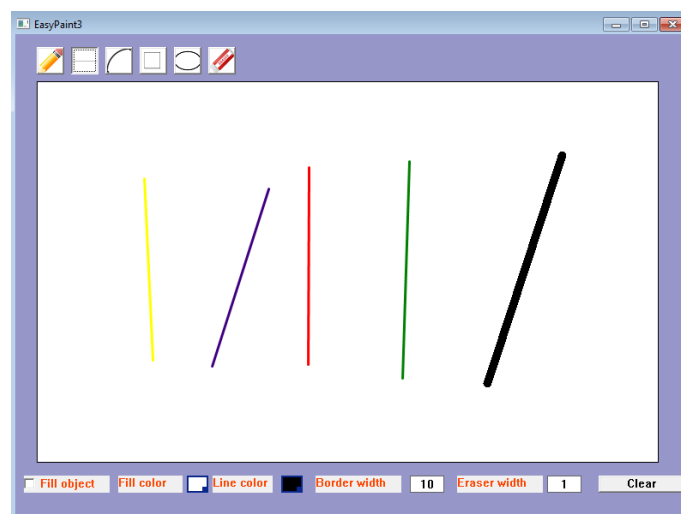


Figure 3.3– Bezier curves

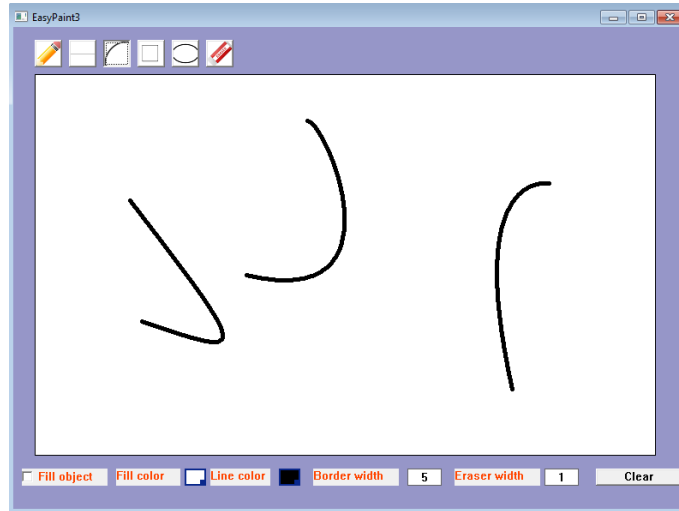


Figure 3.4– Plane objects

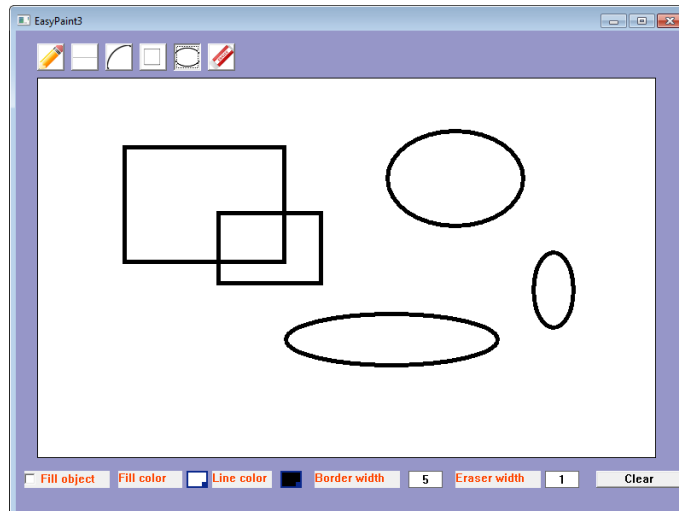


Figure 3.5– Draw objects using mouse

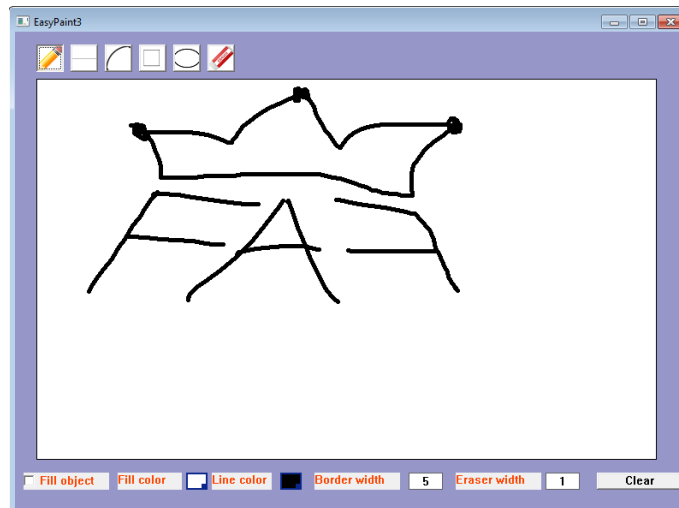


Figure 3.6– Object with gradient

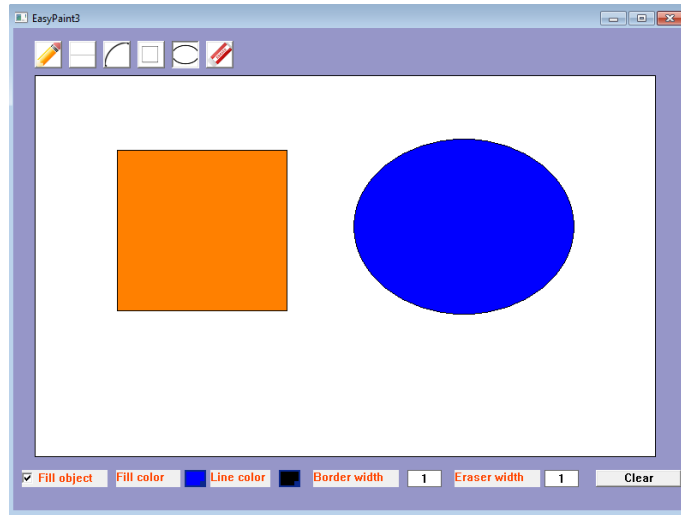
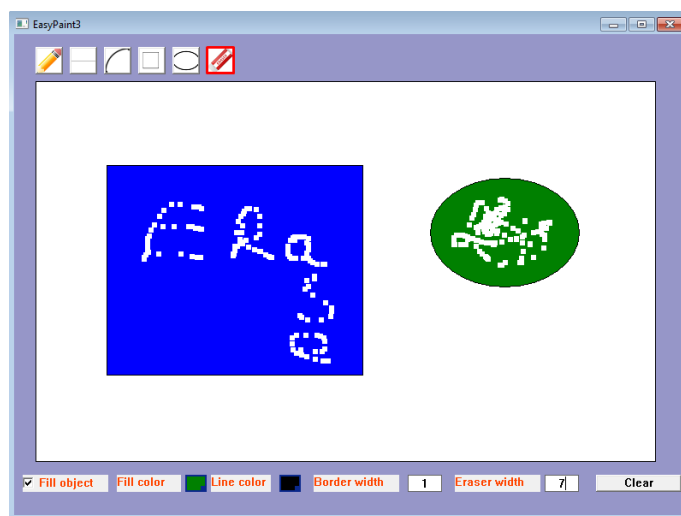


Figure 3.7– Mouse as an eraser



Conclusions

In laboratory work nr. 3 I have worked with with mouse, GDI Primitives and bezier curves. I had to study the material on these topics. I have learned some of basic windows commands, like creating GDI primitives, bezier curves or working with mouse. All studied topics are really useful working with a Windows application. Now we can work not just with text I/O but also create some images.

References

- 1 Microsoft site, *official page*, <https://msdn.microsoft.com/en-us/library/windows/>