

FACULTY OF COMPUTERS, INFORMATICS AND MICROELECTRONICS

TECHNICAL UNIVERSITY OF MOLDOVA

WINDOWS PROGRAMMING

LABORATORY WORK #3

Advanced Form Elements. Child Windows. Basics of Working With Keyboard

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Laboratory work #3

1 Purpose of the laboratory

Gain knowledge about child windows and basics of working with keyboard.

2 Laboratory Work Requirements

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

- a) Draw 2 Bezier curves
- b) Draw 4 plane objects (ex. circle, square, pie, polygon...) of different colors, weights, filled and not
- c) Draw 5 lines of different colors and weights
- 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 red 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

Basic Level:

- Draw 5 lines
- Draw 5 bezier curves
- Draw 4 plane objects
- Draw 2 objects using mouse

Normal Level:

- Realize the tasks from Basic Level.
- Custom bitmap
- Fill 2 objects with gradient

Advanced Level:

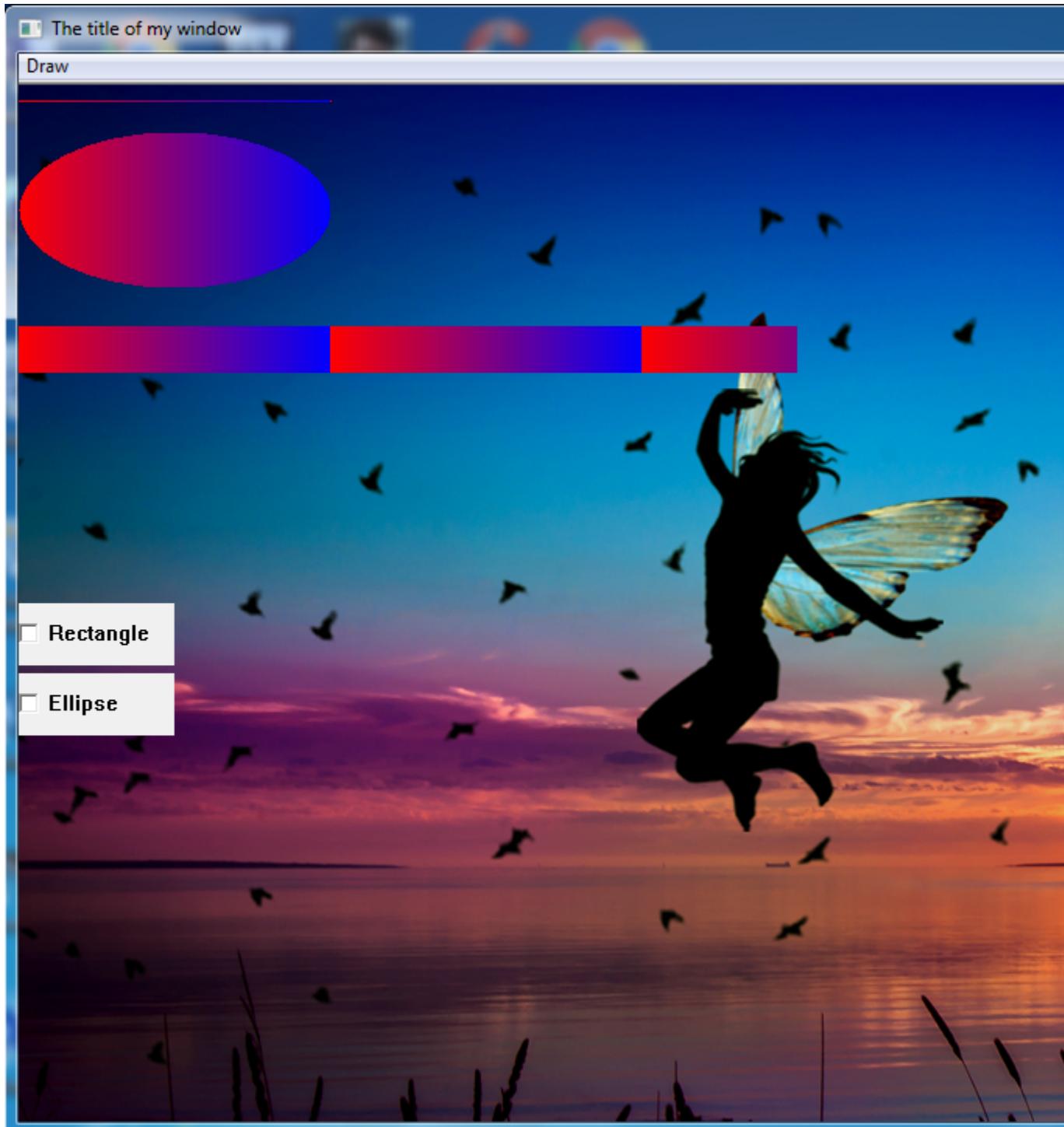
- Use mouse as eraser

3.2 Laboratory work analysis

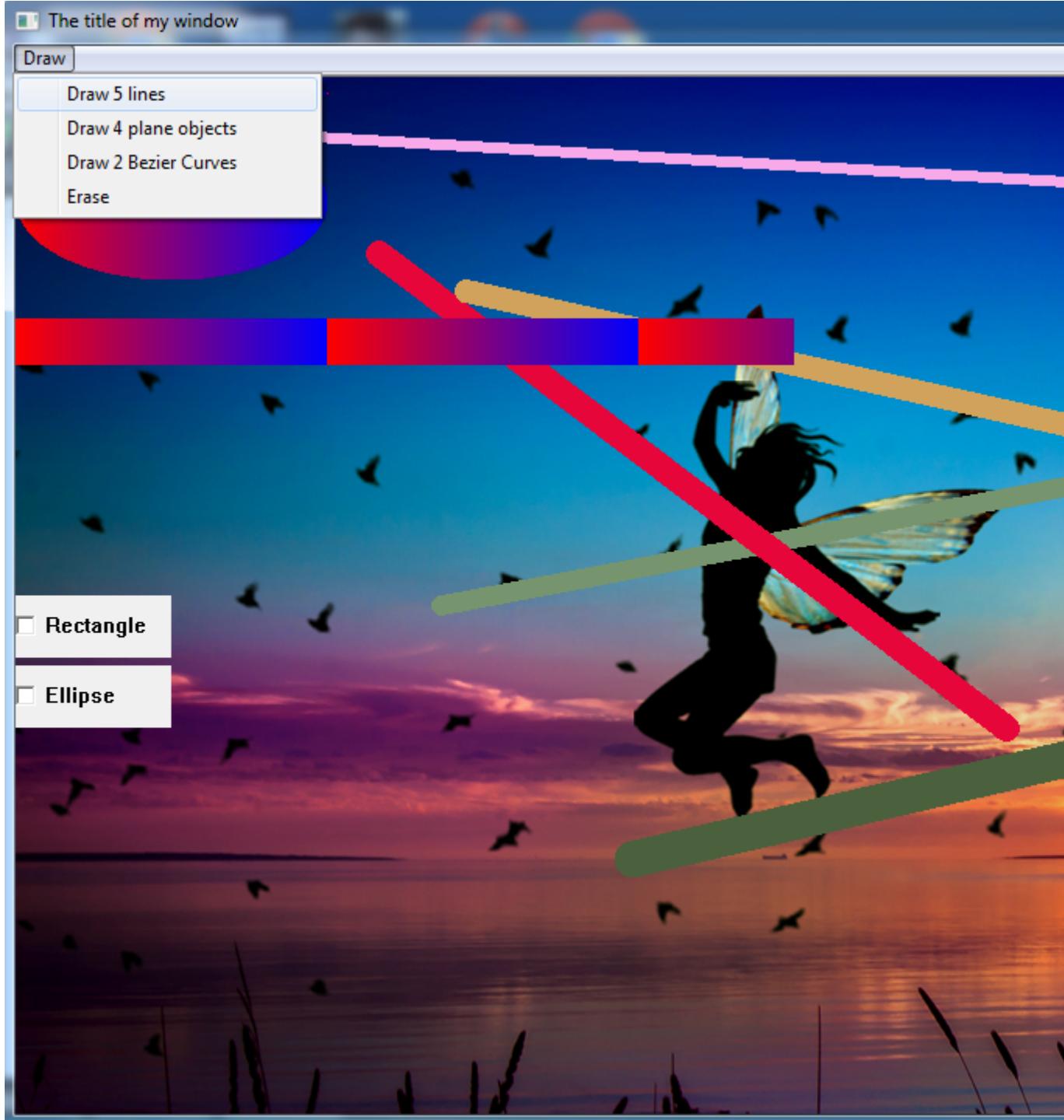
Repository:

<https://github.com/VictorIstratii151/WP-labs>

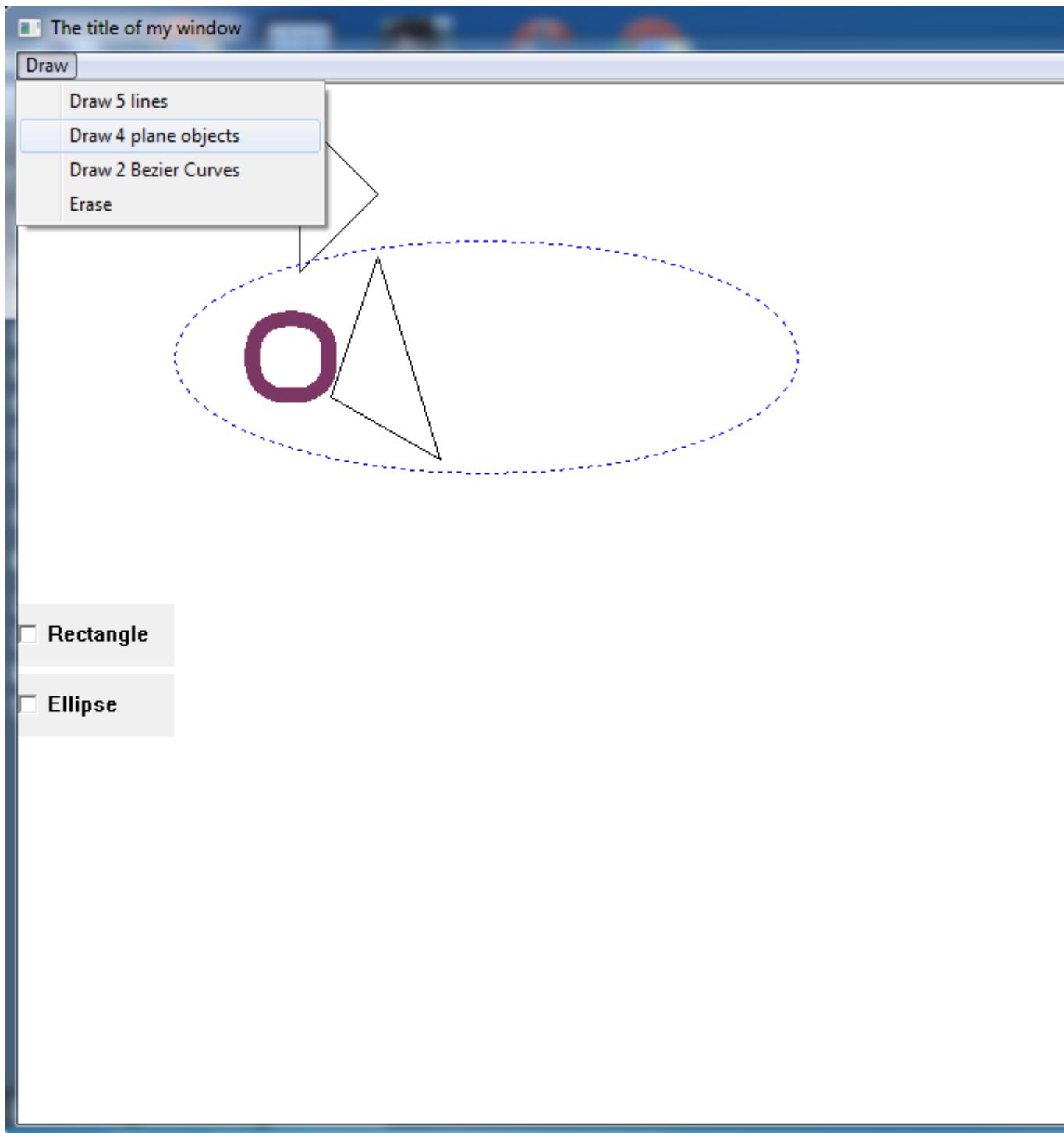
3.3 Proving my work



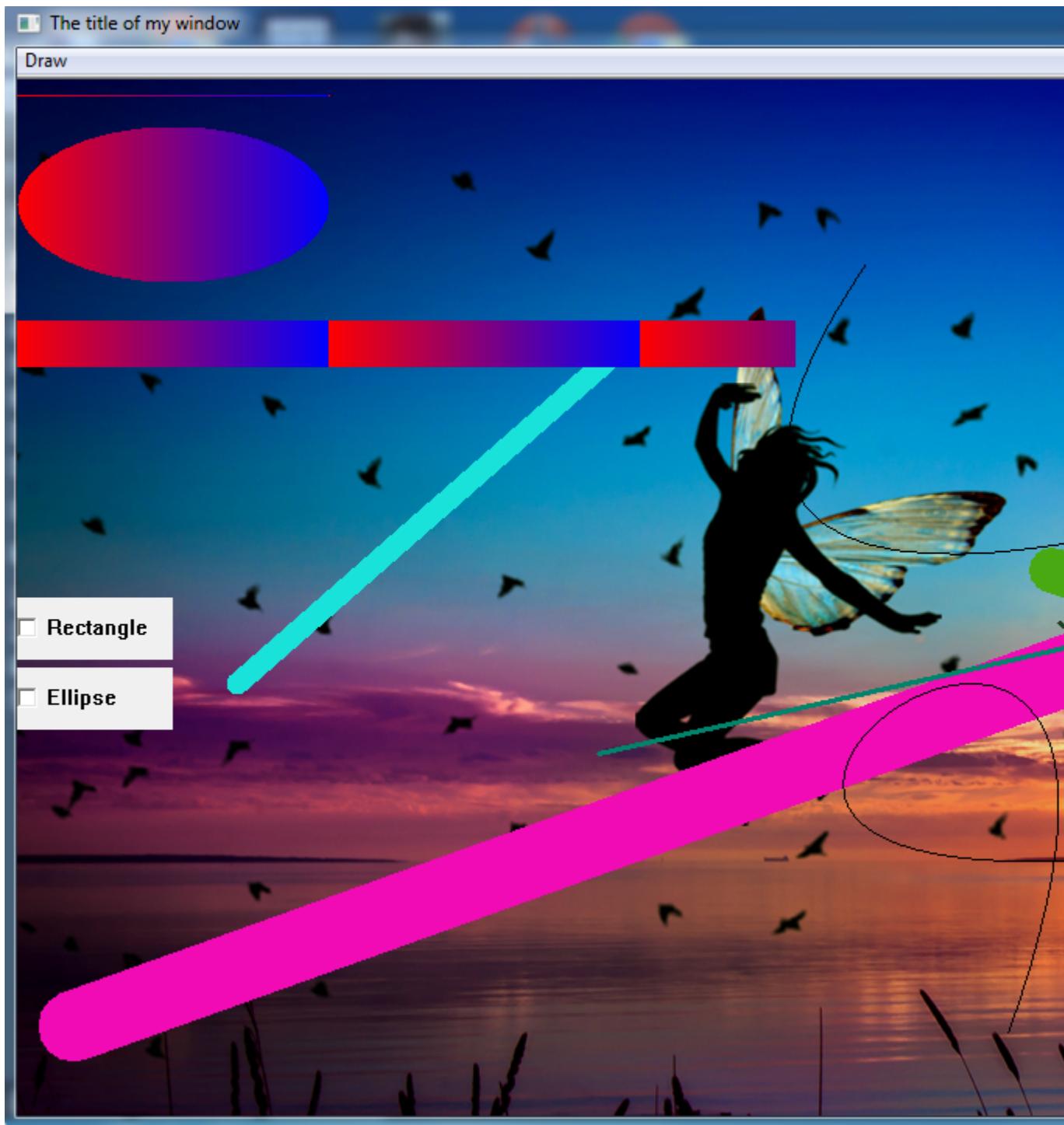
From start you can observe that my application has a custom bitmap as background



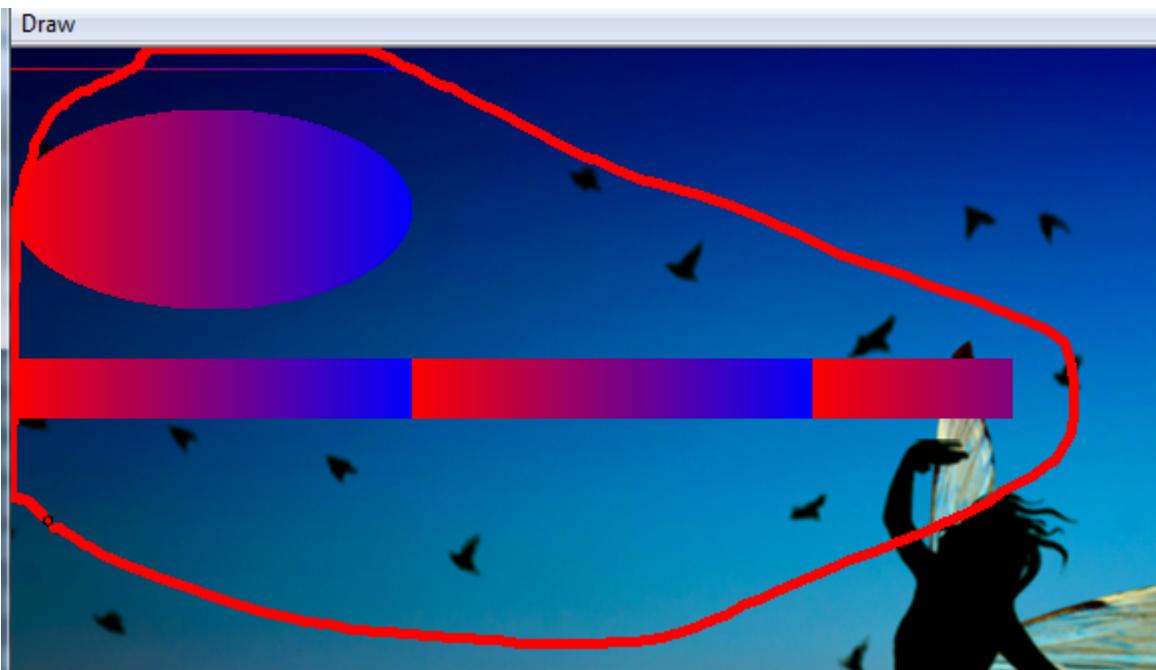
From drop-down menu we can draw random lines of random weight and colour



From drop-down menu also can be drawn 4 plane objects



From drop-down menu we can draw 2 bezier curves too



You can

see here how on the background are drawn several objects filled with gradient. They Are static. I have highlighted them with a red shape. To choose the red crayon I just simply click on the button representing it.



The eraser has the same principle of working as the crayon. But we need to consider disabling the crayon first, before using the eraser.



On this screen you can see how we can draw shapes like ellipses or rectangles on the screen. To do this, the respective checkbox must be checked and the crayon must be enabled.

Conclusions

While performing this lab I've understood why it is so necessary to handle all the painting operations in the `wm_paint`. This gives the possibility, when storing somewhere the drawndata, to redraw it efficiently.

Despite this, I've gained the necessary knowledge and experience for painting well in the next projects.