Faculty of Computers, Informatics and Microelectronics

Technical University of Moldova

WINDOWS PROGRAMMING

Laboratory work #1

Window. Basic window's form elements

Authors:
Alex Mereuta

Supervisor:
Irina Cojanu

Laboratory work #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

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

a) Create a Windows application

b) In the middle of the window should be present the following text: "Done with Pride and Prejudice by student name". Replace student name with your name.

c) On windows resize, text should reflow and be in window's middle (vertically and horizontally)

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

a) Realize the tasks from *Basic Level*.

b) Add 2 buttons to window: one with default styles, one with custom styles (size, background, text color, font family/size)

c) Add 2 text elements to window: one with default styles, one with custom styles (size, background, text color, font family/size)

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

a) Realize the tasks from *Normal Level*.

b) Make elements to interact or change other elements (2 different interactions) (ex. on button click, change text element color or position)

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

3 Laboratory work implementation

3.1 Tasks and Points

The following tasks have been implemented:

1. Created a windows application.

2. The required text was written. (However I forgot that it had to be in the middle of the screen, this step was unfortunately missed.)

3. A total of 8 buttons have been added, each of them has it's function. Included in these buttons there are 2 with custom styles and specifically with a colored background.

4. 2 text elements have been added to the window. One is default and the other one uses (3) custom fonts, each of each has their separate button.

5. We have added elements that can interact. One of the buttons changes the colour of the background, the other one has a text element accompanying it where we can insert any characters and when the button is pressed a pop-up will appear.

6. There have been made 3 changes of behavior, all of them for the default window controlling buttons (maximize, minimize, close). None of them do what they were supposed to. The close button moves the entire window to a random location on the display, the other ones display the inability to perform their initial task.

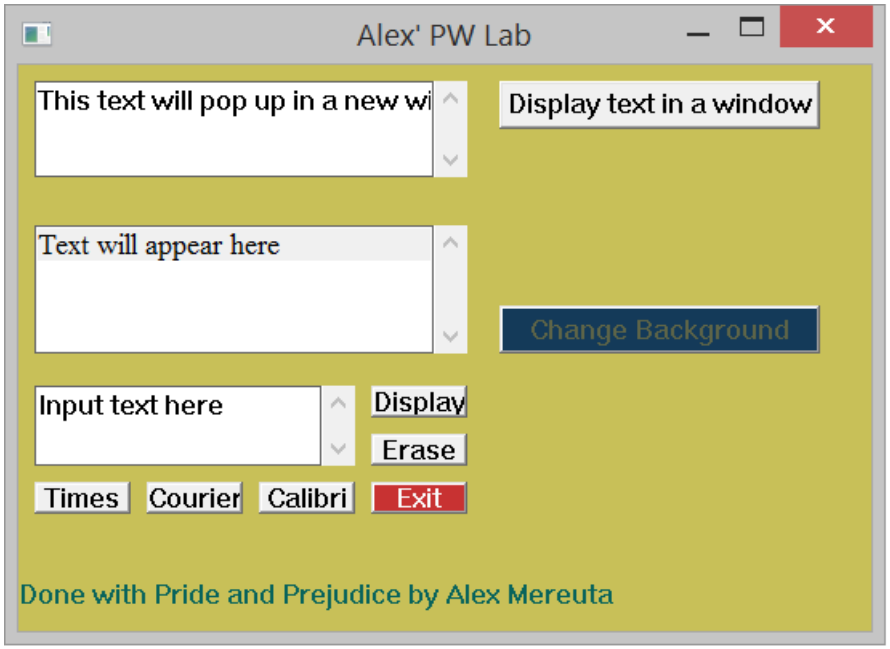
3.2 Laboratory work analysis

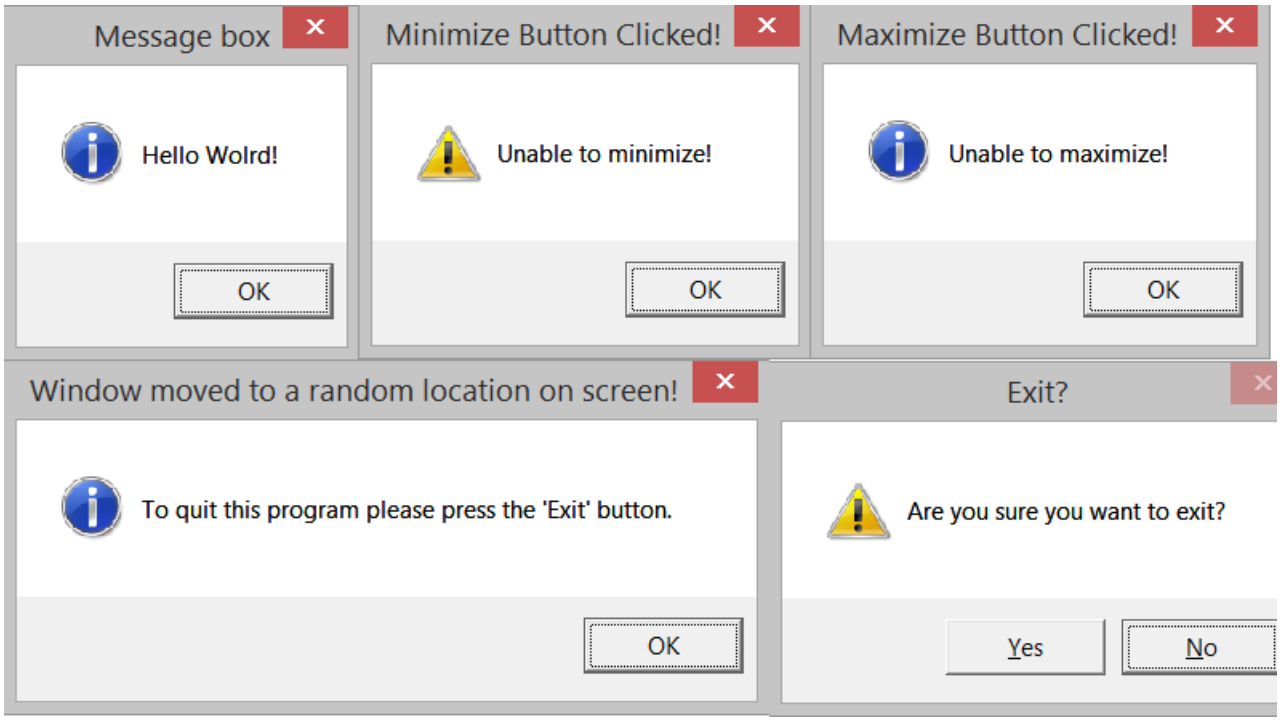
Link to my repo:
https://github.com/TUM-FAF/FAF-141-Mereuta-Alex
A read me file has been added and it quickly explains what I have done. The full description is done above.
Thorough description of every button and it's actions:
1. Minimize button displays the message "Unable to minimize!"
2. Maximize button displays the message "Unable to maximize!"
3. Close button moves the windows to an arbitrary location and displays the message "To quit this program please press the exit button!"
4. The button that says "Display text in a window", displays the text inserted next to it in a new window (a pop-up).
5. The button "Display" shows the text entered next to it in a box where you can change it's font.
6. Buttons "Times", "Courier" and "Calibri" change the font of that text.
7. The button "Erase" removes the text you have entered from the box.

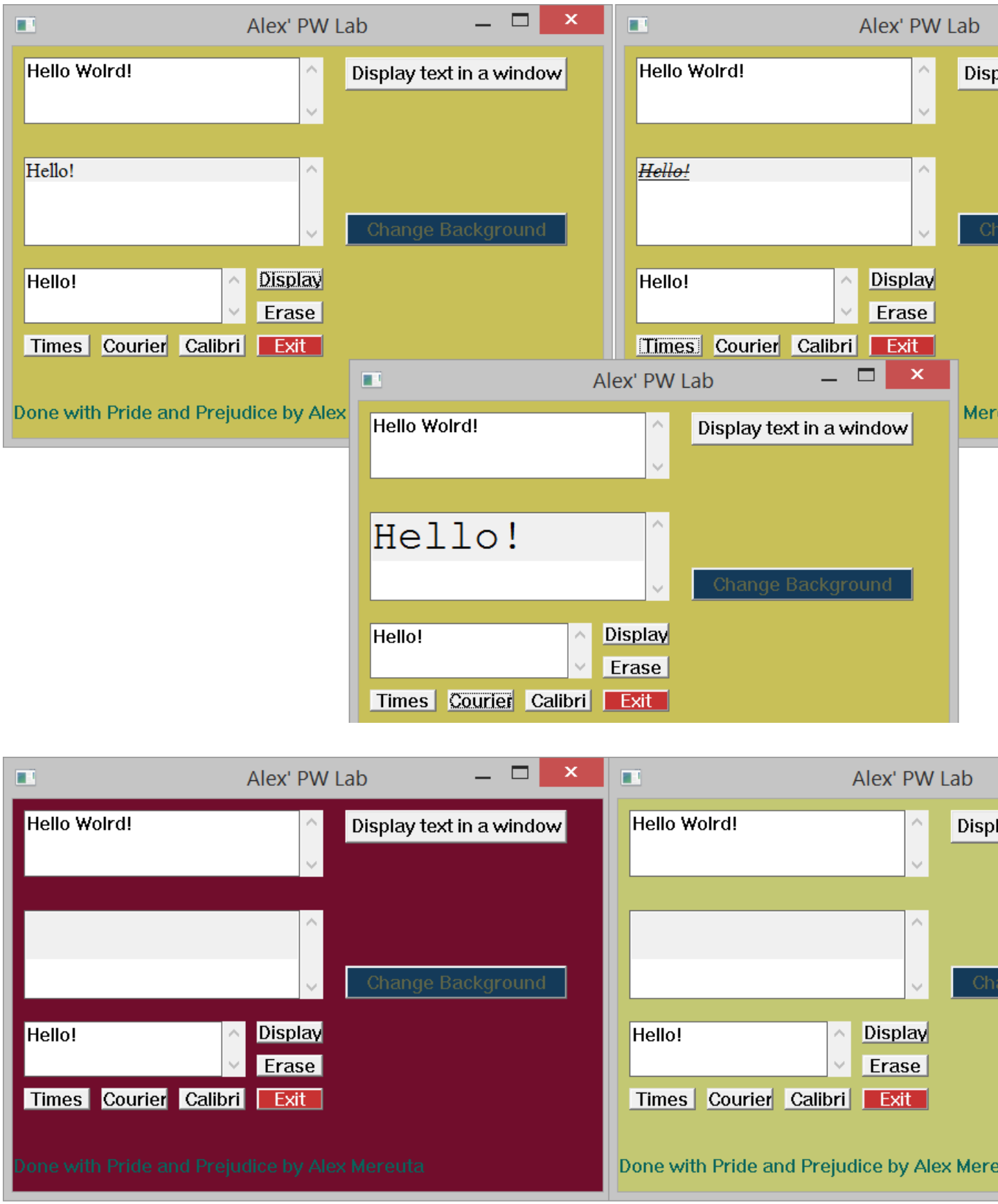
8. The button "Exit" asks you "Are you sure you want to exit" and give you 2 options ("Yes"/"No"), you choice will determine if the program exits or not.

We can drag the window by the title bar as well as by ANY OTHER part of the window (that is not a button).

3.3 Prove your work with screens






Alex' PW Lab
Hello Wolrd!
Display text in a window
Hello!
Change Background
Hello!
Display
Erase
Times
Courier
Calibri
Exit
Done with Pride and Prejudice by Alex Mereuta

Conclusions

The Windows API is the source code interface that is used to create Windows applications. I found this laboratory work very useful, because I gained experience in Event-Driven Programming, which aided my understanding of this. I find the knowledge gained during this laboratory work to be very important, because these concepts can be applied not only in Windows Programming, but in developing any system which uses Message-Sending and Event-Driven Programming.

References

1 Aldebran Robotics, *official page*, www.aldebaran.com/en

2 Timo Ojala, *Multiresolution gray-scale and rotation invariant texture classification with local binary patterns*, 2002

3 Biometric, www.biometricupdate.com/201501/history-of-biometrics