

FACULTY OF COMPUTERS, INFORMATICS AND MICROELECTRONICS

TECHNICAL UNIVERSITY OF MOLDOVA

WINDOWS PROGRAMMING

LABORATORY WORK #2

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

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Laboratory work #2

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) Create a Windows application what will display a dialog box on some event (ex. on clicking some button)
 - b) Add a system menu to your application with at least 3 items (add actions to that items)
 - c) Hook keyboard input. Add 2 custom events for 2 different keyboard combinations (ex. change window background on ctrl+space)
- **Normal Level (grade 7 - 8) you should be able to:**
 - a) Realize the tasks from Basic Level.
 - b) Add a scroll bar that will change any visible parameter of any other element (color of a text) OR other 2 scroll bars that will manage main window size or position
- **Advanced Level (grade 9 - 10) you should be able to:**
 - a) Realize the tasks from Normal Level.
 - b) Customize your application by adding an icon and using different cursor in application
 - c) Add a listbox and attach some events when any element is accessed (clicked)
- **Bonus point task:**
 - a) Use a scroll bar to scroll through application working space. Scroll should appear only when necessary (eg. when window width is smaller than 300px)

3 Laboratory work implementation

3.1 Tasks and Points

Basic Level:

- Create a Windows application what will display a dialog box on some event (ex. on clicking some button)
- Add a system menu to your application with at least 3 items (add actions to that items)
- Hook keyboard input. Add 2 custom events for 2 different keyboard combinations

Normal Level:

- Realize the tasks from Basic Level.
- Add 2 scroll bars that will manage main window size or position

3.2 Laboratory work analysis

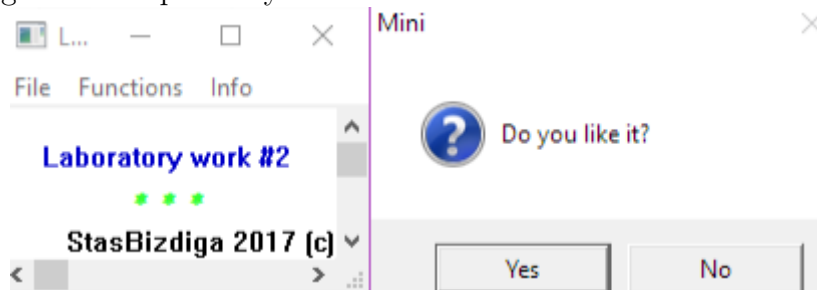
Repository:

<https://github.com/StasBizdiga/WP>

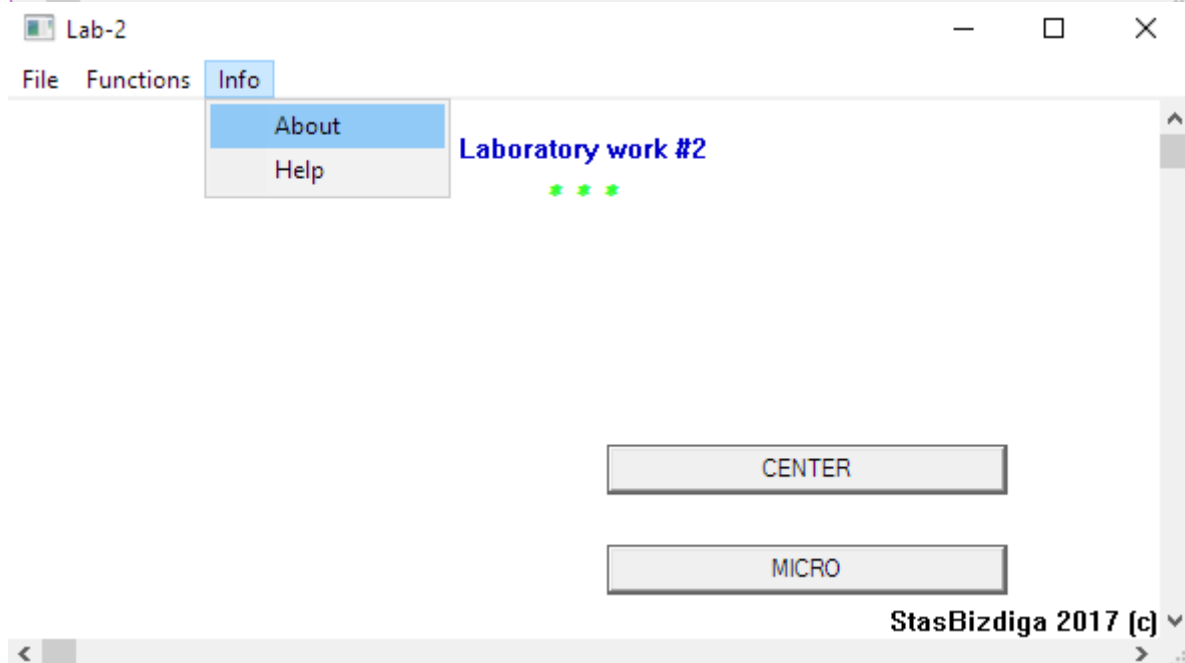
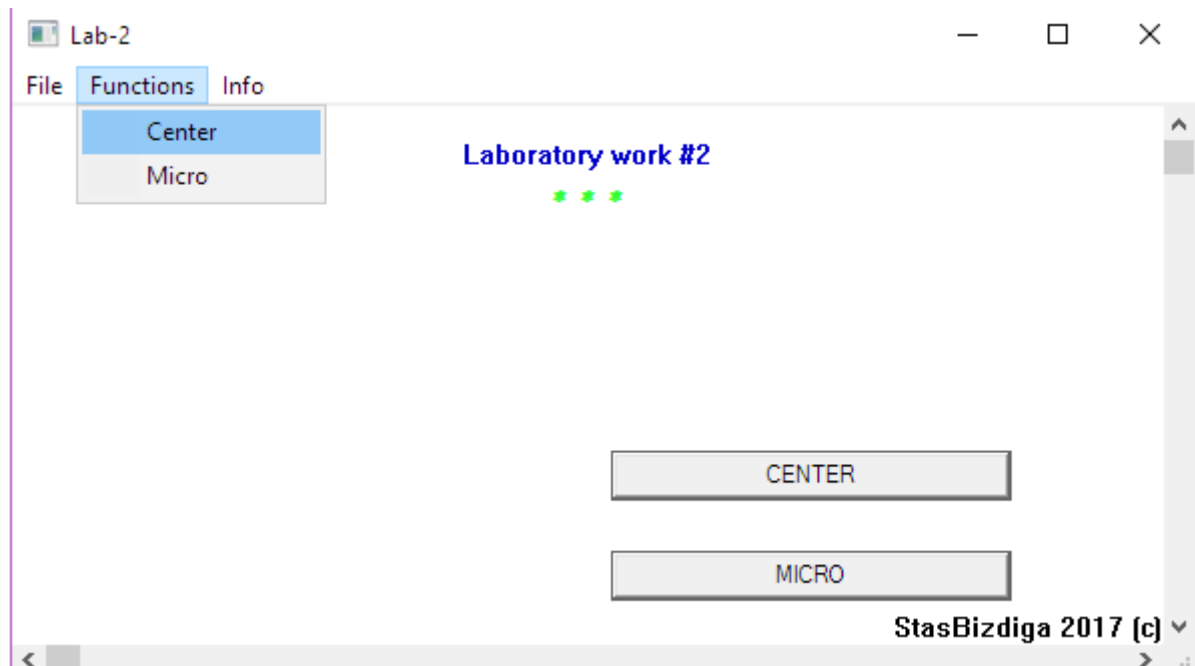
3.3 Proving my work

Features:

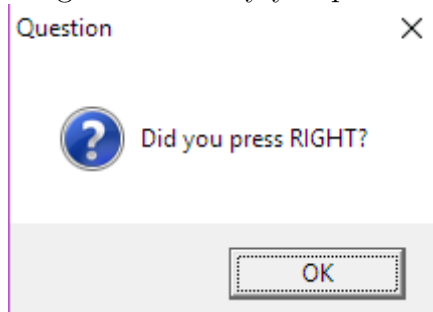
- On clicking the MICRO button, the window shrinks to its minimal size. It then displays a dialog box as required by the first task.



- There are system menus with different actions to them:
 - Menu - Exit : exits the window
 - Functions - Micro : makes the window smallest possible
 - Functions - Center : moves the window to the middle of the screen
 - Info - About : displays an "about" joke message box
 - Info - Help : displays a help joke message box



- When pressing Shift and then any arrow key: UP,DOWN,LEFT,RIGHT you get a message depending on which key you pressed. Here I press SHIFT+RIGHT:



- Scroll bars are used to move and resize the window:

Vertical scrolling: moves window to a constant position (top-left: $x=0, y=0$)

Horizontal scrolling: resizes the window to a constant of $x=300, y=300$

Conclusions

This was a very useful laboratory work due to the fact I learnt how to handle keyboard messages, and their combinations. Also I've understood the method of operating with system menus. And also I've realized that scroll bars are not as basic and obvious. Turns out you can input any kind of code to be executed due dragging the scroll bars right or left, up or down, according to whatever you put in the HSCROLL and VSCROLL cases to be handled.