Exercises 2

LLSMF2018\_ELEC

The objectives of the session are to get use to the programming tools and write your first C codes.

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| Caution: Read this first |
| * Place the board on a flat and non-conducting surface * If a connector seems not to fit, do not try harder * If a button seems not to operate, it is very very unlikely that pushing harder will help * Take very good care while transporting electronic boards |

# Run your first code

1. Download the project archive that is on the moodle website. Extract its content on the directory of your choice.
2. Open "MPLAB X IDE" software and open the project that you just downloaded (File > Open Project...).
3. Project files can be seen in the window on the left. The code that is of interest for you is under “Source Files” and is “called main.c”.
4. Open the file by double clicking on it. You will recognize the lecture’s examples.
5. Compile the program ("Build the Project") by clicking on the little hammer in the icon toolbar ("Build Project"). Check that the “Output” window on the bottom writes "BUILD SUCCESSFUL"
6. Plug the LCD screen in connectors JC and JD
7. Plug rotary button on the top of connector JJ
8. Make sure the black cap covers the two pins at the right
9. Plug the USB cable from your computer to the “Debug” connector of the board
10. Program the board (“Make and Program Device") by clicking on the down-pointing green arrow in the icon toolbar. The process can take a while the first time. Does the board behave as you expected (look at the C-code)?

# Exercises

1. Modify the main function to call only one example at a time (as in slide 5 of the lecture). Run all the examples and make sure you understand every line of each of them.
2. Write a function that returns the squared value of variable passed as argument. Adjust the value with the rotary button and display the result on the screen. For instance, “4^2 = 16”.
3. Write a program that counts the pushes on button1. Display the count on the LEDs and on the screen. Button 2 will reset the count. Caution, single push must be counted once.
4. Display a “random” number between 1 and 100 that change on every push on button 1.
5. Make the two right LEDs blink at a frequency of about 1Hz. Then display the state of button1 and 2 on the two other LEDs (without disturbing the blinking).