Assignment 4

This is the first programming example where you use the actual hardware. The PICDEM board has four LEDs connected to the RB ports. The exercise is to implement binary counting with precise timing. RB3 is the MSB and RB0 is the LSB.

1a Implement binary counting using for() loops to wait for one second between updating the counter.

1b Implement binary counting using a timer interrupt to wait one second between updating the counter. For this **do not use** the MPLAB Library, setup the timer yourself.

Peripherals are an important part of embedded systems. The PICDEM2 board offers three buttons of which two are connected to inputs and the third realizes a chip reset. Implement a program that reacts to pressing the button connected to RA4 by toggling an LED.

2a Realize the program using a polling loop.

~~2b Realize the program using interrupts.~~ (you don't have to do this for this assignment)

Hints:

- Put each subassignment into a separate subdirectory of the assignment2 folder.
- Create a separate project file for each subassignment.
- Don't copy&paste the project file from a previous subasignment, because MPLAB stores absolute paths meaning that although you copyied it from directory X to directory Y, you will still access the C files in directory X although you started the project file in directory Y. Take a look at the *.mcp file for details.
- The specification often includes tiny sample programs for peripherals. They are usually written in assembly, however, the register setup remains the same regardless which programming language is used.