Exercise 7: Your First Own Widgets

Winter Term 2018/19

In this exercise, you will be learning how to implement your own widgets.

Unit 1: Combine a `spinbox` with a `slider`, such that both are always in synchrony. That is, if you change the slider's position, the `spinbox` should be automatically changing as well, and vice versa. The focus of this exercise is on the connections of signals and slots.

Unit 2: Build a widget that consists of an LCD display and a slider underneath it. Put two additional push buttons next to the right and left of the slider. These push buttons should decrease/increase the slider's value. Key question: which slots of the slider do you have to use?

Unit 3: **Push Button - LED Display:**
Create a simple application that consists of a widget programmed by yourself. The widget consists of only a group of three LED-displays each with one push button underneath it.

Note: Since Qt does not provide a particular LED, you might be using an LCD widget with one number, and visualizing "on" and "off" by "1" and "0", respectively.

Implement the following functionalities one after the other:

1. A click on one of the three push buttons should switch on the corresponding LED and switch off all others.
2. A click on any of the push buttons should move forward the LED, i.e., one is on, the others are off, by one position.
3. The LEDs should be acting like a binary counter, which is incremented by a click on any of the buttons.

Unit 4: **RGB-Color Control:**
Create a widget that can be used as a color chooser. The displayed color should be adjustable by using three controls for red, green, and blue, respectively. Display the current values of the controls.

Please note: The background color of a widget can be adjusted by using the method `setPalette(QPalette(QColor(r,g,b)))`.

Have fun, Theo and Ralf