



Assignment 3: 7-segment display driver

Design and implement a driver for the 4-digit 7-segment display on the VIA shield.

Requirements:

The driver must implement the following interface:

```
void init_display();  
void printint_4u(uint16_t value);
```



Other requirements:

- 1) Update of the segments must be timer interrupt driven.
- 2) Source code must be documented by inline comments (incl. author name(s) and date).
- 3) Divide the code into logical abstraction layers. All display driver functions must be separated from application code and only interact via the above given interface.
- 4) Write an application that show temperature in the display (use assignment #2 driver)

Optional (not necessary to pass):

- Make a signed printint version:
`void printint_4s(int16_t value);`
- Make a function to display floating-point numbers with the following interface:
`void printfloat_4f(float value, uint8_t no_of_decimals);`
- Use SPI to load the display shift register.

What to hand-in:

- 1) Timing diagram that shows one cycle of displaying the value 510. Use the wavedrom tool:
<https://wavedrom.com/>
- 2) An activity diagram of the display driver.
- 3) A feature update to your thermometer (previous assignment) so it also shows the temperature on the 7-segment display.
- 4) Entire project in a zip-archive