Lab 4: using timers and interrupts – Phase 2

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Using as reference the project provided for Phase 1 (available at project_nexys_complete.zip), implement a program that enables software control of the seven-segment display.

Please check section 9.1 of the Nexys4 board reference manual available at

https://digilent.com/reference/_media/reference/programmable-logic/nexys-4/nexys4_rm.pdf

Step 1

Familiarize with the GPIO management to illuminate specific segments in the eight-digits seven-segment display.

Step 2

Create a function void
`write_digit(u8 digit, u8 dotted);`
that shows an arbitrary digit from 0 to 9 on the common anode configuration (dotted indicates the status of the DP cathode).

Step 3

Use the timer to generate an interrupt, to implement the refresh by changing timely the anode configurations and by showing an arbitrary number composed of eight different digits on the eight-digits display (example, visualize 12345678).

Step 4

Initialize the number to write from the main, as an array of eight characters. Let the interrupt scan the array to identify the eigth digits to write on the display.