Lab 4: Seven Segment Display

The purpose of the lab is to use multiple seven segment displays simultaneously. Design a task that involves the use of the seven segment displays on your Basys 3. **You must be able to show multiple different digits simultaneously.**

Study the connections of the seven segment displays on your Basys 3 from the Basys 3 manual and understand how they work. As you will see, you can only send information for one digit at a time. To display multiple digits, you will make use of a phenomenon called persistence of vision (https://en.wikipedia.org/wiki/Persistence_of_vision), and turn displays on and off very quickly to create an illusion that they are lit at the same time.

1) Implement your design in VHDL. Use modular design (no operations advised in top module, only connections). Run simulations for each individual module and put the results in your report. Program the device. Show it working to your TAs and get their approval. Do not forget to put sample photos of the working device in your report.