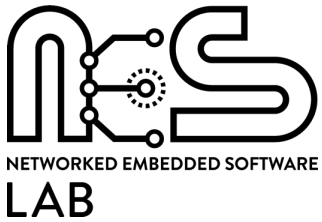

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Contiki-NG
Lab Exercises

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Practical Suggestions

- Use the Hello World example as a template
  - Duplicate the folder and start from there
  - If you change the name of the `.c` file, remember to change the **`Makefile`** too!
  - Weird compilation errors are likely due to compiler left-overs… run **`make clean`** if in doubt

Exercise 1

- Write a Contiki-NG program that implements the classical **producer-consumer** pattern
  - A shared queue of a given (fixed) size of generic data items exists, say integers
  - At random intervals, one protothread pushes items into the queue as long as the queue is not full
  - At random intervals, one protothread pulls items from the queue as long as the queue is not empty
  - When a protothread cannot proceed because of the state of the queue
    - It must be suspended until that condition does not hold anymore
    - **You cannot use timers**
  - Use platform **`native`** to test

Exercise 2

- Modify **`udp-server`** and **`udp-client`** so that two nodes ping-pong a packet for a certain number of times
- If a packet is lost, one of the two restarts from scratch
  - How do you create a simulation where packets are lost?

Exercise 3

- Modify the **`mqtt-demo`** example so that a different message is published on a different topic depending on the outcome of a random number