

## Assignment 1 - uDebugger

EMBSYS 320 Winter 2021

**Due: in one week**

The goal of this assignment is to write a diagnostic hard fault exception handler that may help you to debug later assignments.

Example of the information you should log:

**Hard fault at PC=0x1234ABCD LR=0xABCD1234**

1. Download and unzip the uDebugger project contained in the zip file: uDebugger.zip
2. Open the uDebugger.eww workspace in the EWARM IDE.
3. Make sure the uDebugger project builds and runs. It should print a "Fail" message to the UART (BAUD rate should be 38400).
4. Implement the code specified by the TODO comments - do a global search in the project (Ctrl\_Shift-F) for the "TODO" string. There are TODO comments in these 3 files:
  - a. main.c
  - b. debugger.c
  - c. startup.s
5. Clean your project and zip it into a file named uDebugger\_<YourName>.zip
  - a. Clean means delete the "Debug" folder before zipping so you don't bloat your submission.
  - b. Example submission filename: uDebugger\_johndoe.zip
6. Submit your zip file by the due date.

Note: Your program should fault exactly 10 times.

### Additional Challenge

If you would like an additional challenge, instead of printing just the PC and LR, modify your program to print the entire stack frame consisting of R0-R3, R12, LR, PC, PSR.