Homework #1 (1)

- 建議: 在自己的PC或筆電上安裝Vmware、 VirtualBox等虛擬化軟體，並在其上安裝Linux作業系統。或使用Windows WSL，並在其上安裝ARM software development tools。
- 至ECOURSE2課程網頁下載已經編譯好的ARM software development tools
- Install ARM software development tools (cross-binutils, cross-compiler, cross-newlib, and cross-debugger) in Linux or Unix-like system.
  - Target machine: arm-none-eabi
  - 安裝目錄自己決定

請使用apt-get安裝下列的軟體套件 (1)

- sudo apt-get install autoconf
- sudo apt-get install autogen
- sudo apt-get install texinfo
- sudo apt-get install zlib1g-dev
- sudo apt-get install tcl-dev
- sudo apt-get install tk-dev
- sudo apt-get install libgmp-dev
- sudo apt-get install libmpc-dev
- sudo apt-get install libmpfr-dev

請使用apt-get安裝下列的軟體套件 (2)

- sudo apt-get install mesa-common-dev
- sudo apt-get install libjpeg-dev
- sudo apt-get install libtogl-dev
- sudo apt-get install python-dev
- sudo apt-get install flex
- sudo apt-get install bison
- sudo apt-get install itcl3
- sudo apt-get install itk3
- sudo apt-get install iwidgets4

Homework #1 (2)

- 利用安裝好的cross assembler, 組譯組合語言程式 (hw1.s)

```
$arm-none-eabi-as  hw1.s -o hw1.o
```

- 利用安裝好的cross compiler, 編譯組合語言程式 (hw1.s)

```
$arm-none-eabi-gcc hw1.s -o hw1.exe
```

Homework #1 (3)

– 利用安裝好的cross compiler, 編譯 C程式 (sample.c)，產生相對應的組合語言程式

```
$arm-none-eabi-gcc -O0 -S sample.c -o sample_O0.s
$arm-none-eabi-as sample_O0.s -o sample_O0.o
```

```
$arm-none-eabi-gcc -O3 -S sample.c -o sample_O3.s
$arm-none-eabi-as sample_O3.s -o sample_O3.o
```

Homework #1 (4)

- 請回答下列問題:
  - Q1: 請描述自己安裝與執行ARM software development tool的過程 (不超過1頁)
  - Q2: 請說明hw1.o與hw1.exe的差別? 可能是什麼原因造成的?
  - Q3: sample_O0.o與sample_O3.o檔案大小的差別? 可能是什麼原因造成的?

Homework #1 (5)

- 請把答案寫在純文字檔(檔名:answer.txt),連同所產生的hw1.o, hw1.exe, sample_O0.s, sample_O3.s, sample_O0.o, sample_O3.o壓縮成hw1.tar.bz2，上傳到ECOURSE2
- Deadline: October 5, 2020 (Monday), 24:00

  (此次作業, 不可補交)