CSE 3113: Microprocessor and Assembly Language

Objective:

The objective of this lab is to become familiar with the clock register and general purpose input/output register of Nucleo STM32F44 for the later assignments of this lab. We have plan to go in parallel with the understanding of the architecture.

Your Task:

i. Peripheral Clock Configuration
   1. List out all the clock register of Nucleo-STM32F446RE development board and their respective purpose
   2. List the memory address of the clock registers

ii. General Purpose Input/ Output Registers
   1. List out all the GPIO register of Nucleo-STM32F446RE development board and their respective purpose
   2. List the memory address of the GPIO registers

iii. Write an assembly language to perform all the logical operations (AND,OR,NOR,NAND,XOR,XNOR) on two 16-bit variables. Repeat it for two 32-bit variables.

iv. Write an assembly language to perform all the shift operations (LSR, ASR, LSL) on a 32-bit variable.

v. Write an assembly language to perform all the arithmetic operations (Addition, Subtraction and Multiplication) on two variables. Restrict input values to avoid overflow. Repeat the same operations to handle overflow.

Submission Guideline:

1. Your Assembly code with proper comments. (*.s file)
2. A document (*.tex file) that contains:
   a. Detail explanation of the code
   b. Detail description of the instruction used to design the program.
   b. Status of the status registers after the operation
   b. Screenshot that shows the state of the system after the code has been loaded.
   c. Screenshot that shows the situation after the code has been executed.
3. Submit as a .zip file. Example: your classroll_lab#.zip (12_lab2.zip)

Thank You !!!!

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