National Sun Yat-Sen University
ASSEMBLY LANGUAGE AND MICROCOMPUTER
Program #2
Due 11:59 PM Dec 1 2022

<**Programming Problem II**> Write an ARM assembly code to implement a ***arithm*** program which can compute the specified arithmetic function and output the result to the screen. The execution format of this program is: ***arithm intA intB op***. The function of the program is specified in the following table:

op	Operation	function
0	addition	***intA + intB***
1	subtraction	***intA - intB***
2	Bit-reverse	***$intA_{[0:31]}$ (intB ignored)***
3	division	***intA / intB***
4	maximum	***max(intA,intB)***
5	exponent	***$intA^{intB}$***
6	greatest common divisor	***gcd(intA,intB)***
7	multiplication	***intA * $intB_{[31:0]}$***
8	least common multiply	***lcm(intA,intB)***

The input arguments **intA**, ***intB*** and ***op*** are all ***positive integers***. For example, if you execute the program as follows:

arithm 4 3 8

Then the screen should display the following results

Function 8: least common multiply of 4 and 3 is 12.

If you execute

arithm 4 3 4

Then the screen should display the following results

Function 4: maximum of 4 and 3 is 4.

If you execute something like:

arithm 4.2 a 1

Then the screen should display the following results

Invalid input operands: 4.2, a

For bit-reverse operation, you can display the reverse result in either binary or decimal format.

Your code should implement the fast **switch** operation instead of a series of **if-else**. You can refer to the example shown in the bottom of page 171 of the textbook. For the division operation, you just need to calculate the quotient.

Note:

(a) Your assembly code should follow the APCS rules described in the textbook.
(b) The submission of your homework should follow the method announced by TA before the deadline. Homework submitted after the deadline will not receive any score.