Laboratory Exercise 4

**Assignment 1**

Trường hợp tràn số :

li $s1,2147483647

li $s2,3

#Laboratory Exercise 4, Home Assignment 1

li $s1,2147483647

li $s2,3

.text

start:

li $t0,0 #No Overflow is default status

addu $s3,$s1,$s2 # s3 = s1 + s2

xor $t1,$s1,$s2 #Test if $s1 and $s2 have the same sign

bltz $t1,EXIT #If not, exit

slt $t2,$s3,$s1

bltz $s1,NEGATIVE #Test if $s1 and $s2 is negative?

beq $t2,$zero,EXIT #s1 and $s2 are positive

# if $s3 > $s1 then the result is not overflow

j OVERFLOW

NEGATIVE:

bne $t2,$zero,EXIT #s1 and $s2 are negative

# if $s3 < $s1 then the result is not overflow

OVERFLOW:

li $t0,1 #the result is overflow

EXIT:

Kết quả :

Graphical user interface, text, application, table, Excel

Description automatically generated

**Assignment 2**

#Laboratory Exercise 4, Home Assignment 2

.text

li $s0, 0x12340563 #load test value for these function

andi $t0, $s0, 0xff000000 #Extract the MSB of $s0

andi $t1, $s0, 0xffffff00 #Clear LSB of $s0

ori $t2, $s0, 0x000000ff #Set LSB of $s0 (bits 7 to 0 are set to 1)

xor $s0, $s0, $s0 #Clear $s0 (s0=0, must use logical instructions)

Kết quả :

Table

Description automatically generated

**Assignment 3**

#Laboratory Exercise 4, Home Assignment 3

.text

start:

li $s1, -20

# abs $s9, s1

bgtz $s1, case1

sub $s0,$zero, $s1

case1:

# move $s0,s1

and $s0,$s1,$s1

# not $s0

nor $s0,$s0,$s0

# ble $s1,s2,L

li $s2,-10

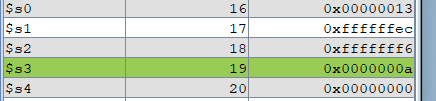
sub $s3,$s2,$s1

bltz $s3, case3

L:

case3:

Kết quả

1. 
2. 
3. 
4. 

**Assignment 4**

#Laboratory Exercise 4, Home Assignment 4

li $s1,2147483647

li $s2,3

.text

start:

li $t0,0 #No Overflow is default status

addu $s3,$s1,$s2 # s3 = s1 + s2

xor $t1,$s1,$s2 #Test if $s1 and $s2 have the same sign

bltz $t1,EXIT #If not, exit

xor $t2,$s1,$s3

bltz $t2,OVERFLOW

j EXIT

OVERFLOW:

li $t0,1 #the result is overflow

EXIT:

Kết quả :

Graphical user interface, application

Description automatically generated

**Assignment 5**

.text

li $s0,2 #s0=1

sll $s1,$s0,1 #s1=s0\*2

sll $s2,$s0,2 #s1=s0\*4

sll $s3,$s0,3 #s1=s0\*8

sll $s4,$s0,4 #s1=s0\*16

Kết quả :

