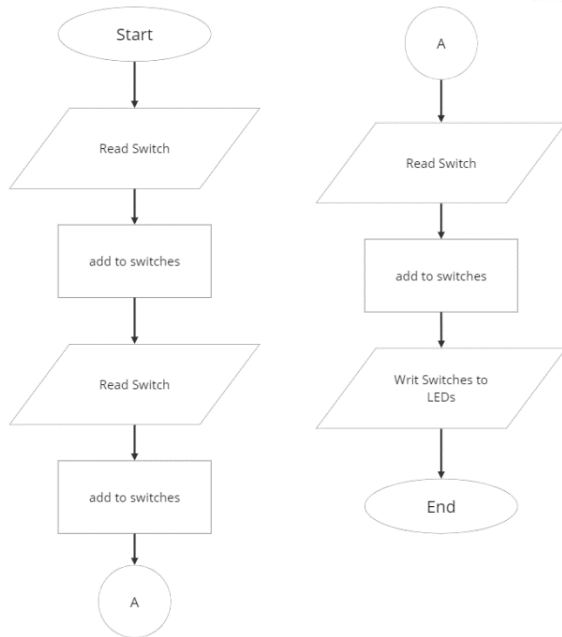


CPE 233 HW 1

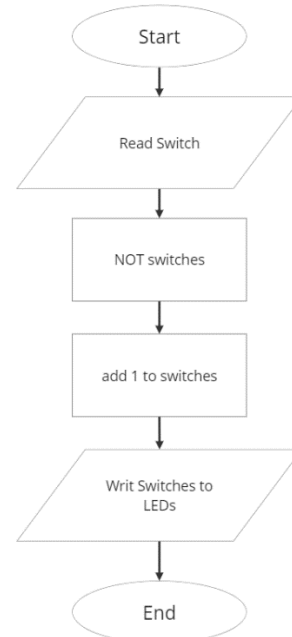
Wyatt Tack and Dominic Arias

1. Flowcharts :

Part 1 :



Part 2 :



2. Table 1: Simulation Table Part 1:

Reasoning	Switches	LEDs
Tests basic arithmetic with sign ext	1234 1111 abcd	1234 2345 <u>ef12</u> (Final Value)
Tests add to 17 th bit and adds after	ffff 0001 4321	ffff 0000 <u>4321</u> (Final Value)
Tests kept overflow addition	abcd dbca abcd	abcd 8797 <u>3364</u> (Final Value)

Table 2: Simulation Table Part 2:

Reasoning	Switches	LEDs
Tests basic going from negative to positive	fffd	<u>0003</u> (Final Value)
Tests basic going from positive to negative	0002	<u>fffe</u> (Final Value)
Tests max negative value (expected for RC)	8000	<u>8000</u> (Final Value)

3. Figure 1: Assembly Code Part 1:

```

lui x6, 0x11000 #set x6 as value for Switches memory adress
lh x7, 0(x6)    #fill x7 with value in switches
add x28, x7, x0 #adds switches value + 0 into x28
lh x7, 0(x6)    #fill x7 with value in switches
add x28, x28, x7 #adds x7 to already stored x28
lh x7, 0(x6)    #fill x7 with value in switches
add x28, x28, x7 #adds x7 to already stored x28
sh x28, 0x20(x6) #outputs x28 to LED

```

Figure 2: Assembly Code Part 2:

```

lui x6, 0x11000 #set x6 as value for Switches memory adress
lh x7, 0(x6)    #fill x7 with value in switches
not x7, x7      #not x7 (first part of negating RC number)
addi x7, x7, 0x1 #add 1 to x7 (second part of negating RC number)
sh x7, 0x20(x6) #outputs x28 to LED

```