Program A: sw into array, lw and accumulate neg / pos #'s

```
#version 1
addi $1, $0, 2
addi $2, $0, 28

sw_loop:
sw $1, 0x2000($2)
addi $2, $2, -4
beq $2, $0, out
add $1, $1, $1
sub $1, $0, $1
addi $1, $1, 3
beq $3, $3, sw_loop

out:
addi $5, $0, 32

lw_loop:
lw $1, 0x2000($2)
slt $3, $1, $0
beq $3, $0, skip
add $4, $4, $1
skip:
addi $2, $2, 4
bne $2, $5, lw_loop

sw $4, 0x2000($0)
end: beq $0, $0, end
```

```
0x20010002
0x2002001c
0xac412000
0x2042fffc
0x10400004
0x00210820
0x00010822
0x20210003
0x1063fff9
0x20050020
0x8c412000
0x0020182a
0x10600001
0x00812020
0x20420004
0x1445fffa
0xac042000
0x1000ffff
```

```
#version 2
addi $1, $0, 3
addi $2, $0, 80

sw_loop:
sw $1, 0x2000($2)
addi $2, $2, -4
beq $2, $0, out
add $1, $1, $1
sub $1, $0, $1
addi $1, $1, 3
beq $3, $3, sw_loop

out:
addi $5, $0, 40

lw_loop:
lw $1, 0x2000($2)
slt $3, $1, $0
bne $3, $0, skip
add $4, $4, $1
skip:
addi $2, $2, 4
bne $2, $5, lw_loop

sw $4, 0x2000($0)
end: beq $0, $0, end
```

```
0x20010003
0x20020050
0xac412000
0x2042fffc
0x10400004
0x00210820
0x00010822
0x20210003
0x1063fff9
0x20050028
0x8c412000
0x0020182a
0x14600001
0x00812020
0x20420004
0x1445fffa
0xac042000
0x1000ffff
```

Program B: sw into array, iterate lw / sw among neighborhood of 3

```
#version 1
addi $1, $0, 2
addi $2, $0, 28

sw_loop:
sw $1, 0x2000($2)
addi $2, $2, -4
beq $2, $0, out
add $1, $1, $1
sub $1, $0, $1
addi $1, $1, 3
beq $3, $3, sw_loop

out:
addi $6, $0, 40

loop:
add $4, $0, $0
lw $1, 0x2004($2)
add $4, $4, $1
lw $1, 0x2008($2)
add $4, $4, $1
lw $1, 0x200c($2)
add $4, $4, $1
slt $1, $5, $4
beq $1, $0, skip
add $5, $4, $0
skip:
addi $2, $2, 4
bne $2, $6, loop

sw $5, 0x2000($0)
end: beq $0, $0, end
```

```
#version 2
addi $1, $0, 5
addi $2, $0, 60

sw_loop:
sw $1, 0x2000($2)
addi $2, $2, -4
beq $2, $0, out
add $1, $1, $1
sub $1, $0, $1
addi $1, $1, 3
beq $3, $3, sw_loop

out:
addi $6, $0, 60

loop:
add $4, $0, $0
lw $1, 0x2004($2)
xor $4, $4, $1
lw $1, 0x2008($2)
xor $4, $4, $1
lw $1, 0x200c($2)
xor $4, $4, $1
sw $4, 0x2004($2)
xor $5, $5, $4


addi $2, $2, 4
bne $2, $6, loop

sw $5, 0x2000($0)
end: beq $0, $0, end
```