

8 bit

+2 000 000 10

-2 111 111 10

1's → 111 111 01
2's → 111 111 10

16 bit

addi \$s0; \$t1; $\begin{array}{c} \uparrow \\ 16 \text{ bit} \\ \text{do} \\ \text{2's complement} \end{array}$

branch instructions $\begin{cases} \text{Conditional} \\ \text{Unconditional} \end{cases}$

C - Code:

```
if (a != b):  
    a = b + 1  
else:  
    a = b + 2
```

\$s1 = a

\$s2 = b

MIPS Code:

2
↑

```
0 beq $s1, $s2, ELSE  
4 addi $s1, $s2, 1  
8 j Exit  
12 ELSE: addi $s1, $s2, 2  
16 Exit:  
⋮
```

C - Code:

```
if (a == b):  
    a = b + 1  
else:  
    a = b + 2  
  
$s1 = a  
$s2 = b
```

MIPS Code:

```
0  bne $s1, $s2, ELSE  
4  addi $s1, $s2, 1  
8  j Exit  
12 ELSE: addi $s1, $s2, 2  
16 Exit:  
⋮
```