

Assembly language control flow

1/8/24

Administrivia

- Faculty candidate visiting Thursday and Friday
 - Teaching demo: Friday 9:30am in SMC A206
 - Research talk: Friday 4:15pm in SMC A202 (reception at 3:45)
 - Taking to lunch: Friday at noon
- (Another is coming Tues/Wed of next week)

Which of the following is an error in this code segment, which reads 2 integers and prints their sum?

```
addi $v0, $zero, 5
syscall
add  $t0, $zero, $v0
syscall
add  $a0, $t0, $v0
addi $v0, $zero, 1
syscall
```

- A. Syntax error
- B. May not read both values
- C. Assuming it reads both values, it may not print anything
- D. Assuming it prints, it may print the wrong value
- E. Not exactly one of the above

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- A. Syntax error
- B. May not read both values
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Which line has an error in the translation of the code below?

if(\$s0 < \$t0) (E = not exactly one)

\$s0++;

else

\$t0++;

ble \$s0, \$t0, else #A

addi \$s0, \$s0, 1 #B

b done

else: addi \$t0, \$t0, 1 #C

b done #D

done:

Which line has an error in the translation of the code below?

if(\$s0 < \$t0) (E = not exactly one)

\$s0++;

else

\$t0++;

ble \$s0, \$t0, else #A (should be bge)

addi \$s0, \$s0, 1 #B

b done

else: addi \$t0, \$t0, 1 #C

b done #D

done:

Which of the following translates the loop below?
while(\$t0 < \$s0) { ... } (E: not exactly one)

A. loop: blt \$t0, \$s0, done
 #body
 b loop
done:

B. b test
top: #body
test: blt \$t0, \$s0, top

C. bgt \$t0, \$s0, end
body: #body
 blt \$t0, \$s0, body
end:

D. begin: ble \$s0, \$t0, done
 #body
 b begin
done:

Which of the following translates the loop below?

`while($t0 < $s0) { ... }`

(E: not exactly one)
(B & D)

```
A. loop: blt $t0, $s0, done
        #body
        b   loop
done:
```

```
C.      bgt $t0, $s0, end
        body: #body
            blt $t0, $s0, body
        end:
```

```
B.      b  test
        top:  #body
        test: blt $t0, $s0, top
```

```
D. begin: ble $s0, $t0, done
        #body
        b begin
done:
```


