

Worksheet 2B

Quiz 1: *Compiling Equality*

Suppose false is 0 and true is 1. Write the assembly code for

Program

```
(= 10 20)
```

Assembly

```
mov rax, 10
```

```
(= e1 e2)
```

```
;; strategy for `eq`
```

Quiz 2: *Compiler Tag Checking Strategy*

Write the asm to check if rax's value has a given <tag>

```

_____ ; save rax
_____ ; extract LSB
_____ ; compare with <tag>
_____ ; jump to err if not-eq

```

Quiz 3: *Semantics of Blocks*

Program

```
(let (x 5)
  (set! x 10))
```

Result

```
(let (x 10)
  (let (y (set! x (+ x 5)))
    (+ x y)))
```

```
(let (x 5)
  (block
    (set! x (+ x 100))
    x))
```

Quiz 4: Assembly for `set!` and `block`

Complete the assembly code for

Program

```
(let (x 10)
  (let (y (set! x (+ x 1)))
    x))
```

Assembly

```
mov rax, 20
mov [rbp - 8.1], rax
mov rax, [rbp - 8.1]
add rax, 2
```

```
(let (x 10)
  (block
    (set! x (+ x 1))
    x
  )
)
```

```
mov rax, 20
mov [rbp - 8.1], rax
mov rax, [rbp - 8.1]
add rax, 2
```

Quiz 5: Your turn!

What is something you found confusing in today's lecture (or earlier)?