


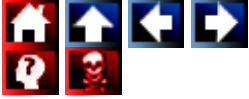




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Comp200 Etutor: Problem PS.10.1.2: Counting calls, again

Due date: 12/10

The code for the lazy evaluator can be found here: [Interpreter Code in text form.](#)

Assume that the following definitions have been typed into the lazy evaluator.

```
(define count 0)

(define (id x)
  (set! count (+ count 1))
  x)

(define (square x)
  (* x x))
```

Suppose that the following sequence of expressions is evaluated in order. For each question, specify the value returned for the last expression or use "e" for error.

1. If the lazy evaluator does **not** use memoization, what is the value returned after evaluating

count

[Your response: "0" is **correct**. A valid answer is: 0] ✓

2. If the lazy evaluator does **not** use memoization, what is the value returned after evaluating

(square (id 10))

[Your response: "100" is **correct**. A valid answer is: 100] ✓

3. If the lazy evaluator does **not** use memoization, what is the value returned after evaluating

count

[Your response: "2" is **correct**. A valid answer is: 2] ✓

[Each evaluation of the argument x requires an explicit evaluation.](#)] ✓

4. Now assume that the definition for count, square and id have been re-evaluated in a new environment. If the lazy evaluator **does** use memoization, what is the value returned after evaluating

count

[Your response: "0" is **correct**. A valid answer is: 0] ✓

5. If the lazy evaluator **does** use memoization, what is the value returned after evaluating


(square (id 10))

[Your response: "100" is **correct**. A valid answer is: 100] 

6. If the lazy evaluator **does** use memoization, what is the value returned after evaluating

count

[Your response: "1" is **correct**. A valid answer is: 1

Only the first use of the argument forces an explicit evaluation. Subsequently the memoization just remembers the value.] 

Check

Get Answers

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