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## Question 8

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### Question 8

1/1 point (graded)

Our nearly completed function now looks like this:

```
;; (listof String) -> (listof String)
;; append each string's position in the list to the front of the string to number the list
(check-expect (number-list empty) empty)
(check-expect (number-list (list "first" "second" "third"))
  (list "1: first" "2: second" "3: third"))
(define (number-list los) los) ;stub

(define (number-list lon0)
  ;; acc: Natural; 1-based position of (first lon) in lon
  ;; (number-list (list "first" "second" "third") 1)
  ;; (number-list (list      "second" "third") 2)
  ;; (number-list (list          "third") 3)
  (local [(define (number-list lon acc)
    (cond [(empty? lon) empty]
          [else
           (... acc
              (first lon)
              (number-list (rest lon)
                           (add1 acc)))]))]
    (number-list lon0 1)))
```

How should we combine `acc`, `(first lon)` and `(number-list (rest lon) (add1 acc))`?

- ☐ `(cons acc (first lon) (number-list (rest lon) (add1 acc)))`
- ☐ `(cons (string-append acc ": " (first lon)) (number-list (rest lon) (add1 acc)))`
- ☐ `(cons (string-append (number->string acc) (first lon)) (number-list (rest lon) (add1 acc)))`
- ☒ `(cons (string-append (number->string acc) ": " (first lon)) (number-list (rest lon) (add1 acc)))`



**Explanation**  
The completed function definition is:

```
(define (number-list lon0)
  ;; acc: Natural; 1-based position of (first lon) in lon
  ;; (number-list (list "first" "second" "third") 1)
  ;; (number-list (list      "second" "third") 2)
  ;; (number-list (list          "third") 3)
  (local [(define (number-list lon acc)
    (cond [(empty? lon) empty]
          [else
           (cons (string-append (number->string acc) ": " (first lon))
                 (number-list (rest lon) (add1 acc)))]))]
    (number-list lon0 1)))
```

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