

## Practice Quiz (02/07/2019)

### Topics: Procedure, Basic Types

1. What are the results to the following expressions?

```
> ((o length (section string-split <> "d")) "a one and a two and  
a three")
```

```
> (string-ref "str" (string-length "str"))
```

```
> (define sentences  
'("hello" "csc 151 students" "this is thursday mentor session"))  
> (string-length (take sentences 1))
```

```
> (index-of sentences 2)
```

```
> (list-ref sentences (index-of sentences "hello"))
```

```
> (> (floor 2.5) (ceiling 2.5))
```

```
> (> (truncate -2.3) (floor -2.3))
```

2. Consider the inappropriately named procedure below.

```
(define proc  
  (lambda (write type keyboard)  
    (substring type (length write) keyboard)))
```

What inputs that would not produce an error? What would the code do with your proposed inputs?

3. Finish the procedure `(place-power n)` which takes an integer  $n$  and returns the corresponding place in the decimal system. For example, `(place-power 2)` is 10, the ten's place, and `(place-power 3)` is 100, the hundred's place.

```
(define place-power  
  (lambda (n)
```

4. Write `(place-power n)` without using `lambda`.

```
(define place-power
```

**Answer:**

**1. What are the results to the following expressions?**

```
> ((o length (section string-split <> "d")) "a one and a two and
a three")
3
> (string-ref "str" (string-length "str"))
Error: Index starts with 0 and ends with (length - 1)
string-ref: index is out of range
  index: 3
  valid range: [0, 2]
  string: "str"
> (define sentences
  '("hello" "csc 151 students" "this is thursday mentor session"))
> (string-length (take sentences 1))
Error: (take sentences 1) gives list with one element, so (length
(take sentences 1)) is correct
> (index-of sentences 2)
#f
> (list-ref sentences (index-of sentences "hello"))
"hello"
> (> (floor 2.5) (ceiling 2.5))
#f
> (> (truncate -2.3) (floor -2.3))
#t
```

**2. Consider the inappropriately named procedure below.**

```
(define proc
  (lambda (write type keyboard)
    (substring type (length write) keyboard)))
```

**What inputs that would not produce an error? What would the code do with your proposed inputs?**

```
write = list
type = string
keyboard = integer (larger than or equal to length of write)

>(proc (list "1" "2" "3") "name correctly" 6)
"e c"
```

**3. Finish the procedure (place-power n) which takes an integer n and returns the corresponding place in the decimal system. For example, (place-power 2) is 10, the ten's place, and (place-power 3) is 100, the hundred's place.**

```
(define place-power
  (lambda (n)
    (expt 10 (- n 1))))
```

**4. Write (place-power n) without using lambda.**

```
(define place-power
  (o (section expt 10 <>)
     (section - <> 1)))
```