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CISC 3140

Lab 7

Scheme version was Guile using Ubuntu 20.04 LTS

Reference link: https://www.gnu.org/software/guile/docs/docs-2.0/guile-ref/

Coding the temp converter f to c solution:

```
;;ftoc converts fahrenheit to celsius
(define (ftoc tempF)
(* (/ 5 9)( tempF 32)))

;ftoclist converts list of f temp to list of c temp
(define (ftoclist list-Ftemp)
(cond
[(empty? list-Ftemp) empty]
[(cons? list-Ftemp) (cons (ftoc (first list-Ftemps))(ftoclist (rest list-
Ftemp)))]))

;ctof converts celsius to fahrenheit
(define (ctof tempC)
(+ (* tempC(/ 9 5)) 32))

;ctoflist converts list of c temp to list of f temp
(define (ctoclist list-Ctemp)
(cond
[(empty? list-Ctemp) empty]
[(cons? list-Ctemp) (cons (ctof (first list-Ctemp))(ctoflist (rest list-
Ctemp)))]))
```

Inputs using Scheme to find the solution:

```
$ guile

GNU Guile 3.0.1

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Guile comes with ABSOLUTELY NO WARRANTY; for details type `,show w'.

This program is free software, and you are welcome to redistribute it

under certain conditions; type `,show c' for details.
```

```
Enter `,help' for help.
Entering a new prompt.  Type `,bt' for a backtrace or `,q' to continue.
;;; <unknown-location>: warning: possibly unbound variable `guile'
ice-9/boot-9.scm:1669:16: In procedure raise-exception:
Unbound variable: guile

Entering a new prompt.  Type `,bt' for a backtrace or `,q' to continue.
scheme@(guile-user) [4]> (define x 100)
scheme@(guile-user) [4]> (/ (- x 32) (/ 9 5) )
$1 = 340/9
scheme@(guile-user) [4]> ,bt
           1 (_)
In ice-9/boot-9.scm:
  1669:16  0 (raise-exception _ #:continuable? _)
scheme@(guile-user) [4]> (define x 0)
scheme@(guile-user) [4]> (/ (- x 32) (/ 9 5) )
$2 = -160/9
scheme@(guile-user) [4]> (define x 32)
scheme@(guile-user) [4]> (/ (- x 32) (/ 9 5) )
$3 = 0
scheme@(guile-user) [4]> (define x 56)
scheme@(guile-user) [4]> (/ (- x 32) (/ 9 5) )
$4 = 40/3
scheme@(guile-user) [4]> (*(+ x 32) (/ 9 5) )
$5 = 792/5
scheme@(guile-user) [4]> (define x 10)
scheme@(guile-user) [4]> (* (+ x 32) (/9 5) )
;;; <stdin>:13:12: warning: possibly unbound variable `/9'
ice-9/boot-9.scm:1669:16: In procedure raise-exception:
Unbound variable: /9

Entering a new prompt.  Type `,bt' for a backtrace or `,q' to continue.
```

```
scheme@(guile-user) [5]> ,bt
In current input:
    13:12  1 (_)
In ice-9/boot-9.scm:
  1669:16  0 (raise-exception _ #:continuable? _)
scheme@(guile-user) [5]> (define x 10)
scheme@(guile-user) [5]> (*(+ x 32) (/ 9 5) )
$6 = 378/5
scheme@(guile-user) [5]> (+ (* x (/ 9 5)))
$7 = 18
scheme@(guile-user) [5]> (+ (* x (/ 9 5)) 32)
$8 = 50
scheme@(guile-user) [5]> (define x 15)
scheme@(guile-user) [5]> (+ (* x(/ 9 5)) 32)
$9 = 59
scheme@(guile-user) [5]> (define x 40)
scheme@(guile-user) [5]> (+ (* x (/ 9 5)) 32
)
$10 = 104
scheme@(guile-user) [5]> (define x 5)
scheme@(guile-user) [5]> (+ (* x (/ 9 5)) 32)
$11 = 41
```