**Lab 2**

**SYSC 3101A**

**L3E**

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#lang racket

; Exercise 1

; Part a)

(define (sum-numbers numbers)

(cond

[(empty? numbers) + 0]

[(+ (car numbers) (sum-numbers (cdr numbers)))]

))

; Part b)

(define (average numbers)

(exact->inexact(/ (sum-numbers numbers) (length numbers)))

)

; Exercise 2

(define (occurrences numbers n)

(cond

[(empty? numbers) + 0]

[(= (car numbers) n) (+ 1 (occurrences (cdr numbers) n))]

[(occurrences (cdr numbers) n)]

)

)

; Exercise 3

(define (convert digits)

(cond

[(empty? digits) 0]

[(+ (car digits) (\* (convert (cdr digits)) 10))]

)

)

; Exercise 4

(define (convertFC temps)

(cond

[(empty? temps) `()]

[(cons (convertFCFormula(car temps)) (convertFC (cdr temps)))]

)

)

(define (convertFCFormula temp)

(\* (- temp 32) 5/9)

)

; Exercise 5

(define (eliminate-threshold numbers threshold)

(cond

[(empty? numbers) null]

[(<= (car numbers) threshold) (cons (car numbers) (eliminate-threshold (cdr numbers) threshold))]

[(eliminate-threshold (cdr numbers) threshold)]

)

)