

## CPSC 3740 – Spring 2021

### Assignment 3 Part B (15 marks)

**Due: March 24 (Wednesday), 11:55pm on Moodle**

**(0) Due to the COVID19 situation, there might be some adjustments to the assignment questions, if necessary.**

**(1) Please note that no collaboration is allowed for this assignment. Should any plagiarism be identified, all the involved students will get zero for the assignment and will be reported to the Chair of the department for further action.**

**(2) All the students are required to honor the academic integrity and exercise self-consciousness.**

**(3) Please type your answers, or you will lose 5 marks. Pictures and formulae can be written by hand. Your answer should be submitted in a PDF file on Moodle.**

1 (3 marks) You are given a list whose elements are integer numbers. One example is  $(0\ 0\ 1\ 3\ 5)$ . Write a function, called *trimming*, to delete all the leading zeros. For the example, the result is  $(1\ 3\ 5)$ .

2 (3 marks) You are given a list whose elements are integer numbers. One example is  $(0\ 0\ 1\ 3\ 0\ 5\ 0)$ . Write a function, called *trimming2*, to delete all the zeros in the list. For the example, the result is  $(1\ 3\ 5)$ .

3 (5 marks) You are given a list of elements, each of which could be a list. One example is  $((a\ b)\ e\ (c\ d))$ . Create a function, called *myreverse*, to reverse the elements *recursively*. For the example, the result is  $((d\ c)\ e\ (b\ a))$ . You are not allowed to use the built-in function *reverse* in Scheme.

4 (4 marks) You are given a list of elements, each of which could be a list. One example is  $((a\ b)\ e\ (c\ d))$ . Create a function, called *recslen*, to count the elements *recursively* and report the total number of the elements in the list. For the example, the result is 5. You are not allowed to use the built-in function *length*.

#### **Submission:**

Your solution should follow the format below.

; Answer to (1)  
(define (*trimming* .....))

; Answer to (2)  
(define (*trimming2*.....))

; Answer to (3)

(define (*myreverse* .....))

; Answer to (4)

(define (*recslen* .....))

The file to be saved for your answers should be called *YourLastName*.scm. Submit it on the Moodle.