

CSC 212 Tutorial #3

Lists

12/10/2014

Important: This tutorial has an online part, which you should complete on the LMS.

Problem 1

A circular left shift (CLS) of a list consists in moving the first element to the last position while leaving the order of the remaining elements unchanged. Write a static method CLS (user of ADT) that takes as input a non-empty list l and an integer n ($n \geq 0$) and applies n circular left shifts to the list l .

Example: assuming l : 1, 2, 3, 4. After calling CLS(l , 2) then l will be: 3, 4, 1, 2.

Method: `public static<T> void CLS(List<T> l, int n)`

Problem 2

The most frequent element (MFE) of a list is the element appearing the highest number of times in a list. Write a static method MFE (user of ADT) that takes as input a non-empty list l and returns the most frequent element in the list l . If two or more elements appear the same number of times, then the earliest one to appear in the list should be the most frequent one.

Example: assuming l : 1, 2, 3, 4, 2, 5, 3. Calling MFE(l) will return: 2.

Method: `public static<T> T MFE(List<T> l)`

Problem 3

Write a static method switch that takes as input two lists, and switches all the elements of the two lists except for the first element in both lists.

Example: assuming $l1$: 1, 2, 3 and $l2$: 4, 5. Calling switch($l1$, $l2$) will result in $l1$: 1, 5 and $l2$: 4, 2, 3.

Method: `public static<T> void switch(List<T> l1, List<T> l2)`