CS135 Tutorial 05

CS135 Tutorial 05



Page 1 of 8

Goals

- Consume and alter a sorted list of numbers (remove-one-of-each & dedup).
- Look at part of an assignment from previous term (longest-sequential-sequence).
- Appropriate tests.

& dedup). ntial-



remove-one-of-each

Write a function remove-one-of-each that consumes a sorted list of Num and produces a sorted list of Num where one occurrence of each Num found in the consumed list of Num has been removed.

For example:

```
(check-expect (remove-one-of-each
(list 2 2 3 3 3 3 4 5 6 7 7 7))
(list 2 3 3 3 7 7))
```

Page 3 of 8

remove-one-of-each: Purpose & Contract

;; (remove-one-of-each slon) produces [slon] where one occurrence of each of the numbers has been removed

- ;; remove-one-of-each: (listof Num) -> (listof Num)
- ;; requires: The input list of Num is sorted

Page 4 of 8

remove-one-of-each: Examples

;; (remove-one-of-each slon) produces a list of ...

;; Examples:

(check-expect (remove-one-of-each empty) empty) ;; the most basic case (check-expect (remove-one-of-each (list 3)) empty) ;; one element (check-expect (remove-one-of-each (list 3 3 3)) (list 3 3 3));; one element repeated (check-expect (remove-one-of-each (list 3 4 5 6)) empty) ;; one of each element

(check-expect (remove-one-of-each (list 3 3 4 5 6 6)) (list 3 6))

;; remove-one-of-each: (listof Num) ->...

Page 5 of 8

dedup

Write a function dedup that consumes a sorted list of numbers and produces the same list with each element appearing only once.

For example: (check-expect (remove-one-of-each (list 2 2 3 3 3 3 4 5 6 7 7 7)) (list 2 3 4 5 6 7))

Hint: This is very similar to remove-one-of-each

Page 6 of 8

Longest sequential substring

Write a function, longest-seq-substr, that consumes a (listof Nat) and produces the longest substring of the list where all the elements are in sequential order.

Definitions:

- sequence: an ordered list (list 1 2 3 40 5 62)
- subsequence: what's left of a sequence after deleting elements; order is maintained. (list 2 40 5)
- substring: a subsequence where all members were consecutive in the original sequence (list 2 3 40)

Example:

```
(check-expect (longest-seq-substr (list 10 11 1 2 3 100))
              (list 1 2 3))
```

CS135 Tutorial 05

Page 7 of 8

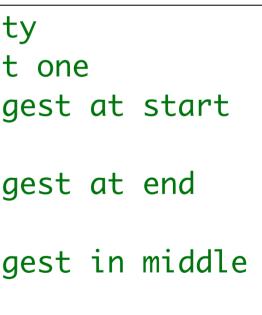
Longest sequential substring

Write a function, longest-seq-substr, that consumes a (listof Nat) and produces the longest substring of the list where all the elements are in sequential order.

Examples:

<pre>(check-expect (longest-seq-substr empty) empty) ;</pre>	; empt
<pre>(check-expect (longest-seq-substr (list 10)) (list 10))</pre> ;	; just
<pre>(check-expect (longest-seq-substr (list 1 2 3 10 11 100));</pre>	; long
	; long
(check-expect (longest-seq-substr (list 10 11 1 2 3 100)); (list 1 2 3))	; long

CS135 Tutorial 05



Page 8 of 8