

CS 596 Functional Programming & Design
Spring Semester, 2014
Assignment 2
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Due Sept 14 23:59

1. Write a non recursive function `sdsu-nth` which returns the `nth` element from a sequence. You are not allowed to use the functions `nth`, `get` or use the sequence as a function. So we get

```
(= (sdsu-nth '(6 5 4 3) 2) 4)
(= (sdsu-nth [:a :b :c] 1) :b)
(= (sdsu-nth '([1 2] [3 4] [5 6]) 2) [5 6])
```

2. Write a recursive function `r-sdsu-nth` which returns the `nth` element from a sequence. You are not allowed to use the functions `nth`, `get` or use the sequence as a function.
3. Write a recursive function `sdsu-reverse` which reverses a sequence. You are not allowed to use `reverse` or `rseq`.
4. Write a function `sdsu-dup` that will duplicate each element in a sequence.

```
(= (sdsu-dup [1 2 3]) '(1 1 2 2 3 3))
(= (sdsu-dup [:a :a :b :b]) '(:a :a :a :a :b :b :b :b))
(= (sdsu-dup [[1 2] [3 4]]) '([1 2] [1 2] [3 4] [3 4]))
```

5. Write a function `sdsu-no-dup` that will remove consecutive duplicates from a sequence.

```
(= (sdsu-no-dup [1 1 2 3 3 2 2 3]) '(1 2 3 2 3))
(= (sdsu-no-dup [[1 2] [1 2] [3 4] [1 2]]) '([1 2] [3 4] [1 2]))
```

6. Write a function `sdsu-pack` that separates consecutive duplicates in a sequence into sub-lists.

```
(= (sdsu-pack [1 1 2 1 1 1 3 3]) '((1 1) (2) (1 1 1) (3 3)))
(= (sdsu-pack [:a :a :b :b :c]) '(:a :a) (:b :b) (:c)))
```

What to Turn in

Create one file with all the problems answered. Make sure that the function names are as indicated in the problems. Zip the file up and upload the zipped file to assignment two in the course portal.

Late Penalty

An assignment turned in 1-7 days late, will lose 3% of the total value of the assignment per day late. The eighth day late the penalty will be 40% of the assignment, the ninth day late the pen-

alty will be 60%, after the ninth day late the penalty will be 90%. Once a solution to an assignment has been posted or discussed in class, the assignment will no longer be accepted. Late penalties are always rounded up to the next integer value.