Homework Assignment 1

September 29, 2013

1 Deriving adjectives from nouns and suffixes

Consider the 3 nouns *color*, *faith* and *use* and the 2 derivational suffixes *ful* and *less*.

Assemble the list consisting of these 3 nouns and the list consisting of these 2 suffixes. Provide the type of these lists explicitly.

Using a list comprehension, generate all 6 adjectives that can be obtained by combining these 3 nouns and these 2 suffixes.

2 Split a text on whitespace, count words

Consider the following 2-sentence text (from the Penn Treebank, WSJ section):

```
ghci 1> let text = "Pierre Vinken , 61 years old , will join the board " ++
         "as a nonexecutive director Nov. 29 . Mr. Vinken " ++
         "is chairman of Elsevier N.V. , the Dutch publishing group ."
```

```
ghci 2> text
    "Pierre Vinken , 61 years old , will join the board as a nonexecutive director Nov. 29 .  Mr.
    Vinken is chairman of Elsevier N.V. , the Dutch publishing group ."
```

A. split this text on whitespace and print the resulting list of words

B. determine the length of this list, i.e., how many words we have in the text

3 Extract lengths, determine shortest and longest words, determine average word length

Given the list of words obtained above:

A. generate the list of lengths for all the words

B. identify the minimum and maximum length in the list

C. list all the words that have the minimum length and also all the words that have the maximum length

D. determine the average word length in this text

4   Write a function that behaves like *drop*

drop n xs is a function that drops the first *n* items from a list of *xs*. Here's how it behaves for different values of *n* and *xs*:

```
ghci 3> drop 5 "Supercalifragilisticexpialidocious"
   "califragilisticexpialidocious"
```

```
ghci 4> drop 9 "Supercalifragilisticexpialidocious"
   "fragilisticexpialidocious"
```

```
ghci 5> drop 0 "Supercalifragilisticexpialidocious"
   "Supercalifragilisticexpialidocious"
```

```
ghci 6> drop (−3) "Supercalifragilisticexpialidocious"
   "Supercalifragilisticexpialidocious"
```

```
ghci 7> drop 4 ""
   ""
```

Define a function *drop'* that takes an integer *n* and an arbitrary list *xs* and exhibits the same behavior. Provide the function definition and the ghci output for the above inputs to show that it behaves like *drop*.