Homework Programming 1

Contents

1 Strings

1.1 Exercise on strings

(1) Store the first sentences of *The Hobbit* into a string:

> In a hole in the ground there lived a hobbit. Not a nasty, dirty, wet hole, filled with the ends of worms and an oozy smell, nor yet a dry, bare, sandy hole with nothing in it to sit down on or to eat: it was a hobbit-hole, and that means comfort."

```
library('tidyverse')
```

```
-- Attaching packages --------------------------------------- tidyverse 1.3.1 --

v ggplot2 3.3.5     v purrr   0.3.4
v tibble  3.1.5     v dplyr   1.0.7
v tidyr   1.1.4     v stringr 1.4.0
v readr   2.0.2     v forcats 0.5.1

-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
```

```
hobbit <-  'In a hole in the ground there lived a hobbit. Not a nasty, dirty, wet hole,
```

(2) How many characters does it have? How many words? (use `str_count`)

```
str_length(hobbit)
```

```
[1] 247
```

```
str_count(hobbit, ' ')
```

```
[1] 51
```

(3) Split the string into words and put the words between positions 11 and 16 into a vector; use the `str_split` command

```
(hole <- str_split(hobbit,  pattern = ' ')[[1]][11:16])
```

```
[1] "Not"    "a"      "nasty," "dirty," "wet"    "hole,"
```

(4) With that new vector, find out which of the words contain the letter 'e' by using the command 'str_detect'

```
str_detect(hole, 'e')
```

```
[1] FALSE FALSE FALSE FALSE  TRUE  TRUE
```

(5) Repeat the operation in (3) but using the `word` command, which returns a string of words instead of individual words

```
(substring <- word(hobbit, start = 11, end = 16))
```

```
[1] "Not a nasty, dirty, wet hole,"
```

(6) In that new sub-string, substitute 'nasty' by 'gruesome', 'dirty' by 'filthy' and 'wet' by 'swamped'. You may use `str_sub` or `str_replace`, in either case you will need to concatenate the commands.

```
str_replace(str_replace(str_replace(substring,
                                    'nasty',
                                    'gruesome'
                                    ),
                        'dirty',
                        'filthy'
                        ),
            'wet',
            'swamped'
            )
```

```
[1] "Not a gruesome, filthy, swamped hole,"
```

1.2 Solved exercise on strings

(1) Store the first two lines of this poem by Keats into a string:

Season of mists and mellow fruitfulness, Close bosom-friend of the maturing sun;

```
library('tidyverse')
keats <- 'Season of mists and mellow fruitfulness,
Close bosom-friend of the maturing sun'
```

(2) How many characters does it have?

```
str_length(keats)
```

```
[1] 79
```

(3) Split the poem into words by using `str_split` and access the content with double square brackets. Take the third word.

```
str_split(keats, pattern=' ')[[1]][3]
```

```
[1] "mists"
```

(4) Use the `word` command to extract the words from position 3 to 5

```
(some_words <- word(keats, start=3, end=5))
```

```
[1] "mists and mellow"
```

(5) Use `str_sub` with the options `start` and `end` to substitute "mist" by "grueling homework". Print the new poem with `writeLines`.

```
str_sub(keats, start=11, end=15) <- 'grueling homework'
writeLines(keats)
```

```
Season of grueling homework and mellow fruitfulness,
Close bosom-friend of the maturing sun
```