Introduction to R - Assignment 4

Averill Cate, Jr

March 6, 2018

Introduction to R - Assignment 4

For the assignment use the nasaweather library

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(grid)
library(nasaweather)
```

```
##
## Attaching package: 'nasaweather'
```

```
## The following object is masked from 'package:dplyr':
##
##     storms
```

```
str(nasaweather::storms)
```

```
## Classes 'tbl_df', 'tbl' and 'data.frame':    2747 obs. of  11 variables:
##  $ name    : chr  "Allison" "Allison" "Allison" "Allison" ...
##  $ year    : int  1995 1995 1995 1995 1995 1995 1995 1995 1995 1995 ...
##  $ month   : int  6 6 6 6 6 6 6 6 6 6 ...
##  $ day     : int  3 3 3 3 4 4 4 4 5 5 ...
##  $ hour    : int  0 6 12 18 0 6 12 18 0 6 ...
##  $ lat     : num  17.4 18.3 19.3 20.6 22 23.3 24.7 26.2 27.6 28.5 ...
##  $ long    : num  -84.3 -84.9 -85.7 -85.8 -86 -86.3 -86.2 -86.2 -86.1 -85.6 ...
##  $ pressure: int  1005 1004 1003 1001 997 995 987 988 988 990 ...
##  $ wind    : int  30 30 35 40 50 60 65 65 65 60 ...
##  $ type    : chr  "Tropical Depression" "Tropical Depression" "Tropical Storm" "Tropical Storm" ...
##  $ seasday : int  3 3 3 3 4 4 4 4 5 5 ...
```

```
head(nasaweather::storms)
```

```
## # A tibble: 6 x 11
##   name     year month   day  hour   lat  long pressure  wind type  seasday
##   <chr>   <int> <int> <int> <int> <dbl> <dbl>    <int> <int> <chr>   <int>
## 1 Allison  1995     6     3     0  17.4 -84.3     1005    30 Trop~       3
## 2 Allison  1995     6     3     6  18.3 -84.9     1004    30 Trop~       3
## 3 Allison  1995     6     3    12  19.3 -85.7     1003    35 Trop~       3
## 4 Allison  1995     6     3    18  20.6 -85.8     1001    40 Trop~       3
```

```
## 5 Allison  1995     6     4     0  22.0 -86.0      997    50 Trop~       4
## 6 Allison  1995     6     4     6  23.3 -86.3      995    60 Trop~       4
```

1. Report all of the hurricanes in Michigan state occuring in the month of October.

```
storms = nasaweather::storms
oct_hurricanes = subset(storms, storms$month == 10 && storms$type == 'Hurricane')

# Reporting the unique names
oct_hurricanes = unique(oct_hurricanes$name)
head(oct_hurricanes)
```

```
## character(0)
```

2. Provide the names of storms that occurred between the years of 1995-97 which occurred after 6 PM and pressure above the first quartile.

```
storms_between_1995_and_1997 = subset(storms, storms$year >= 1995 && storms$year <= 1997)
# Report the unique names
print("Storms between 1995 and 1997, inclusive.")
```

```
## [1] "Storms between 1995 and 1997, inclusive."
```

```
head(unique(storms_between_1995_and_1997$name))
```

```
## [1] "Allison" "Barry"   "Chantal" "Dean"    "Erin"    "Felix"
```

```
after_6_pm = subset(storms_between_1995_and_1997, storms_between_1995_and_1997$hour >= 18)
print("Storms between 1995 and 1997, inclusive. And, after 6pm (18hr)")
```

```
## [1] "Storms between 1995 and 1997, inclusive. And, after 6pm (18hr)"
```

```
head(after_6_pm)
```

```
## # A tibble: 6 x 11
##   name     year month   day  hour   lat  long pressure  wind type  seasday
##   <chr>   <int> <int> <int> <int> <dbl> <dbl>    <int> <int> <chr>   <int>
## 1 Allison  1995     6     3    18  20.6 -85.8     1001    40 Trop~       3
## 2 Allison  1995     6     4    18  26.2 -86.2      988    65 Hurr~       4
## 3 Allison  1995     6     5    18  30.7 -83.8      993    45 Trop~       5
## 4 Allison  1995     6     6    18  34.5 -78.1      995    40 Extr~       6
## 5 Allison  1995     6     7    18  39.8 -69.2      984    45 Extr~       7
## 6 Allison  1995     6     8    18  45.2 -61.2      993    45 Extr~       8
```

```
# The first quartile
q1 = quantile(after_6_pm$pressure)[2]
greater_than_q1 = subset(after_6_pm, after_6_pm$pressure > q1)
print("Storms between 1995 and 1997, inclusive. And, after 6pm (18hr).  And pressure > Q1 pressure.")
```

```
## [1] "Storms between 1995 and 1997, inclusive. And, after 6pm (18hr).  And pressure > Q1 pressure."
```

```
head(greater_than_q1, 15)
```

```
## # A tibble: 15 x 11
```

```
##    name    year month   day  hour   lat  long pressure  wind type  seasday
##    <chr>  <int> <int> <int> <int> <dbl> <dbl>    <int> <int> <chr>   <int>
##  1 Allis~  1995     6     3    18  20.6 -85.8     1001    40 Trop~       3
##  2 Allis~  1995     6     4    18  26.2 -86.2      988    65 Hurr~       4
##  3 Allis~  1995     6     5    18  30.7 -83.8      993    45 Trop~       5
##  4 Allis~  1995     6     6    18  34.5 -78.1      995    40 Extr~       6
##  5 Allis~  1995     6     7    18  39.8 -69.2      984    45 Extr~       7
##  6 Allis~  1995     6     8    18  45.2 -61.2      993    45 Extr~       8
##  7 Allis~  1995     6     9    18  53.0 -52.0     1000    40 Extr~       9
##  8 Allis~  1995     6    10    18  64.0 -55.0      992    35 Extr~      10
##  9 Barry   1995     7     5    18  31.9 -72.0     1018    20 Extr~      35
## 10 Barry   1995     7     6    18  31.3 -71.6     1011    30 Trop~      36
## 11 Barry   1995     7     7    18  33.2 -70.2     1001    60 Trop~      37
## 12 Barry   1995     7     8    18  37.2 -67.2      997    50 Trop~      38
## 13 Barry   1995     7     9    18  44.3 -61.7      991    50 Trop~      39
## 14 Chant~  1995     7    12    18  18.7 -59.9     1011    30 Trop~      42
## 15 Chant~  1995     7    13    18  20.6 -63.6     1010    30 Trop~      43
```