Lab 9 Solutions

```
library(tidyverse)
library(forcats)
library(lubridate)
yvr <- read_csv("weatherYVR.csv")
#yvr
```

In the above code chunk you read in **daily** weather data from YVR in 2003.

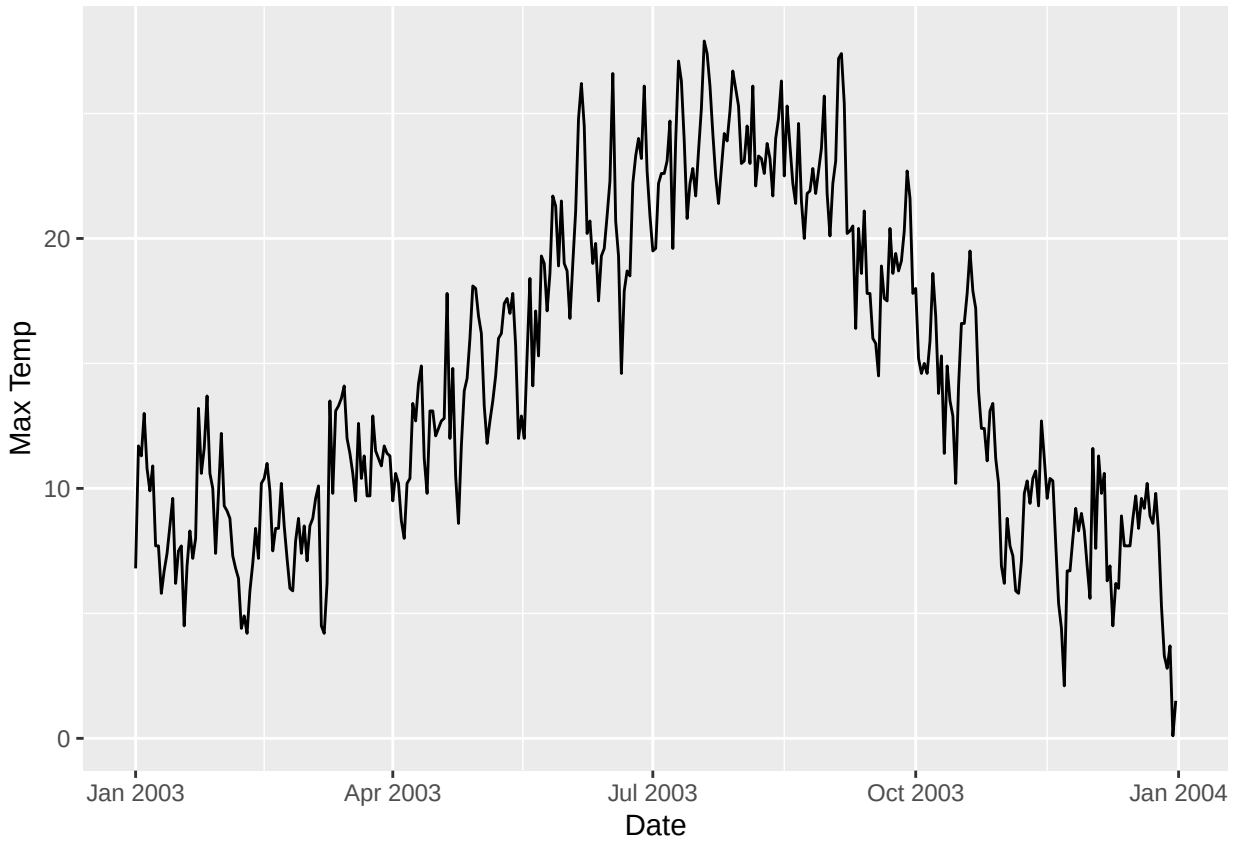
1. Coerce the `Date/Time` variable to a date object and rename it Date.

```
yvr <- yvr %>% mutate(Date =ymd(`Date/Time`),tz="America/Vancouver")
yvr
```

```
## # A tibble: 365 x 22
##    `Date/Time`  Year Month   Day `Data Quality` `Max Temp` `Max Temp Flag`
##    <date>      <dbl> <dbl> <dbl> <lgl>               <dbl> <lgl>
##  1 2003-01-01   2003     1     1 NA                    6.8 NA
##  2 2003-01-02   2003     1     2 NA                   11.7 NA
##  3 2003-01-03   2003     1     3 NA                   11.3 NA
##  4 2003-01-04   2003     1     4 NA                   13   NA
##  5 2003-01-05   2003     1     5 NA                   10.8 NA
##  6 2003-01-06   2003     1     6 NA                    9.9 NA
##  7 2003-01-07   2003     1     7 NA                   10.9 NA
##  8 2003-01-08   2003     1     8 NA                    7.7 NA
##  9 2003-01-09   2003     1     9 NA                    7.7 NA
## 10 2003-01-10   2003     1    10 NA                    5.8 NA
## # ... with 355 more rows, and 15 more variables: `Min Temp` <dbl>, `Min Temp
## #   Flag` <lgl>, `Mean Temp` <dbl>, `Mean Temp Flag` <lgl>, `Heat Deg
## #   Days` <dbl>, `Heat Deg Days Flag` <lgl>, `Cool Deg Days` <dbl>, `Cool Deg
## #   Days Flag` <lgl>, `Total Rain (mm)` <dbl>, `Total Rain Flag` <lgl>, `Total
## #   Snow (cm)` <dbl>, `Total Snow Flag` <lgl>, `Total Precip (mm)` <dbl>,
## #   Date <date>, tz <chr>
```

2. Make a time series plot (with lines) of the daily maximum temperature by day.

```
yvr %>% ggplot(aes(x=Date,y=`Max Temp`)) + geom_line()
```



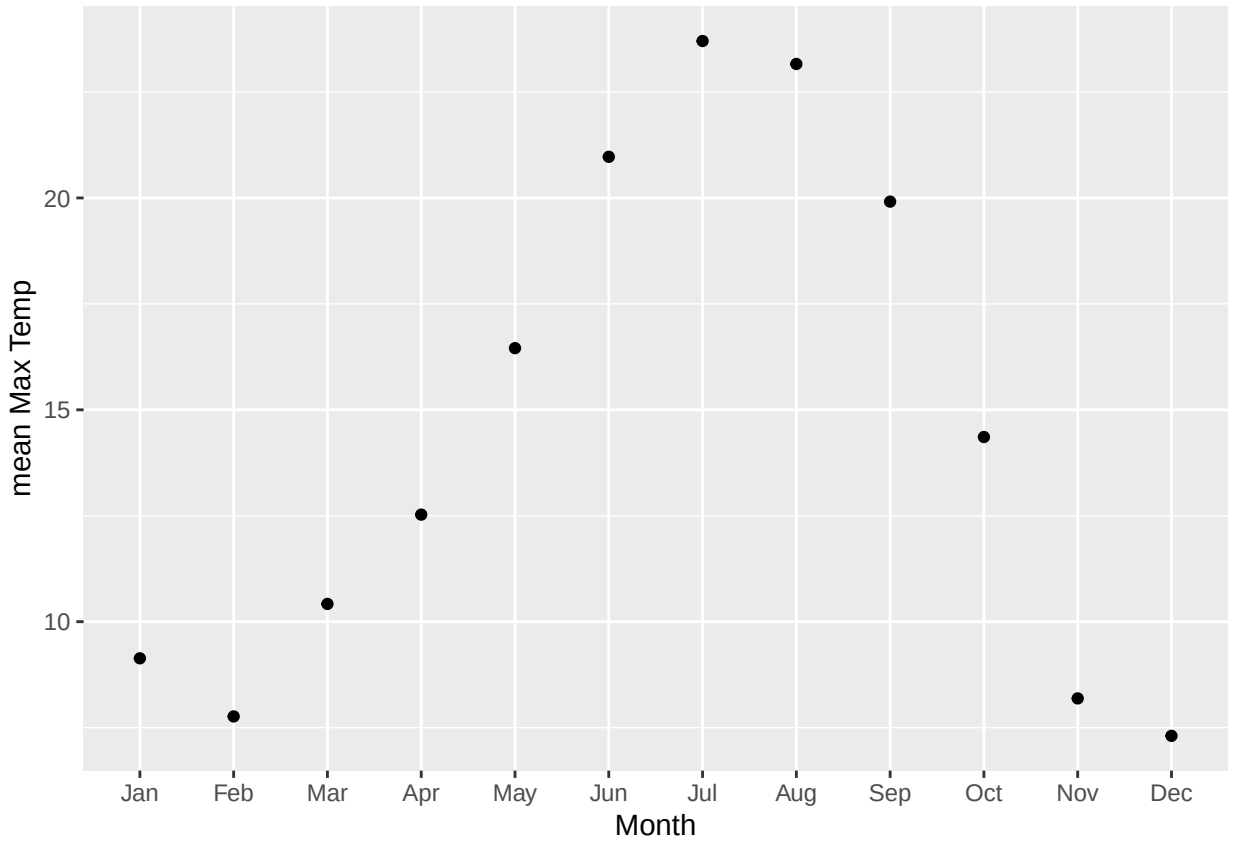
3. Change the `Month` variable from numeric to a factor. (Hint: The `month()` function with the `label=TRUE` will extract the months from a date-time object.)

```
yvr <- yvr %>% mutate(Month = month(Date,label=TRUE))
levels(yvr$Month)
```

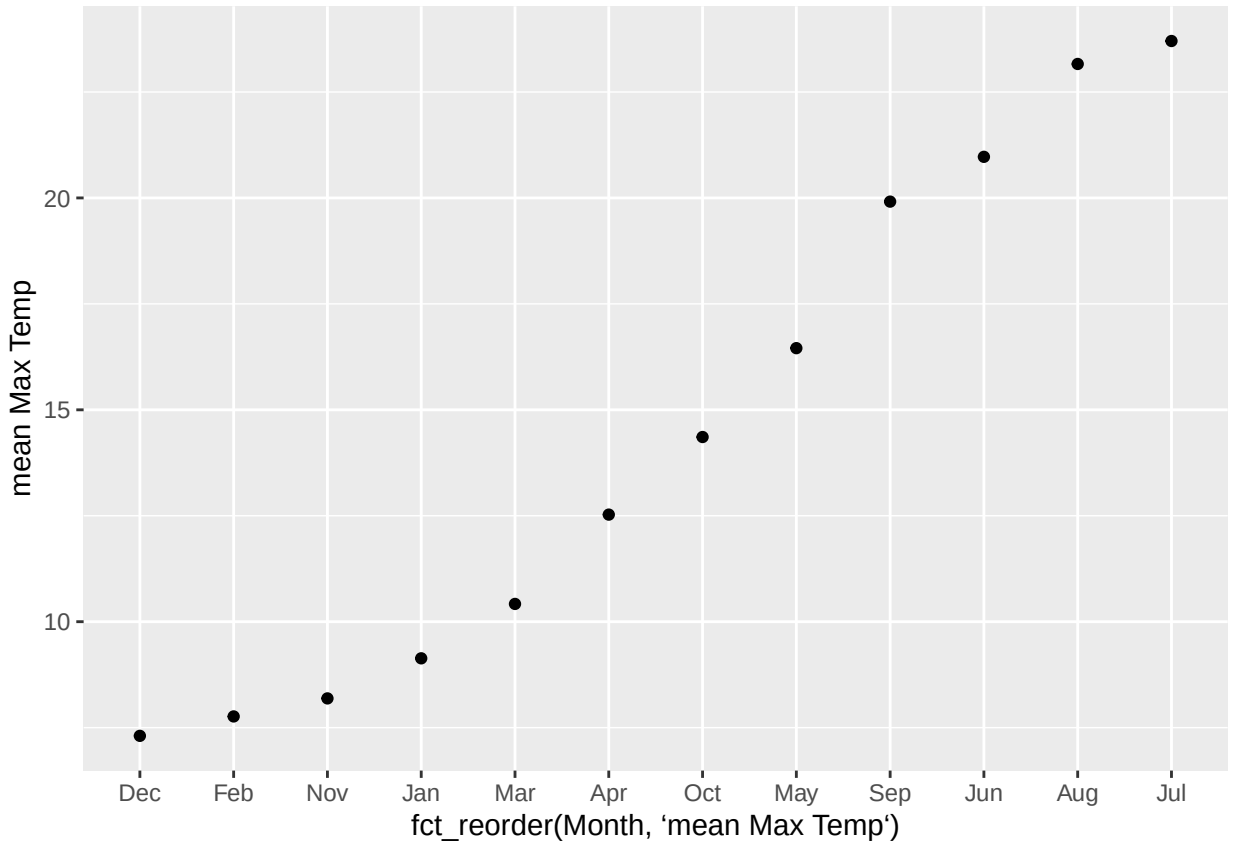
```
##  [1] "Jan" "Feb" "Mar" "Apr" "May" "Jun" "Jul" "Aug" "Sep" "Oct" "Nov" "Dec"
```

4. Plot the average maximum temperature *versus* month. Then, redo this plot with months ordered by average maximum.

```
yvr %>% group_by(Month) %>%
  summarize(`mean Max Temp` = mean(`Max Temp`,na.rm=TRUE)) %>%
  ggplot(aes(x=Month,y=`mean Max Temp`)) + geom_point()
```




```
yvr %>% group_by(Month) %>%
  summarize(`mean Max Temp` = mean(`Max Temp`,na.rm=TRUE)) %>%
  ggplot(aes(x=fct_reorder(Month,`mean Max Temp`),y=`mean Max Temp`)) + geom_point()
```


mean Max Temp
20
15
10
Dec
Feb
Nov
Jan
Mar
Apr
Oct
May
Sep
Jun
Aug
Jul
fct_reorder(Month, ‘mean Max Temp‘)