R Tutorial: Rscript into PDF

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Make sure to run this code (only the first time is needed) to install latex and write equations:

```
# tinytex::install_tinytex()
```

Here is an example of how to write equations: Let $X \sim binomial(50, 0.8)$ and we want to find

$$F(30) = P(X \leq 30)$$

We can use R for that We can add any other text here.

```
pbinom(30, 50, 0.8)
```

```
## [1] 0.0009324365
```

Let's work with Modern Dive, CH3 data wrangling

```
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(ggplot2)
library(nycflights13)
```

Using 03-wrangling

```r
summary_temp <- weather %>%
  summarize(mean = mean(temp, na.rm = TRUE),
            std_dev = sd(temp, na.rm = TRUE))
summary_temp
```

```
## # A tibble: 1 x 2
##    mean std_dev
##   <dbl>   <dbl>
## 1  55.3    17.8
```

```r
summary_monthly_temp <- weather %>%
  group_by(month) %>%
  summarize(mean = mean(temp, na.rm = TRUE),
            std_dev = sd(temp, na.rm = TRUE))
summary_monthly_temp
```

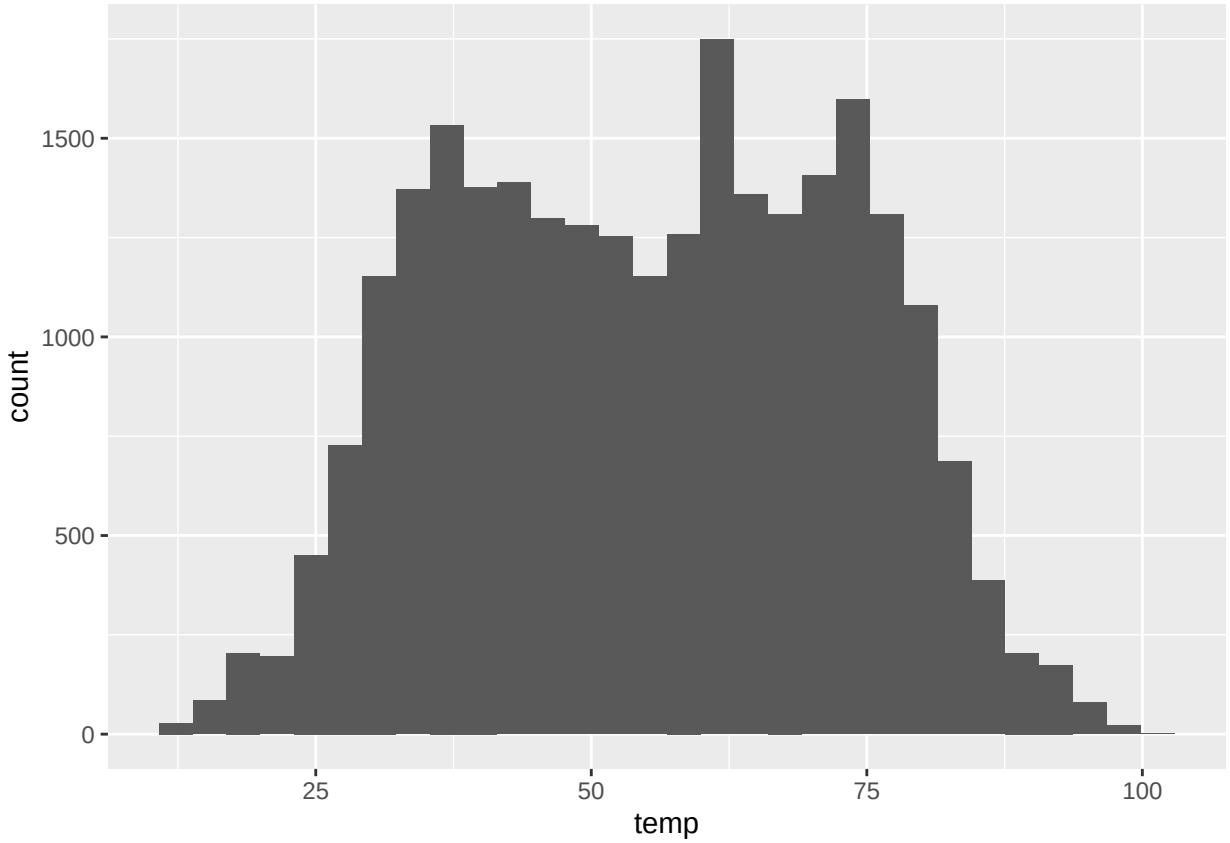
```
## # A tibble: 12 x 3
##    month  mean std_dev
##    <int> <dbl>   <dbl>
##  1     1  35.6   10.2
##  2     2  34.3    6.98
##  3     3  39.9    6.25
##  4     4  51.7    8.79
##  5     5  61.8    9.68
##  6     6  72.2    7.55
##  7     7  80.1    7.12
##  8     8  74.5    5.19
##  9     9  67.4    8.47
## 10    10  60.1    8.85
## 11    11  45.0   10.4
## 12    12  38.4    9.98
```

Exercises

```r
# Create a histogram for the temperature
ggplot(data = weather, mapping = aes(x = temp)) +
  geom_histogram()
```

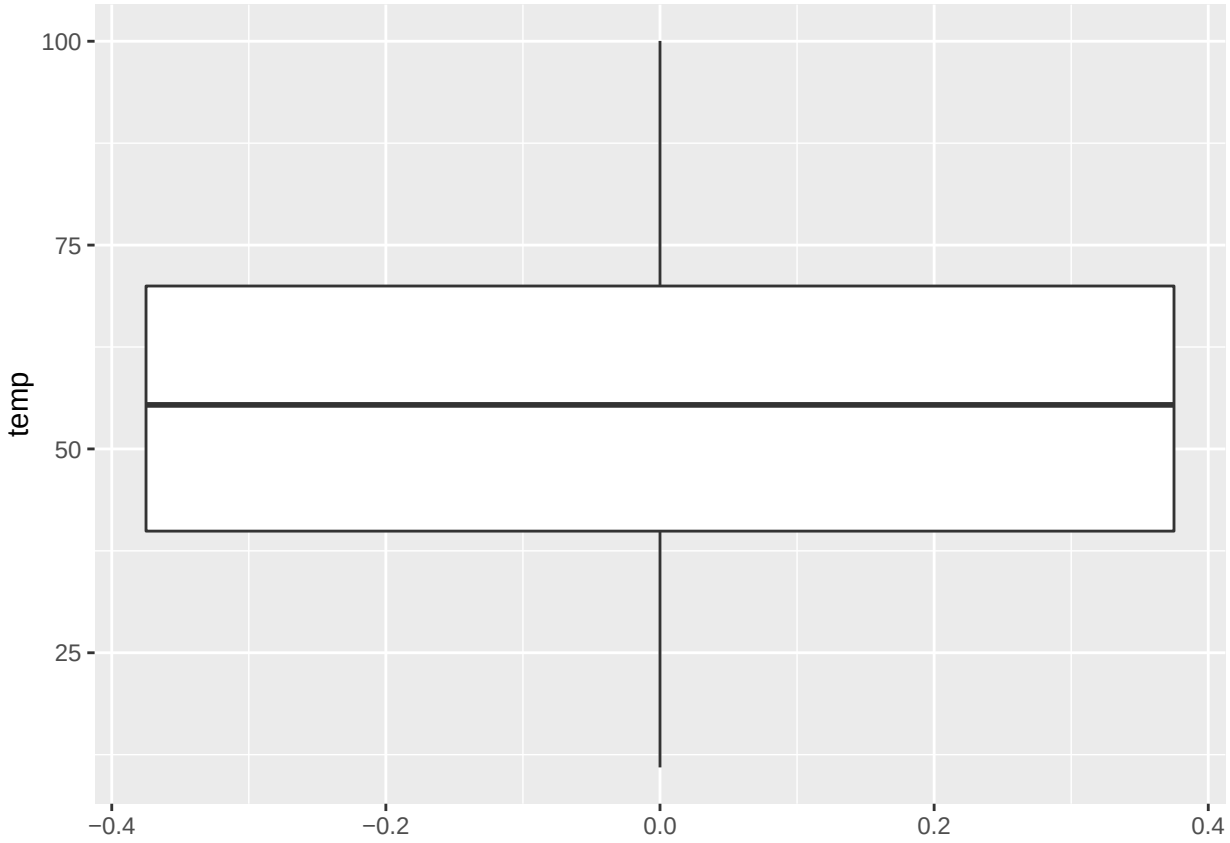
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

```
## Warning: Removed 1 rows containing non-finite values (stat_bin).
```



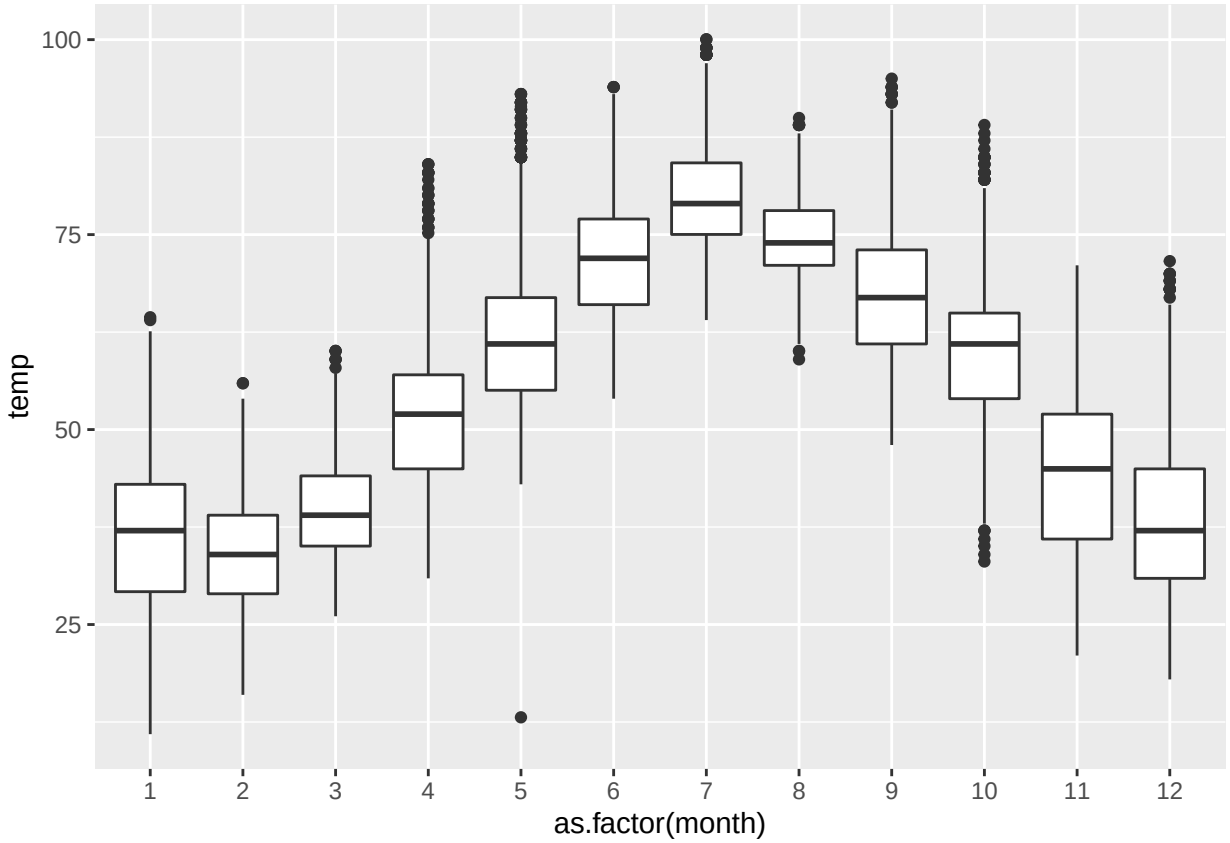

```
# Create a boxplot for the temperature
ggplot(data = weather, mapping = aes(y=temp)) +
  geom_boxplot()
```

```
## Warning: Removed 1 rows containing non-finite values (stat_boxplot).
```




```
# Create a boxplot for the temperature by month
ggplot(data = weather, mapping = aes(x = as.factor(month), y=temp)) +
        geom_boxplot()
```

```
## Warning: Removed 1 rows containing non-finite values (stat_boxplot).
```


100
75
50
25
temp
1
2
3
4
5
6
7
8
9
10
11
12
as.factor(month)