

Week 1 Task Solutions

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

Tasks

1. From the `flights` data set, subset the data for the airline carrier JetBlue Airways and produce a scatterplot of their departure delays against arrival delays using `ggplot`. Interpret the scatterplot.

```
JetBlue <- flights[flights$carrier == "B6", ]
ggplot(data = JetBlue, mapping = aes(x = dep_delay, y = arr_delay)) +
  geom_point() +
  labs(x = "Departure delay (minutes)", y = "Arrival delay (minutes)",
       title = "JetBlue Airways flights leaving NYC in 2013")
```

Warning: Removed 586 rows containing missing values (``geom_point()``).

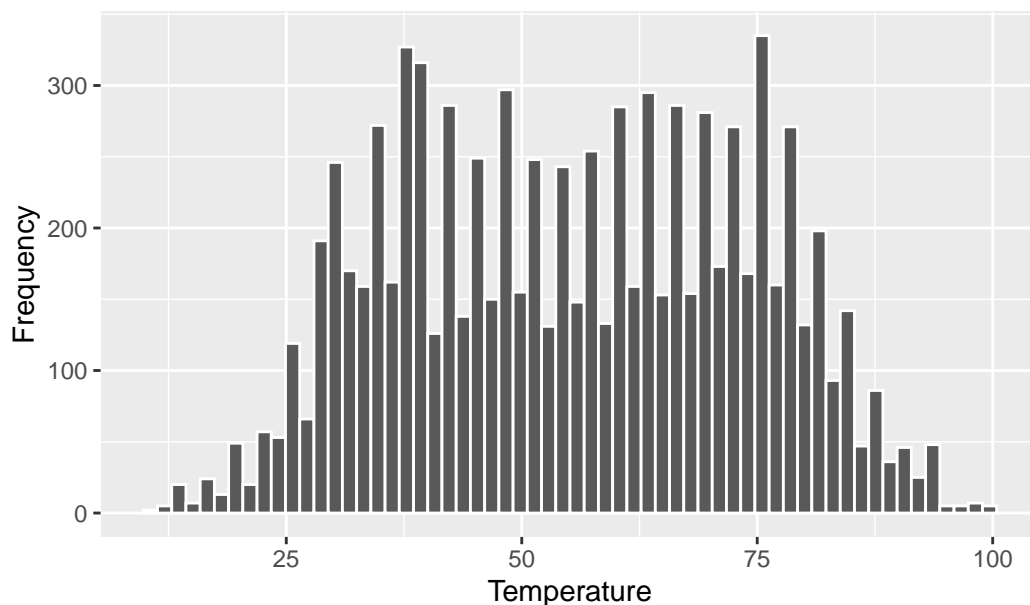


2. Produce a histogram of the hourly temperature from Newark Liberty International (EWR) Airport in 2013 using `ggplot`. How does the temperature distribution compare with that from all airports in New York City in 2013?

```
EWL.temps <- weather[weather$origin == "EWR", ]
ggplot(data = EWL.temps, mapping = aes(x = temp)) +
  geom_histogram(bins = 60, color = "white") +
  labs(x = "Temperature", y = "Frequency",
       title = "Hourly temperature at Newark Liberty International Airport in 2013")
```

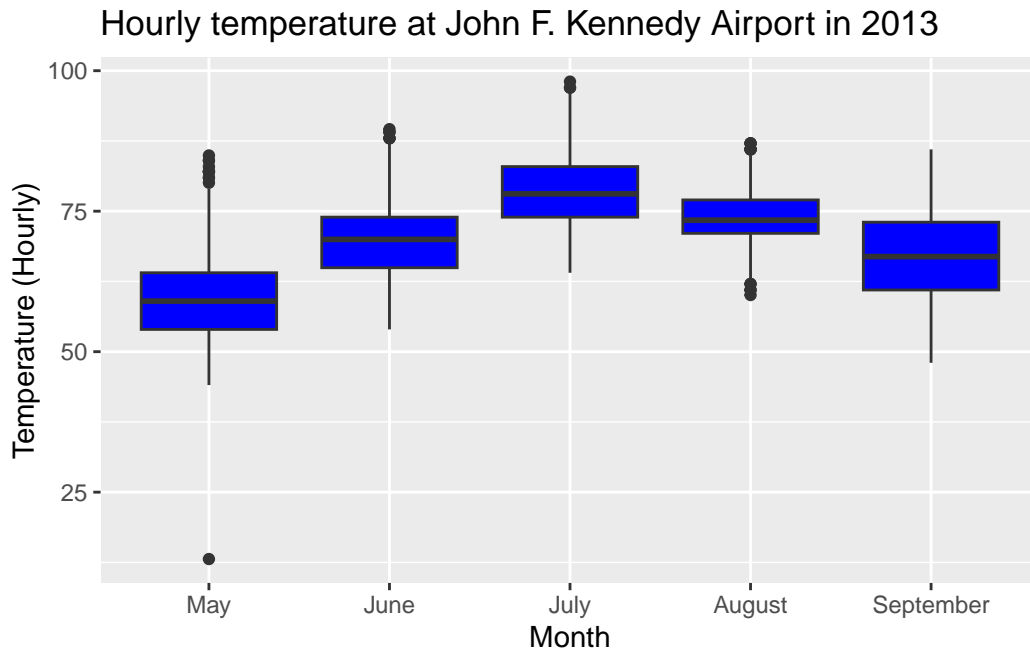
Warning: Removed 1 rows containing non-finite values (``stat_bin()``).

Hourly temperature at Newark Liberty International Airport in 2



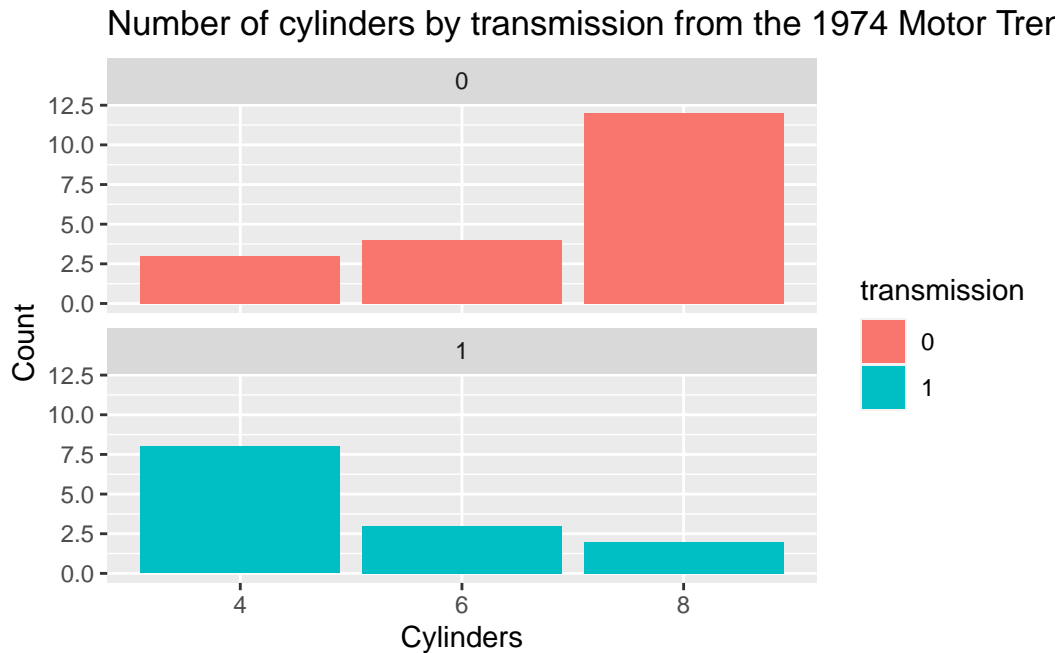
3. For John F. Kennedy Airport, produce boxplots (using a single `ggplot` command) of the hourly temperature for the months May, June, July, August and September. How does the hourly temperature change during this period?

```
JFK.temps <- weather[weather$origin == "JFK" & weather$month %in% 5:9, ]
ggplot(data = JFK.temps, mapping = aes(x = factor(month), y = temp)) +
  geom_boxplot(fill = "blue") +
  labs(x = "Month", y = "Temperature (Hourly)",
       title = "Hourly temperature at John F. Kennedy Airport in 2013") +
  scale_x_discrete(labels = c("May", "June", "July", "August", "September"))
```



- Take a look at the `mtcars` data set within the `datasets` library relating to data extracted from the 1974 *Motor Trend* US magazine. Using `ggplot`, produce a faceted barplot of the categorical variables relating to the number of cylinders (`cyl`) and the automobiles transmission (`am`). Interpret the barplot.

```
mt.cyls <- as.data.frame(table(mtcars$cyl, mtcars$am))
colnames(mt.cyls) <- c("cylinders", "transmission", "number")
ggplot(data = mt.cyls, mapping = aes(x = cylinders, y = number, fill = transmission)) +
  geom_col() +
  facet_wrap(~ transmission, ncol = 1) +
  labs(x = "Cylinders", y = "Count",
       title = "Number of cylinders by transmission from the 1974 Motor Trend US magazine")
```



5. Produce a linegraph of the hourly temperature at LAGuardia (LGA) Airport for the month of October 2013. Interpret the linegraph.

```
LGA.Oct <- weather[weather$origin == "LGA" & weather$month == 10, ]
ggplot(data = LGA.Oct, mapping = aes(x = time_hour, y = temp)) +
  geom_line() +
  labs(x = "Time (Hours)", y = "Temperature",
       title = "Hourly Temperature at LAGuardia Airport in October 2013")
```

Hourly Temperature at LAGuardia Airport in October 2013

