MAT 5650 HW 1

2022-08-30

Loading packages

```
library(ggplot2)
```

Question 1

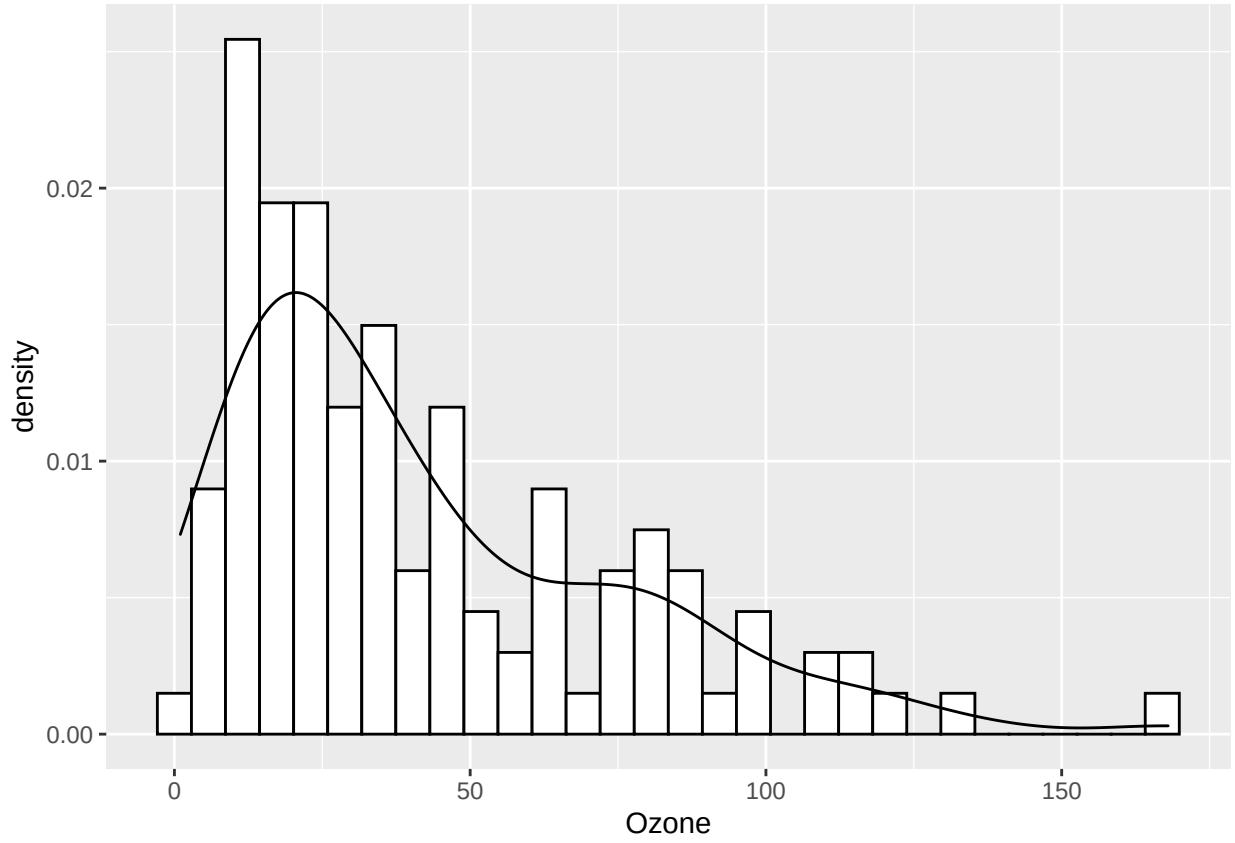
Part (a)

```
# Density histogram of Ozone from airquality df
ggplot(airquality, aes(x = Ozone)) +
  geom_histogram(aes(y = ..density..),
                 colour = 1, fill = "white") +
  geom_density()
```

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

```
## Warning: Removed 37 rows containing non-finite values (stat_bin).
```

```
## Warning: Removed 37 rows containing non-finite values (stat_density).
```

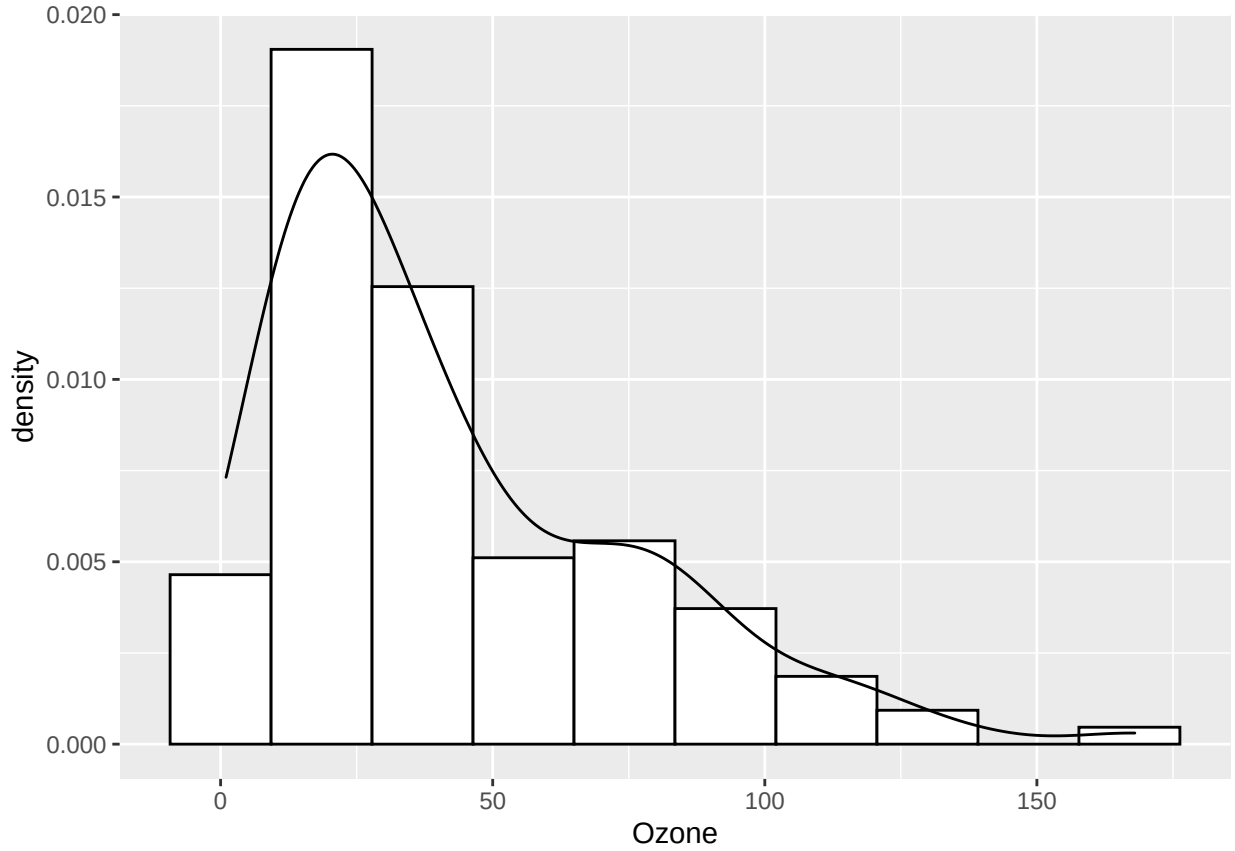


Part (b)

```
# Density histogram of Ozone from airquality df with 10 bins
ggplot(airquality, aes(x = Ozone)) +
  geom_histogram(aes(y = ..density..),
                 colour = 1, fill = "white",
                 bins = 10) +
  geom_density()
```

```
## Warning: Removed 37 rows containing non-finite values (stat_bin).
```

```
## Warning: Removed 37 rows containing non-finite values (stat_density).
```

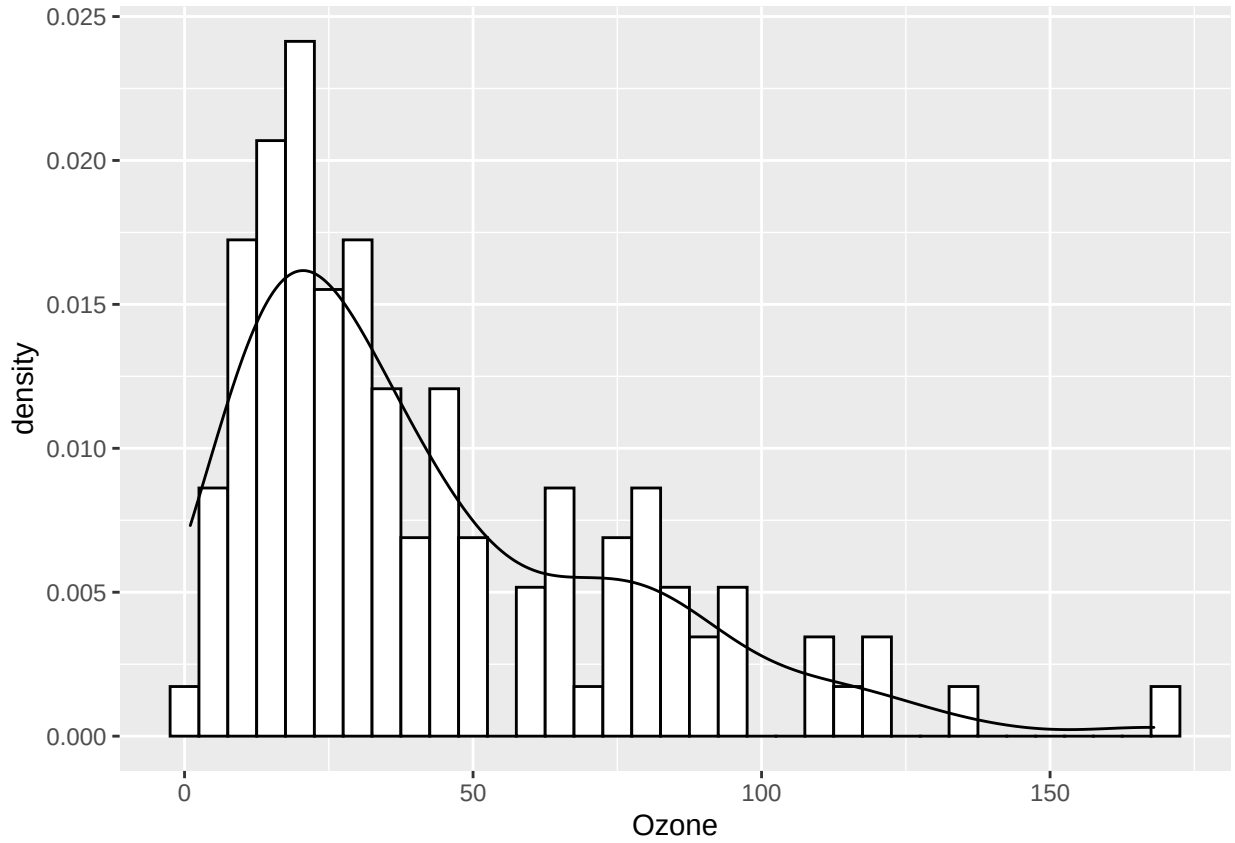


Part (c)

```
# Density histogram of Ozone from airquality df with binwidth of 5
ggplot(airquality, aes(x = Ozone)) +
  geom_histogram(aes(y = ..density..),
                 colour = 1, fill = "white",
                 binwidth = 5) +
  geom_density()
```

```
## Warning: Removed 37 rows containing non-finite values (stat_bin).
```

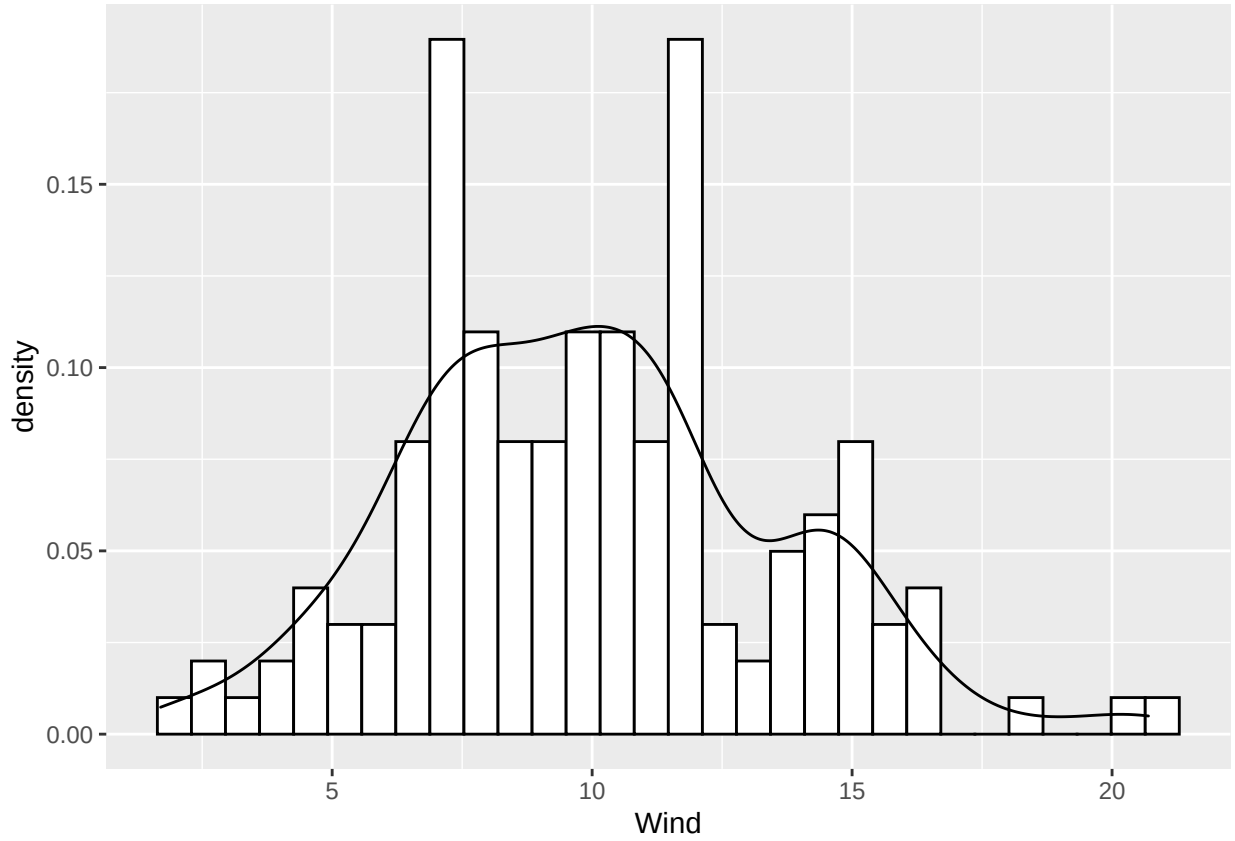
```
## Warning: Removed 37 rows containing non-finite values (stat_density).
```



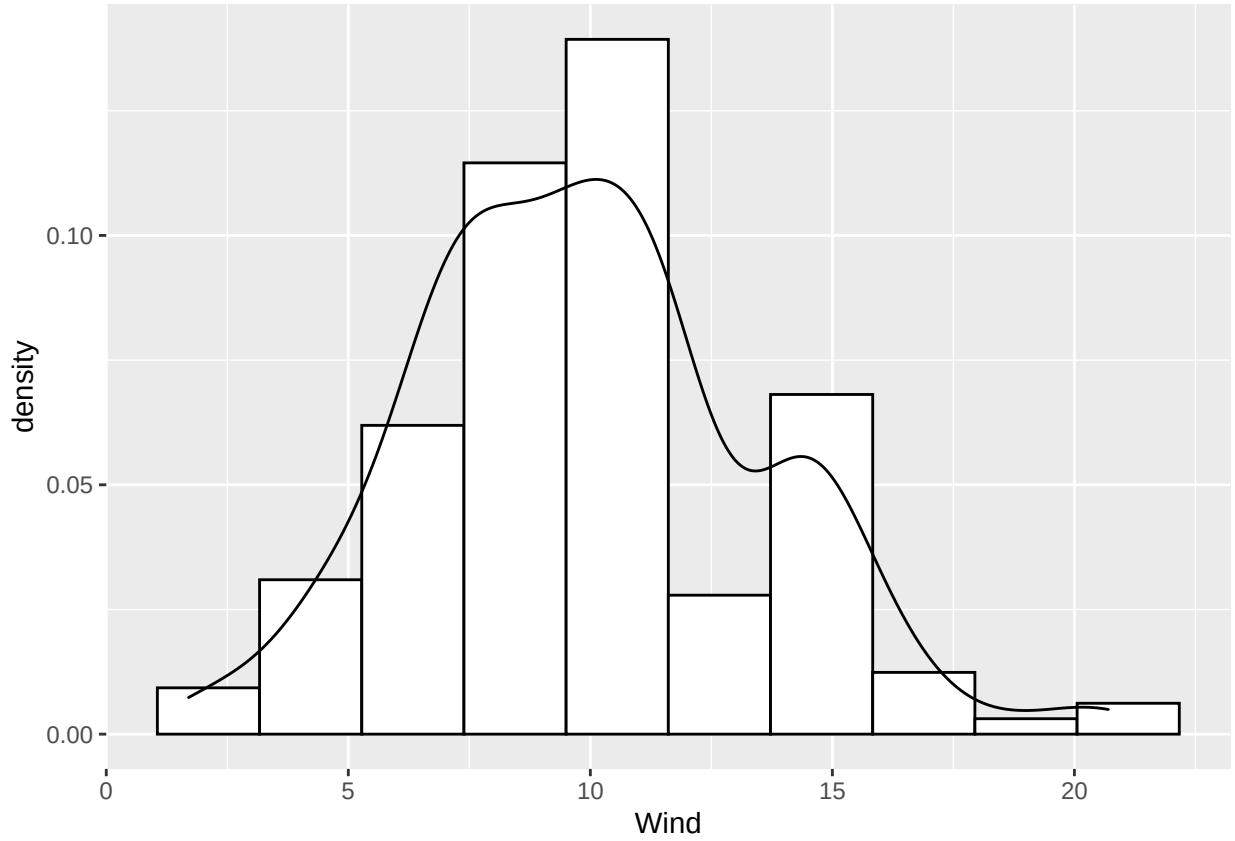
Part (d)

```
# Density histogram of Wind from airquality df
ggplot(airquality, aes(x = Wind)) +
  geom_histogram(aes(y = ..density..),
                 colour = 1, fill = "white") +
  geom_density()
```

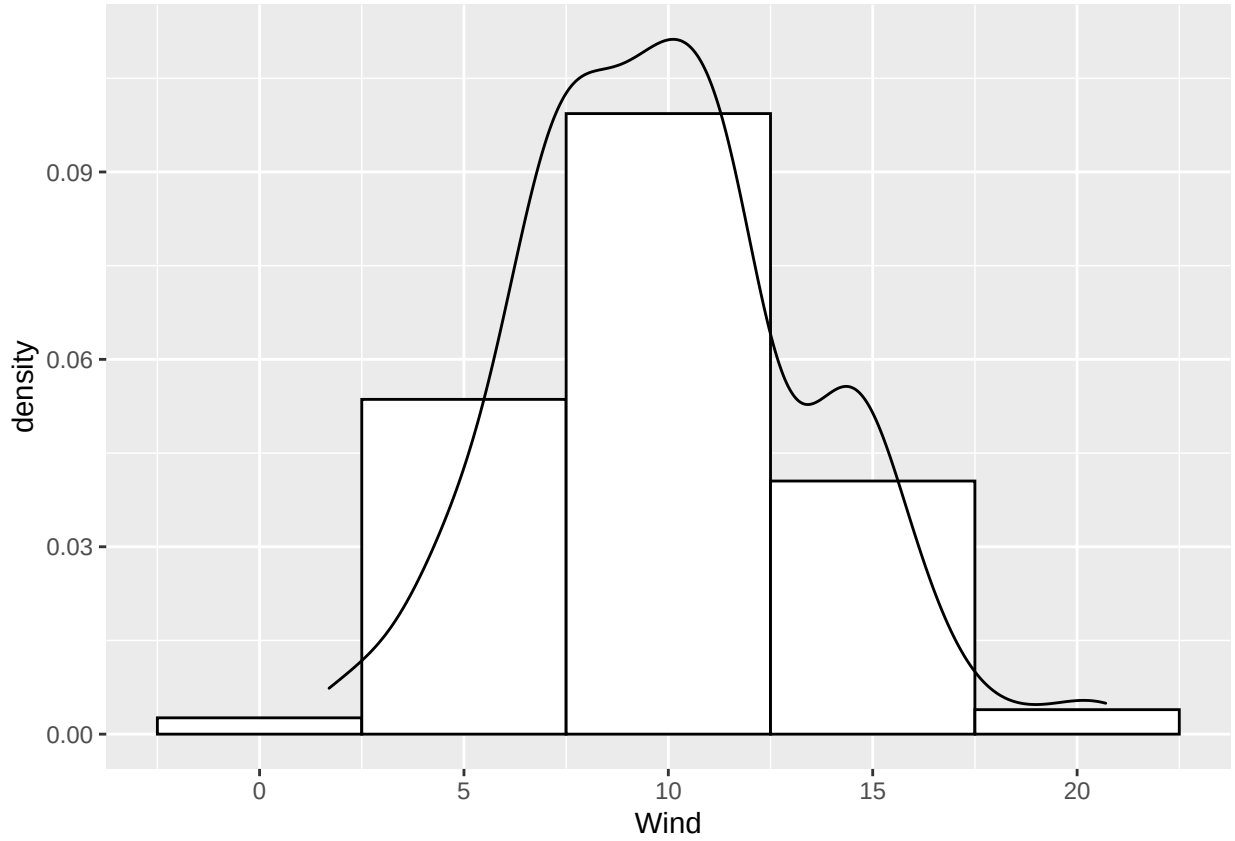
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```




```
# Density histogram of Wind from airquality df with 10 bins
ggplot(airquality, aes(x = Wind)) +
  geom_histogram(aes(y = ..density..),
                 colour = 1, fill = "white",
                 bins = 10) +
  geom_density()
```



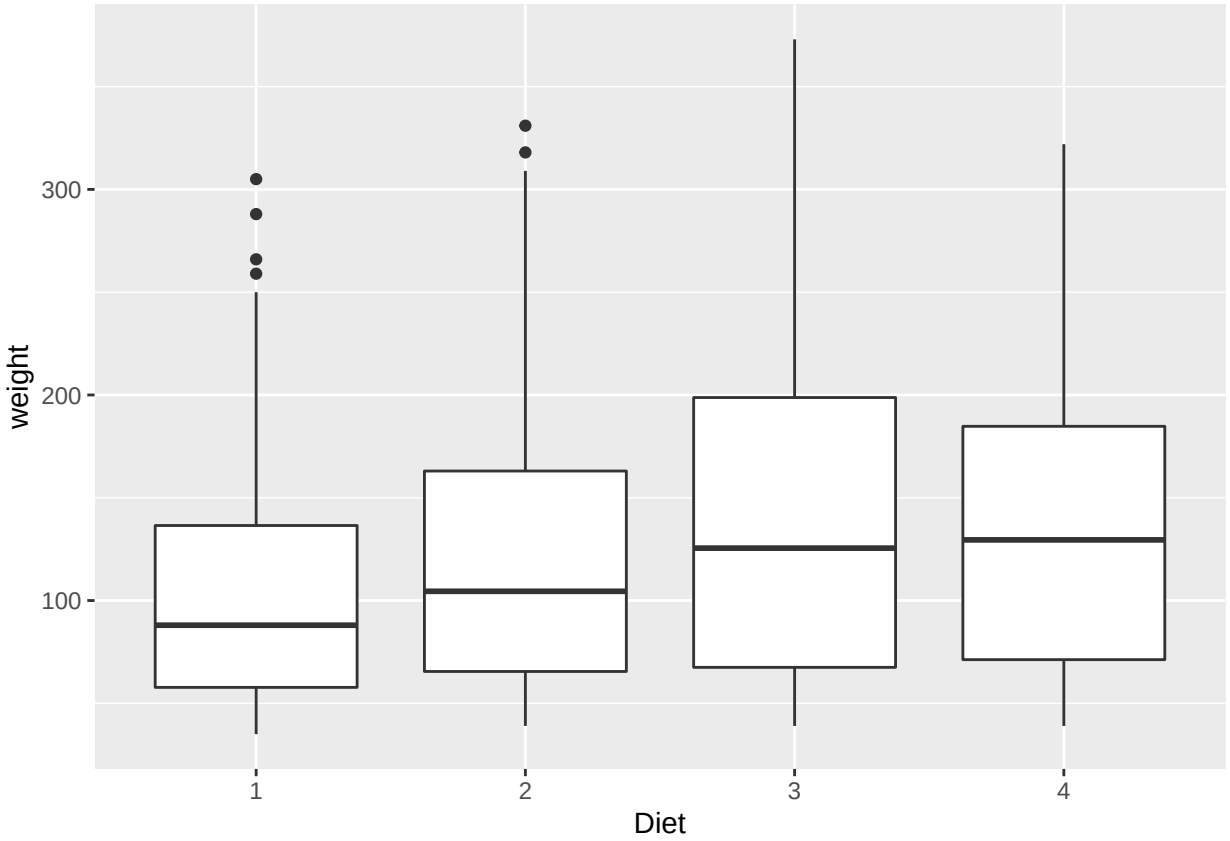

```
# Density histogram of Wind from airquality df with binwidth of 5
ggplot(airquality, aes(x = Wind)) +
  geom_histogram(aes(y = ..density..),
                 colour = 1, fill = "white",
                 binwidth = 5) +
  geom_density()
```



Question 2

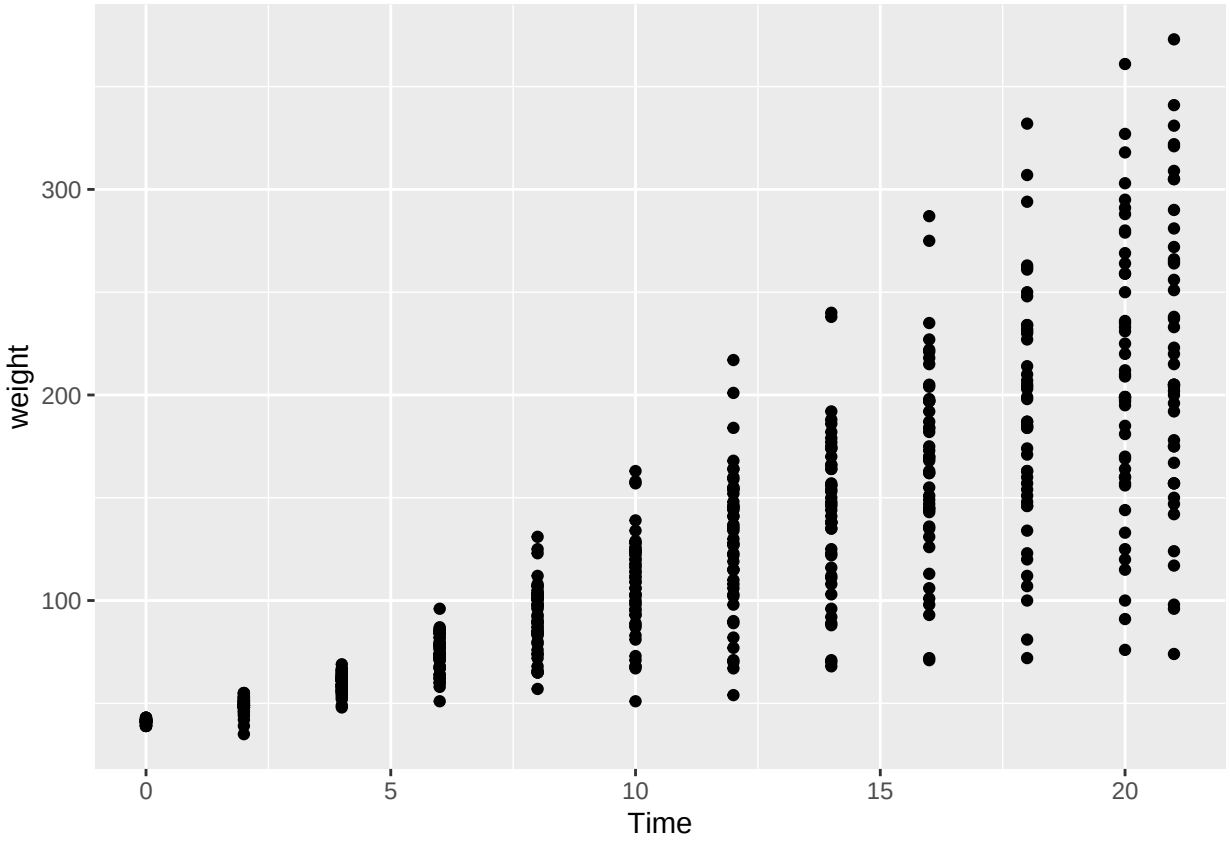
Part (a)

```
# Boxplot of Weight (y) VS Diet (x) from the Chickweight df
ggplot(ChickWeight, aes(x = Diet, y = weight)) +
  geom_boxplot()
```



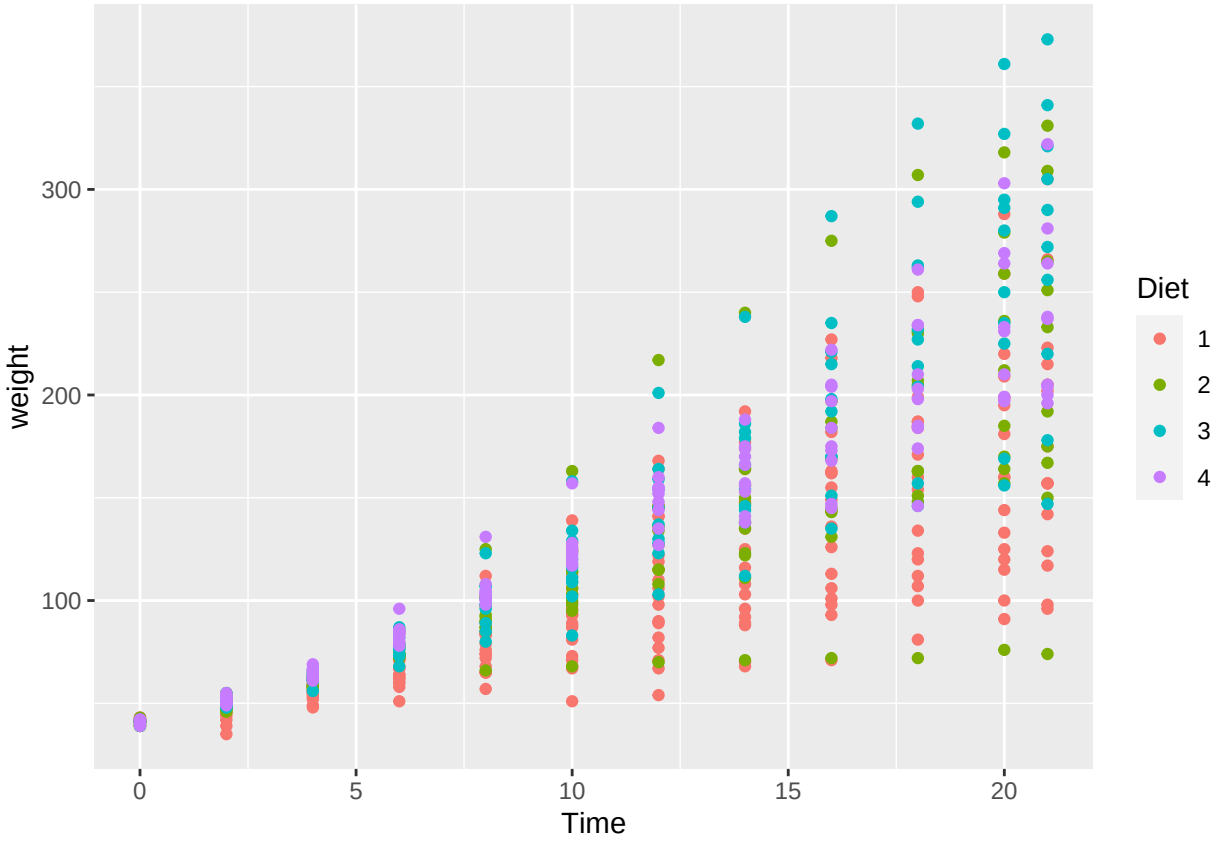
Part (b)

```
# Scatterplot of Weight (y) VS Time (x) from the Chickweight df
ggplot(ChickWeight, aes(x=Time, y=weight)) +
  geom_point()
```



Part (c)

```
# Scatterplot of Weight (y) VS Time (x) from the Chickweight df colored by Diet
ggplot(ChickWeight, aes(x=Time, y=weight, color = Diet)) +
  geom_point()
```



Part (d)

Variable descriptions - Weight is numerical discrete, but technically continuous, though the data is rounded to nearest natural number - Time is numerical discrete - Diet is a factor type variable with 4 levels