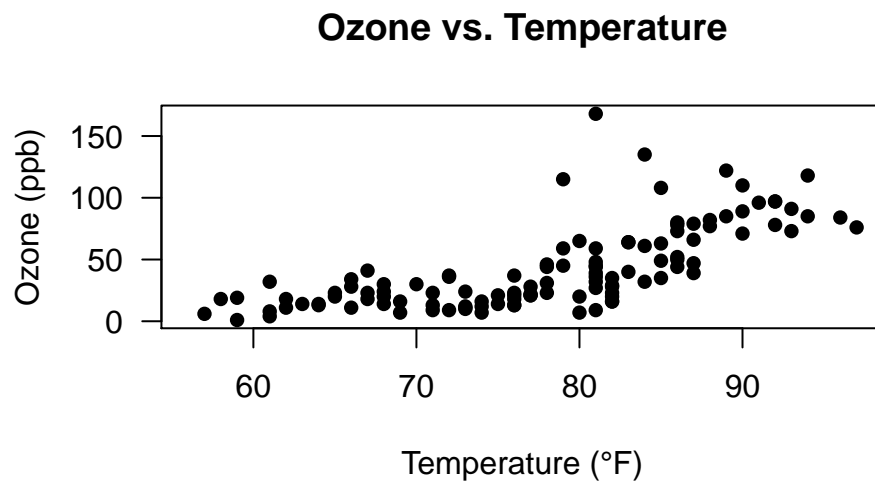


Exercise 5

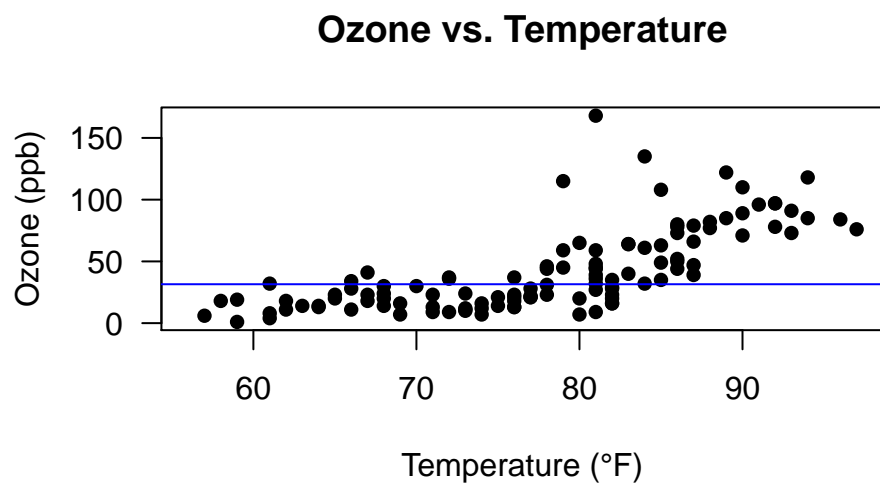
Data visualisation

Visualise the `airquality` dataset

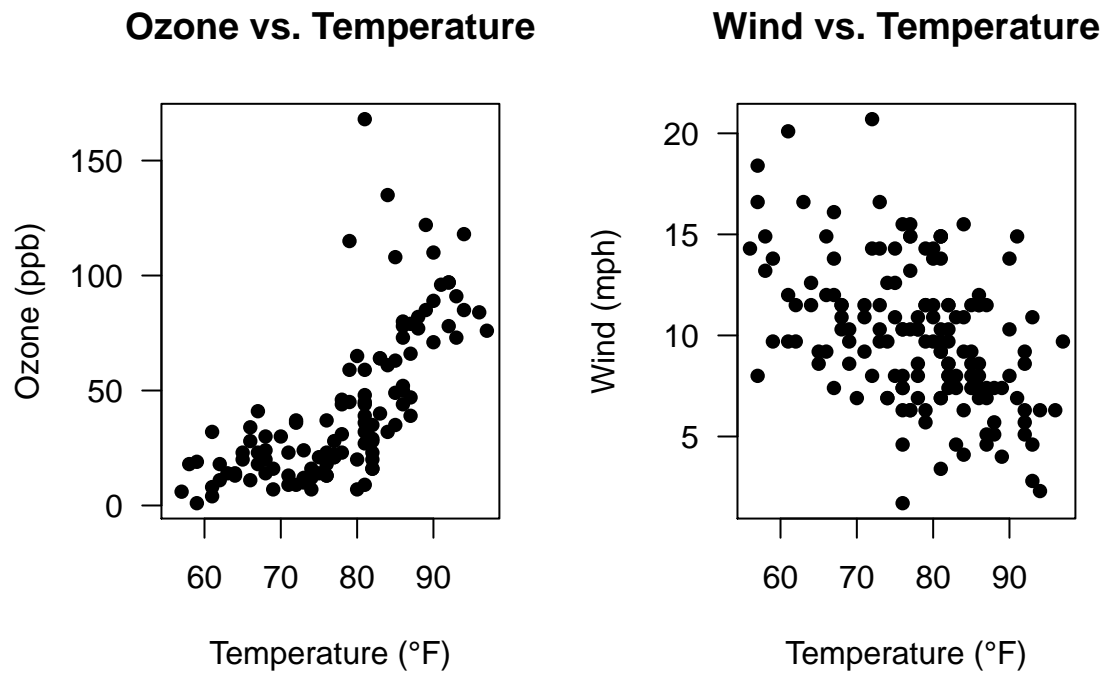
- i) Load the internal dataset `airquality`
- ii) Try to reproduce the plot shown below with `Temperature` on the x-axis and `Ozone` on the y-axis



- iii) Calculate the median ozone concentration and add it to the plot as a line



iv) Add a second plot on the right with `Temperature` on the x-axis and `Wind` on the y-axis



v) Save these plots as a PDF

For those who have time left:

vi) Calculate a linear regression between wind and temperature and add the regression line to the respective plot

Hints

- i) Load the `airquality` dataset
 - Use the command `data(airquality)` to load the dataset.
- ii) Try to reproduce the plot shown below with `Temperature` on the x-axis and `Ozone` on the y-axis
 - Axis labels: Check the arguments `xlab` and `ylab` (`?xlab`, `?ylab`)
 - Title: Check the argument `main` (`?main`)
 - Horizontal axis numbering: Check the argument `las` (`?las`)
- iii) Calculate the median ozone concentration and add it to the plot as a line
 - Use the command `median` to calculate the median
→ Do not forget to remove NA values with `na.rm = TRUE`
 - Use the function `abline` (`?abline`) to add a line to an existing plot
- iv) Add a second plot on the right with `Temperature` on the x-axis and `Wind` on the y-axis
 - Use the command `par(mfrow = c(1, 2))` to create two plot windows (`c(1, 2)` means 1 row and 2 columns).
- v) Save these plots as a PDF
Use the following structure:
 1. `pdf(file = "path_to_file/file_name.pdf")`
 2. Code to produce the plots (as many lines of code as needed)
 3. `dev.off()`
- vi) Calculate a linear regression between wind and temperature and add the regression line to the respective plot
 - Use the function `lm` (`?lm`) to calculate a linear regression
 - Use the function `abline` (`?abline`) to add the regression line to the plot