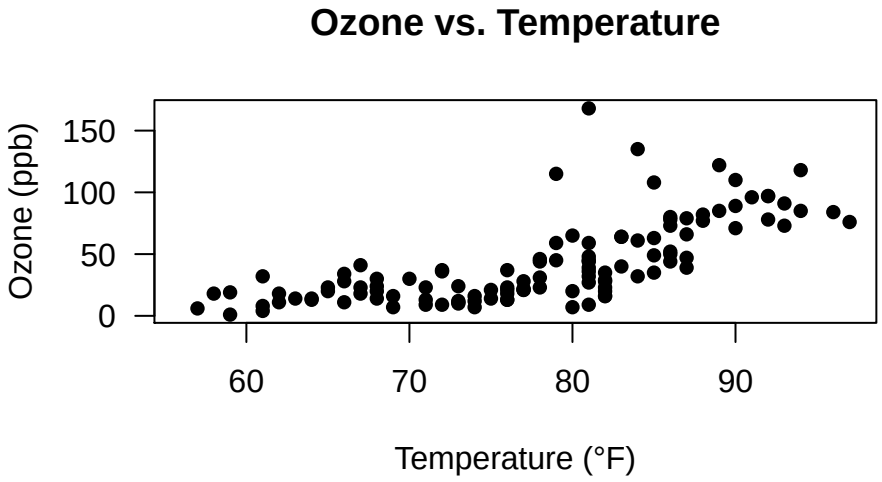
Exercise 4

Data visualisation

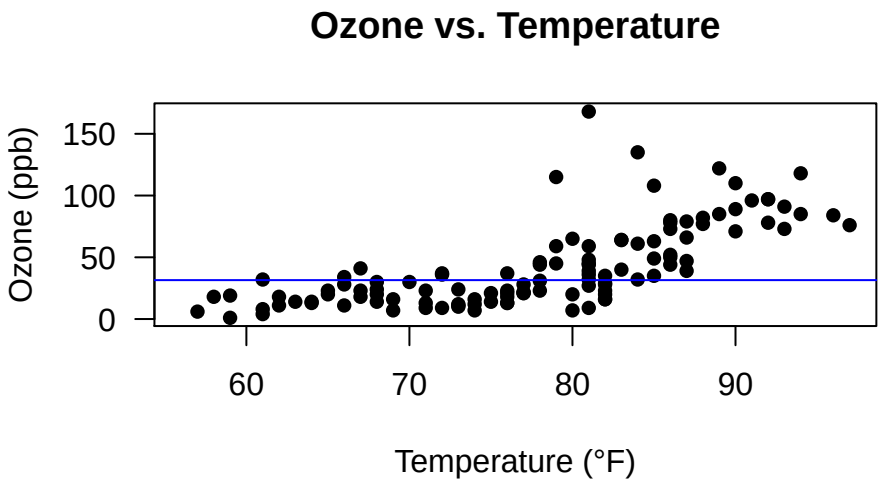
Plot the airquality dataset

i) Load the `airquality` dataset

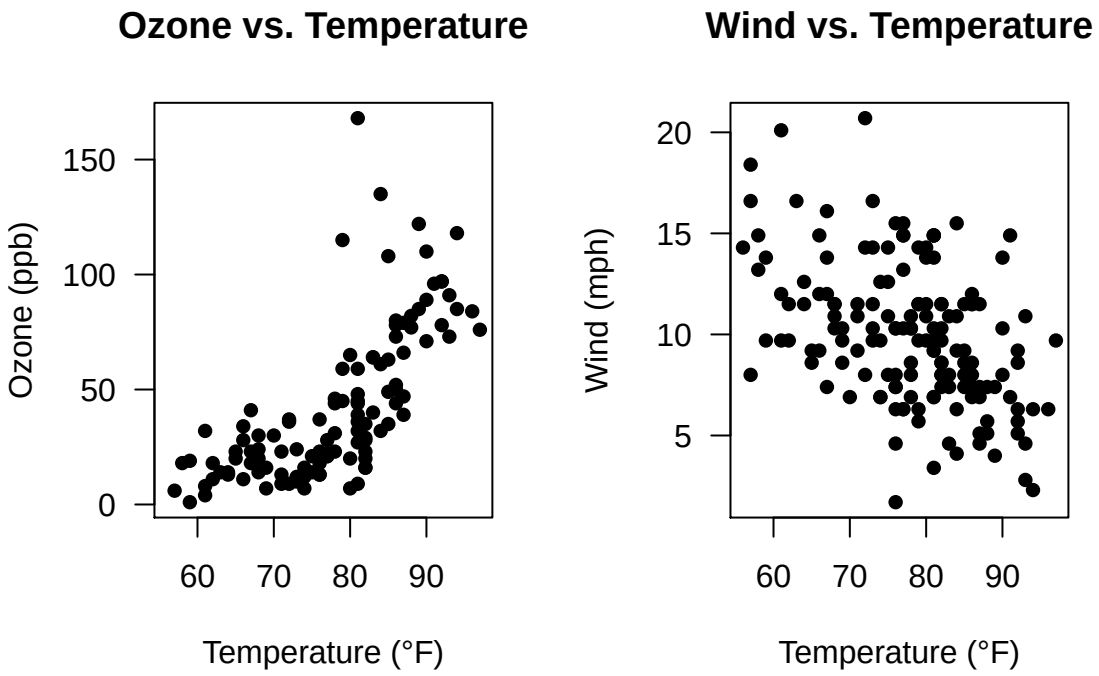
ii) Try to reproduce the plot shown below with `Temperature` on the x-axis and `Ozone` on the y-axis



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: `xlab = "some text"`, `ylab = "some text"`
- Title: `main = "some text"`
- Horizontal axis numbering: `las = 1`

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

- Use the command `median` to calculate the median ($\rightarrow$ Do not forget to remove `NA` values with `na.rm = TRUE`)
- Use the command `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). Alternatively you can use the command `layout(mat = matrix(c(1:2), ncol = 2))`.

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 command `lm(...)` (`?lm`) to calculate a linear regression
- Use the command `abline` to add the regression line to the plot