Exercise Sheet 2

Problem 1. The following code generate two variables X_1 and X_2 that are normally distributed with mean 0 and standard deviation 1. Variable Y is simulated following a linear model that only depends on X_1, i.e.,

$$Y = X_1 + \varepsilon,$$

where $\varepsilon \sim \mathcal{N}(0, 1)$ is the error term.

```
set.seed(45028)
x1 <- rnorm(100)
x2 <- rnorm(100)

y <- 5 + 3 * x1 + rnorm(100)
```

Use the tools of reproducible research to generate a .html or .pdf report that contains:

(a) Two plots arranged side by side that explore the relation between Y and X_1, and Y and X_2, respectively.

(b) The results of the following linear model fits

- $Y = \beta X_1 + \varepsilon$
- $Y = \beta X_1 + \beta X_2 + \varepsilon$

in **one** table.

Please return the source file as well as the resulting pdf or html file.