BDA - Assignment X

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Introduction

This is a template with format instructions for Assignments in the Bayesian Data Analysis course at Aalto University. R markdown is a convenient way of writing exercise reports by combining text and R code using markdown syntax. To create your assignment, remove the formatting instructions and use this file as a template. Keep the header (the first lines of this file between two lines of —) as it sets the author name to be anonymous, and you can set the title to match the assignment number.

R markdown makes it easy to make a structured document with section and subsection titles, textual explanations, equations, code and figures in logical order. When you make changes to the code and re-run the notebook or "knit" (render) it to PDF, the relevant code is re-run and the figures and results are updated without need to copy and past (which is probe to errors).

To edit R Markdown you can use any editor, but RStudio's visual R markdown editor is probably easiest, as you immediately see how it looks and can choose formatting (e.g. section headings, bolding, lists, figures, etc.) from the toolbar.

More information on how to use markdown, see https://github.com/adam-p/markdown-here/wiki/ Markdown-Cheatsheet and more information on R markdown can be found at https://www.rstudio.com/wp-content/uploads/2015/02/rmarkdown-cheatsheet.pdf.

Also, *R Markdown: The Definite Guide*, an extensive book on R Markdown can be found at https:// bookdown.org/yihui/rmarkdown/.

Note The report should be anonymous and submitted to peergrade.io as `assignmentX.pdf`. If you have problem with creating a PDF file directly from R markdown, start by creating an HTML file and the just print the HTML to a PDF. You may also use other software to create the report pdf, but follow the general instructions in this file (see the pdf version this file).

Loaded packages

Below are examples of how to load packages that are used in the assignment. After installing the `aaltobda` package, you need to also load it in the beginning of every notebook where you want to use it with `library()` function:

```
# To install aaltobda, see the General information in the assignment.
library(aaltobda)
```

```
library(ggplot2)
# see themes at https://ggplot2.tidyverse.org/reference/ggtheme.html
theme_set(theme_classic())
qplot(drowning$year, drowning$drownings)+
  labs(x="Year", y="Drownings")
```

```
## Warning: 'qplot()' was deprecated in ggplot2 3.4.0.
```
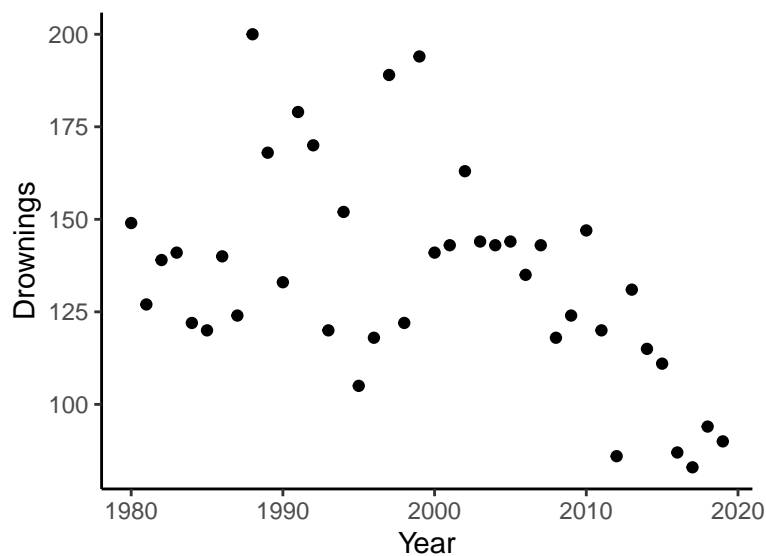

Figure 1: Number of drownings per year with qplot.

Or using ggplot from ggplot2 package without pipe. In the following code bloc `eval=FALSE` is used to show the code, but not display the same plot again.

```
ggplot(data=drowning, aes(x=year, y=drownings)) +
  geom_point() +
  labs(x='Year', y='Number of drownings')
```