

## POLS/COMS228 – Data Visualisation

### HW 2

You will submit your homework as 2 files: 1) an R Markdown (.Rmd) file and 3) HTML file knitted from your R Markdown file. You must upload both files to AKO|LEARN using Xxx.Rmd and Xxx.html as file names where Xxx is your last name.

I will review both your files. To receive full credit:

- You must submit your files on time. They must be named exactly as specified, and your .Rmd file must knit without errors to produce a .html file. Double check your file for errors before submitting.
- The .html file should read as a well written report with plots and your comments and answers included in the file. Your report should not contain any extra or foreign material, such as leftovers from code or notes.
- The code in your .Rmd files must be clear, readable, and well organized.

#### 1. Responses to immigration questions from WVS

Load "immigration.csv" file. The file contains data for the following question: From your point of view, what have been the effects of immigration on the development of New Zealand? For each of the following statements about the effects of immigration, please indicate whether you agree or disagree with it: Fills important job vacancies; Strengthens cultural diversity, Increases the crime rate, Gives asylum to political refugees who are persecuted elsewhere."

The dataset provides you row counts and percentages of each possible response to each question. The responses are recorded as Agree, Disagree, Hard to say, and No Response (missing values).

##### Codebook:

value - indicates possible responses: Agree, Disagree, Hard to say, No response

n - row count of responses for each category

freq - percentage of responses for each category

var - indicates WVS questions such as:

fills\_job - Fills important job vacancies;

cult\_div - Strengthens cultural diversity,

crime - Increases the crime rate,

refugee - Gives asylum to political refugees who are persecuted elsewhere.

For example, the first row of data indicates that 86 respondents (8.1% of respondents) said they disagree with the statement that immigration fills important job vacancies.

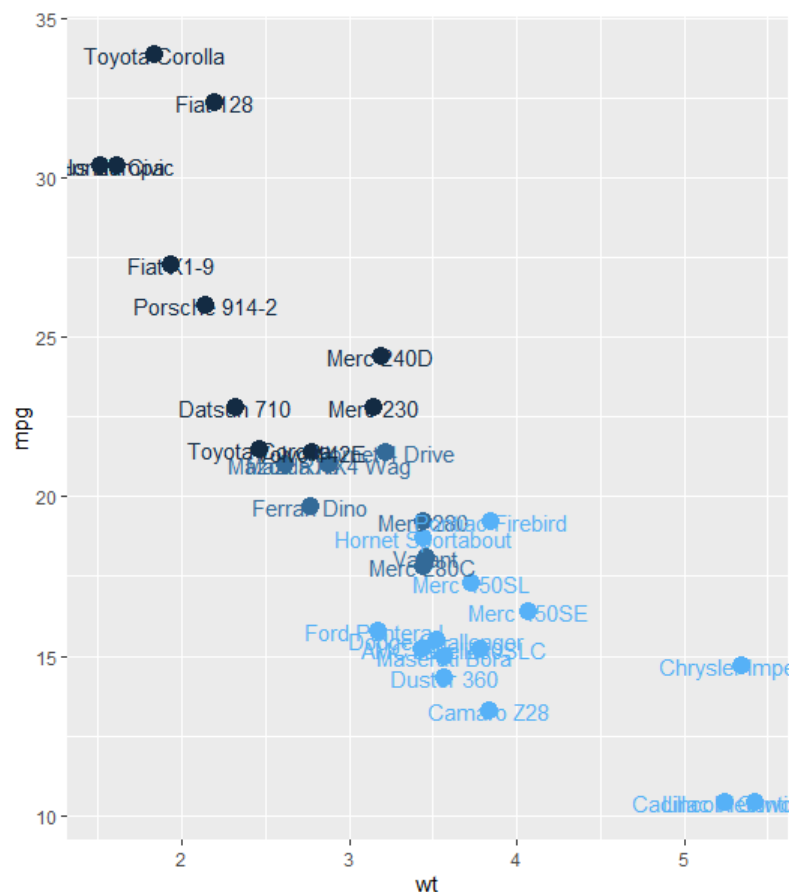
**1.1** Plot the data, following the example from Tutorial 2. Plot values for "Agree" and "Disagree" using a divergent bar chart: Plot1. Plot values for "Hard to Say" in a separate chart as a simple bar chart: Plot2. Plot "No Response" values in a third bar chart: Plot3.

**1.2.** next, plot your three bar charts (a divergent bar chart and two simple bar charts) side-by-side with Plot1 being on the left. Make sure your final chart has meaningful value labels for the categories (e.g. Fills important job vacancies; Strengthens cultural diversity, Increases the crime rate, Gives asylum to political refugees who are persecuted elsewhere), has a title, and provides information to the source of data.

You are welcome to experiment with different themes. `ggthemes` package supplies 19 additional themes to those included in ggplot. Install `ggthemes` library by running ``install.packages("ggthemes")``. Don't forget to load the library before using it. You can find the full description of the themes and some examples here <https://rkabacoff.github.io/datavis/Customizing.html#pre-packaged-themes>.

**Report all your work.**

## 2. Analyse the graph



Lindsey is new to R and is eager to learn more about data visualising. For a HW assignment, Lindsey produced this scatterplot using mtcars dataset in R and the following code:

```
ggplot(mtcars, aes(x=wt, y=mpg, color=cyl)) +
  geom_point(size=4) +
  geom_text(label=rownames(mtcars))
```

**2.1** Read about the dataset and variables Lindsey used here

<https://www.rdocumentation.org/packages/datasets/versions/3.6.2/topics/mtcars>.

**2.2** Provide descriptions for variables mpg, wt, and cyl.

**2.3** In 2-3 sentences describe what the graph plots and the trend you observe. Provide 2 suggestions for improvement.