Templating

2025-04-12

A function that creates tables

```
create_table <- function(dataset, var){
table(dataset[var]) |>
knitr::kable()
}
```

The function above uses the `table()` function to create frequency tables, and then this gets passed to the `knitr::kable()` function that produces a good looking table for our rendered document:

```
create_table(mtcars, "am")
```

am	Freq
0	19
1	13

Let's suppose that we want to generate a document that would look like this:

- first a section title, with the name of the variable of interest
- then the table

So it would look like this:

Frequency table for variable: "am"

```
create_table(mtcars, "am")
```

am	Freq
0	19
1	13

We don't want to create these sections for every variable by hand. Instead, we can define a function that returns the R markdown code required to create this. This is this function:

```
return_section <- function(dataset, var){
a <- knitr::knit_expand(text = c(
"## Frequency table for variable:{{variable}}",
create_table(dataset, var)),
variable = var)
cat(a, sep = "\n")
}
```

This new function, `return_section()` uses `knitr::knit_expand()` to generate RMarkdown code. Words between `{{}}` get replaced by the provided `var` argument to the function.

So when we call `return_section("am")`, `{{variable}}` is replaced by `"am"`. `"am"`

then gets passed down to `create_table()` and the frequency table gets generated. We can now generate all the section by simply applying our function to a list of column names:

```
invisible(lapply(colnames(mtcars), return_section, dataset = mtcars))
```

Frequency table for variable:mpg

mpg	Freq
10.4	2
13.3	1
14.3	1
14.7	1
15	1
15.2	2
15.5	1
15.8	1
16.4	1
17.3	1
17.8	1
18.1	1
18.7	1
19.2	2
19.7	1
21	2
21.4	2
21.5	1
22.8	2
24.4	1
26	1
27.3	1
30.4	2
32.4	1
33.9	1

Frequency table for variable:cyl

cyl	Freq
4	11
6	7
8	14

Frequency table for variable:disp

disp	Freq
71.1	1
75.7	1
78.7	1
79	1
95.1	1
108	1
120.1	1
120.3	1
121	1
140.8	1
145	1
146.7	1
160	2
167.6	2
225	1
258	1
275.8	3
301	1
304	1
318	1
350	1
351	1
360	2
400	1
440	1
460	1
472	1

Frequency table for variable:hp

hp	Freq
52	1
62	1
65	1
66	2
91	1
93	1
95	1
97	1
105	1

hp	Freq
109	1
110	3
113	1
123	2
150	2
175	3
180	3
205	1
215	1
230	1
245	2
264	1
335	1

Frequency table for variable:drat

drat	Freq
2.76	2
2.93	1
3	1
3.07	3
3.08	2
3.15	2
3.21	1
3.23	1
3.54	1
3.62	1
3.69	1
3.7	1
3.73	1
3.77	1
3.85	1
3.9	2
3.92	3
4.08	2
4.11	1
4.22	2
4.43	1
4.93	1

Frequency table for variable:wt

wt	Freq
1.513	1
1.615	1
1.835	1
1.935	1

wt	Freq
2.14	1
2.2	1
2.32	1
2.465	1
2.62	1
2.77	1
2.78	1
2.875	1
3.15	1
3.17	1
3.19	1
3.215	1
3.435	1
3.44	3
3.46	1
3.52	1
3.57	2
3.73	1
3.78	1
3.84	1
3.845	1
4.07	1
5.25	1
5.345	1
5.424	1

Frequency table for variable:qsec

qsec	Freq
14.5	1
14.6	1
15.41	1
15.5	1
15.84	1
16.46	1
16.7	1
16.87	1
16.9	1
17.02	2
17.05	1
17.3	1
17.4	1
17.42	1
17.6	1
17.82	1
17.98	1
18	1
18.3	1
18.52	1
18.6	1

qsec	Freq
18.61	1
18.9	2
19.44	1
19.47	1
19.9	1
20	1
20.01	1
20.22	1
22.9	1

Frequency table for variable:vs

vs	Freq
0	18
1	14

Frequency table for variable:am

am	Freq
0	19
1	13

Frequency table for variable:gear

gear	Freq
3	15
4	12
5	5

Frequency table for variable:carb

carb	Freq
1	7
2	10
3	3
4	10
6	1
8	1