

Communication with RMarkdown

Business Science

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RMarkdown

Is amazing.

What can RMarkdown be used for?

1. HTML Reports & PDF Reports
2. HTML Slide Decks & PowerPoint
3. Interactive Dashboards
4. Books with `bookdown`
5. Websites with `blogdown`

Key Resources

- RMarkdown Website with Gallery
- Key Reference: RMarkdown - The Definitive Guide
- PDF Printing Setup: `tinytex`

```
# PDF Knitting Setup: https://yihui.name/tinytex/  
# install.packages("tinytex")  
# tinytex::install_tinytex()
```

How Rmarkdown Works

Header 1

Header 2

Header 3

Working with Text

Free-form text.

Make text **bold**.

Make text *italics*.

Make text ***bold + italics***.

Talk about code - the `tidyverse` is awesome

Unordered List:

- Item 1
- Item 2

Ordered List:

1. First point
2. Second point
3. More points

Tabset

Tab 1

This is Tab 1

Tab 2

This is Tab 2

Images



Figure 1: Business Science Logo



Figure 2: Business Science Logo

Code

Read in data and print to HTML. Notice effect of `df_print`: `paged` option for HTML.

- Try changing to `df_print`: `default`, or `kable` or `tibble`. PDF prints normally.
- Try changing `results` = `"hide"`.

```
bike_orderlines_tbl <- read_rds("../00_data/bike_sales/data_wrangled/bike_orderlines.rds")
```

```
bike_orderlines_tbl
```

```
## # A tibble: 15,644 x 13
```

```
##   order_date      order_id order_line quantity price total_price model  
##   <dtm>          <dbl>     <dbl>    <dbl> <dbl>      <dbl> <chr>
```

```
## 1 2011-01-07 00:00:00      1      1      1 6070      6070 Jeky~
## 2 2011-01-07 00:00:00      1      2      1 5970      5970 Trig~
## 3 2011-01-10 00:00:00      2      1      1 2770      2770 Beas~
## 4 2011-01-10 00:00:00      2      2      1 5970      5970 Trig~
## 5 2011-01-10 00:00:00      3      1      1 10660     10660 Supe~
## 6 2011-01-10 00:00:00      3      2      1 3200      3200 Jeky~
## 7 2011-01-10 00:00:00      3      3      1 12790     12790 Supe~
## 8 2011-01-10 00:00:00      3      4      1 5330      5330 Supe~
## 9 2011-01-10 00:00:00      3      5      1 1570      1570 Syna~
## 10 2011-01-11 00:00:00     4      1      1 4800      4800 Syna~
## # ... with 15,634 more rows, and 6 more variables: category_1 <chr>,
## #   category_2 <chr>, frame_material <chr>, bikeshop_name <chr>, city <chr>,
## #   state <chr>
```

We can do data manipulations too. Try changing the YAML `code_folding` option from `none` to `hide` to show.

```
revenue_by_category_tbl <- bike_orderlines_tbl %>%
  select(category_2, category_1, total_price) %>%

  group_by(category_2, category_1) %>%
  summarise(total_revenue = sum(total_price)) %>%
  ungroup() %>%

  arrange(desc(total_revenue)) %>%
  mutate(category_2 = as_factor(category_2) %>% fct_rev())
```

Plots

Plotting works as expected. Try changin:

- `out.height`, `out.width` and Knitting
- Potential gotcha - Interactive plots (e.g. `plotly`) will not display in PDF

Static Plots:

- Use `ggplot2`.

```
g <- revenue_by_category_tbl %>%
  ggplot(aes(category_2, total_revenue, fill = category_1)) +

  # Geoms
  geom_col() +
  coord_flip() +

  # Formatting
  scale_fill_tq() +
  scale_y_continuous(labels = scales::dollar_format(scale = 1e-6, suffix = "M")) +
  theme_tq() +
  labs(
```

```

    title = "Total Revenue by Category",
    x = "", y = "", fill = ""
  )

```

g

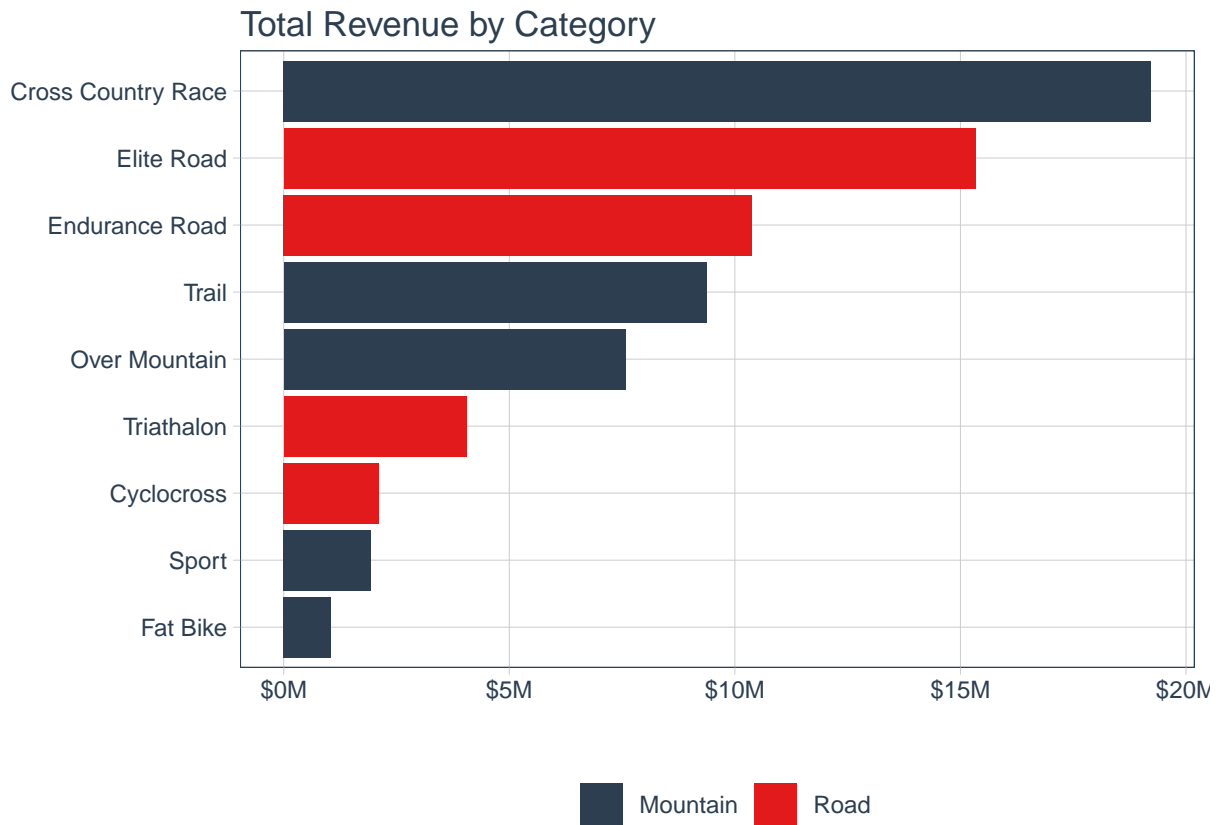


Figure 3: Revenue by Category

Interactive plots:

- Use `ggplotly()`.

```
# ggplotly(g)
```

Tables

Static Tables:

- `knitr` package - `knitr::kable()` - Simple to use, great with PDF
- `gt` package - Not on CRAN yet, but really good for static tables

```
table_formatted_tbl <- revenue_by_category_tbl %>%
  mutate(total_revenue = scales::dollar(total_revenue)) %>%
  rename_all(.funs = ~ str_replace(., "_", " ")) %>%
  str_to_title())

table_formatted_tbl %>% knitr::kable()
```

Category 2	Category 1	Total Revenue
Cross Country Race	Mountain	\$19,224,630
Elite Road	Road	\$15,334,665
Endurance Road	Road	\$10,381,060
Trail	Mountain	\$9,373,460
Over Mountain	Mountain	\$7,571,270
Triathlon	Road	\$4,053,750
Cyclocross	Road	\$2,108,120
Sport	Mountain	\$1,932,755
Fat Bike	Mountain	\$1,052,620

Dynamic Tables:

- Can print tables without additional formatting in HTML with the `df_print: paged` option in YAML
- Potential Gotcha: Note that this will not print with format in PDF

```
table_formatted_tbl
```

```
## # A tibble: 9 x 3
##   'Category 2'      'Category 1' 'Total Revenue'
##   <fct>          <chr>         <chr>
## 1 Cross Country Race Mountain    $19,224,630
## 2 Elite Road      Road        $15,334,665
## 3 Endurance Road  Road        $10,381,060
## 4 Trail           Mountain    $9,373,460
## 5 Over Mountain  Mountain    $7,571,270
## 6 Triathlon       Road        $4,053,750
## 7 Cyclocross      Road        $2,108,120
## 8 Sport           Mountain    $1,932,755
## 9 Fat Bike        Mountain    $1,052,620
```

Footnotes

This is some text with a Footnote¹. This is a second Footnote².

¹Citation for Footnote 1

²Citatin for Footnote 2