Adding a table of contents

REPORTING WITH R MARKDOWN

Amy Peterson
Head of Core Curriculum at DataCamp

datacamp

Table of contents

```
---
title: "Investment Report"
output:
  html_document:
    toc: true
date: "`r format(Sys.time(), '%d %B %Y')`"
---
```

Investment Report

08 May 2020

- Datasets
  - Investment Annual Summary
  - Investment Projects from the 2012 to 2018 Fiscal Years
  - Investment Projects in 2018

TOC depth

```
---
title: "Investment Report"
output:
  html_document:
  toc: true
  toc_depth: 2
date: "`r format(Sys.time(), '%d %B %Y')`"
---

```{r setup, include = FALSE}
knitr::opts_chunk$set(fig.align = 'center', echo = TRUE)
```

```{r data, include = FALSE}
library(readr)
library(dplyr)
library(ggplot2)

investment_annual_summary <- read_csv("https://assets.datacamp.com/production/repositories/5756/datasets/d0251f26117bbcf0ea96ac276555b9003f4f7372/investment_annual_summary.csv")
investment_services_projects <- read_csv("https://assets.datacamp.com/production/repositories/5756/datasets/bcb2e39ecbe521f4b414a21e35f7b8b5c50aec64/investment_services_projects.csv")
```


Datasets

Investment Annual Summary
The `investment_annual_summary` dataset provides a summary of the
```

Investment Report

08 May 2020

- Datasets

Datasets

Investment Annual Summary

-

Number sections

```
---
title: "Investment Report"
output:
  html_document:
  toc: true
  toc_depth: 2
  number_sections: true
date: "`r format(Sys.time(), '%d %B %Y')`"
---
```

Investment Report

08 May 2020

- 0.1 Datasets
  - 0.1.1 Investment Annual Summary
  - 0.1.2 Investment Projects from the 2012 to 2018 Fiscal Years
  - 0.1.3 Investment Projects in 2018

Number sections

```
---
title: "Investment Report"
output:
  html_document:
  toc: true
  toc_depth: 2
  number_sections: true
date: "`r format(Sys.time(), '%d %B %Y')`"
---

```{r setup, include = FALSE}
knitr::opts_chunk$set(fig.align = 'center', echo = TRUE)
```

```{r data, include = FALSE}
library(readr)
library(dplyr)
library(ggplot2)

investment_annual_summary <- read_csv("https://assets.datacamp.com/production/repositories/5756/datasets/d0251f26117bbcf0ea96ac276555b9003f4f7372/investment_annual_summary.csv")
investment_services_projects <- read_csv("https://assets.datacamp.com/production/repositories/5756/datasets/bcb2e39ecbe521f4b414a21e35f7b8b5c50aec64/investment_services_projects.csv")
```


Datasets

Investment Annual Summary
```

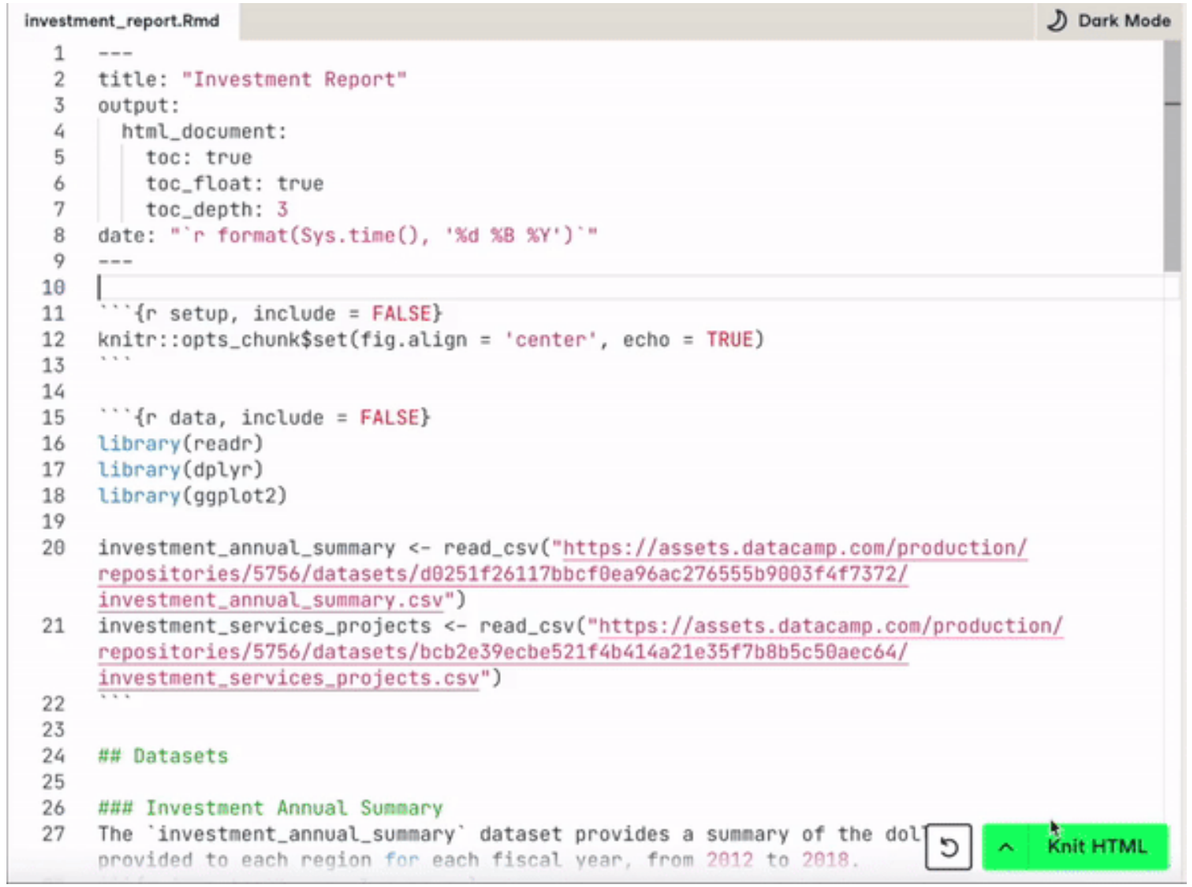
Investment Report

08 May 2020

- 0.1 Datasets
  - 0.1.1 Investment Annual Summary
  - 0.1.2 Investment Projects from the 2012 to 2018 Fiscal Years
  - 0.1.3 Investment Projects in 2018

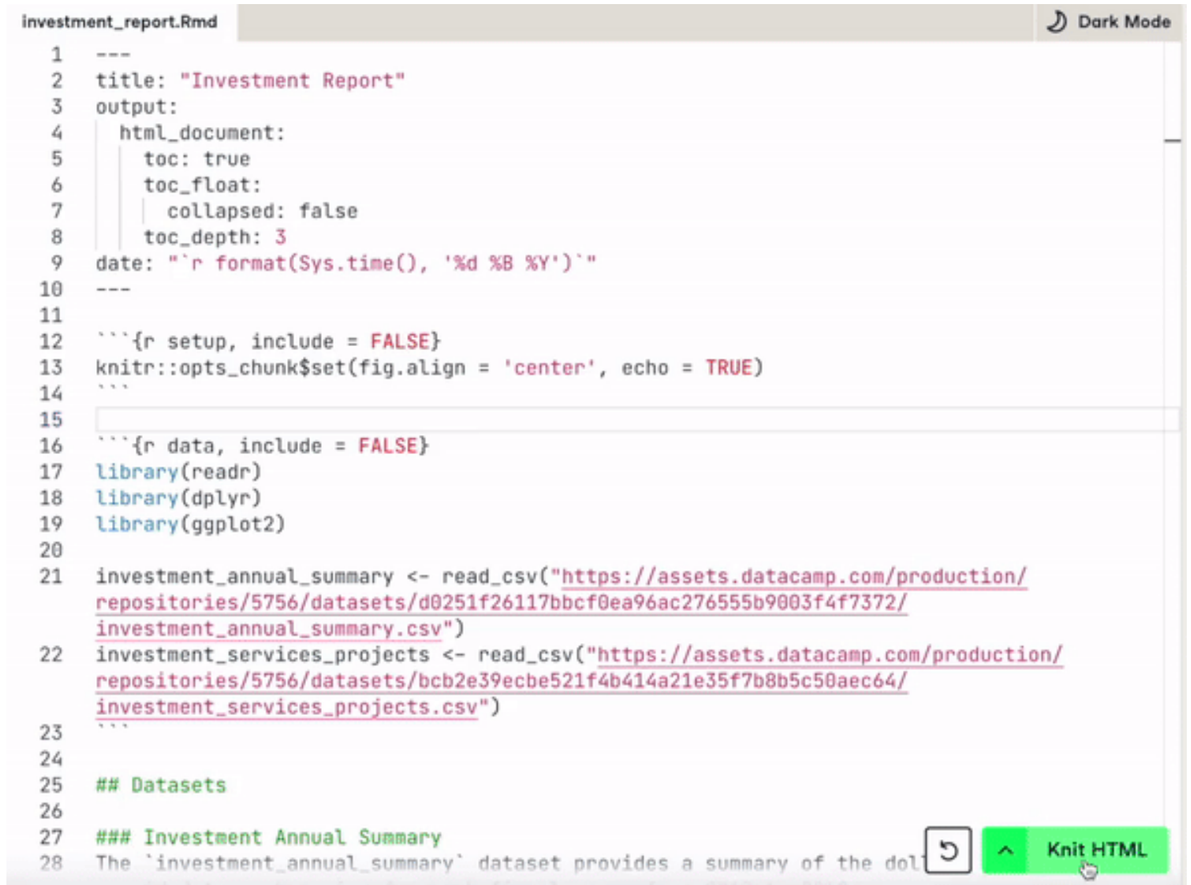
TOC float

```yaml
---
title: "Investment Report"
output:
  html_document:
  toc: true
  toc_float: true
  toc_depth: 3
date: "`r format(Sys.time(), '%d %B %Y')`"
---
```



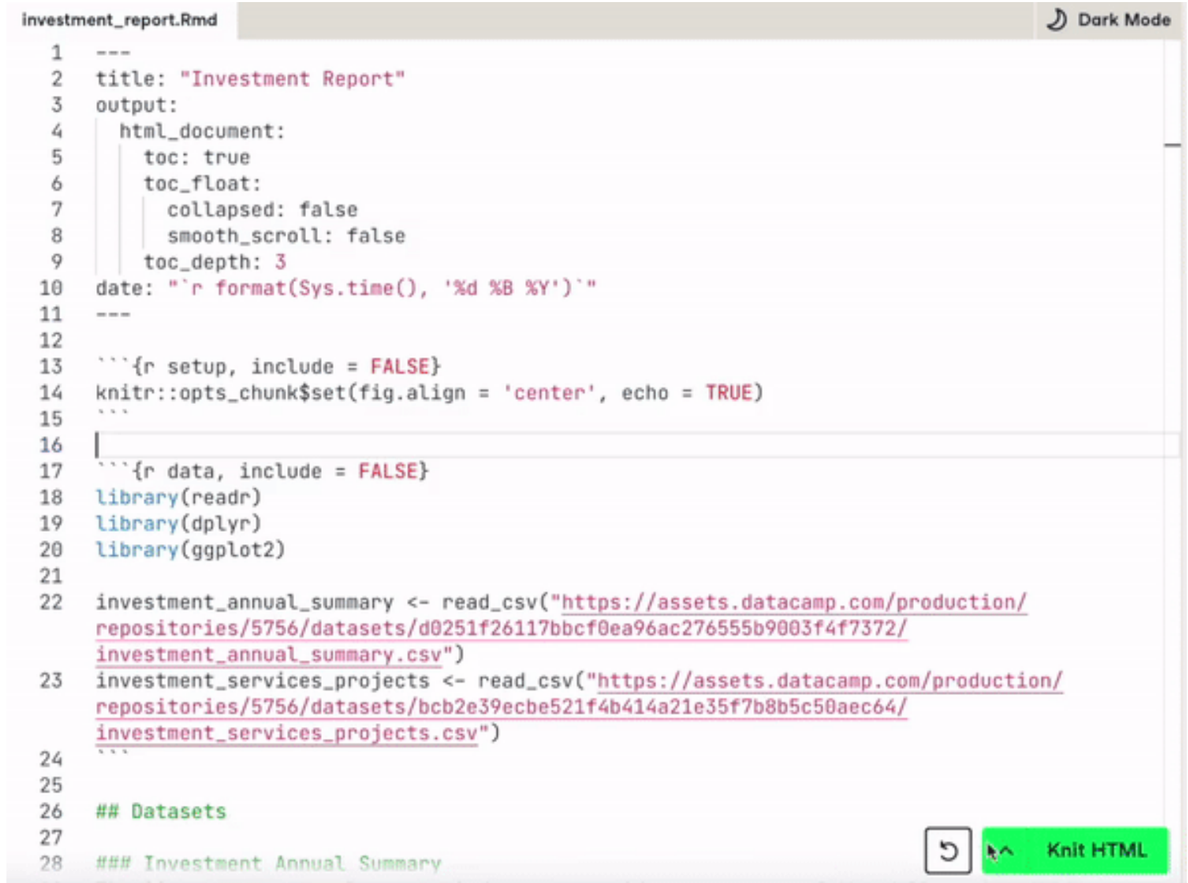
TOC float: collapsed

```yaml
---
title: "Investment Report"
output:
  html_document:
  toc: true
  toc_float:
    collapsed: false
  toc_depth: 3
date: "`r format(Sys.time(), '%d %B %Y')`"
---
```



TOC float: smooth scroll

```yaml
---
title: "Investment Report"
output:
  html_document:
    toc: true
    toc_float:
      collapsed: false
      smooth_scroll: false
    toc_depth: 3
date: "`r format(Sys.time(), '%d %B %Y')`"
---
```



Summary

- `toc`
- `toc_depth`
  - HTML default: `3`
  - PDF default: `2`
- `number_sections`

HTML

- `toc_float`
  - `collapsed`
  - `smooth_scroll`

Let's practice!

REPORTING WITH R MARKDOWN

Creating a report with a parameter

REPORTING WITH R MARKDOWN

Amy Peterson
Head of Core Curriculum at DataCamp

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Parameters

- Create reports for different countries
- Add inputs to the YAML header

Adding a parameter

```
---
title: "Investment Report"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Indonesia
---
```

Reviewing the code

````
42  ```{r indonesia-investment-projects}
43  indonesia_investment_projects <- investment_services_projects %>%
44    filter(country == "Indonesia")
45
46  ggplot(indonesia_investment_projects, aes(x = date_disclosed, y =
    total_investment, color = status)) +
47    geom_point() +
48    labs(
49      title = "Investment Services Projects in Indonesia",
50      x = "Date Disclosed",
51      y = "Total IFC Investment in Dollars in Millions"
52    )
53  ```
````

Reviewing the code

````
42  ```{r country-investment-projects}
43  country_investment_projects <- investment_services_projects %>%
44    filter(country == "Indonesia")
45
46  ggplot(country_investment_projects, aes(x = date_disclosed, y =
    total_investment, color = status)) +
47    geom_point() +
48    labs(
49      title = "Investment Services Projects in Indonesia",
50      x = "Date Disclosed",
51      y = "Total IFC Investment in Dollars in Millions"
52    )
53  ```
````

Reviewing the code

````
42  ```{r country-investment-projects}
43  country_investment_projects <- investment_services_projects %>%
44    filter(country == "Indonesia")
45
46  ggplot(country_investment_projects, aes(x = date_disclosed, y =
    total_investment, color = status)) +
47    geom_point() +
48    labs(
49      title = "Investment Services Projects in Indonesia",
50      x = "Date Disclosed",
51      y = "Total IFC Investment in Dollars in Millions"
52    )
53  ```
````

Reviewing the code

````
42  ```{r country-investment-projects}
43  country_investment_projects <- investment_services_projects %>%
44    filter(country == params$country)
45
46  ggplot(country_investment_projects, aes(x = date_disclosed, y =
    total_investment, color = status)) +
47    geom_point() +
48    labs(
49      title = "Investment Services Projects in Indonesia",
50      x = "Date Disclosed",
51      y = "Total IFC Investment in Dollars in Millions"
52    )
53  ```
````

Reviewing the code

````
42  ```{r country-investment-projects}
43  country_investment_projects <- investment_services_projects %>%
44    filter(country == params$country)
45
46  ggplot(country_investment_projects, aes(x = date_disclosed, y =
    total_investment, color = status)) +
47    geom_point() +
48    labs(
49      title = "Investment Services Projects in Indonesia",
50      x = "Date Disclosed",
51      y = "Total IFC Investment in Dollars in Millions"
52    )
53  ```
````

Reviewing the code

````
42  ```{r country-investment-projects}
43  country_investment_projects <- investment_services_projects %>%
44    filter(country == params$country)
45
46  ggplot(country_investment_projects, aes(x = date_disclosed, y =
    total_investment, color = status)) +
47    geom_point() +
48    labs(
49      title = "Investment Services Projects",
50      x = "Date Disclosed",
51      y = "Total IFC Investment in Dollars in Millions"
52    )
53  ```
````

Reviewing the text

```
39  ### Investment Projects in Indonesia
40  The `investment_services_projects` dataset provides information
    about each investment project in Indonesia from 2012 to 2018.
    Information listed includes the project name, company name,
    sector, project status, and investment amounts.
```

Reviewing the text

```
39  ### Investment Projects in `r params$country`
40  The `investment_services_projects` dataset provides information
    about each investment project in `r params$country` from 2012 to
    2018. Information listed includes the project name, company name,
     sector, project status, and investment amounts.
```

Reviewing the YAML header

```
---
title: "Investment Report"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Indonesia
---
```

```
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Indonesia
---
```

Knitting the report

```
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Turkey
---
```

Datasets

Investment Report for Projects in Turkey

08 May 2020

Datasets

Investment Annual Summary

The `investment_annual_summary` dataset provides a summary of the dollars in millions provided to each region for each fiscal year, from 2012 to 2018.

```
ggplot(investment_annual_summary, aes(x = fiscal_year, y = dollars_in_millions, color = region))
+
  geom_line() +
  labs(
    title = "Investment Annual Summary",
    x = "Fiscal Year",
    y = "Dollars in Millions"
  )
```

Knitting a new report

```yaml
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Philippines
---
```

Investment Report for Projects in Philippines

08 May 2020

Datasets

Investment Annual Summary

The `investment_annual_summary` dataset provides a summary of the dollars in millions provided to each region for each fiscal year, from 2012 to 2018.

```
ggplot(investment_annual_summary, aes(x = fiscal_year, y = dollars_in_millions, color = region))
+
  geom_line() +
  labs(
    title = "Investment Annual Summary",
    x = "Fiscal Year",
    y = "Dollars in Millions"
  )
```

Let's practice!

REPORTING WITH R MARKDOWN

Multiple parameters

REPORTING WITH R MARKDOWN

Amy Peterson
Head of Core Curriculum at DataCamp

Fiscal year

- 2012 to 2018 fiscal years
- July 1st (previous year) - June 30th (year of interest)

Adding a parameter for fiscal year

```
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Indonesia
  fy: 2012
---
```

Adding parameters to define fiscal year

```
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Indonesia
  year_start: 2011-07-01
  year_end: 2012-06-30
  fy: 2012
---
```

Reviewing the code

````
61  ```{r country-investment-projects-2012}
62  country_investment_projects_2012 <- investment_services_projects %>%
63    filter(country == params$country,
64           date_disclosed >= "2011-07-01",
65           date_disclosed <= "2012-06-30")
66
67  ggplot(country_investment_projects_2012, aes(x = date_disclosed, y =
    total_investment, color = status)) +
68    geom_point() +
69    labs(
70      title = "Investment Services Projects",
71      x = "Date Disclosed",
72      y = "Total IFC Investment in Dollars in Millions"
73    )
74  ```
````

Reviewing the code

````
61  ```{r country-investment-projects-2012}
62  country_investment_projects_2012 <- investment_services_projects %>%
63    filter(country == params$country,
64           date_disclosed >= params$year_start,
65           date_disclosed <= params$year_end)
66
67  ggplot(country_investment_projects_2012, aes(x = date_disclosed, y =
    total_investment, color = status)) +
68    geom_point() +
69    labs(
70      title = "Investment Services Projects",
71      x = "Date Disclosed",
72      y = "Total IFC Investment in Dollars in Millions"
73    )
74  ```
````

Reviewing the code

````
61  ```{r country-investment-projects-2012}
62  country_investment_projects_2012 <- investment_services_projects %>%
63    filter(country == params$country,
64           date_disclosed >= params$year_start,
65           date_disclosed <= params$year_end)
66
67  ggplot(country_investment_projects_2012, aes(x = date_disclosed, y =
    total_investment, color = status)) +
68    geom_point() +
69    labs(
70      title = "Investment Services Projects",
71      x = "Date Disclosed",
72      y = "Total IFC Investment in Dollars in Millions"
73    )
74  ```
````

Reviewing the code

````
61  ```{r country-annual-investment-projects}
62  country_annual_investment_projects <- investment_services_projects %>%
63    filter(country == params$country,
64           date_disclosed >= params$year_start,
65           date_disclosed <= params$year_end)
66
67  ggplot(country_annual_investment_projects, aes(x = date_disclosed, y
    = total_investment, color = status)) +
68    geom_point() +
69    labs(
70      title = "Investment Services Projects",
71      x = "Date Disclosed",
72      y = "Total IFC Investment in Dollars in Millions"
73    )
74  ```
````

Reviewing the text

```
59   ### Investment Projects in `r params$country` in 2012
60   The `investment_services_projects` dataset was filtered below to focus on
     information about each investment project from the 2012 fiscal year, and
     is referred to as `country_annual_investment_projects`.
```

Reviewing the text

```
59  ### Investment Projects in `r params$country` in `r params$fy`
60  The `investment_services_projects` dataset was filtered below to focus on
    information about each investment project from the `r params$fy` fiscal
    year, and is referred to as `country_annual_investment_projects`.
```

Reviewing the YAML header

```
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Indonesia
  year_start: 2011-07-01
  year_end: 2012-06-30
  fy: 2012
---
```

Knitting the report

```
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Turkey
  year_start: 2012-07-01
  year_end: 2013-06-30
  fy: 2013
---
```

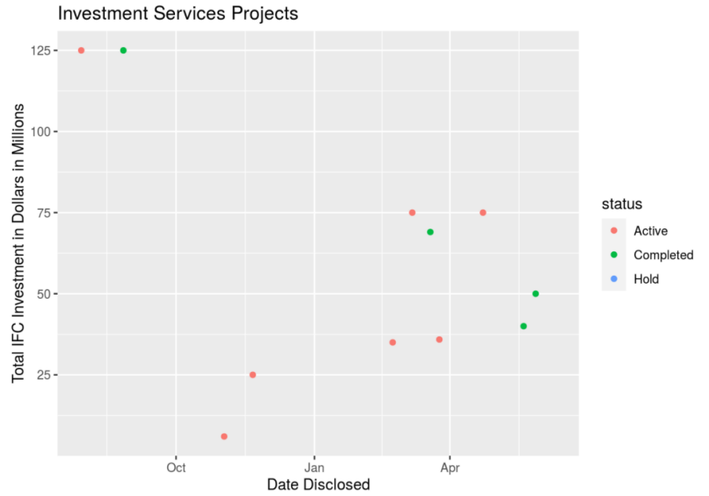
Datasets

- Investment Annual Summary
- Investment Projects from the 2012 to 2018 Fiscal Years
- Investment Projects in Turkey in 2013

Investment Projects in Turkey in 2013

```
country_annual_investment_projects <- investment_services_projects %>%
  filter(country == params$country) %>%
  filter(date_disclosed >= params$year_start,
         date_disclosed <= params$year_end)

ggplot(country_annual_investment_projects, aes(x = date_disclosed, y = total_investment, color =
status)) +
  geom_point() +
  labs(
    title = "Investment Services Projects",
    x = "Date Disclosed",
    y = "Total IFC Investment in Dollars in Millions"
  )
```



Let's practice!

REPORTING WITH R MARKDOWN

Customizing the report

REPORTING WITH R MARKDOWN

Amy Peterson
Head of Core Curriculum at DataCamp

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Specifying element style

```
15   <style>
16
17
18
19   </style>
```

- `color`
- `background-color`
- `font-family`
- `font-size`

Document style

```
15   <style>
16   body {
17     color: red;
18   }
19   </style>
```

Datasets

- Investment Annual Summary
- Investment Projects from the 2012 to 2018 Fiscal Years
- Investment Projects in Brazil in 2018

Investment Report for Projects in Brazil

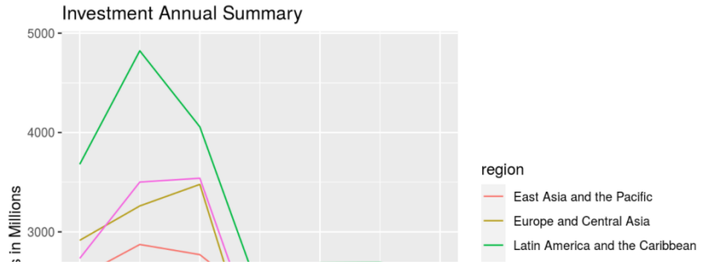
08 May 2020

Datasets

Investment Annual Summary

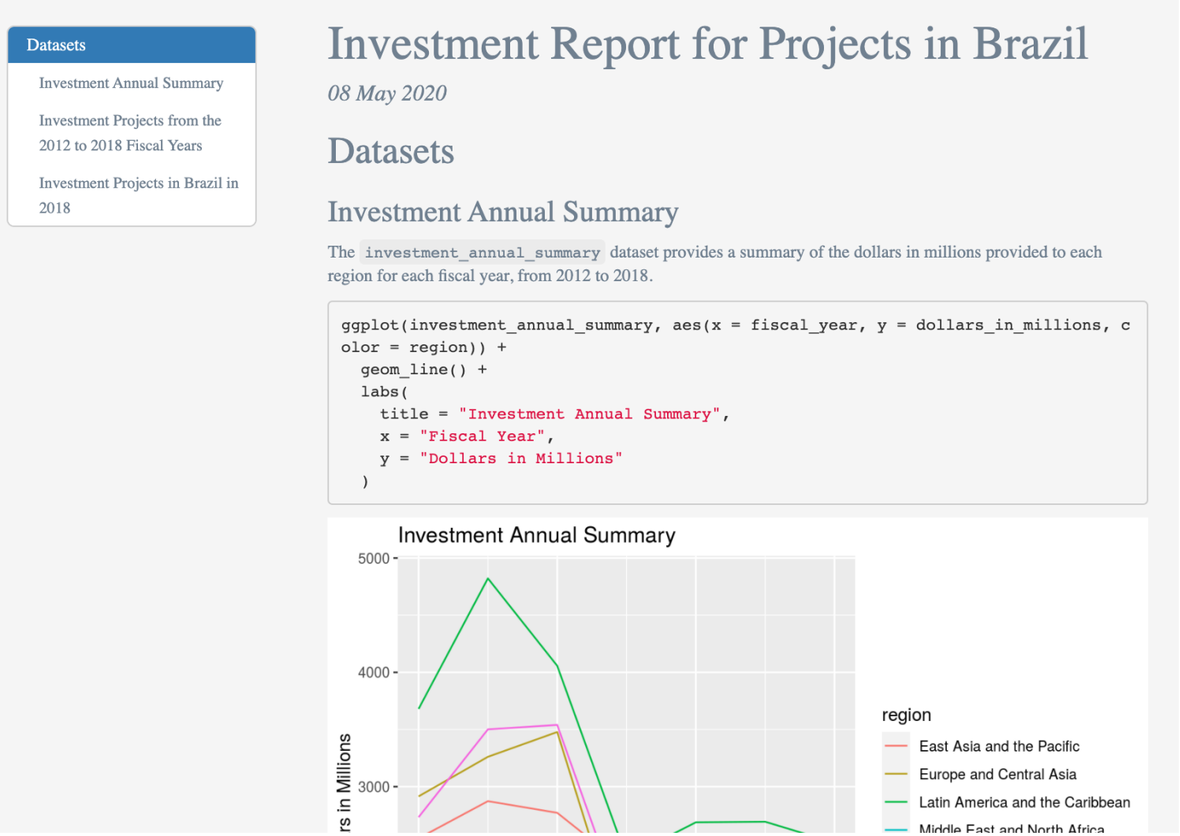
The `investment_annual_summary` dataset provides a summary of the dollars in millions provided to each region for each fiscal year, from 2012 to 2018.

```
ggplot(investment_annual_summary, aes(x = fiscal_year, y = dollars_in_
millions, color = region)) +
  geom_line() +
  labs(
    title = "Investment Annual Summary",
    x = "Fiscal Year",
    y = "Dollars in Millions"
  )
```



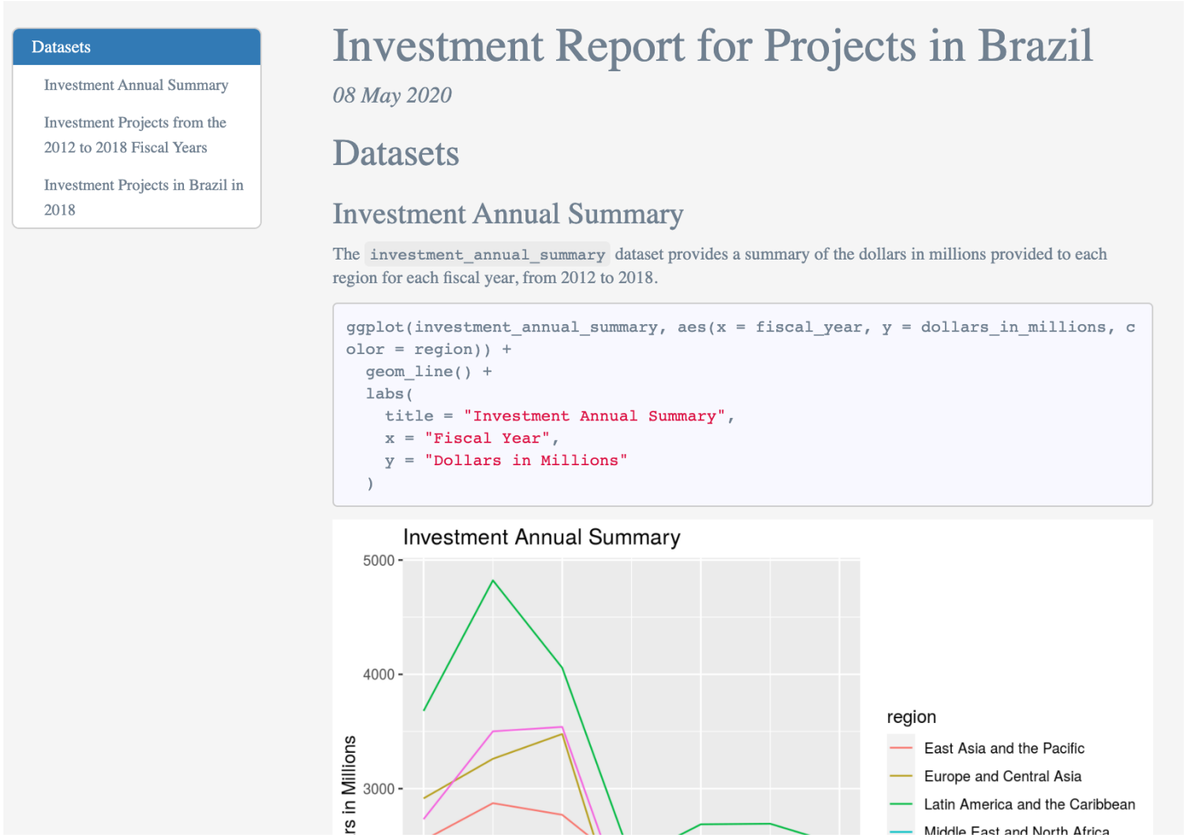
Using color hex codes

```
15  <style>
16  body {
17    color: #708090;
18    font-family: Calibri;
19    background-color: #F5F5F5;
20  }
21  </style>
```



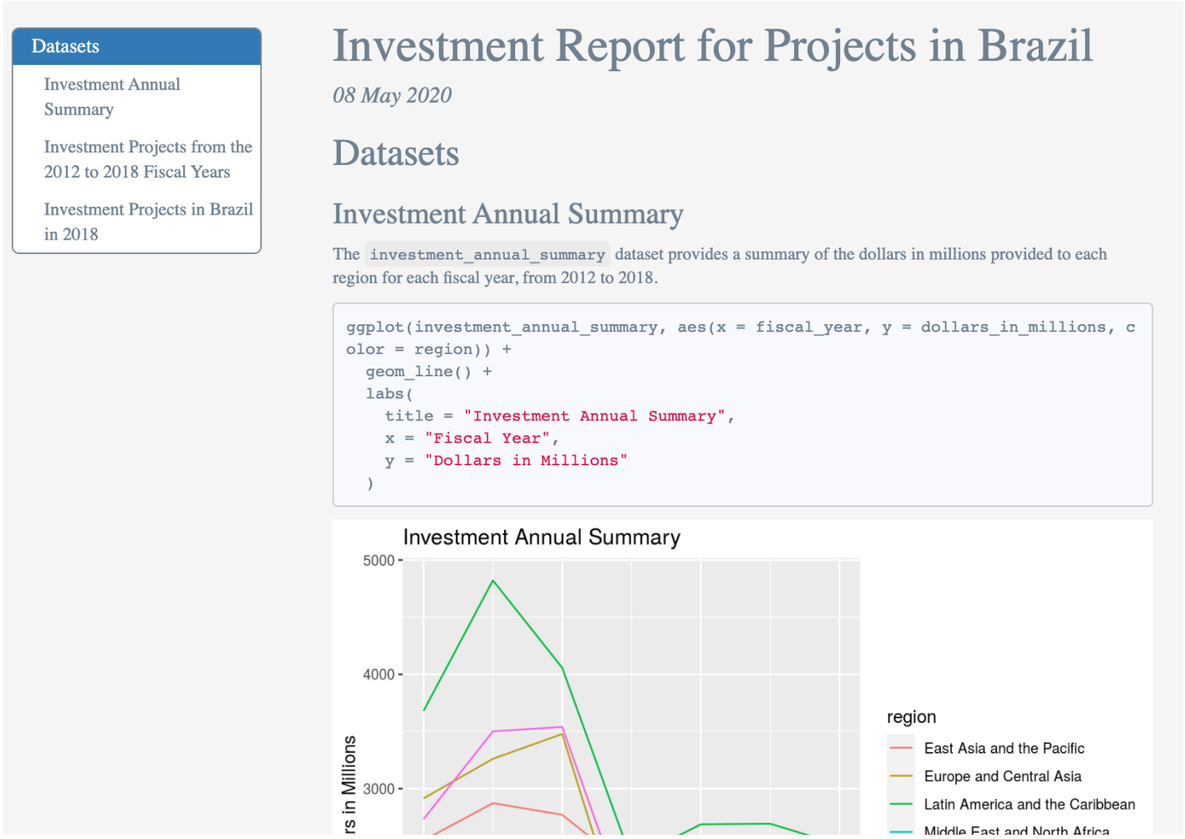
Code chunks

```
15  <style>
16  body {
17    color: #708090;
18    font-family: Calibri;
19    background-color: #F5F5F5;
20  }
21  pre {
22    color: #708090;
23    background-color: #F8F8FF;
24  }
25  </style>
```



The table of contents

```
15  <style>
16  #TOC {
17    color: #708090;
18    font-family: Calibri;
19    font-size: 16px;
20    border-color: #708090;
21  }
22  body {
23    color: #708090;
24    font-family: Calibri;
25    background-color: #F5F5F5;
26  }
27  pre {
28    color: #708090;
29    background-color: #F8F8FF;
30  }
31  </style>
```

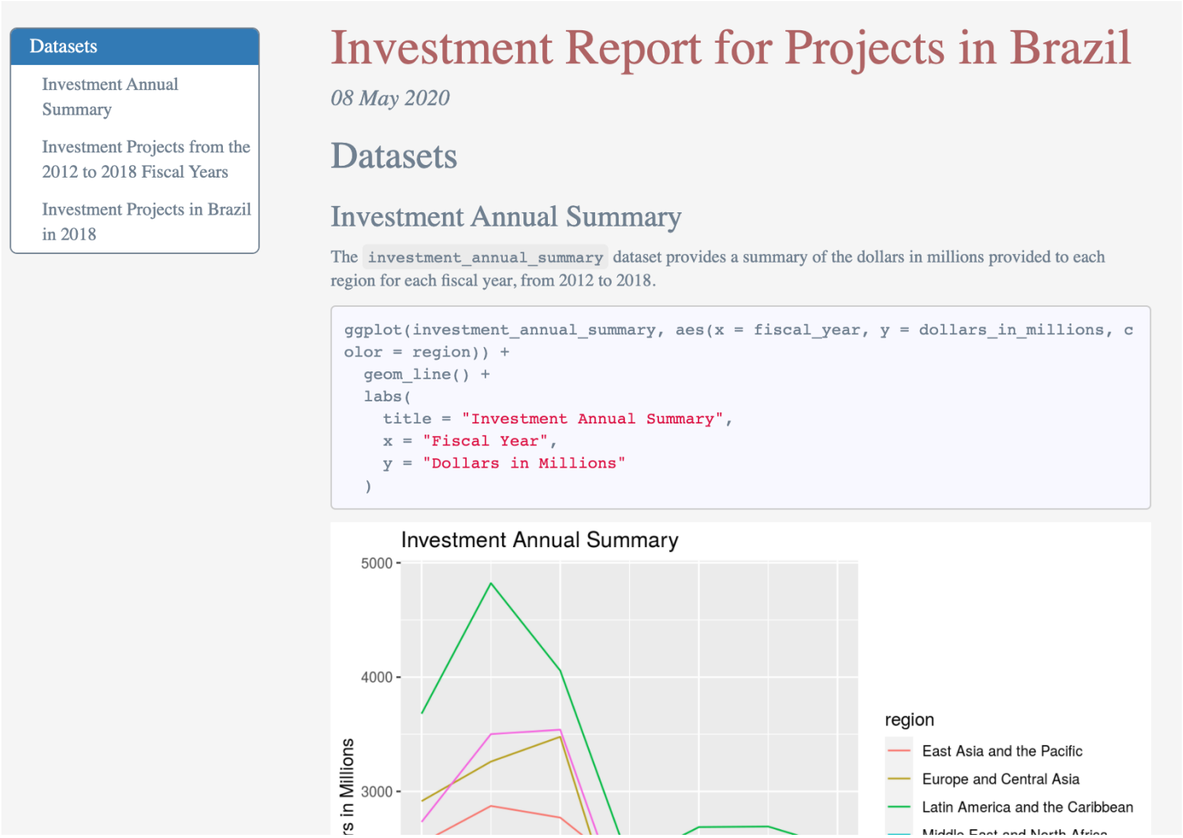


The header

```
22  #header {
23    color: #800000;
24    background-color: #F5F5F5;
25    opacity: 0.6;
26    font-family: Calibri;
27    font-size: 20px;
28  }
```

The title, author, and date

```
22  h1.title {
23    color: #800000;
24    background-color: #F5F5F5;
25    opacity: 0.6;
26    font-family: Calibri;
27    font-size: 40px;
28  }
29  h4.author {
30    color: #708090;
31    font-family: Calibri;
32  }
33  h4.date {
34    color: #708090;
35    font-family: Calibri;
36  }
```



CSS file

```
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    css: styles.css
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Brazil
  year_start: 2017-07-01
  year_end: 2018-06-30
  fy: 2018
---
```

investment_report.Rmd | **styles.css**

```
#TOC {
  color: #708090;
  font-family: Calibri;
  font-size: 16px;
  border-color: #708090;
}
h1.title {
  color: #F08080;
  background-color: #F5F5F5;
  opacity: 0.6;
  font-family: Calibri;
  font-size: 20px;
}
h4.author {
  color: #708090;
  font-family: Calibri;
  background-color: #F5F5F5;
}
h4.date {
  color: #708090;
  font-family: Calibri;
  background-color: #F5F5F5;
}
body {
```

Let's practice!

REPORTING WITH R MARKDOWN

Congratulations!

REPORTING WITH R MARKDOWN

Amy Peterson
Head of Core Curriculum at DataCamp

datacamp

Chapter 1: R Markdown elements

Code

````
```{r}
investment_annual_summary
```
````

Text

```
### Investment Annual Summary

The `investment_annual_summary` dataset provides
a summary of the dollars in millions provided to
each region for each fiscal year, from 2012 to
2018.
```

YAML Header

```
1   ---
2   title: "Investment Report"
3   output: html_document
4   ---
```

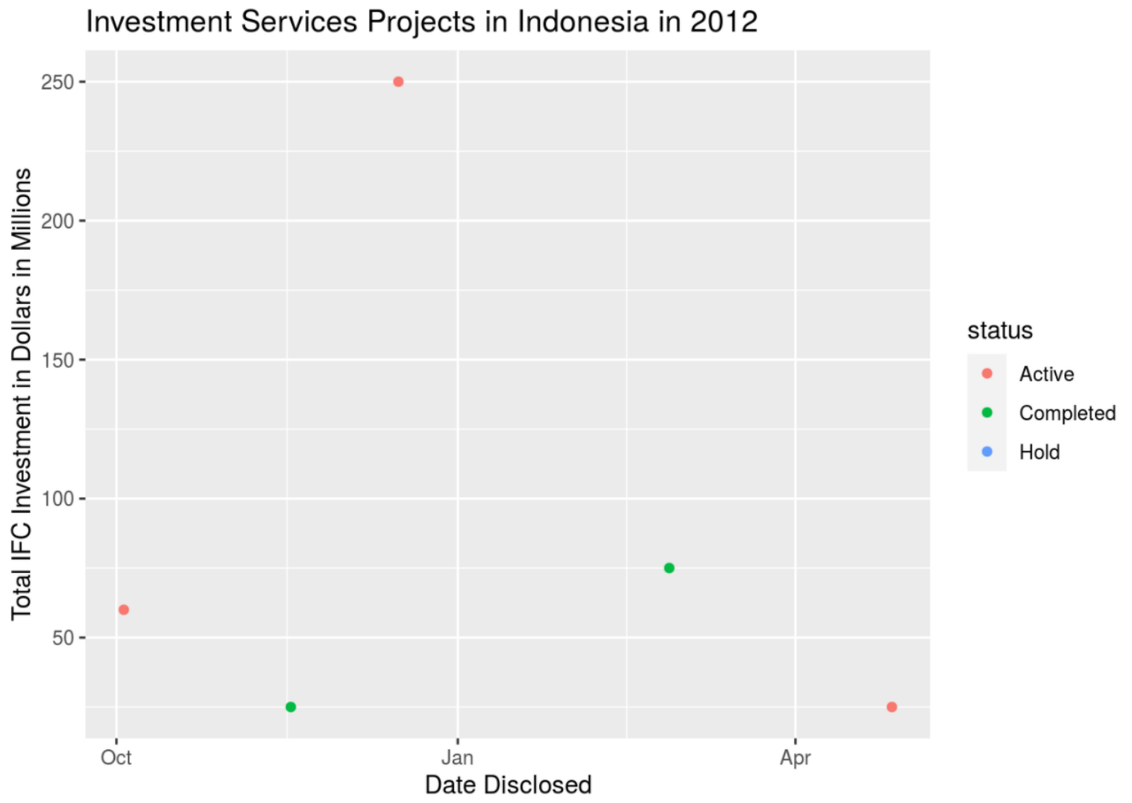
Chapter 2: Data analysis and visualization

```
indonesia_investment_projects_2012 <- investment_services_projects %>%
  filter(country == "Indonesia",
         date_disclosed >= "2011-07-01",
         date_disclosed <= "2012-06-30")

indonesia_investment_projects_2012
```

```
## # A tibble: 6 x 13
##   date_disclosed      country ifc_country_code sector project_name
##   <dttm>              <chr>   <chr>            <chr>  <chr>
## 1 2012-04-27 00:00:00 Indone~ INS              Agrib~ FHP Indones~
## 2 2012-04-03 00:00:00 Indone~ INS              Finan~ LMS Toll Pr~
## 3 2012-02-27 00:00:00 Indone~ INS              Finan~ CIMB Niaga ~
## 4 2011-12-16 00:00:00 Indone~ INS              Oil, ~ BTPN Loan II
## 5 2011-11-17 00:00:00 Indone~ INS              Infra~ Medco Power~
## 6 2011-10-03 00:00:00 Indone~ INS              Finan~ Wintermar G~
## # ... with 8 more variables: project_number <dbl>, company_name <chr>,
## #   status <chr>, risk_management_investment <dbl>, guarantee_investment <dbl>,
## #   loan_investment <dbl>, equity_investment <dbl>, total_investment <dbl>
```

```
## Warning: Removed 1 rows containing missing values (geom_point).
```



Chapter 3: Lists and tables

Investment Annual Summary

The `investment_annual_summary` dataset provides a summary of the dollars in millions provided to each region for each fiscal year, from 2012 to 2018.

Region

1. East Asia and the Pacific
2. Europe and Central Asia
3. Latin America and the Caribbean
4. Middle East and North Africa
5. South Asia
6. Sub-Saharan Africa

```
kable(investment_region_summary)
```

region	dollars_in_millions
East Asia and the Pacific	16465
Europe and Central Asia	17659
Latin America and the Caribbean	22828
Middle East and North Africa	9755
South Asia	11459
Sub-Saharan Africa	16892

Chapter 4: toc, styles, and params

Investment Report

08 May 2020

- Datasets
  - Investment Annual Summary
  - Investment Projects from the 2012 to 2018 Fiscal Years
  - Investment Projects in 2018


```
---
title: "Investment Report for Projects in `r params$country`"
output:
  html_document:
    toc: true
    toc_float: true
date: "`r format(Sys.time(), '%d %B %Y')`"
params:
  country: Indonesia
  year_start: 2011-07-01
  year_end: 2012-06-30
  fy: 2012
---
```

dplyr and ggplot2

Data Manipulation with dplyr

Introduction to Data Visualization with ggplot2

Joining Data with dplyr

Intermediate Data Visualization with ggplot2

Shiny

Building Web Applications with Shiny in R

Building Dashboards with shinydashboard

Building Dashboards with flexdashboard

Congratulations!

REPORTING WITH R MARKDOWN