

Introduction to R Markdown

REPORTING WITH R MARKDOWN



Amy Peterson

Head of Core Curriculum at DataCamp

R Markdown



Reproducible results



	fiscal_year	region	dollars_in_millions
1	2012	East Asia and the Pacific	2548
2	2012	Europe and Central Asia	2915
		Latin America and the Caribbean	3680
		Middle East and North Africa	2210
		South Asia	1312
		Sub-Saharan Africa	2733
		East Asia and the Pacific	2873
		Europe and Central Asia	3261
		Latin America and the Caribbean	4822
		Middle East and North Africa	2038
10	2013	South Asia	1697
11	2013		

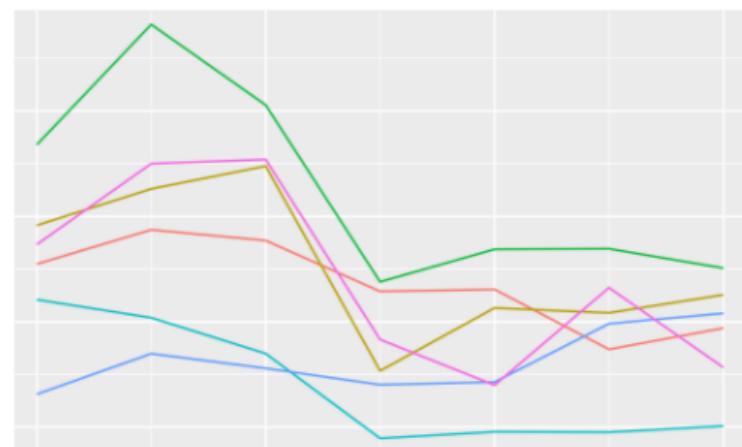
Showing 1 to 12 of 42 entries, 3 total columns

Reproducible results



	fiscal_year	region	dollars_in_millions
1	2012	East Asia and the Pacific	2548
2	2012	Europe and Central Asia	2915
		Latin America and the Caribbean	3680
		Middle East and North Africa	2210
		South Asia	1312
		Sub-Saharan Africa	2733
		East Asia and the Pacific	2873
		Europe and Central Asia	3261
		Latin America and the Caribbean	4822
		Middle East and North Africa	2038
11	2013	South Asia	1697

Showing 1 to 12 of 42 entries, 3 total columns

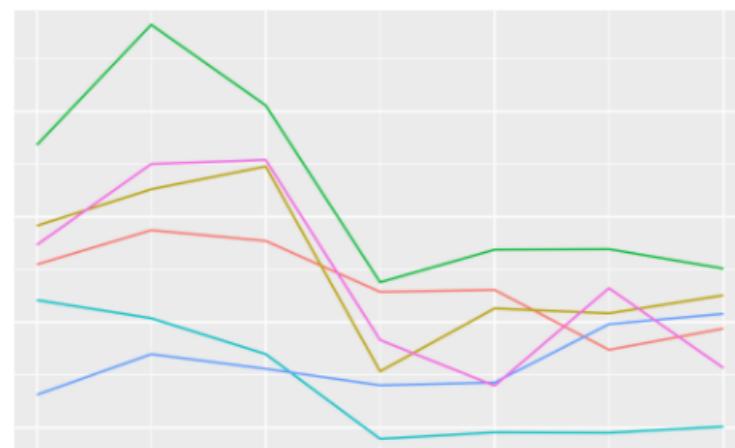


Reproducible results



	fiscal_year	region	dollars_in_millions
1	2012	East Asia and the Pacific	2548
2	2012	Europe and Central Asia	2915
		Latin America and the Caribbean	3680
		Middle East and North Africa	2210
		South Asia	1312
		Sub-Saharan Africa	2733
		East Asia and the Pacific	2873
		Europe and Central Asia	3261
		Latin America and the Caribbean	4822
		Middle East and North Africa	2038
11	2013	South Asia	1697

Showing 1 to 12 of 42 entries, 3 total columns

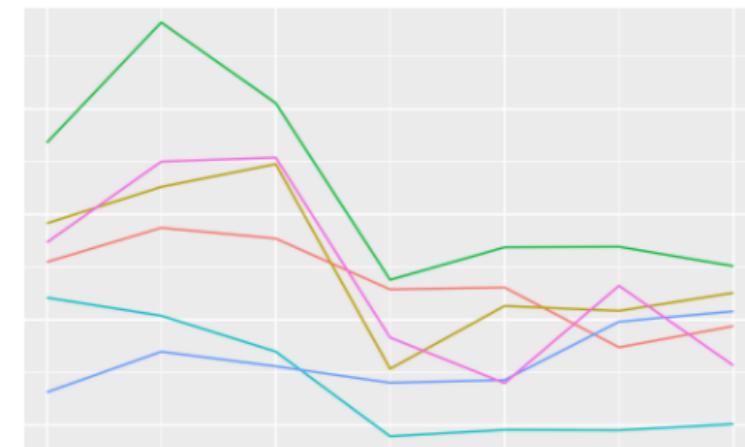


Reproducible results



	fiscal_year	region	dollars_in_millions
1	2012	East Asia and the Pacific	2548
2	2012	Europe and Central Asia	2915
		Latin America and the Caribbean	3680
		Middle East and North Africa	2210
		South Asia	1312
		Sub-Saharan Africa	2733
		East Asia and the Pacific	2873
		Europe and Central Asia	3261
		Latin America and the Caribbean	4822
		Middle East and North Africa	2038
11	2013	South Asia	1697

Showing 1 to 12 of 42 entries, 3 total columns



R Markdown elements

Code

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

Metadata

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

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**.

R Markdown file

```
1 ---  
2 title: "Investment Report"  
3 output: html_document  
4 ---  
5  
6 ```{r data, include = FALSE}  
7 library(readr)  
8  
9 investment_annual_summary <- read_csv("https://  
assets.datacamp.com/production/repositories/5756/  
datasets/d0251f26117bbcf0ea96ac276555b9003f4f7372/  
investment_annual_summary.csv")  
10  
11  
12 ### Investment Annual Summary  
13  
14 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.  
15  
16 ```{r}  
17 investment_annual_summary  
18 ...
```

YAML header

text

code chunk

Knit

```
1 ---  
2 title: "Investment Report"  
3 output: html_document  
4 ---  
5  
6 ```{r data, include = FALSE}  
7 library(readr)  
8  
9 investment_annual_summary <- read_csv("https://  
assets.datacamp.com/production/repositories/5756/  
datasets/d0251f26117bbcf0ea96ac276555b9003f4f7372/  
investment_annual_summary.csv")  
```  
11
12 ### Investment Annual Summary
13
14 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.
15
16 ```{r}
17 investment_annual_summary
```
```

Investment Report

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.

```
investment_annual_summary
```

```
## # A tibble: 42 x 3  
##   fiscal_year region      dollars_in_millions  
##   <dbl> <chr>                <dbl>  
## 1 2012 East Asia and the Pacific    2548  
## 2 2012 Europe and Central Asia     2915  
## 3 2012 Latin America and the Caribbean 3680  
## 4 2012 Middle East and North Africa 2210  
## 5 2012 South Asia                  1312  
## 6 2012 Sub-Saharan Africa          2733  
## 7 2013 East Asia and the Pacific    2873  
## 8 2013 Europe and Central Asia     3261  
## 9 2013 Latin America and the Caribbean 4822  
## 10 2013 Middle East and North Africa 2038  
## # ... with 32 more rows
```

Course overview

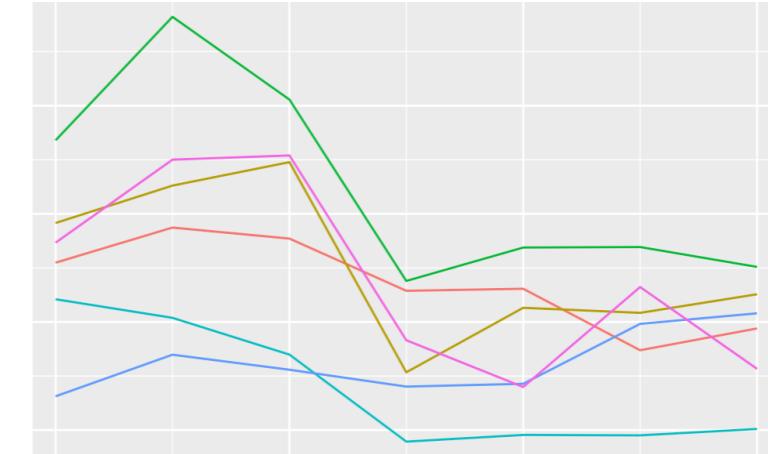
Elements of an R Markdown document

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

Organize and improve a report



Add analyses and plots



Customize fonts and colors



Investment annual summary

```
investment_annual_summary
```

```
# A tibble: 42 x 3
  fiscal_year region          dollars_in_millions
  <dbl> <chr>                      <dbl>
1 2012 East Asia and the Pacific    2548
2 2012 Europe and Central Asia     2915
3 2012 Latin America and the Caribbean 3680
4 2012 Middle East and North Africa 2210
5 2012 South Asia                  1312
# ... with 37 more rows
```

Investment services projects

investment_services_projects

```
# A tibble: 1,838 x 13
  date_disclosed      country ifc_country_code sector project_name project_number
  <dttm>            <chr>    <chr>           <chr>    <chr>           <dbl>
1 2018-06-29 00:00:00 India     IND             Manuf... Camlin          39750
2 2018-06-28 00:00:00 Latin ... LAC             Funds   Riverwood I...          41148
3 2018-06-26 00:00:00 Zambia    ZAM             Finan... Stanbic Ban...          38700
4 2018-06-22 00:00:00 Thaila... THL             Finan... Roojai          40653
5 2018-06-22 00:00:00 China     CHA             Agrib... Chenguang B...          40616
# ... with 1,833 more rows, and 7 more variables: company_name <chr>, status <chr>,
# risk_management_investment <dbl>, guarantee_investment <dbl>, loan_investment <dbl>,
# equity_investment <dbl>, total_investment <dbl>
```

Code chunks

```
1 ---  
2 title: "Investment Report"  
3 output: html_document  
4 ---  
5  
6 ```{r data, include = FALSE}  
7 library(readr)  
8  
9 investment_annual_summary <- read_csv("https://  
assets.datacamp.com/production/repositories/5756/  
datasets/d0251f26117bbcf0ea96ac276555b9003f4f7372/  
investment_annual_summary.csv")  
10 ````  
11  
12 ### Investment Annual Summary  
13  
14 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.  
15  
16 ```{r}  
17 investment_annual_summary  
18 ````
```

Adding code chunks

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

```
...
```

# Adding code chunks

```
```{r}  
...  
backticks
```

Adding code chunks

```
```{r}  
...
curly braces
```

# Adding code chunks

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

# Adding code chunks

```
investment_annual_summary
```

```
A tibble: 42 x 3
fiscal_year region dollars_in_millions
<dbl> <chr> <dbl>
1 2012 East Asia and the Pacific 2548
2 2012 Europe and Central Asia 2915
3 2012 Latin America and the Caribbean 3680
4 2012 Middle East and North Africa 2210
5 2012 South Asia 1312
6 2012 Sub-Saharan Africa 2733
7 2013 East Asia and the Pacific 2873
8 2013 Europe and Central Asia 3261
9 2013 Latin America and the Caribbean 4822
10 2013 Middle East and North Africa 2038
... with 32 more rows
```

# **Let's practice!**

## **REPORTING WITH R MARKDOWN**

# Adding and formatting text

REPORTING WITH R MARKDOWN



Amy Peterson

Head of Core Curriculum at DataCamp

# Including text in a report

## Investment Report

### 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.

```
investment_annual_summary
```

```
A tibble: 42 x 3
fiscal_year region dollars_in_millions
<dbl> <chr> <dbl>
1 2012 East Asia and the Pacific 2548
2 2012 Europe and Central Asia 2915
3 2012 Latin America and the Caribbean 3680
4 2012 Middle East and North Africa 2210
5 2012 South Asia 1312
6 2012 Sub-Saharan Africa 2733
7 2013 East Asia and the Pacific 2873
8 2013 Europe and Central Asia 3261
9 2013 Latin America and the Caribbean 4822
10 2013 Middle East and North Africa 2038
... with 32 more rows
```

#### Investment Services Projects

The `investment_services_projects` dataset provides information about each investment project from the 2012 to 2018 fiscal years. Information listed includes the project name, company name, sector, project status, and investment amounts.

```
investment_services_projects
```

```
A tibble: 1,815 x 13
date_disclosed country ifc_country_code sector project_name
<dttm> <chr> <chr> <chr> <chr>
1 2018-12-26 00:00:00 Morocco MYC Healt~ UPM Maroc
2 2018-12-20 00:00:00 Burkin~ BUR Agrib~ GWFP SOFITE~
```

# Headers

```
1 ---
2 title: "Title"
3 output: html_document
4 ---
5
6 # Header 1
7 ## Header 2
8 ### Header 3
9
10
11
12
```

**Title**

**Header 1**

**Header 2**

**Header 3**

# Adding headers

```
1 ---
2 title: "Investment Report"
3 output: html_document
4 ---
5
6 ```{r data, include = FALSE}
7 library(readr)
8
9 investment_annual_summary <- read_csv("https://assets.datacamp.com/production/
repositories/5756/datasets/d0251f26117bbcf0ea96ac276555b9003f4f7372/
investment_annual_summary.csv")
10 investment_services_projects <- read_csv("https://assets.datacamp.com/production/
repositories/5756/datasets/78b002735b6f620df7f2767e63b76aaca317bf8d/
investment_services_projects.csv")
11 ...
12
13 ## Datasets
14
15 ### Investment Annual Summary
16
17 ```{r}
18 investment_annual_summary
19 ...
20
21 ### Investment Services Projects
22
23 ```{r}
24 investment_services_projects
25 ...
```

## Investment Report

### Datasets

#### Investment Annual Summary

```
investment_annual_summary

A tibble: 42 x 3
fiscal_year region dollars_in_millions
<dbl> <chr>
1 2012 East Asia and the Pacific 2548
2 2012 Europe and Central Asia 2915
3 2012 Latin America and the Caribbean 3680
4 2012 Middle East and North Africa 2210
5 2012 South Asia 1312
6 2012 Sub-Saharan Africa 2733
7 2013 East Asia and the Pacific 2873
8 2013 Europe and Central Asia 3261
9 2013 Latin America and the Caribbean 4822
10 2013 Middle East and North Africa 2038
... with 32 more rows
```

#### Investment Services Projects

```
investment_services_projects

A tibble: 1,815 x 13
```

# Sentences

---

```
1 ---
2 title: "Investment Report"
3 output: html_document
4 ---
5
6 ```{r data, include = FALSE}
7 library(readr)
8
9 investment_annual_summary <- read_csv("https://assets.datacamp.com/production/
repositories/5756/datasets/d0251f26117bbcfc0ea96ac276555b9003f4f7372/
investment_annual_summary.csv")
10 investment_services_projects <- read_csv("https://assets.datacamp.com/production/
repositories/5756/datasets/cfae0db783e964f5525428d229198104f2f177ba/
investment_services_projects.csv")
11 ...
12
13 ## Datasets
14
15 ### Investment Annual Summary
16
17 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.
18
19 ```{r}
20 investment_annual_summary
21 ...
22
23 ### Investment Services Projects
24
25 The `investment_services_projects` dataset provides information about each investment
project from the 2012 to 2018 fiscal years. Information listed includes the project name,
company name, sector, project status, and investment amounts.
26
27 ```{r}
28 investment_services_projects
29 ...
30
```

# Adding sentences

```
13 ## Datasets
14
15 ### Investment Annual Summary
16
17 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.
18
19 ```{r}
20 investment_annual_summary
21 ...
```

## 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.

```
investment_annual_summary
```

|                            | fiscal_year | region                          | dollars_in_millions |
|----------------------------|-------------|---------------------------------|---------------------|
| ## 1                       | 2012        | East Asia and the Pacific       | 2548                |
| ## 2                       | 2012        | Europe and Central Asia         | 2915                |
| ## 3                       | 2012        | Latin America and the Caribbean | 3680                |
| ## 4                       | 2012        | Middle East and North Africa    | 2210                |
| ## 5                       | 2012        | South Asia                      | 1312                |
| ## 6                       | 2012        | Sub-Saharan Africa              | 2733                |
| ## 7                       | 2013        | East Asia and the Pacific       | 2873                |
| ## 8                       | 2013        | Europe and Central Asia         | 3261                |
| ## 9                       | 2013        | Latin America and the Caribbean | 4822                |
| ## 10                      | 2013        | Middle East and North Africa    | 2038                |
| ## # ... with 32 more rows |             |                                 |                     |

# Adding sentences

```
13 ## Datasets
14
15 ### Investment Annual Summary
16
17 The `investment_annual_summary` dataset provides a summary of the dollars in
18 millions provided to each region for each fiscal year, from 2012 to 2018.
19 ````{r}
20 investment_annual_summary
21 ````
```

## 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.

```
investment_annual_summary
```

|                            | fiscal_year | region                          | dollars_in_millions |
|----------------------------|-------------|---------------------------------|---------------------|
| ## 1                       | 2012        | East Asia and the Pacific       | 2548                |
| ## 2                       | 2012        | Europe and Central Asia         | 2915                |
| ## 3                       | 2012        | Latin America and the Caribbean | 3680                |
| ## 4                       | 2012        | Middle East and North Africa    | 2210                |
| ## 5                       | 2012        | South Asia                      | 1312                |
| ## 6                       | 2012        | Sub-Saharan Africa              | 2733                |
| ## 7                       | 2013        | East Asia and the Pacific       | 2873                |
| ## 8                       | 2013        | Europe and Central Asia         | 3261                |
| ## 9                       | 2013        | Latin America and the Caribbean | 4822                |
| ## 10                      | 2013        | Middle East and North Africa    | 2038                |
| ## # ... with 32 more rows |             |                                 |                     |

# Adding sentences

```
13 ## Datasets
14
15 ### Investment Annual Summary
16
17 The `investment_annual_summary` dataset provides a summary of the dollars in
18 millions provided to each region for each fiscal year, from 2012 to 2018.
19 ````{r}
20 investment_annual_summary
21 ````
```

## 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.

```
investment_annual_summary
```

|                            | fiscal_year | region                          | dollars_in_millions |
|----------------------------|-------------|---------------------------------|---------------------|
| ## 1                       | 2012        | East Asia and the Pacific       | 2548                |
| ## 2                       | 2012        | Europe and Central Asia         | 2915                |
| ## 3                       | 2012        | Latin America and the Caribbean | 3680                |
| ## 4                       | 2012        | Middle East and North Africa    | 2210                |
| ## 5                       | 2012        | South Asia                      | 1312                |
| ## 6                       | 2012        | Sub-Saharan Africa              | 2733                |
| ## 7                       | 2013        | East Asia and the Pacific       | 2873                |
| ## 8                       | 2013        | Europe and Central Asia         | 3261                |
| ## 9                       | 2013        | Latin America and the Caribbean | 4822                |
| ## 10                      | 2013        | Middle East and North Africa    | 2038                |
| ## # ... with 32 more rows |             |                                 |                     |

# Adding sentences

```
13 ## Datasets
14
15 ### Investment Annual Summary
16
17 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.
18
19 ```{r}
20 investment_annual_summary
21 ```
```

## 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.

|                            | investment_annual_summary |                                 |                     |
|----------------------------|---------------------------|---------------------------------|---------------------|
|                            | fiscal_year               | region                          | dollars_in_millions |
| ## 1                       | 2012                      | East Asia and the Pacific       | 2548                |
| ## 2                       | 2012                      | Europe and Central Asia         | 2915                |
| ## 3                       | 2012                      | Latin America and the Caribbean | 3680                |
| ## 4                       | 2012                      | Middle East and North Africa    | 2210                |
| ## 5                       | 2012                      | South Asia                      | 1312                |
| ## 6                       | 2012                      | Sub-Saharan Africa              | 2733                |
| ## 7                       | 2013                      | East Asia and the Pacific       | 2873                |
| ## 8                       | 2013                      | Europe and Central Asia         | 3261                |
| ## 9                       | 2013                      | Latin America and the Caribbean | 4822                |
| ## 10                      | 2013                      | Middle East and North Africa    | 2038                |
| ## # ... with 32 more rows |                           |                                 |                     |

# Code comments

```
```{r}
# Print the Investment Annual Summary data
investment_annual_summary
```
```

```
Print the Investment Annuary Summary data
investment_annual_summary
```

# Formatting text

```
1 ---
2 title: "Title"
3 output: html_document
4 ---
5
6 **bold** or __bold__
7
8 *italics* or _italics_
9
10 ~~strikethrough~~
11
12
```

**Title**

**bold** or **bold**

*italics* or *italics*

~~strikethrough~~

# Inline code

```
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.

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

```
Investment Services Projects
```

The `investment\_services\_projects` dataset provides information about each investment project from the 2012 to 2018 fiscal years. Information listed includes the project name, company name, sector, project status, and investment amounts.

```
```{r}  
investment_services_projects  
```
```

# Inline code

## 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.

```
investment_annual_summary
```

```
A tibble: 42 x 3
fiscal_year region dollars_in_millions
<dbl> <chr> <dbl>
1 2012 East Asia and the Pacific 2548
2 2012 Europe and Central Asia 2915
3 2012 Latin America and the Caribbean 3680
4 2012 Middle East and North Africa 2210
5 2012 South Asia 1312
6 2012 Sub-Saharan Africa 2733
7 2013 East Asia and the Pacific 2873
8 2013 Europe and Central Asia 3261
9 2013 Latin America and the Caribbean 4822
10 2013 Middle East and North Africa 2038
... with 32 more rows
```

### Investment Services Projects

The `investment_services_projects` dataset provides information about each investment project from 2012 to 2018. Information listed includes the project name, company name, sector, project status, and investment amounts.

```
investment_services_projects
```

```
A tibble: 1,815 x 13
```

# Including links

```
13 ## Datasets
14
15 ### Investment Annual Summary
16
17 The `investment_annual_summary` dataset from [the IFC](https://www.kaggle.com/theworldbank/
ifc-investment-summary-and-services-projects) provides a summary of the dollars in millions
provided to each region for each fiscal year, from 2012 to 2018.
18
19 ``{r}
20 investment_annual_summary
21 ````
```

## Investment Report

### Datasets

#### Investment Annual Summary

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

```
investment_annual_summary
```

# Including images

```
13 ## Datasets
14
15 ### Investment Annual Summary
16
17 The `investment_annual_summary` dataset from [the IFC](https://www.kaggle.com/theworldbank/ifc-investment-summary-and-services-projects) provides a summary of the dollars in millions provided to each region for each fiscal year, from 2012 to 2018.
18
19
20
21 ``{r}
22 investment_annual_summary
23 ````
```

## Investment Report

### Datasets

#### Investment Annual Summary

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



`investment_annual_summary`

# Summary

```
1 ---
2 title: "Title"
3 output: html_document
4 ---
5
6 # Header 1
7 ## Header 2
8 ### Header 3
9
10 `code`
11
12 **bold** or __bold__
13
14 *italics* or _italics_
15
16 ~~strikethrough~~
17
18 ``{r}
19 # Comment
20 ``
21
22 [World Bank IFC Data](https://www.kaggle.com/theworldbank/
ifc-investment-summary-and-services-projects)
23
24
25
```

Title

Header 1

Header 2

Header 3

code

**bold** or **bold**

*italics* or *italics*

~~strikethrough~~

# Comment

World Bank IFC Data



# **Let's practice!**

## **REPORTING WITH R MARKDOWN**

# The YAML header

REPORTING WITH R MARKDOWN



Amy Peterson

Head of Core Curriculum at DataCamp

# YAML header

```
1 ---
2 title: "Investment Report"
3 author: "Amy"
4 output: html_document
5 ---
6
```

# Investment Report

Amy

# Output types

```
1 ---
2 title: "Investment Report"
3 author: "Amy"
4 output: html_document
5 ---
6
```

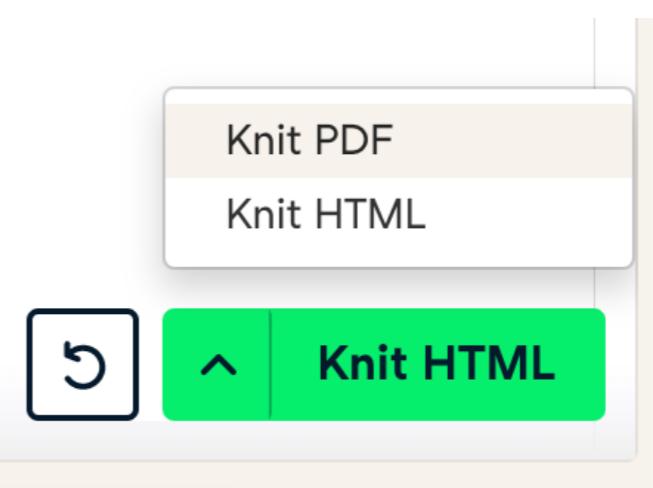
Investment Report  
Amy

```
1 ---
2 title: "Investment Report"
3 author: "Amy"
4 output: pdf_document
5 ---
6
```



# Course exercises

26  
27  
28  
29  
30  
31  
32



# Adding the date manually

```
1 ---
2 title: "Investment Report"
3 date: "8 April 2020"
4 output: html_document
5 ---
6
```

**Investment Report**  
**8 April 2020**

# Adding the date automatically

```
1 ---
2 title: "Investment Report"
3 date: ``r Sys.Date()``
4 output: html_document
5 ---
6
```

**Investment Report**  
2020-04-08

# Formatting the date

```
1 ---
2 title: "Investment Report"
3 date: ``r format(Sys.time(), '%d %B %Y')``
4 output: html_document
5 ---
6
```

**Investment Report**  
08 April 2020

# Date formatting options

| Text     |                | Numeric  |                      |
|----------|----------------|----------|----------------------|
| %A or %a | <b>Weekday</b> | %d       | <b>Decimal date</b>  |
| %B or %b | <b>Month</b>   | %m       | <b>Decimal month</b> |
|          |                | %Y or %y | <b>Year</b>          |

<sup>1</sup> <https://www.rdocumentation.org/packages/base/topics/strptime>

# Date formatting example

```
1 ---
2 title: "Investment Report"
3 date: "`r format(Sys.time(), '%B %d, %Y')`"
4 output: html_document

5
6
```

# Investment Report

April 08, 2020

# Other date options

```
1 ---
2 title: "Investment Report"
3 date: "Last edited `r format(Sys.time(), '%B %d, %Y')`"
4 output: html_document
5 ---
6
```

# Investment Report

Last edited April 08, 2020

# **Let's practice!**

## **REPORTING WITH R MARKDOWN**