

# 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
10	2013	Middle East and North Africa	2038
11	2013	South Asia	1697

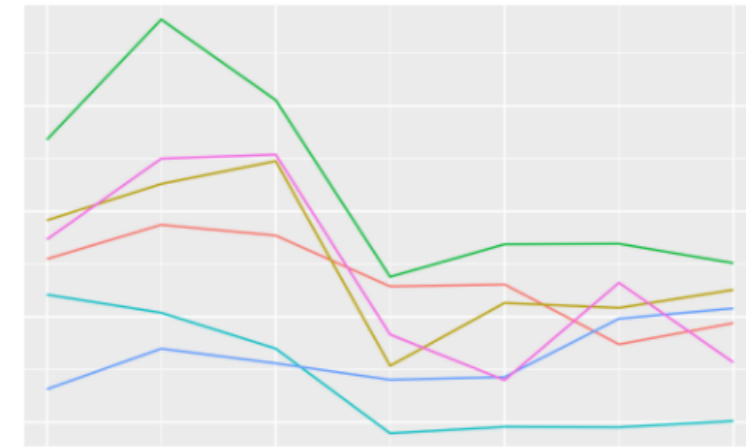
Showing 1 to 12 of 42 entries, 3 total columns

# 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
10	2013	Middle East and North Africa	2038
11	2013	South Asia	1697

Showing 1 to 12 of 42 entries, 3 total columns

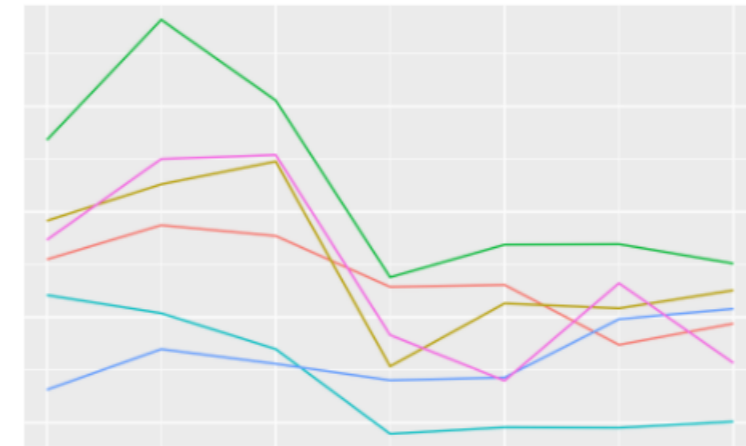


# Reproducible results




	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
10	2013	Middle East and North Africa	2038
11	2013	South Asia	1697

Showing 1 to 12 of 42 entries, 3 total columns

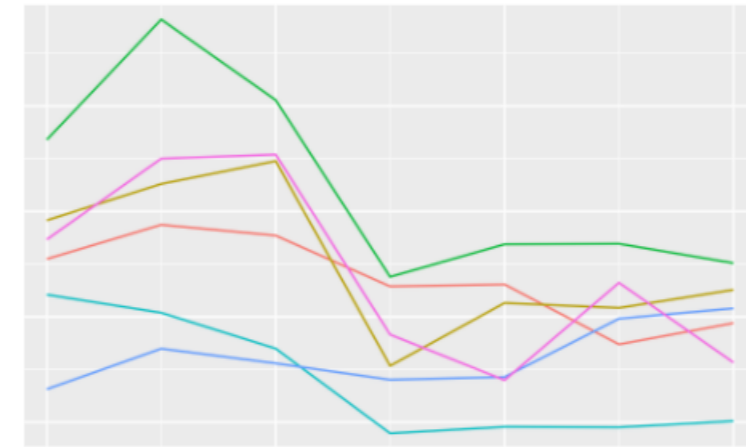


# Reproducible results



	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
10	2013	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 ---
```

YAML header

```
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 ```
```

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.
```

text

15

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

```
17 investment_annual_summary
```

```
18 ```
```

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://
10 assets.datacamp.com/production/repositories/5756/
11 datasets/d0251f26117bbcf0ea96ac276555b9003f4f7372/
12 investment_annual_summary.csv")
13
14 ### Investment Annual Summary
15
16 The `investment_annual_summary` dataset provides a
17 summary of the dollars in millions provided to each
18 region for each fiscal year, from 2012 to 2018.
```

## 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

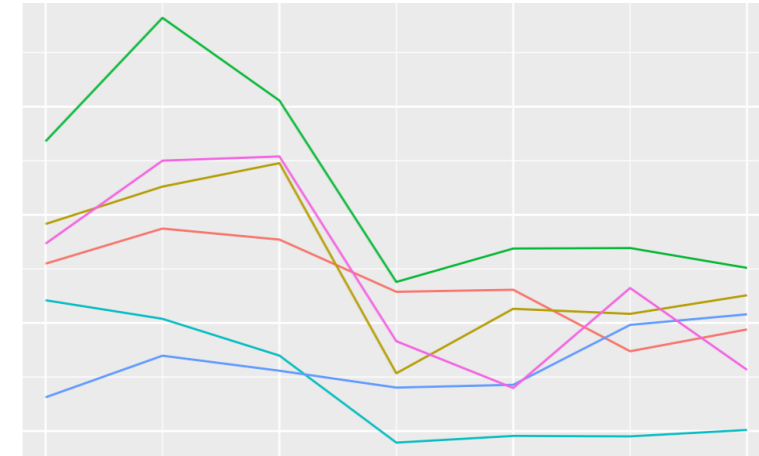
Elements of an R Markdown document

```
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
  <dtm>            <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

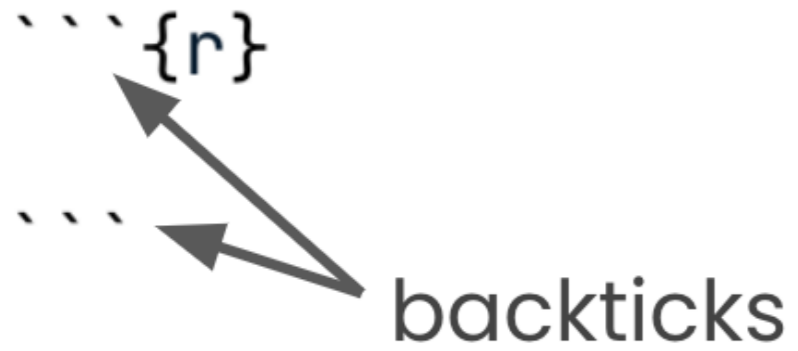
```
1 ---
2 title: "Investment Report"
3 output: html_document
4 ---
5
6 ```{r data, include = FALSE}
7 library(readr)
8
9 investment_annual_summary <- read_csv("https://
10 assets.datacamp.com/production/repositories/5756/
11 datasets/d0251f26117bbcf0ea96ac276555b9003f4f7372/
12 investment\_annual\_summary.csv")
13 ```
14
15 ### Investment Annual Summary
16
17 The `investment_annual_summary` dataset provides a
18 summary of the dollars in millions provided to each
19 region for each fiscal year, from 2012 to 2018.
20
21 ```{r}
22 investment_annual_summary
23 ```
```

# Adding code chunks

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

```
```
```

# Adding code chunks



# Adding code chunks

```
```\n  {r}\n  ...
```



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
##   <dtm>          <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>                <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

```
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/d0251f26117bbcf0ea96ac276555b9003f4f7372/
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
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
```

```
## # 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
```

# 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
```

```
## # 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
```

# 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
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
```

```
## # 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
```

# 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

## # 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
```

# Code comments

```
```\r\n# Print the Investment Annual Summary data\r\ninvestment_annual_summary\r\n```
```

```
# Print the Investment Annuary Summary data\r\ninvestment_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.

```
```\ninvestment_annual_summary\n```
```

```
### 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.

```
```\ninvestment_services_projects\n```
```

# 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/theworlbank/
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/theworlddbanc/
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
```

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

## Investment Report

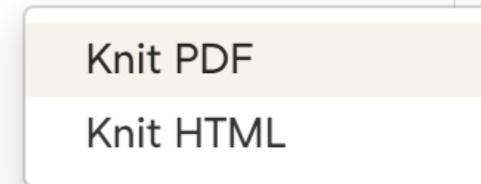
Amy

Investment Report

Amy

# 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

|          |                |
|----------|----------------|
| %A or %a | <b>Weekday</b> |
| %B or %b | <b>Month</b>   |

## Numeric

|          |                      |
|----------|----------------------|
| %d       | <b>Decimal date</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