CHRISTOPHER PRENER, PH.D.
FALL, 2016

WEEK 03
LECTURE 05

QUANTITATIVE ANALYSIS

DYNAMIC DOCUMENTS

AGENDA

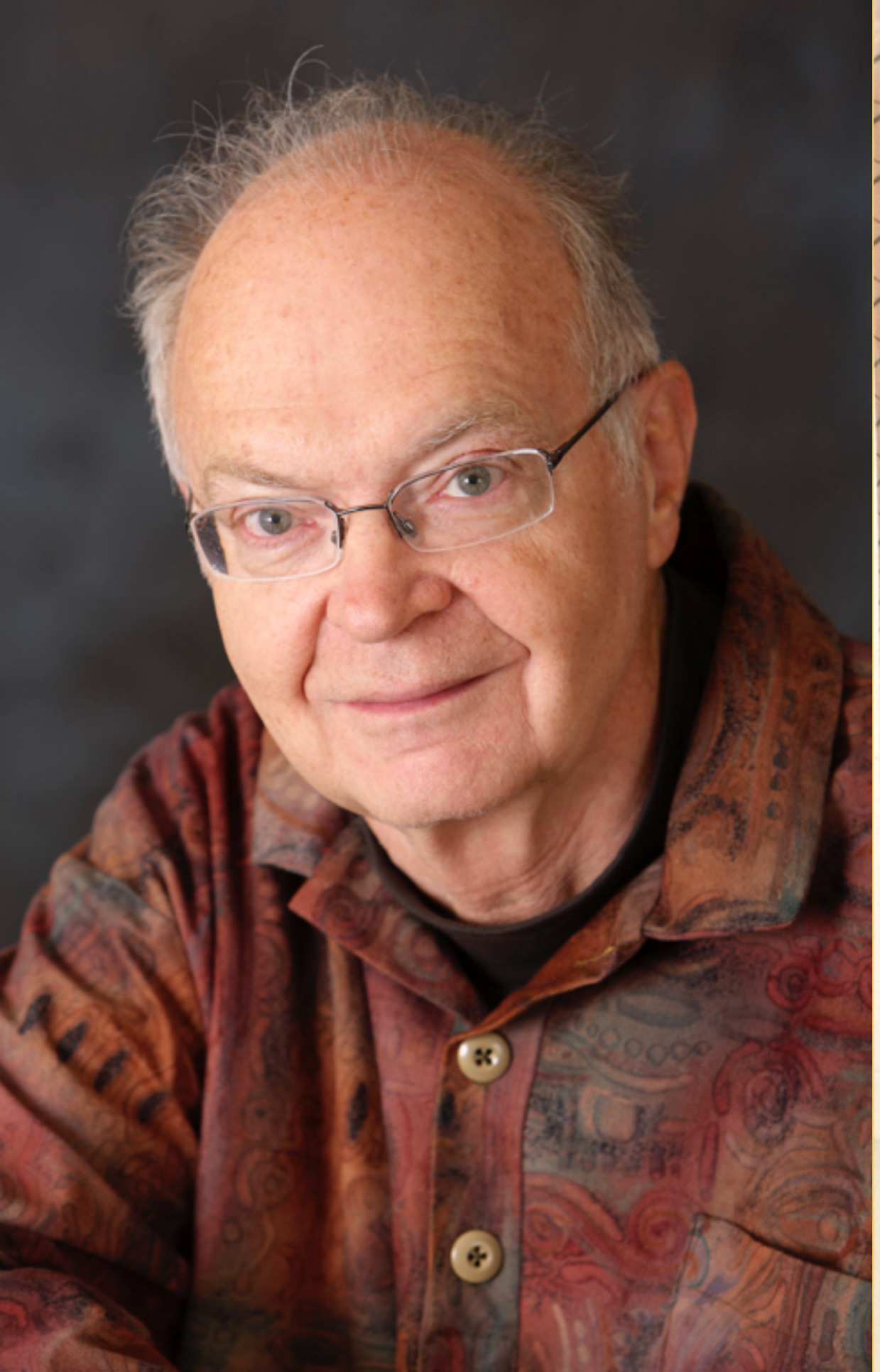
1. Dynamic Documents
2. Using `MarkDoc`
3. Using `Markdown`
4. `Putting All Together`

1 DYNAMIC DOCUMENTS

LET US CHANGE OUR TRADITIONAL ATTITUDE TO THE CONSTRUCTION OF PROGRAMS: INSTEAD OF IMAGINING THAT OUR MAIN TASK IS TO INSTRUCT A COMPUTER WHAT TO DO, LET US CONCENTRATE RATHER ON EXPLAINING TO HUMANS WHAT WE WANT THE COMPUTER TO DO.

Donald Knuth, PhD

Emeritus Professor of Computer Science,
Stanford University



«Literate Programming»

Donald E. Knuth

⟨Emphatic declarations 1⟩;

examples: **array** [*vast*] **of** *small . . large*; *beauty*: *real*;

⟨True confessions 10⟩;

for *readers* (*human*) **do** *write* (*webs*);
while *programming = art* **do**
begin *incr* (*pleasure*); *decr* (*bugs*); *incr* (*portability*);
incr (*maintainability*); *incr* (*quality*); *incr* (*salary*);
end {happily ever after}

This code is used in theory and practice.

DYNAMIC DOCUMENTS

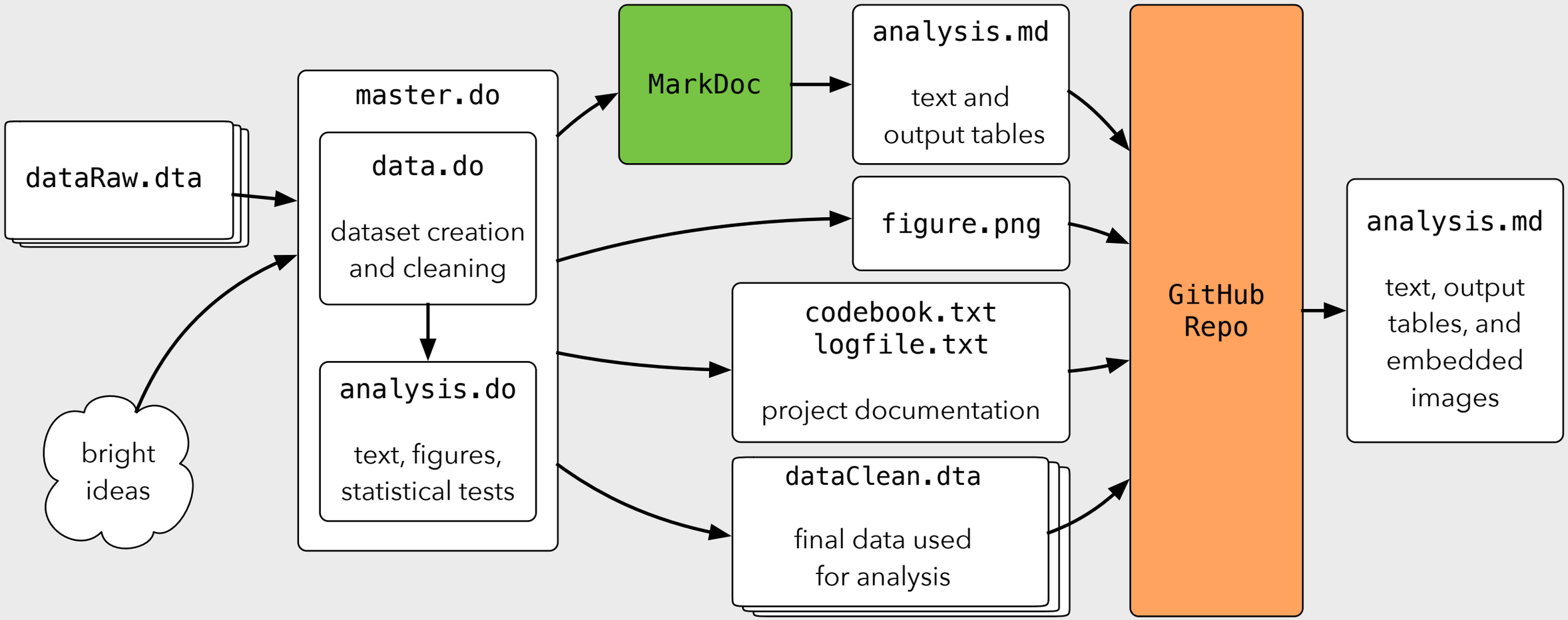
SOURCE CODE
INSTRUCTIONS FOR THE COMPUTER TO CONDUCT YOUR ANALYSES

NARRATIVES
WRITTEN DETAILS THAT DESCRIBE YOUR ANALYSIS PROCESS & RESULTS

MIX CODE & NARRATIVE
CREATE REPORT THAT MERGES HOW YOU DID YOUR ANALYSIS (CODE) WITH YOUR RESULTS OUTPUT AND TEXT

2 USING MARKDOC

STATISTICAL WORKFLOW



USING MARKDOC: DO-FILE STRUCTURE

```
. // at the beginning of the report:

. quietly log using "$projName-markdoc.smcl", replace smcl
name(markdoc)
```

```
{ output text omitted }
```

```
. // at the end of the report:

. quietly log close markdoc

. markdoc "$projName-markdoc", replace export(md) install
```

USING MARKDOC: INSERTING NARRATIVES

```
. /***

### Part 1

1. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed
do eiusmod tempor incididunt ut labore et dolore magna aliqua.

2. Ut enim ad minim veniam, quis nostrud exercitation ullamco
laboris nisi ut aliquip ex ea commodo consequat.

. ***/
```

USING MARKDOC: SUPPRESSING SOURCE CODE

```
. // OFF

{ commands and output to be excluded }

. // ON
```

USING MARKDOC: PREFORMATTED HEADER

```
. /***

# $projName

  - SOC 5050: Quantitative Analysis

  - ${3:/*what is today's date?*/}

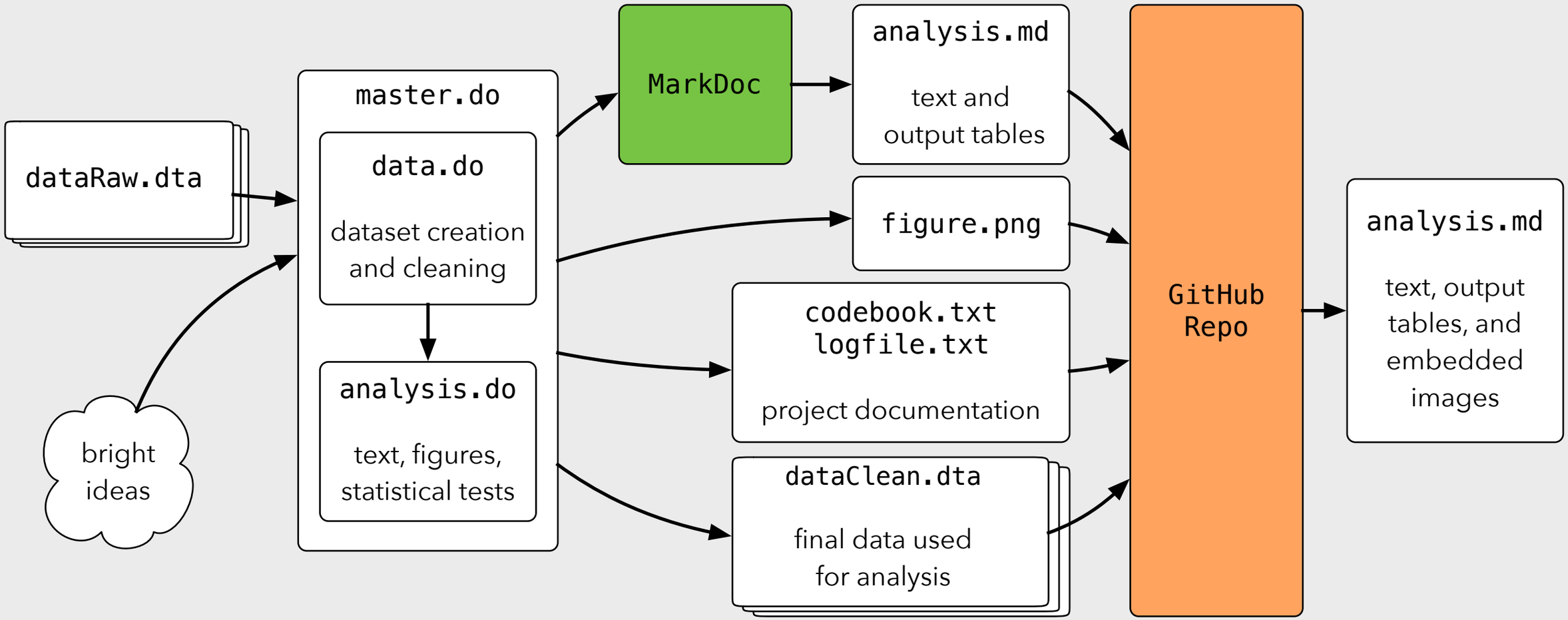
  - ${4:/*what is your name?*/}


### ${7:/*what is the name of the first part?*/}

. ***/
```

3 USING MARKDOWN

STATISTICAL WORKFLOW



MARKDOWN

markdown-example

```
# Markdown Example
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor
incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis
nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.
Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu
fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in
culpa qui officia deserunt mollit anim id est laborum.

```stata
. sysuse auto.dta
(1978 Automobile Data)

. summarize mpg

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         mpg |         74     21.2973    5.785503         12         41

```

Answers:
1. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod
tempor incididunt ut labore et dolore magna aliqua.
2. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut
aliquip ex ea commodo consequat.
3. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore
eu fugiat nulla pariatur.
```

markdown-example Preview

Markdown Example

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

```
. sysuse auto.dta
(1978 Automobile Data)

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         mpg |         74     21.2973    5.785503         12         41
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Answers:

1. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
2. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.
3. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

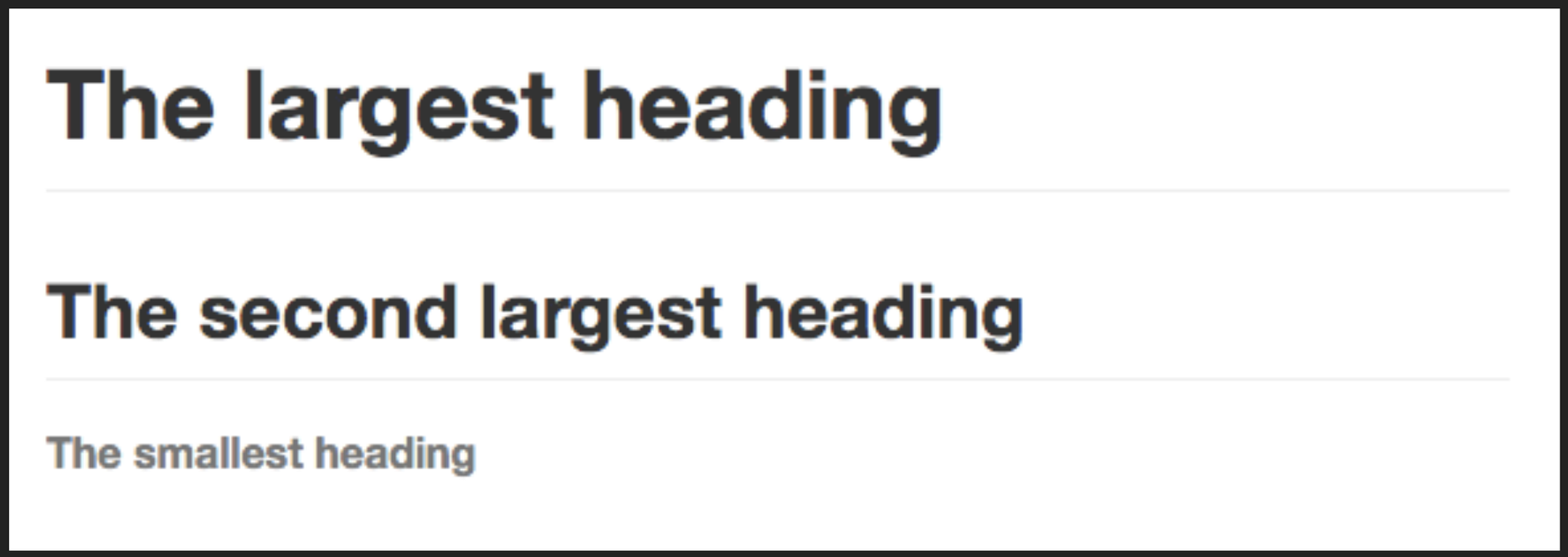
MARKDOWN: HEADINGS

```
# The largest heading

## The second largest heading

…

###### The smallest heading
```



MARKDOWN: STYLING TEXT

```
**This is bold text**

*This text is italicized*

~~This was mistaken text~~

**This text is _extremely_ important**
```

This is bold text

This text is italicized

~~This was mistaken text~~

This text is *extremely* important

MARKDOWN: QUOTING TEXT

```
In the words of Mark Twain:

> There are three kinds of lies: lies, damned lies, and
statistics
```

In the words of Mark Twain:

> There are three kinds of lies: lies, damned lies, and statistics

MARKDOWN: QUOTING CODE

````
In-line quotes, which are included in a sentence, are wrapped in single
backticks:

> Use the `describe` command to list variables in Stata.

To include code blocks, which are better for including the full syntax of
particular commands and their output, use triple backticks:

```Stata
. describe make price mpg

              storage   display    value
variable name   type    format     label      variable label
------------------------------------------------------------------------------
make            str18   %-18s                 Make and Model
price           int     %8.0gc                Price
mpg             int     %8.0g                 Mileage (mpg)
```
````

MARKDOWN: QUOTING CODE

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make            str18   %-18s                 Make and Model
price           int     %8.0gc                Price
mpg             int     %8.0g                 Mileage (mpg)
```

MARKDOWN: HYPERLINKS & IMAGES

```
The course [website](https://github.com/slu-soc5050) is hosted
using the service [GitHub](https://github.com).
```

The course website is hosted using the service GitHub.

```
![screenshot1](https://github.com/slu-soc5050/jdoe/blob/master/
ps1/images/image1.png)
```

MARKDOWN: LISTS

```
- mean
- median
- mode
* variance
* standard deviation
```

- mean
- median
- mode
- variance
- standard deviation

```
1. calculate the mean
2. calculate the variance
3. calculate the standard deviation
```

1. calculate the mean
2. calculate the variance
3. calculate the standard deviation

MARKDOWN: TASK LISTS

```
1. [x] calculate the mean
2. [ ] calculate the variance
3. [ ] calculate the standard deviation
```

1. ☑ calculate the mean
2. ☐ calculate the variance
3. ☐ calculate the standard deviation

MARKDOWN: MENTIONING OTHER USERS

```
Hey @chris-prener, thanks for the feedback. I made the changes to
lines 40 and 41.
```

Hey **@chris-prener**, thanks for the feedback. I made the changes to lines 40 and 41.

4 PUTTING IT ALL TOGETHER

KEY STEPS IN WORKFLOW

1. Write code in Atom

2. Execute code using Stata and debug as needed

3. Edit Markdown file in Atom - it will not come out perfectly!

4. Upload deliverables to GitHub

5. Check Markdown file again on GitHub to make sure formatting is correct and images appear as you intend them to

DOCUMENT DETAILS

Document produced by Christopher Prener, Ph.D for the Saint Louis University course SOC 5050: QUANTITATIVE ANALYSIS - APPLIED INFERENTIAL STATISTICS. See the course wiki and the repository README.md file for additional details.