Applied Epidemiology I: Data Management

Enoch Yi-Tung Chen

Department of Medical Epidemiology and Biostatistics, Karolinska Insitutet

November 9, 2020

Acknowledgements

This course material in data management is based on my learning from Anna Johansson's workshop at KI library[1], teachings in Good Data Management Practice in Epidemiological Research, and MEB Guidelines for Documentation and Archiving Version 6 [2]. I personally want to thank for their effort on education in data management.

[1] This workshop is currently available on KI Play as well.

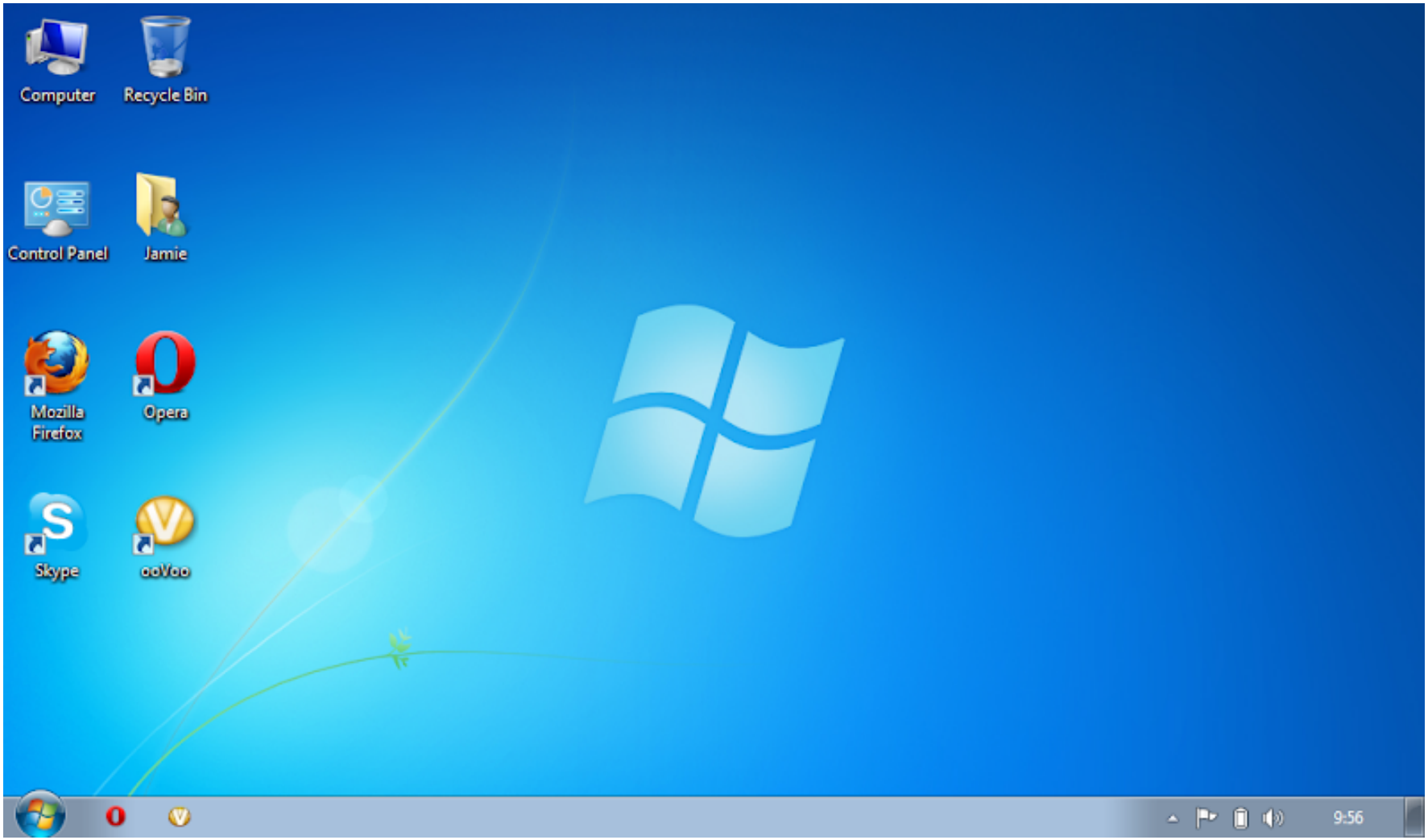
[2] The Department of Medical Epidemiology and Biostatistics, Karolinska Institutet. MEB Guidelines for Documentation and Archiving Version 6. 2018.

Outline

1. What if no data management?
2. Aims of data management (also learning outcomes)
3. Good folder structure
4. Good documents
5. Good Readme.txt
6. Good habits on coding
7. Other do's and don'ts
8. Wrap it up

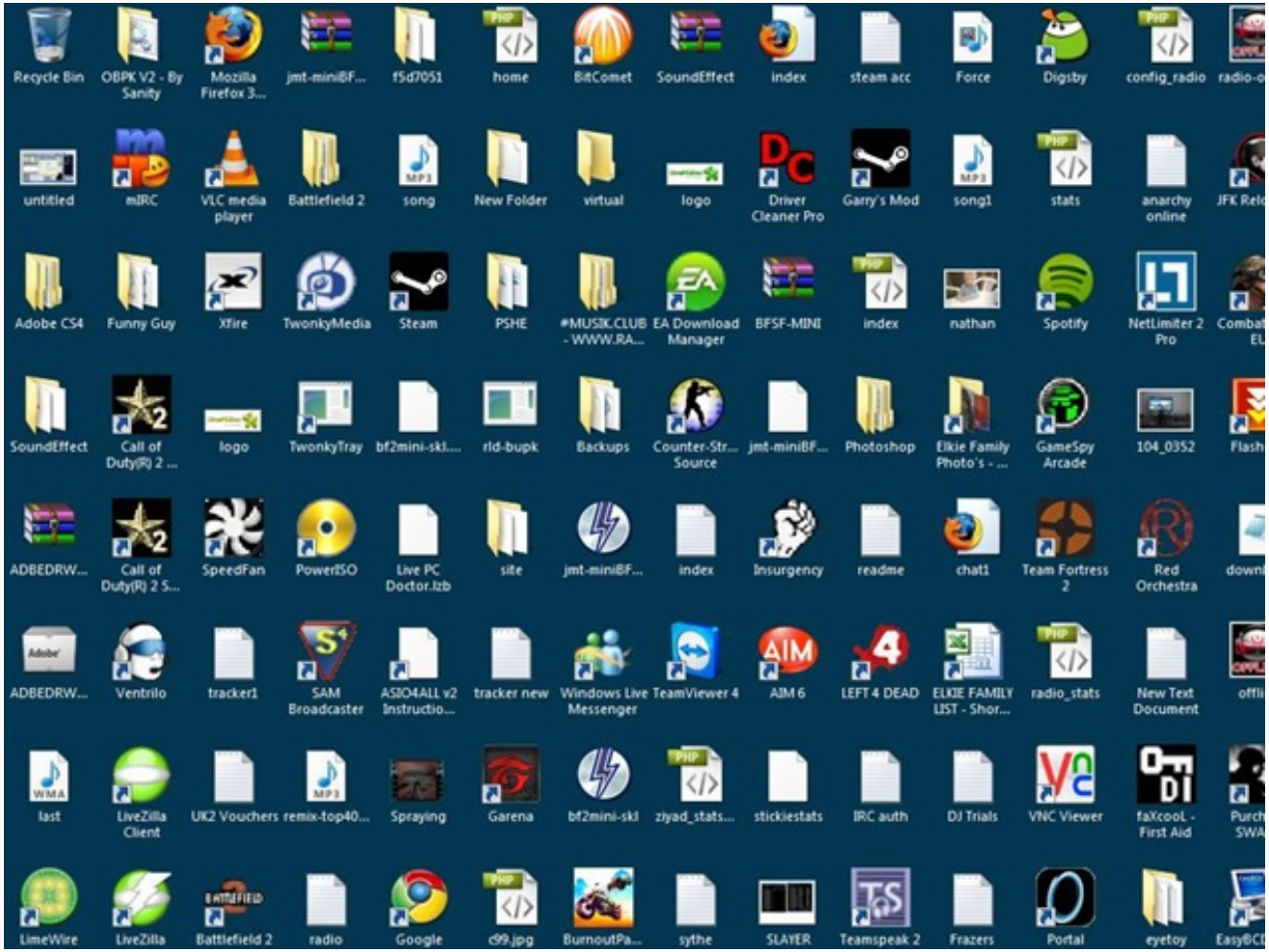
What if no data management?

In the beginning,



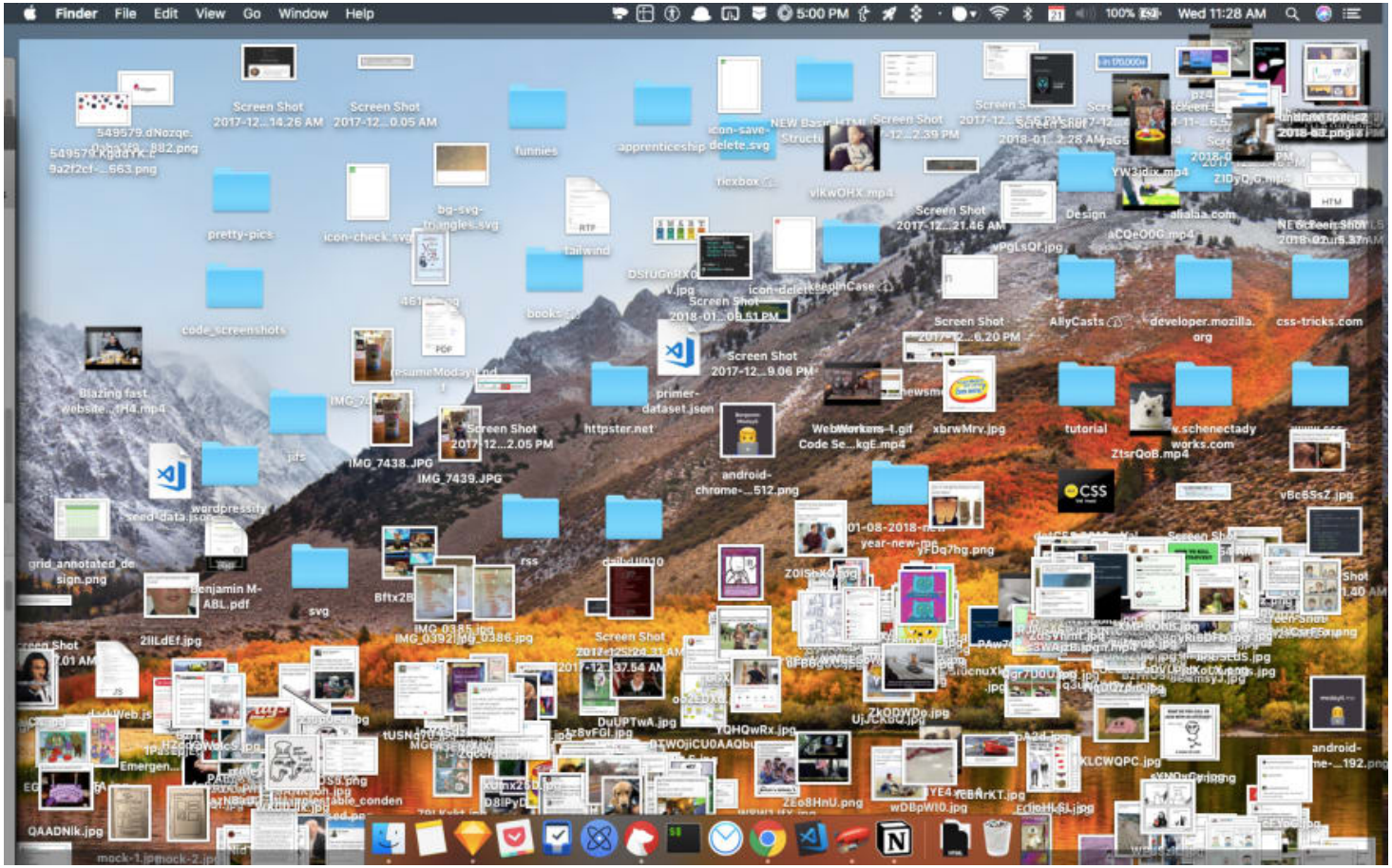
What if no data management?

In the half-way of the research,



What if no data management?

At the end, or saying you cannot even walk till the end?



What if no data management?

Imagine now

- if you want to correct Table I, where is the do file for descriptive analysis?

What if no data management?

Imagine now

- if you want to correct Table I, where is the do file for descriptive analysis?
- if your supervisor says, "Please summarise how far you've gone in this project." You probably cannot just drop him/her your syntax.

What if no data management?

Imagine now

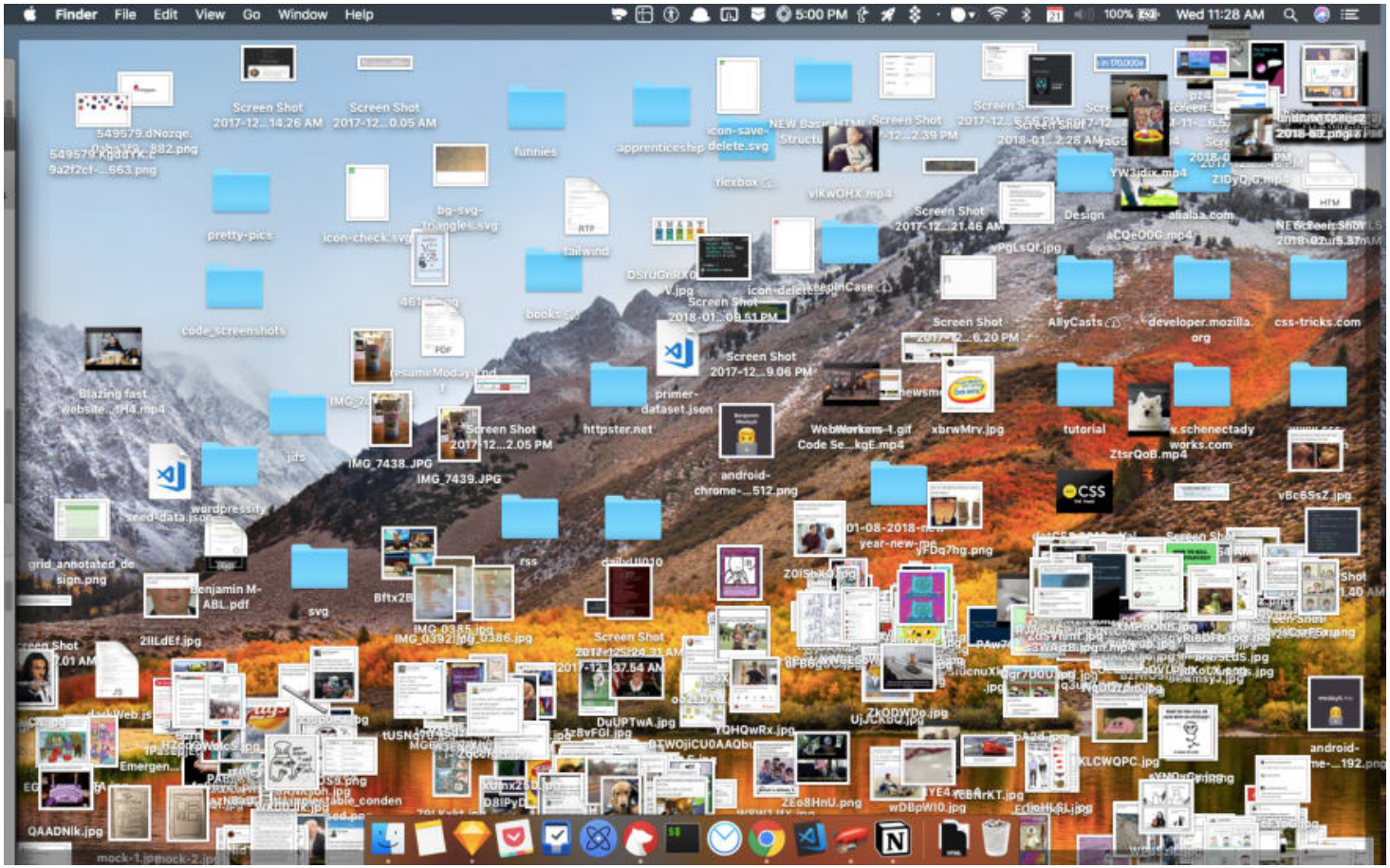
- if you want to correct Table I, where is the do file for descriptive analysis?
- if your supervisor says, "Please summarise how far you've gone in this project." You probably cannot just drop him/her your syntax.
- if your classmate asks you to teach her how to write a certain Stata code, you remember you've done it before, but where did you put it?

What if no data management?

Imagine now

- if you want to correct Table I, where is the do file for descriptive analysis?
- if your supervisor says, "Please summarise how far you've gone in this project." You probably cannot just drop him/her your syntax.
- if your classmate asks you to teach her how to write a certain Stata code, you remember you've done it before, but where did you put it?
- if your collaborator needs to take over your analysis, can he/she understand what you've completed?

What if no data management?



What if no data management?

So I would say you need to have a friend called

Data Management

Aims of data management (also learning outcomes)

- To ensure the analysis is reproducible

Aims of data management (also learning outcomes)

- To ensure the analysis is reproducible
- To work coherently and efficiently with yourself

Aims of data management (also learning outcomes)

- To ensure the analysis is reproducible
- To work coherently and efficiently with yourself
- To ensure the project can be understood by others (supervisors, collaborators, and future readers)

Aims of data management (also learning outcomes)

- To ensure the analysis is reproducible
- To work coherently and efficiently with yourself
- To ensure the project can be understood by others (supervisors, collaborators, and future readers)
- To create a good work flow and enhance accuracy of work

Good folder structure

The core elements of folders are listed below:

- Data
- Documents
- Log
- Output
- Program

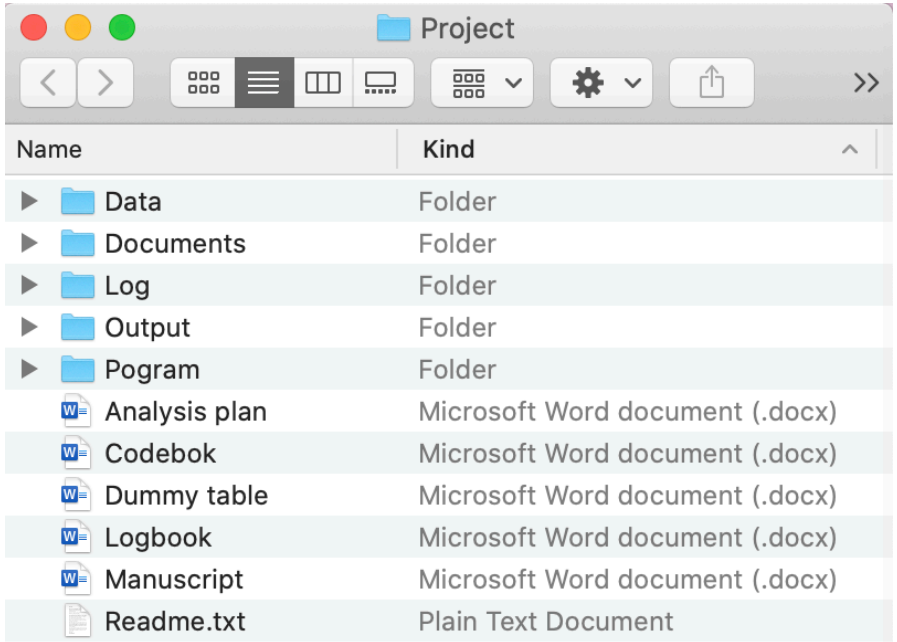


Figure: Good project folder structure. (Please bear with me that I am Mac user!)

Good documents

Besides good folder structure, you should also consider keeping good documents

- Analysis plan
- Codebook[3]
- Dummy table
- Logbook[3]
- Manuscript

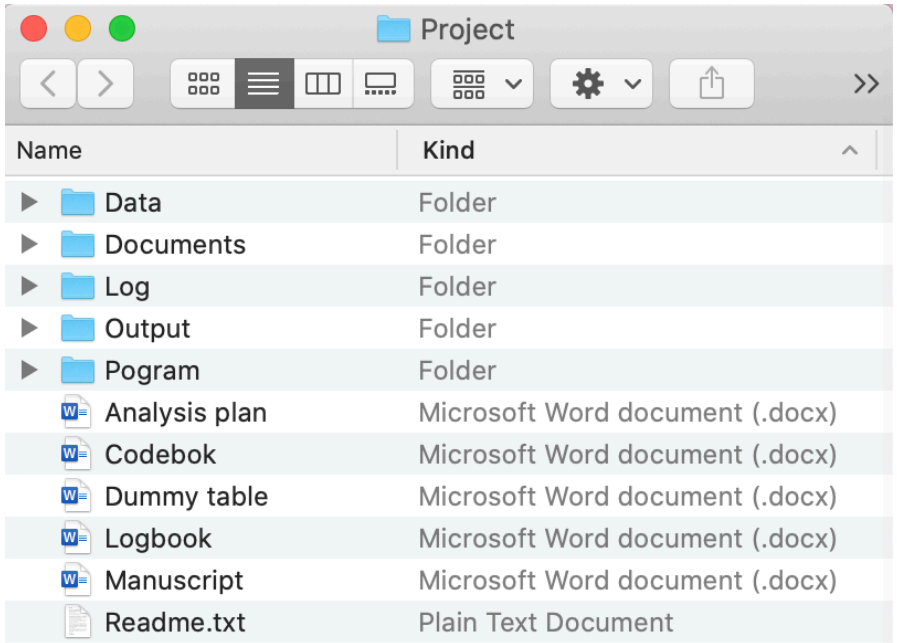


Figure: Good project folder structure.

[3] can be included in analysis plan as well

Good Readme.txt

- You should illustrate how to use these documents/folders in the Readme.txt.
- A good Readme.txt is a good tourist guide in this project folder.

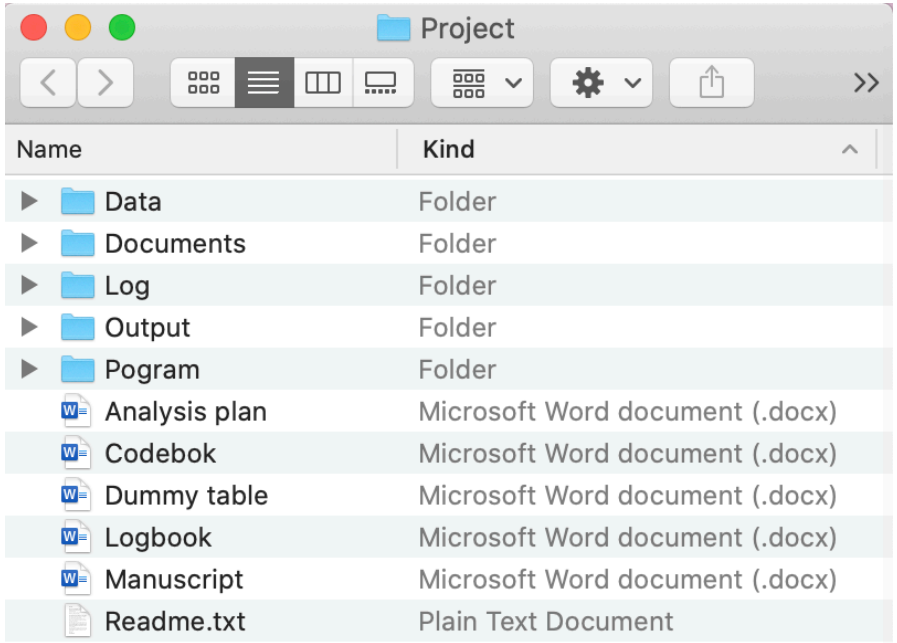


Figure: Good project folder structure.

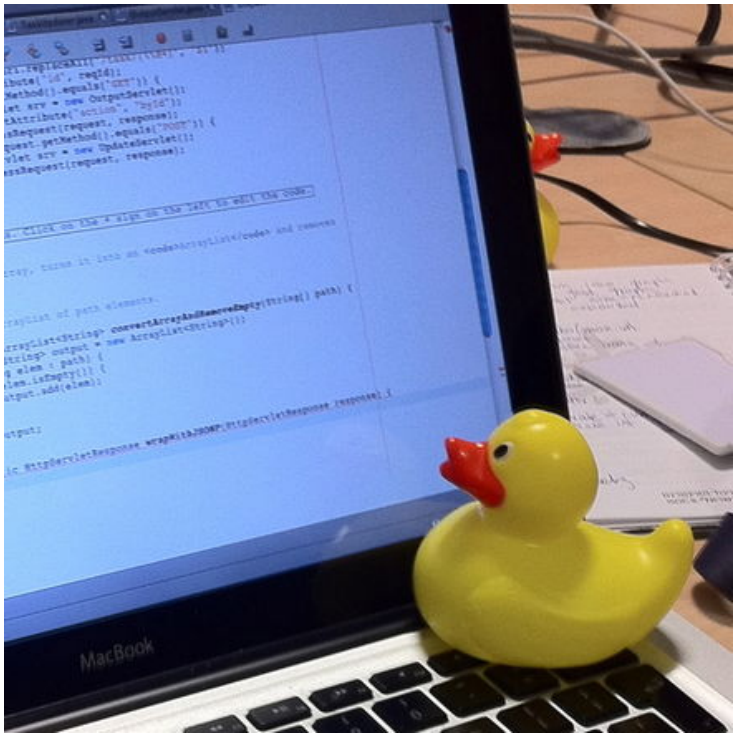
Good habit on coding

- log on
- Filename
- Study
- Created
- Updated
- Purpose
- Note
- **Start your code**
- log close

```
local todaydate: di %tdCYND date(c(current_date),"DMY")
capture log close
log using "your log folder route\do file name_`todaydate'.log",

/*============================================================
Filename: make_analysis_data.do
Study:    Colon cancer patient survival, Sweden, 2010-2015

Created:  20201015 Enoch Yi-Tung Chen
Updated:  20201017 Enoch Yi-Tung Chen

Purpose:  Conduct data clearance for the project
Note:     Well, this is just an example.
============================================================*/
// Start of Stata code



// End of Stata code

log close
```

Good habit on coding

- Talk to yourself what you are doing.
- You've got a friend in me! (Parallel analysis)
- Rubber duck debugging



Other do's and don'ts

1. Use a shared drive. (Required to do that because of data privacy.)

Other do's and don'ts

1. Use a shared drive. (Required to do that because of data privacy.)
2. Give appropriate names to your files and variables

Other do's and don'ts

1. Use a shared drive. (Required to do that because of data privacy.)
2. Give appropriate names to your files and variables
    - No stupid names, such as new1, new2, new3, final1, final2, final3, latest1

Other do's and don'ts

1. Use a shared drive. (Required to do that because of data privacy.)
2. Give appropriate names to your files and variables
   - No stupid names, such as new1, new2, new3, final1, final2, final3, latest1
   - No space in-between & No special character (in case, the software cannot read.)

Other do's and don'ts

1. Use a shared drive. (Required to do that because of data privacy.)
2. Give appropriate names to your files and variables
   - No stupid names, such as new1, new2, new3, final1, final2, final3, latest1
   - No space in-between & No special character (in case, the software cannot read.)
   - For binomial variables, $= 1$ implies yes, and $= 0$ implies no.

Other do's and don'ts

1. Use a shared drive. (Required to do that because of data privacy.)
2. Give appropriate names to your files and variables
   - No stupid names, such as new1, new2, new3, final1, final2, final3, latest1
   - No space in-between & No special character (in case, the software cannot read.)
   - For binomial variables, $= 1$ implies yes, and $= 0$ implies no.
   - Label your variables, please!

Other do's and don'ts

1. Use a shared drive. (Required to do that because of data privacy.)
2. Give appropriate names to your files and variables
   - No stupid names, such as new1, new2, new3, final1, final2, final3, latest1
   - No space in-between & No special character (in case, the software cannot read.)
   - For binomial variables, $= 1$ implies yes, and $= 0$ implies no.
   - Label your variables, please!
3. Same names for linking files (.do .r .sas $\rightarrow$ .log $\rightarrow$ .doc)

Other do's and don'ts

1. Use a shared drive. (Required to do that because of data privacy.)
2. Give appropriate names to your files and variables
   - No stupid names, such as new1, new2, new3, final1, final2, final3, latest1
   - No space in-between & No special character (in case, the software cannot read.)
   - For binomial variables, $= 1$ implies yes, and $= 0$ implies no.
   - Label your variables, please!
3. Same names for linking files (.do .r .sas $\rightarrow$ .log $\rightarrow$ .doc)
4. Don't replace the original files or variables. (Well if you accidentally do this, you still get a chance to revert if using shared drive.)

Wrap it up

- In summary, a good data management contains GOOD
  1. folder structure
  2. documents
  3. readme
  4. habits
- How can this lecture help you?
- I attached the resources you can use for DM your current and future projects.