HONOR *the* FUTURE

THE CAMPAIGN FOR THE UNIVERSITY OF VIRGINIA

THINKING REPRODUCIBLY

James Rogol, Data Consultant

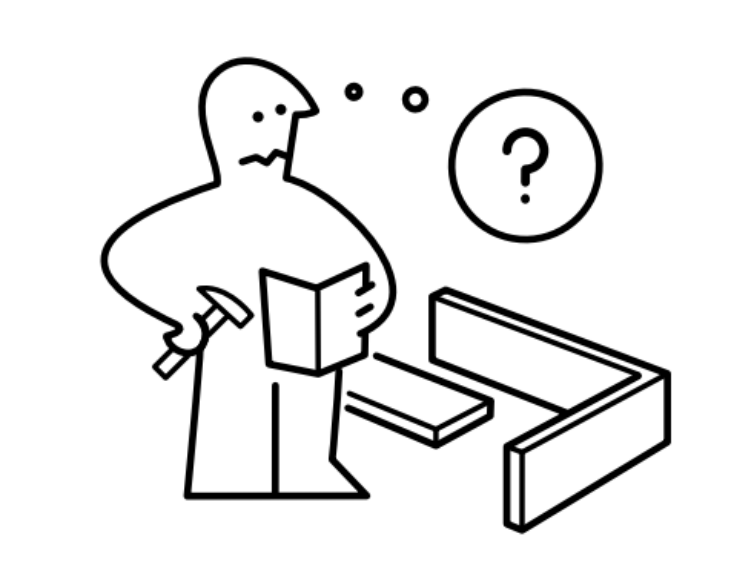
University of Virginia

AGENDA

- What is reproducibility?
- Why does this matter?
- How to think reproducibly
  - The Data
  - What to do with it?
  - How to work with it?

re·pro·duc·i·bil·i·ty, *noun*

- Repeatable
- Identical
- Shareable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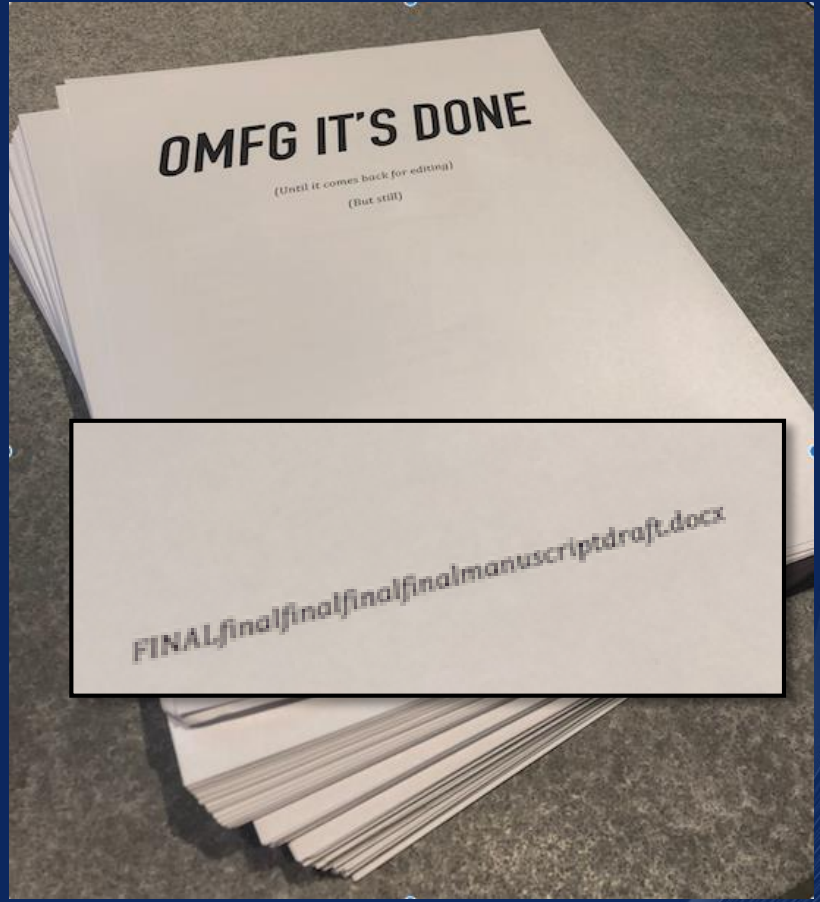
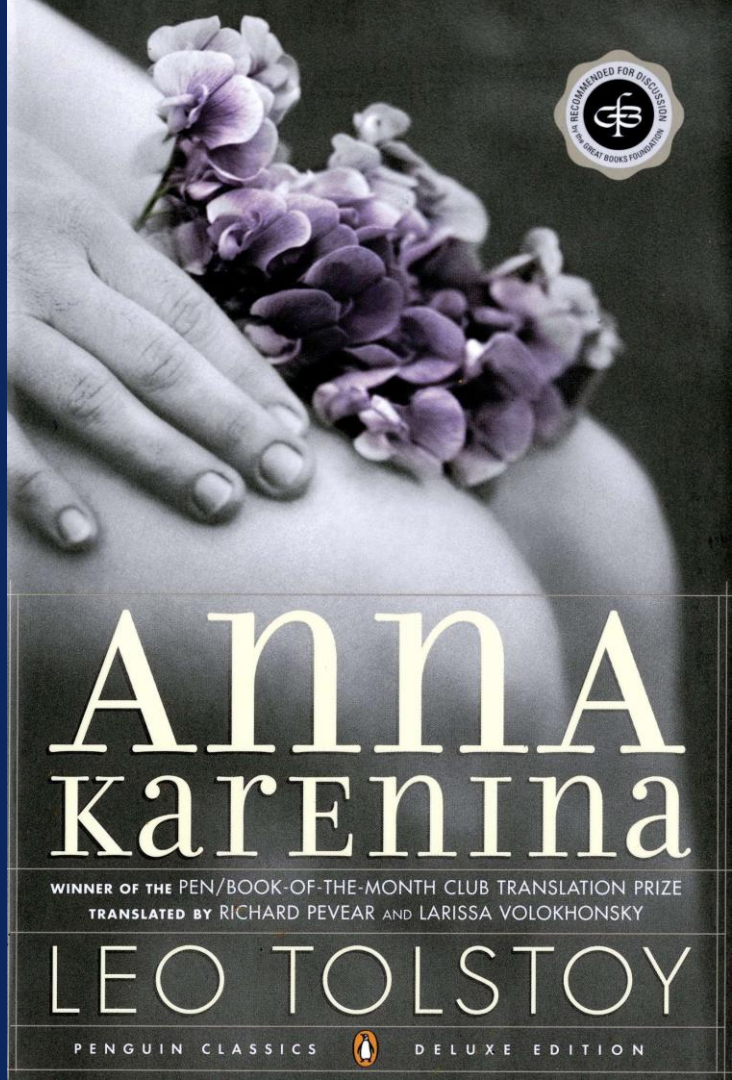
XLII

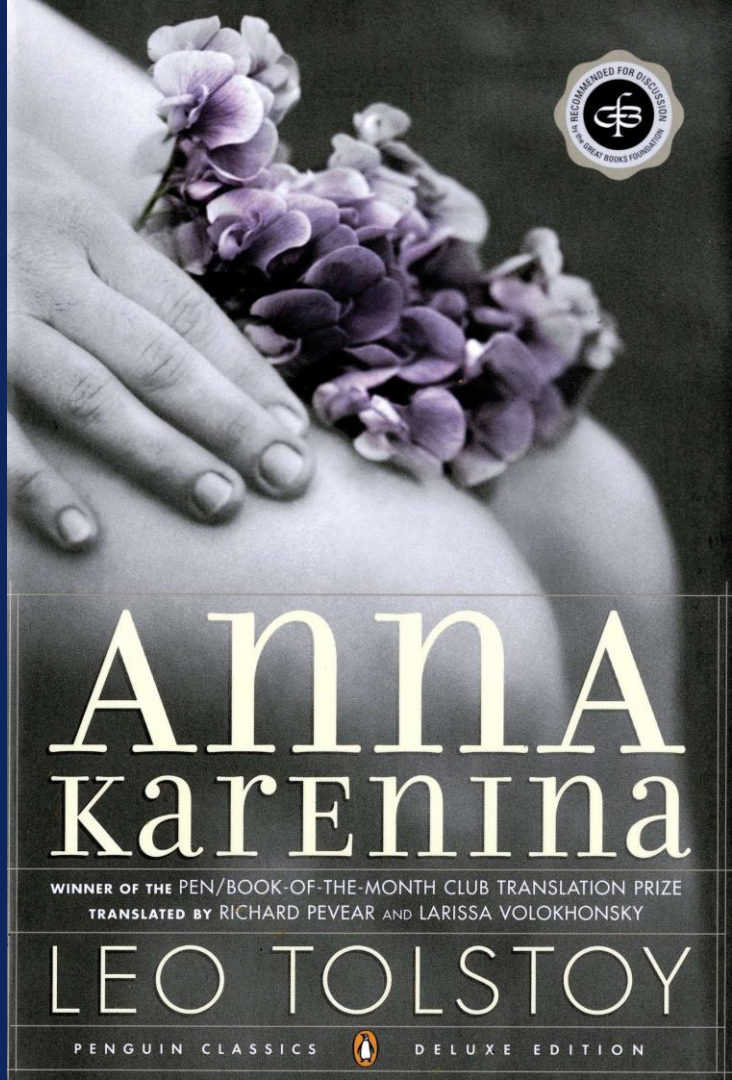

OMFG IT'S DONE
(Until it comes back for editing)
(But still)
FINALfinalfinalfinalfinalmanuscriptdraft.docx

“All happy families are alike; each unhappy family is unhappy in its own way.”

- Leo Tolstoy



All ***reproducible projects***
are alike;
Each ***non-reproducible***
one ***is not*** in its own way.



CENTER FOR OPEN SCIENCE

192

experiments

27%

success rate

“Seriously, it doesn’t have to be about sharing your code (although that is an added benefit) **It is about saving yourself time.**”

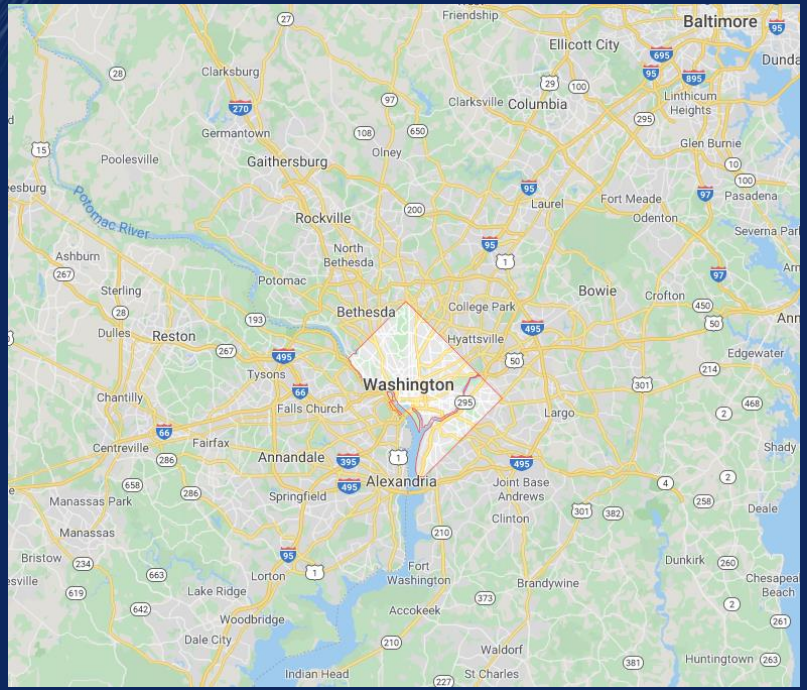
Hilary Parker
Data Scientist, StitchFix


PAYDAY
LOANS

HOW?

SLOW DOWN

- Ask Better Questions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Odenton
Pasadena
Glen Burnie
Linthicum Heights
Friendship
Ashburn
Sterling
Dulles
Reston
Tysons
Chantilly
Falls Church
Centreville
Fairfax
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Springfield
Manassas Park
Manassas
Bristow
Lorton
Lake Ridge
Woodbridge
Dale City
Washington
College Park
Hyattsville
Bowie
Crofton
Edgewater
Largo
Alexandria
Joint Base Andrews
Clinton
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St Charles
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Huntingtown
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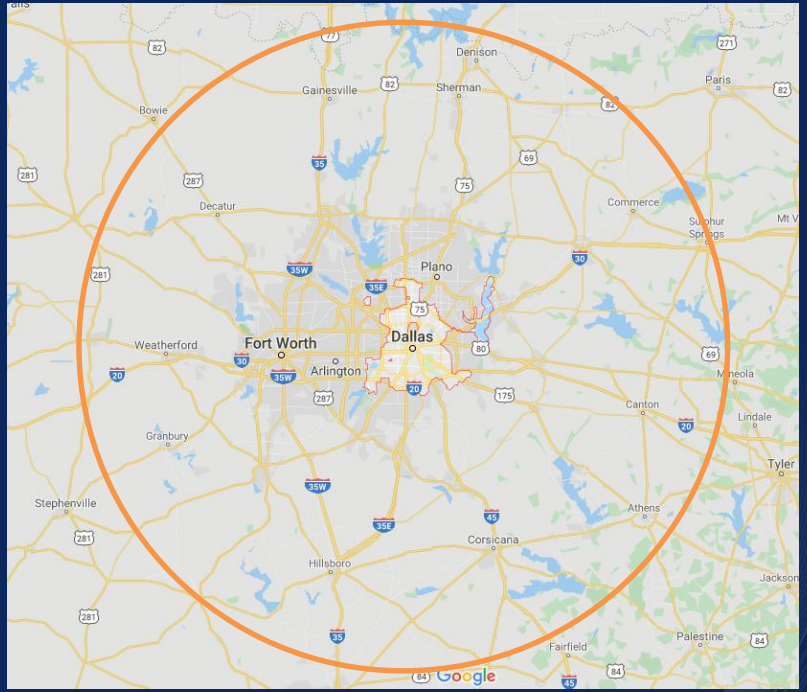
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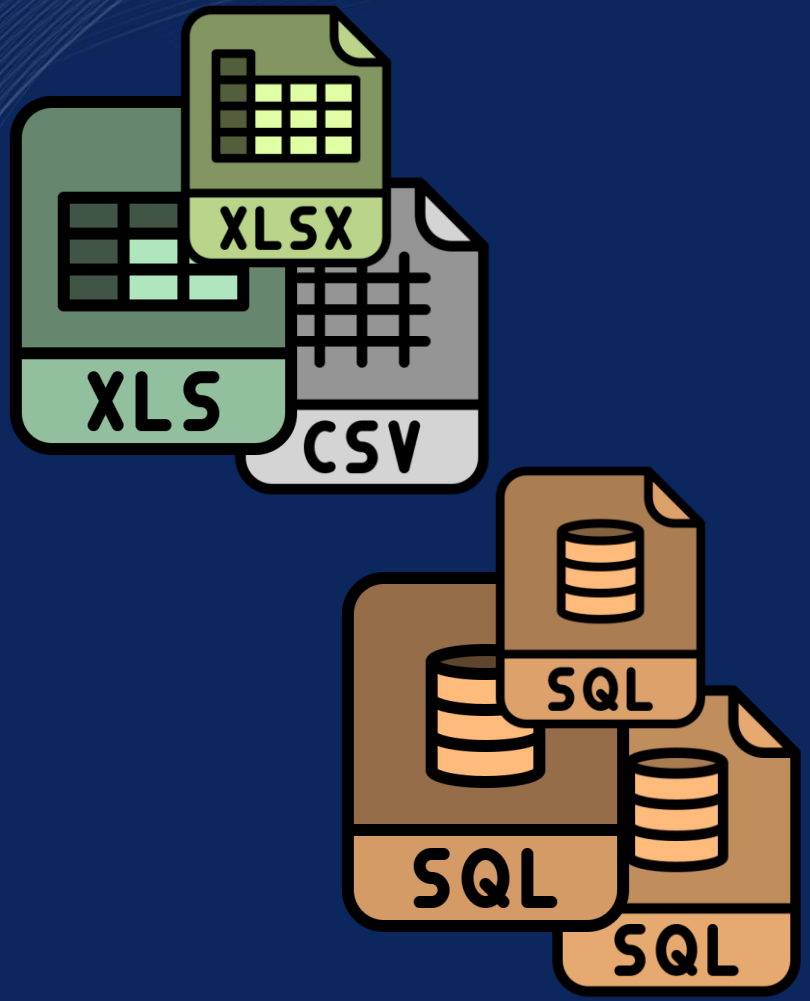
Stephenville
Athens
Corsicana
Hillsboro
Palestine
Fairfield
Google

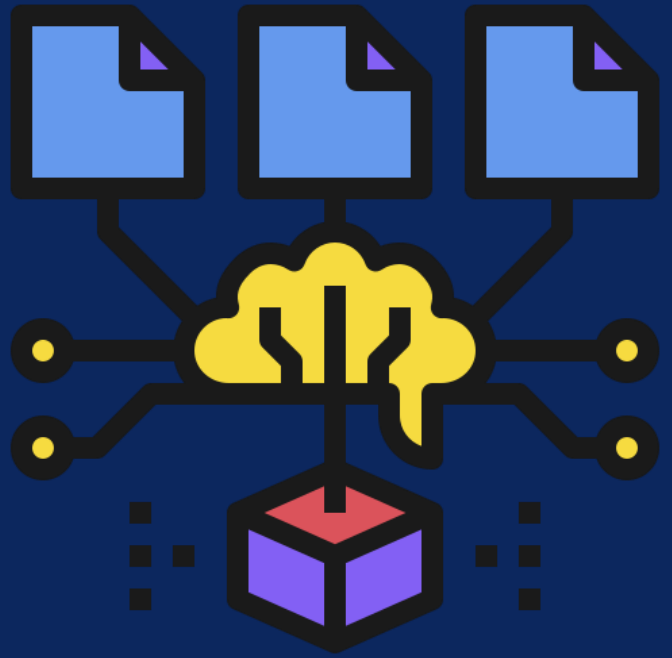


SLOW DOWN

- Ask Better Questions
- Inputs & Outputs
- Know Your Data

KNOW YOUR DATA

- What does the data look like?
- Who has access?
- How does it connect?



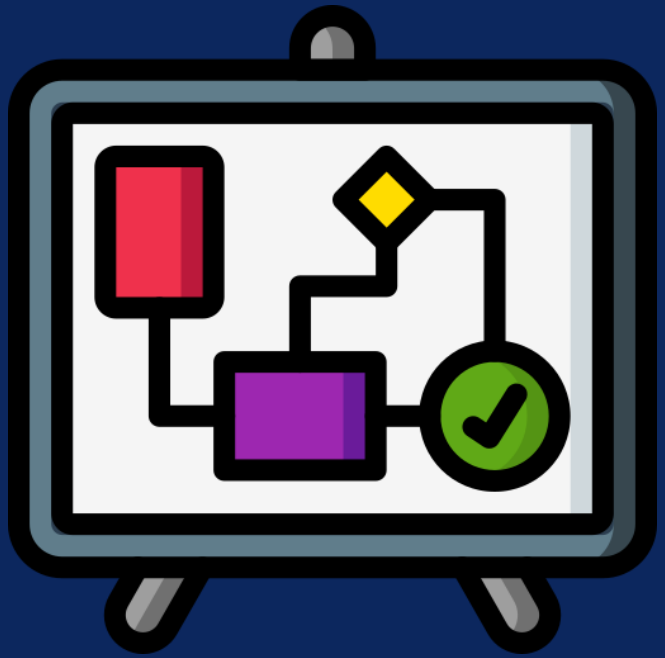
KNOW YOUR DATA

- What does the data look like?
- Who has access?
- How does it connect?
- Inputs

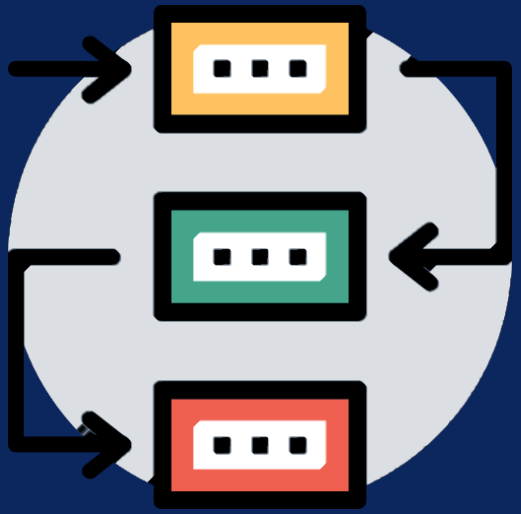
KNOW YOUR DATA

- What does the data look like?
- Who has access?
- How does it connect?
- Inputs and Outputs

DESIGN



- Start with a question
- Provide context
- Specific, actionable tasks
- Diagram



DESIGN

- How to access the data?
- What does the data *need* to look like?
- Preprocessing steps
  - Accounting for randomness

ABSTRACT

- Generalize Tasks
  - Points of Variation
- Simple, monotonic
  - Functions, Files, Scripts

DOCUMENT

- Code can’t speak
- The Why
- Leave Breadcrumbs
- External Dependencies

THINKING REPRODUCIBLY

- Slow Down
- Know Your Data
- Design
- Abstract
- Document

QUESTIONS?

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 /jrogol

 /jrogol

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