



ID529!

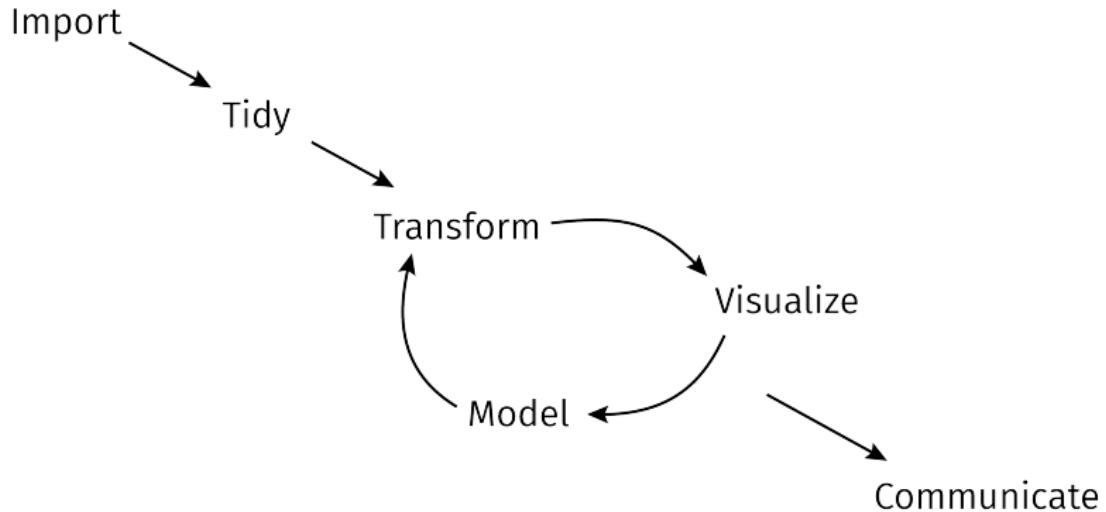
Data Management and
Analytic Workflows in R
January 2025



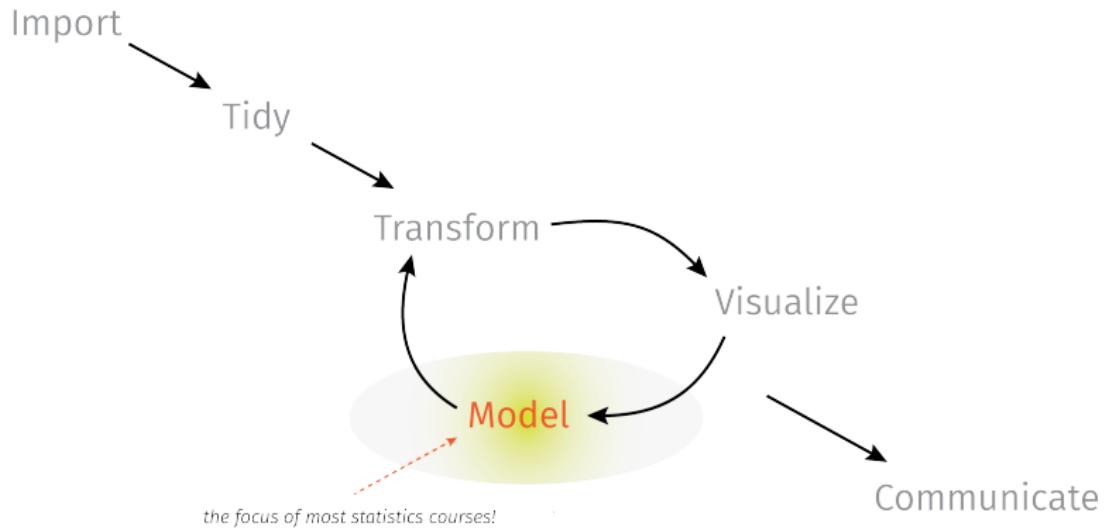
HARVARD
T.H. CHAN

SCHOOL OF PUBLIC HEALTH

Why this course?



Graphic adapted from [Zen And The aRt Of Workflow Maintenance](#) ([linked](#)) by Jennifer Bryan, RStudio, University of British Columbia



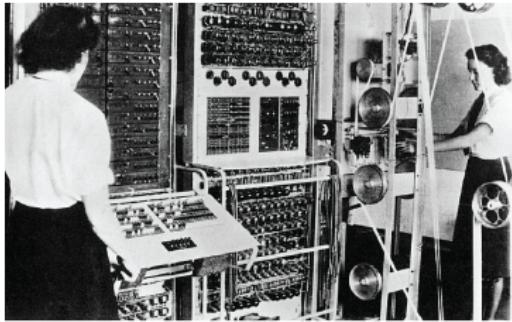
Graphic adapted from [Zen And The aRt Of Workflow Maintenance \(linked\)](#) by Jennifer Bryan, RStudio, University of British Columbia



Abraham Wald



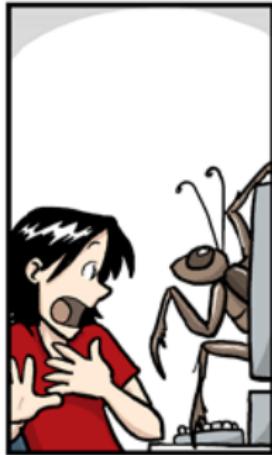
Computing division of the US Veterans Bureau, 1924



Colossus Mark 2 codebreaking computer being programmed,
Bletchley Park, 1943

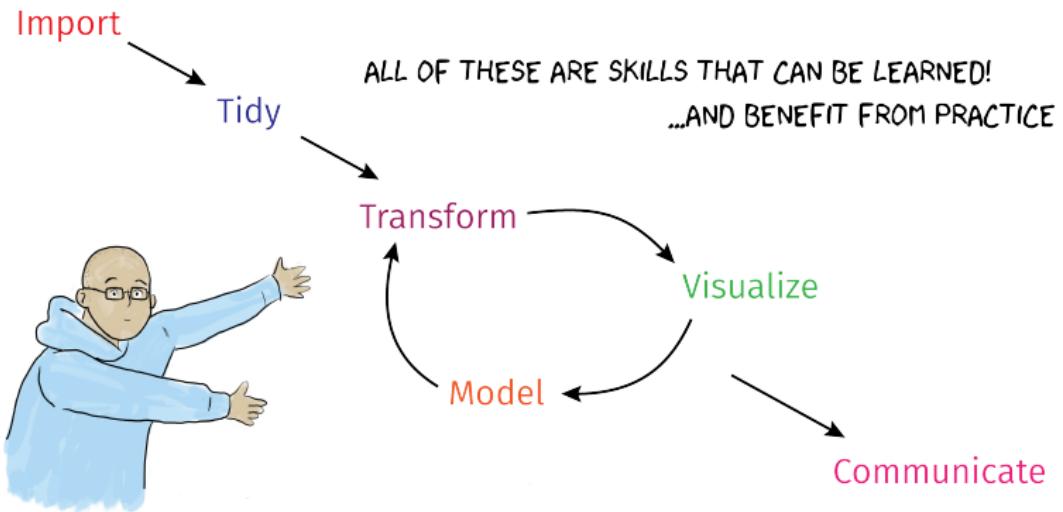


Computer lab at the University of Surrey, 1990s



JORGE CHAM © 2005

www.phdcomics.com



Import

readr
readxl
haven
xml2

Tidy → Transform

tibble
tidyverse
dplyr
forcats
hms

lubridate
stringr

purrr
magrittr

Program

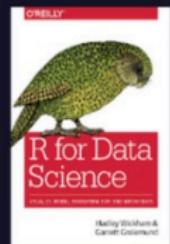
Visualise

ggplot2

rsample

tidybayesian
yardstick

broom
modelr
recipes



tidyverse.org

r4ds.had.co.nz



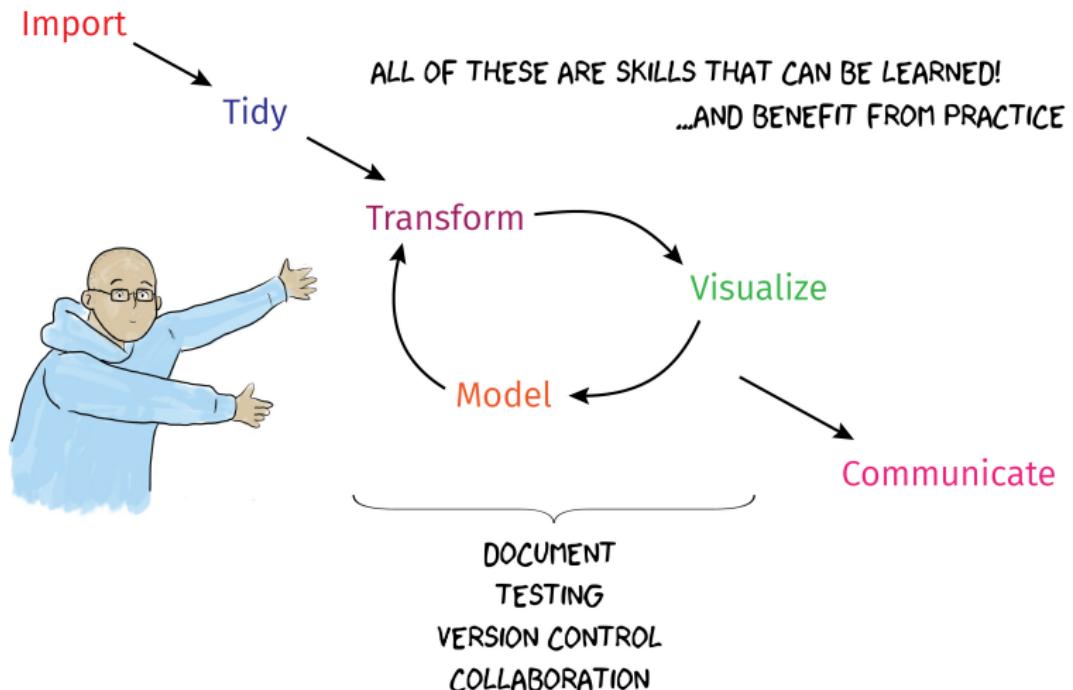
Trevor A. Branch

@TrevorABranch

Follow



My rule of thumb: every analysis you do on a dataset will have to be redone 10–15 times before publication. Plan accordingly. #Rstats



Generative AI in Coding Education

- Benefits

- Rapid prototyping: quickly generate code snippets for common tasks
- Inspiration for new approaches and efficient workflow patterns
- Builds confidence by offering guidance for troubleshooting errors

- Potential Pitfalls

- Overreliance on AI output can hinder skill development
- Possible inaccuracies ('hallucinations') that require human verification
- Lack of transparency in complex data or modeling strategies

- Responsible Usage

- Treat AI-generated code as a *draft*, always verify correctness
- Cross-check results with documentation and your own tests
- Use AI for learning concepts rather than copy-paste solutions

- Paradigm Shift in Coding Education

- Emphasis shifting from pure syntax memorization to critical evaluation
- Students learn to collaborate with AI as a coding partner
- Builds meta-skills: choosing, refining, and validating AI suggestions

Disclosure: I asked ChatGPT o1 to make this list!



We've assembled a great instructional team to develop and deliver this course:

Christian Testa

Dean Marengi

Jarvis Chen

The course has also benefitted greatly from the input of:

Amanda Hernandez (TF in January 2023)

ID529 students in 2023 and 2024

We look forward this year to
working with and learning from

ALL OF YOU!