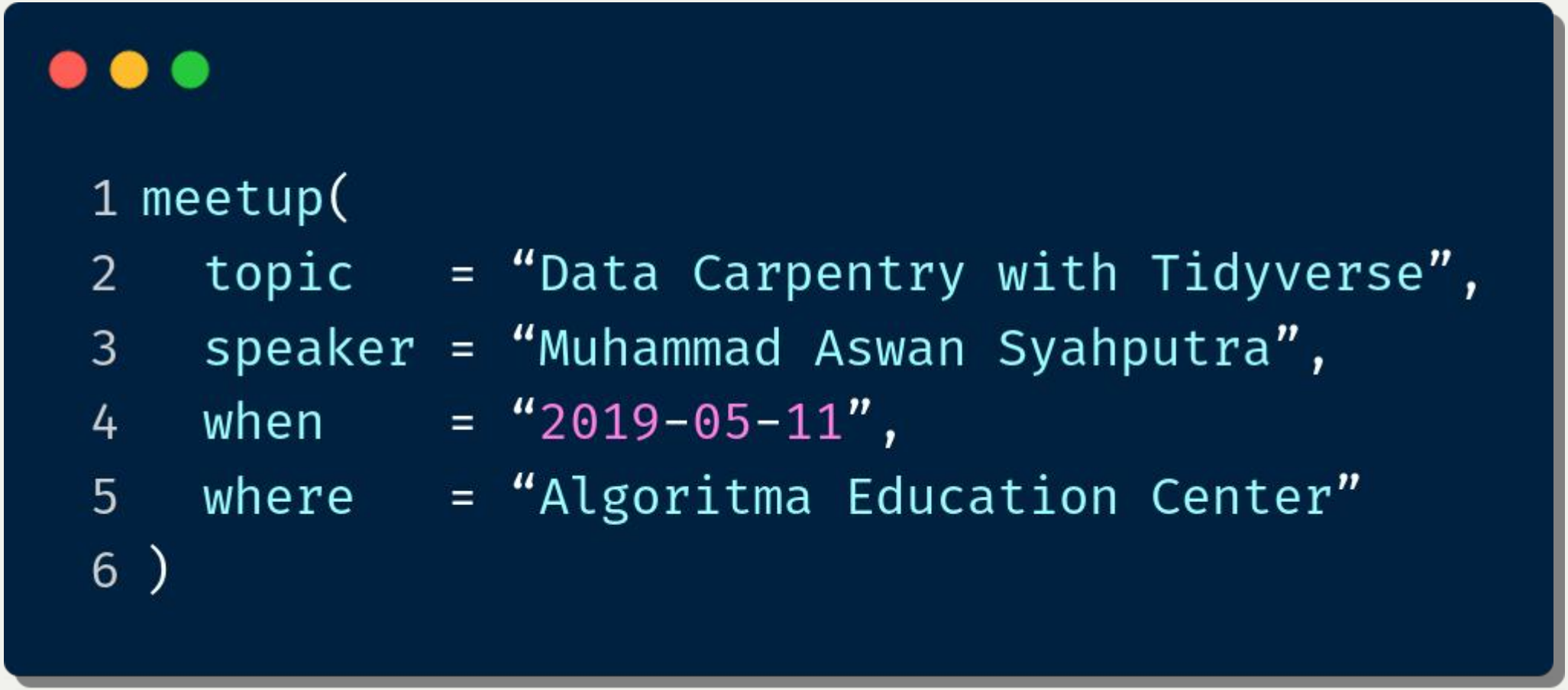
meetup(
topic = “Data Carpentry with Tidyverse”,
speaker = “Muhammad Aswan Syahputra”,
when = “2019-05-11”,
where = “Algoritma Education Center”
)

- Sensory Scientist @ Sensolution.ID
- Trainer @ R-Academy Telkom University and The Datanomics Institute (TDI)
- Initiator of Komunitas R Indonesia
- Pkgs: sensehubr, nusandata, bandungjuara, prakiraan, etc
- Shinyapps: sensehub, thermostats, aquastats, bcrp, bandungjuara, etc

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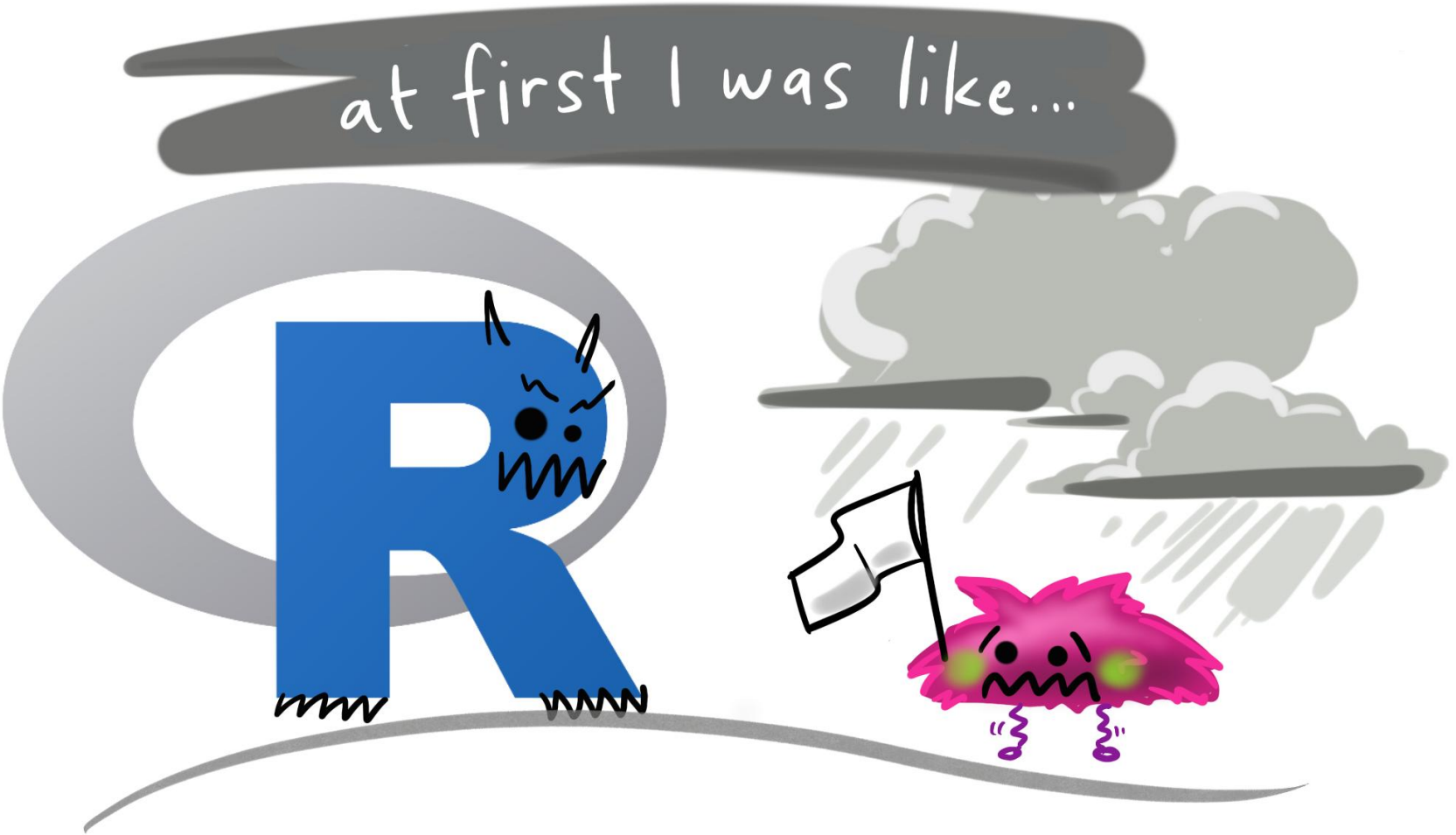
Komunitas
R Indonesia


R Indones a
www.r- ndones a. d

Know your neighbour!

- Who are you?
- What you do with data?
- How would you describe your experience with R?



Artwork by @allison_horst

Artwork by @allison_horst

Data Carpentry?

It’s so relatable,

is it not?

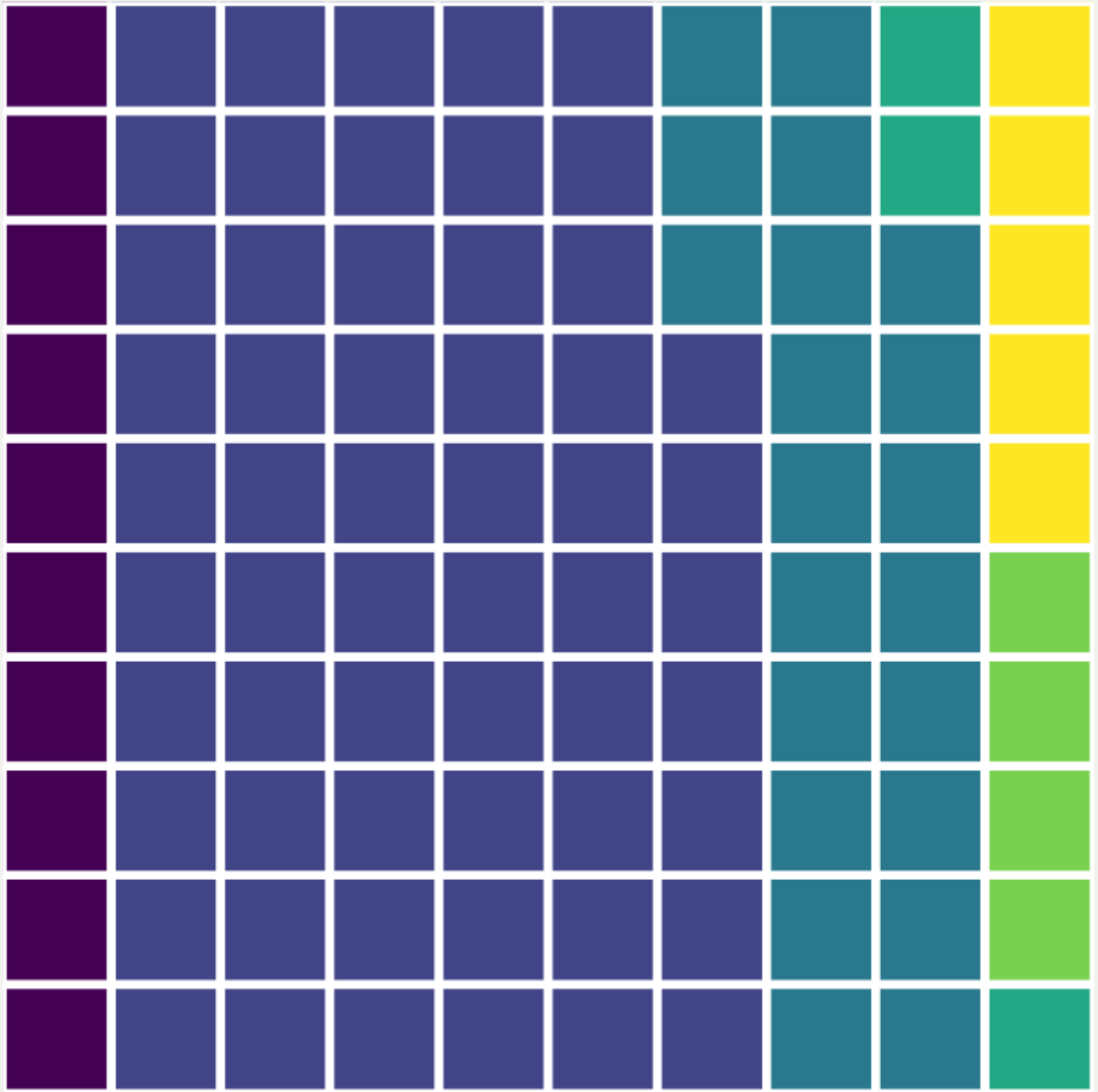
Source: Forbes, 2016

What data scientists spend the most time doing?

- Building training sets
- Cleaning and organizing data
- Collecting data sets
- Mining data for pattern
- Refining algorithms
- Other

What the least enjoyable part of data science?

- Building training sets
- Cleaning and organizing data
- Collecting data sets
- Mining data for pattern
- Refining algorithms
- Other



Source: Forbes, 2016

“

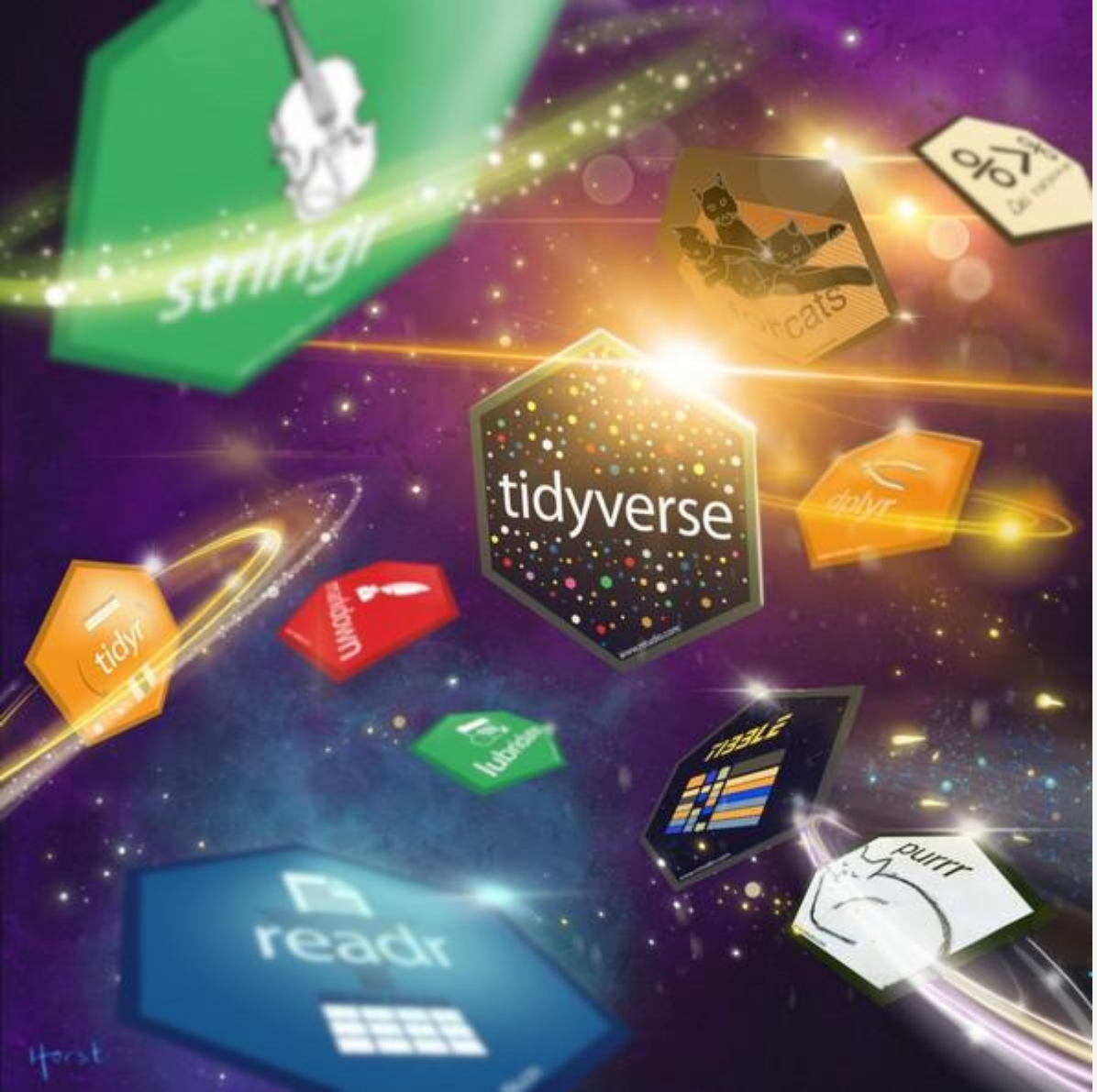
Do not underestimate

DATA PREPROCESSING

”

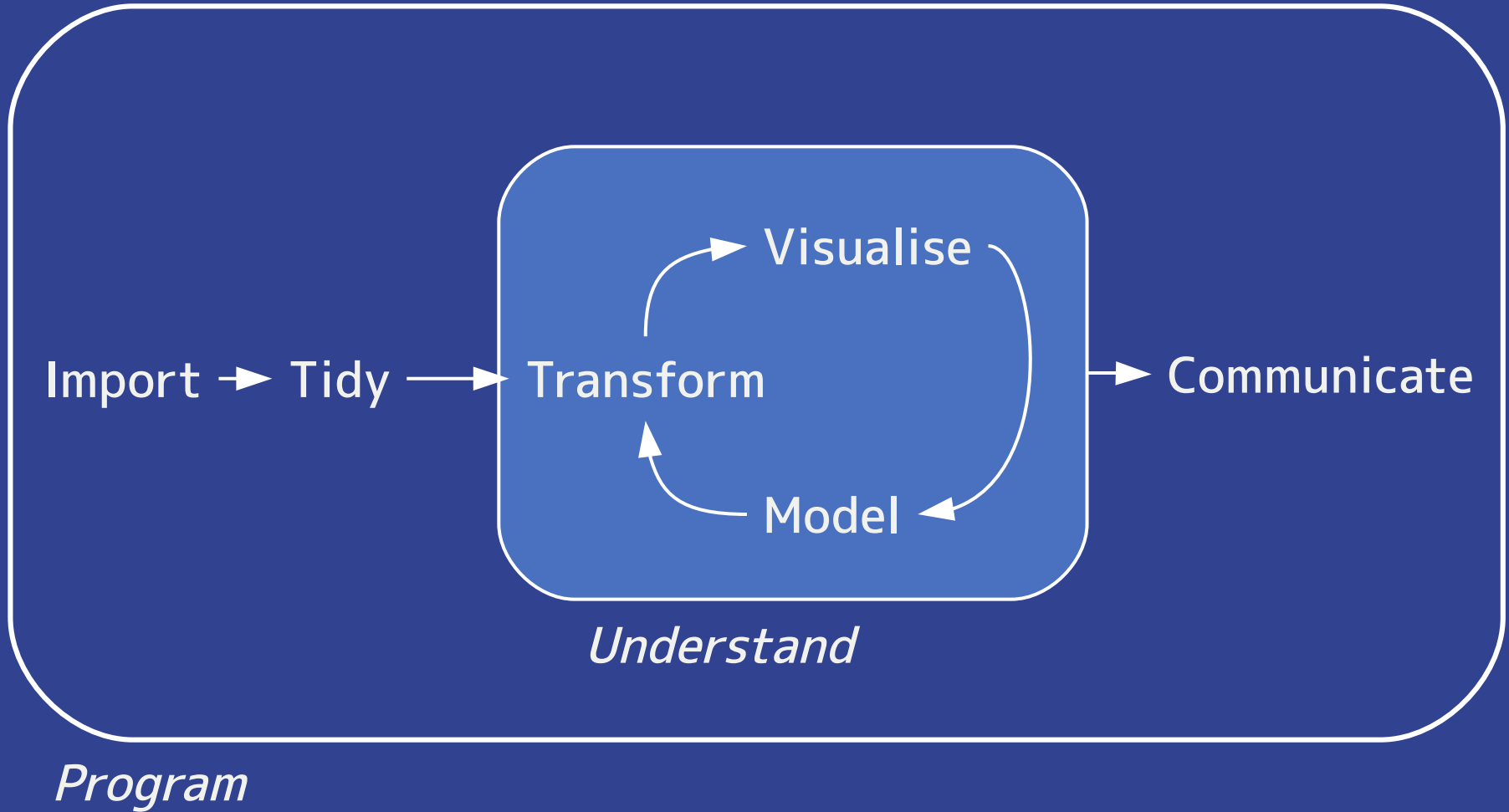
“is not a single process
but a thousand of
little skills and techniques”

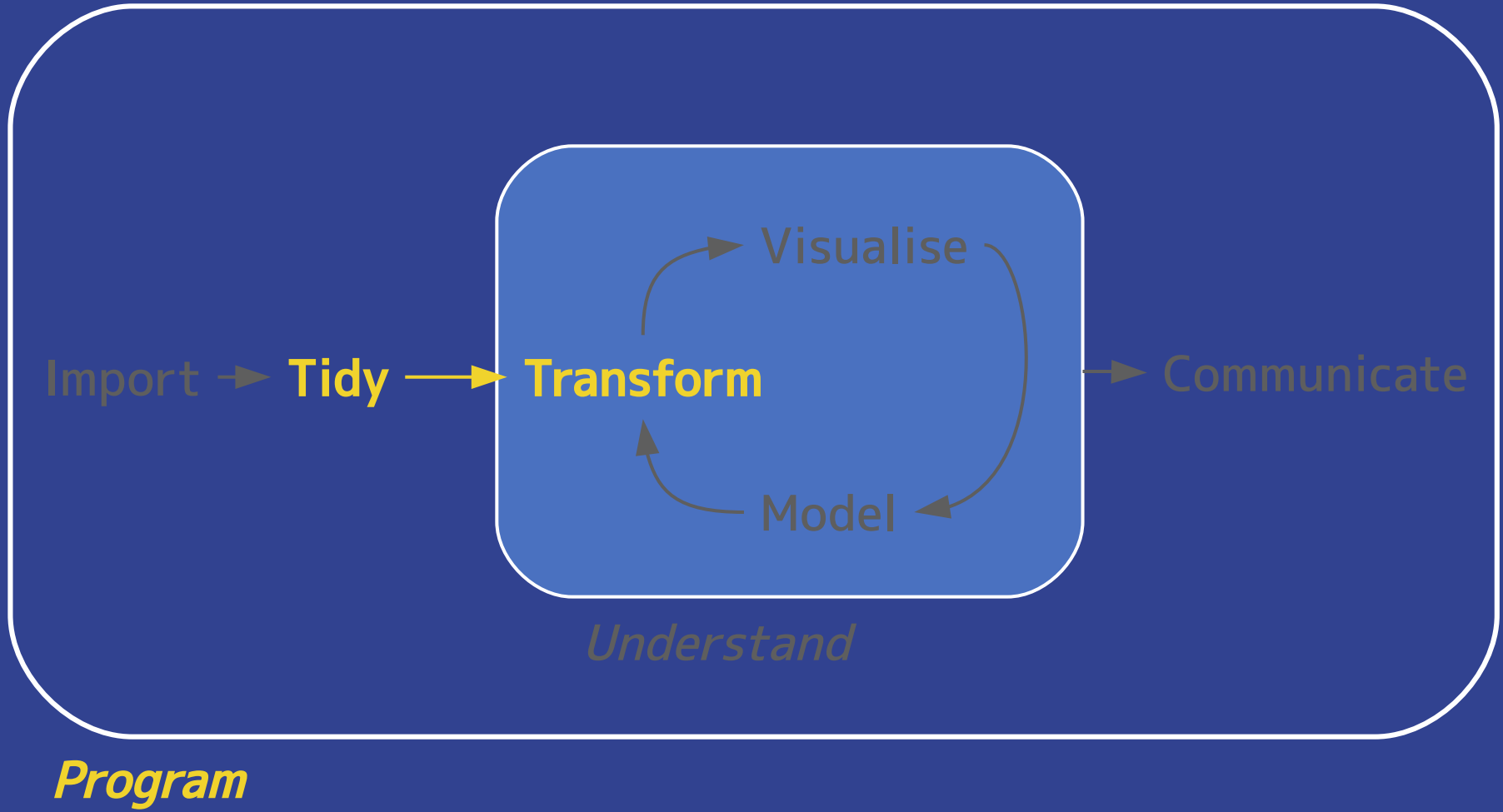
- David Minmo



The tidyverse is an opinionated **collection of R packages** designed for **data science.** All packages **share** an underlying **design** philosophy, **grammar**, and **data structures**.

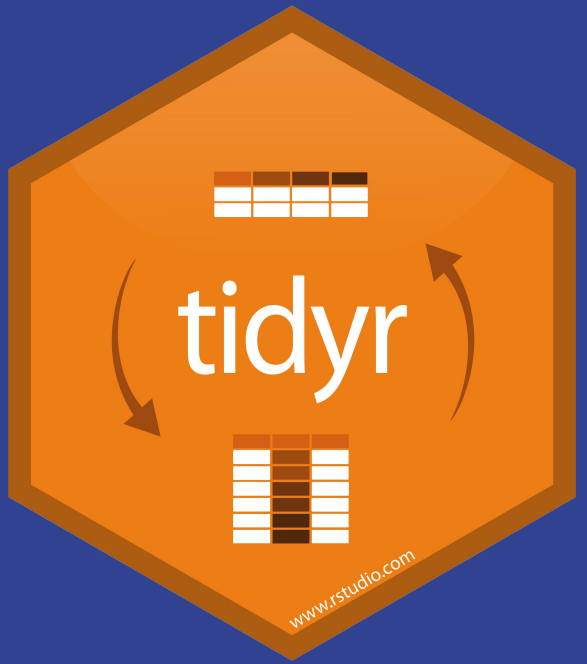
Artwork by @allison_horst


Import
Tidy
Transform
Visualise
Model
Communicate
Understand
Program


Import
Tidy
Transform
Visualise
Model
Communicate
Understand
Program

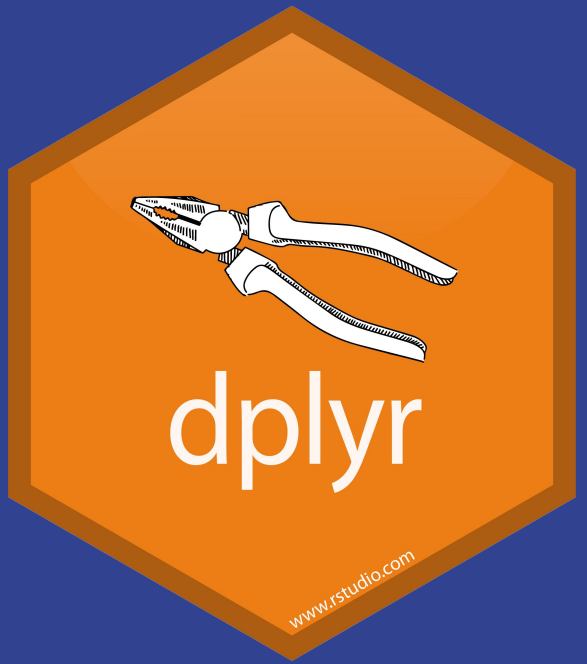
Artwork by @allison_horst

tidyr



Artwork by @allison_horst

dplyr



dplyr basic functions:

- `filter()` selects rows based on their values
- `mutate()` creates new variables
- `select()` picks columns by name
- `summarise()` calculates summary statistics
- `arrange()` sorts the rows

tidyr basic functions:

- `gather()` wide-format >> long-format
- `spread()` long-format >> wide-format
- `fill()` fills value based on previous entry
- `complete()` turns implicit missing values into explicit

Operators:

- ! (not)
- | (or)
- & (and)
- ==, !=
- <, <=, >, >=
- %in%
- is.na()

How can I chain?


1. diputar
2. dijilat
3. dicelupin
4. dimakan :D

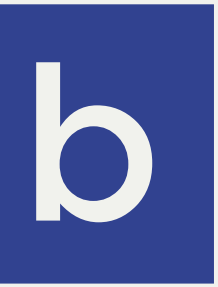

1. putar(apa)
2. jilat(apa, berapa_kali)
3. celup(apa, ke)
4. makan(apa, output)

a

```
> oreo_putar ← putar(apa = “oreo”)
> oreo_jilat ← jilat(apa = oreo_putar,
                     berapa_kali = 2)
> oreo_celup ← celup(apa = oreo_jilat,
                     ke = “susu”)
> makan(apa = oreo_celup,
        output = “kenyang.perut”)
```

a

```
> oreo_putar ← putar(apa = “oreo”)
> oreo_jilat ← jilat(apa = oreo_putar,
                     berapa_kali = 2)
> oreo_celup ← celup(apa = oreo_jilat,
                     ke = “susu”)
> makan(apa = oreo_celup,
        output = “kenyang.perut”)
```



```
> makan(
    celup(
      jilat(
        putar(apa = “oreo”),
        berapa_kali = 2
        ),
      ke = “susu”
    ),
    output = “kenyang.perut”
  )
```

```r
function(arg1, arg2, arg3, ... )
```

```r
arg1 %>%
  function(arg2, arg3, ... )
```

```r
function(arg1, arg2, arg3, ... )
```

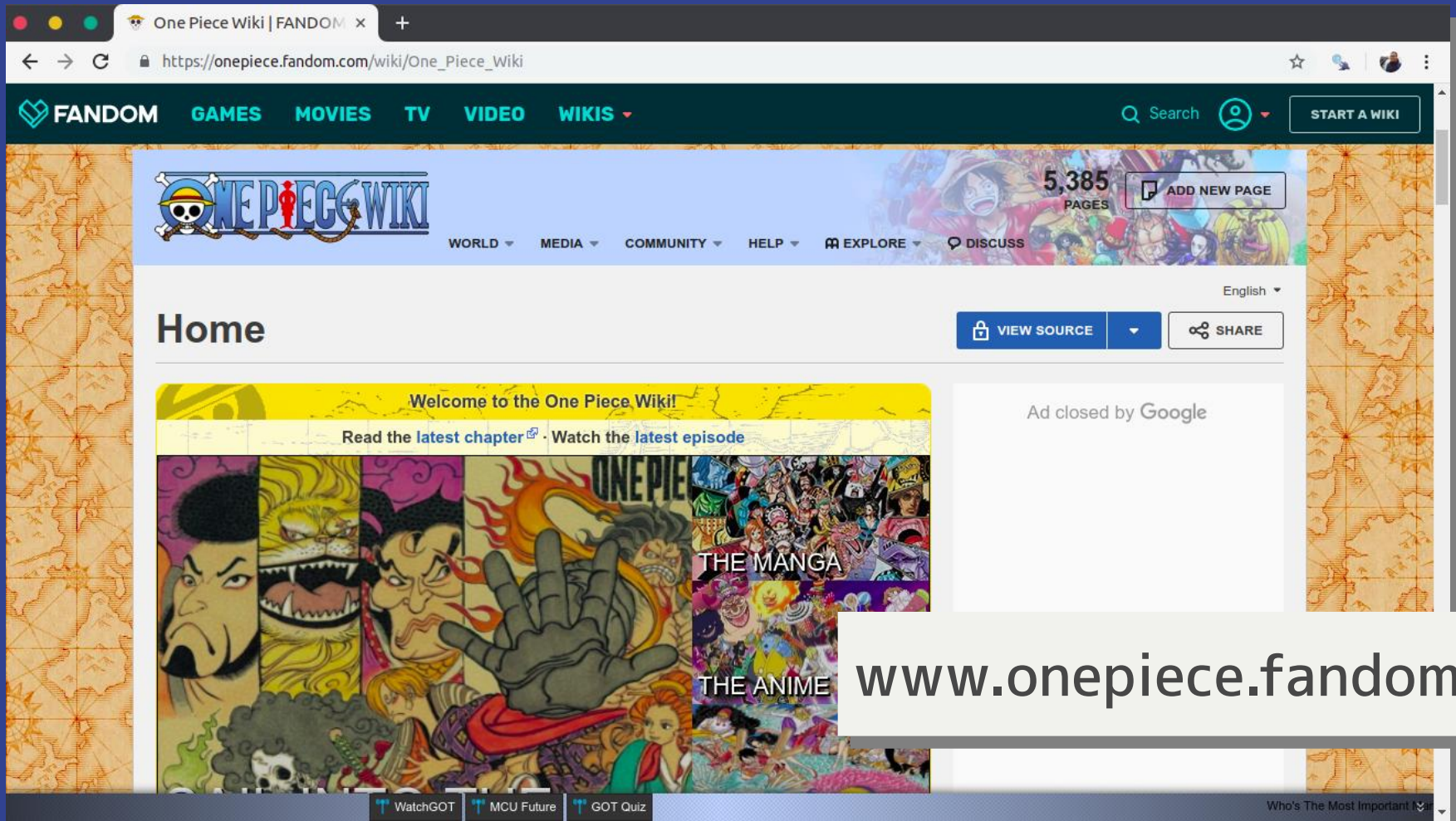
```r
arg2 %>%
  function(arg1, arg2=.,arg3, ... )
```

magrittr

```
> putar(apa = “oreo”) %>%
    jilat(berapa_kali = 2) %>%
    celup(ke = “susu”) %>%
    makan(output = “kenyang.perut”)
```

What to do today?


ワンピース
ONE PIECE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THE MANGA
THE ANIME
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www.onepiece.fandom.com
WatchGOT
MCU Future
GOT Quiz
Who's The Most Important

Let's get started!

- Let's write R scripts together!
- I will demonstrate and explain the use of each code
- Access this presesentation at:

s.id/data-carpentry-with-tidyverse

```r
# Load packages ----------------------------------------------------------

library(tidyverse)
library(rvest)
library(janitor)
```

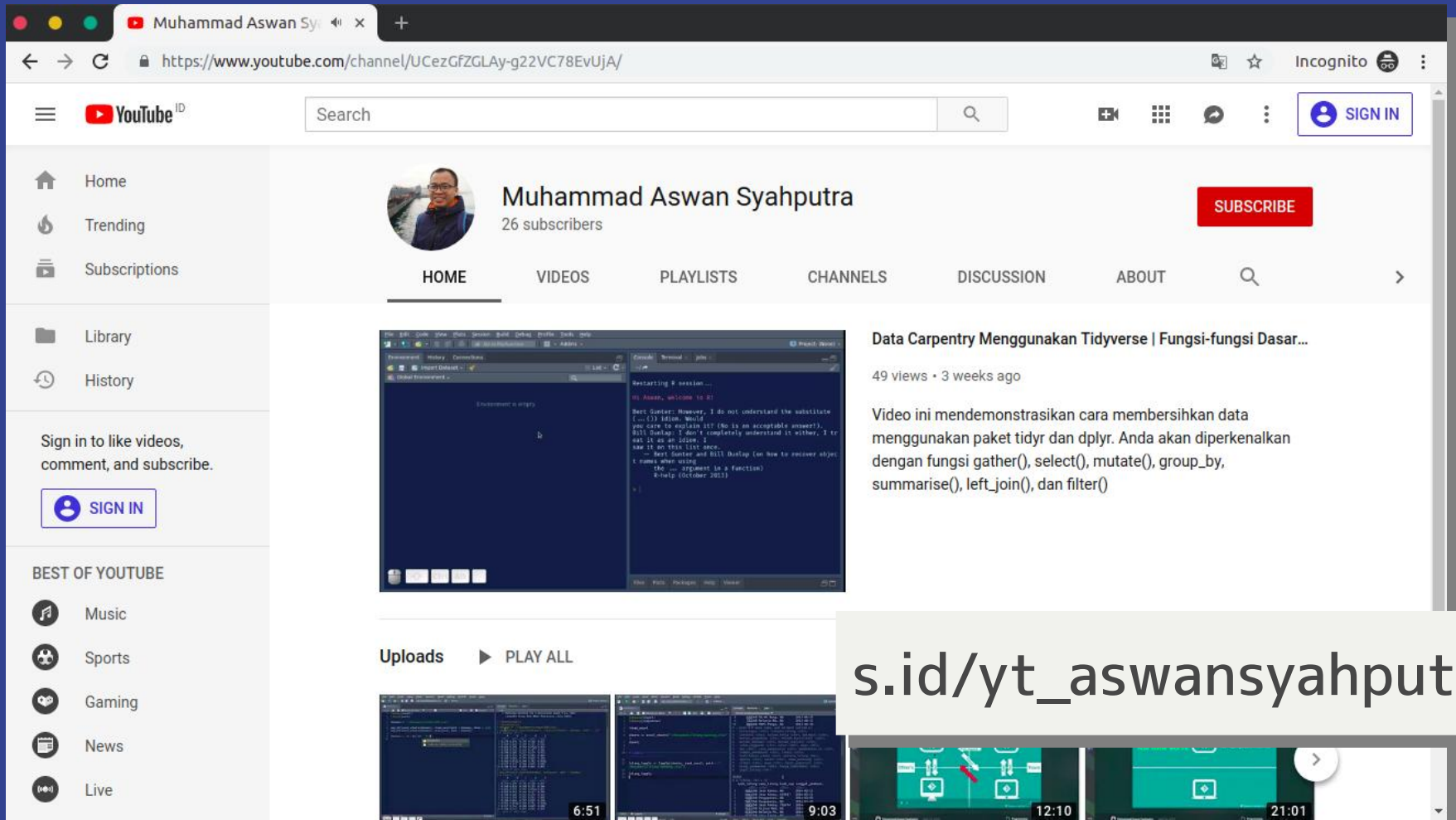
```r
# Define function to scrape OP character ----------------------------------

scrape_op_char ← function(char_url) {
  char_url %>%
    read_html() %>%
    {
      tibble(
        label = html_nodes(., ".pi-data-label") %>%
          html_text(),
        value = html_nodes(., ".pi-data-value") %>%
          html_text()
      )
    } %>%
    mutate(
      label = make_clean_names(label),
      label = recode(label,
                     japanese_name_2 = "devilfruit_jp_1",
                     english_name   = "devilfruit_en_1",
                     meaning = "devilfruit_meaning_1",
                     type = "devilfruit_type_1",
                     japanese_name_3 = "devilfruit_jp_2",
                     english_name_2 = "devilfruit_en_2",
                     meaning_2 = "devilfruit_meaning_2",
                     type_2 = "devilfruit_type_2"),
      value = str_remove_all(value, "\\[\\d+\\]")
    )
}
```

```r
# List all OP characters ----------------------------------------------------

op_chars_list <-
  "https://onepiece.fandom.com/wiki/List_of_Canon_Characters" %>%
  read_html() %>%
  html_node(".wikitable:nth-child(6)") %>%
  html_table(fill = TRUE, trim = TRUE) %>%
  as_tibble(.name_repair = make_clean_names) %>%
  select(-x, -x_2)

op_chars_list
```

```r
# Get url for all of OP characters ----------------------------------------

op_chars_urls_raw <-
  "https://onepiece.fandom.com/wiki/List_of_Canon_Characters" %>%
  read_html() %>%
  html_nodes(".wikitable:nth-child(6) > tr > td > a") %>%
  {
    tibble(
      name = html_attr(., "title"),
      url = str_c("https://onepiece.fandom.com", html_attr(., "href"))
    )
  }

op_chars_urls <-
  op_chars_urls_raw %>%
  semi_join(op_chars_list) %>%
  distinct(name, .keep_all = TRUE) %>%
  deframe()

op_chars_urls
```

```r
# Scrape all OP characters ---------------------------------------------

op_chars_raw <-
  map_dfr(op_chars_urls, scrape_op_char, .id = "name")

op_chars_raw
```

```r
# Prepare tidy dataset ----------------------------------------------------

op_characters <-
  op_chars_raw %>%
  mutate(label = factor(label, levels = unique(label))) %>%
  spread(label, value) %>%
  mutate_all(~na_if(.x, "N/A")) %>%
  unite("affiliations", matches("aff"), sep = ";") %>%
  mutate(affiliations = str_remove_all(affiliations, "(?:NA;NA|;NA)")) %>%
  mutate_all(~na_if(.x, "")) %>%
  inner_join(op_chars_list) %>%
  distinct(name, .keep_all = TRUE) %>%
  mutate(affiliations = str_remove_all(affiliations, "\\(.+\\)")) %>%
  separate_rows(affiliations, sep = "(?:;|,)") %>%
  mutate_if(is.character, ~str_trim(.x)) %>%
  select(name, debut_manga = chapter, debut_anime = episode, year, everything(),
-debut) %>%
  select_if(~mean(is.na(.x)) < 0.7)

op_characters
```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PLAY ALL
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9:03
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Thanks!

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