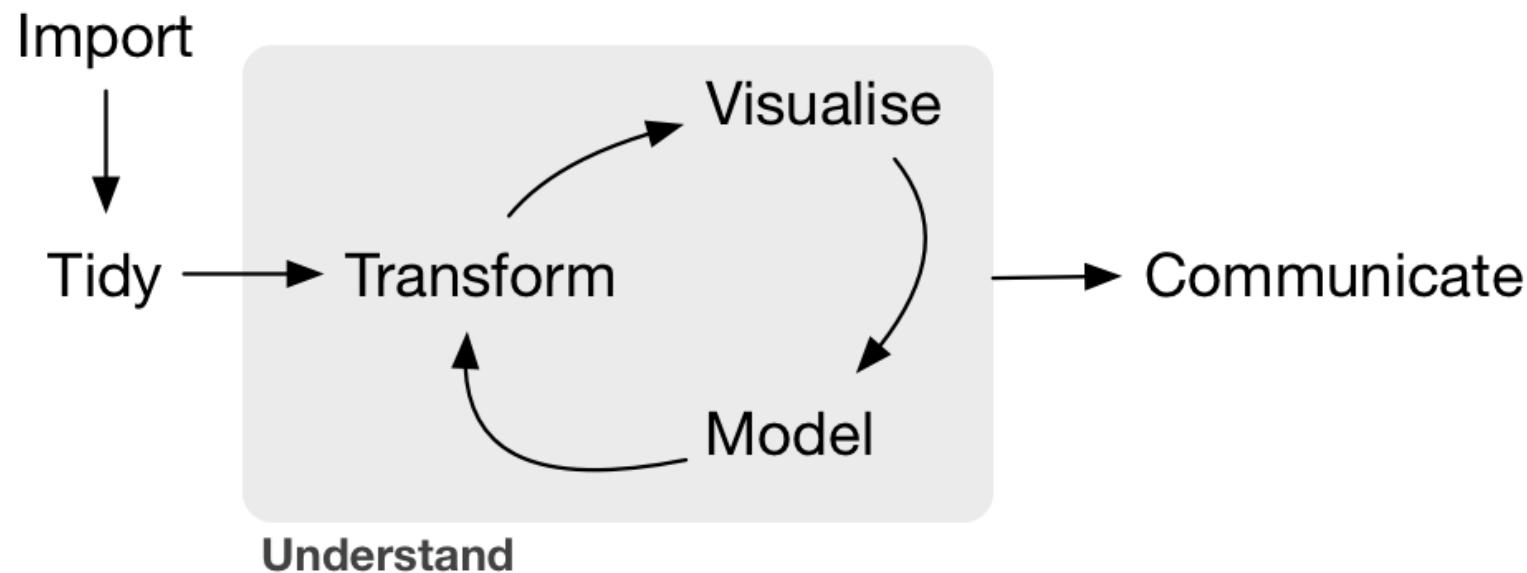


DATA MANIPULATION

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Data manipulation

- Manipulate (aka transform, manage, clean) is the third step in wrangling



R for Data Science

Major steps

- There are a few things you're going to do a lot of when you manipulate data:
 - Select relevant variables
 - Filter out unnecessary observations
 - Create new variables, or change existing ones
 - Arrange in an easy-to-digest format

dplyr

- The `dplyr` package has specific functions that map to each of these major steps
 - select relevant variables
 - filter out unnecessary observations
 - mutate (sorry) new variables, or change existing ones
 - arrange in an easy-to-digest format



dp1yr

- The modularity is intentional
 - Each function is designed to do one thing, and do it well
 - This is true of other functions as well (and there are several others)
- These functions share a structure: the first argument is always a data frame, and the returned objects is always a data frame
 - “tibble comes in, tibble goes you, you can’t explain that”

Pipes

- Piping allows you to tie together a sequence actions
 - New to R (2014)
 - Comes from the `magrittr` package; loaded by everything in the tidyverse



Pipes

- Sequence of actions to start my days
 - Wake up
 - Brush teeth
 - Do data science
- In “R”, I can nest these actions:

```
happy_jeff = do_ds(brush_teeth(wake_up(Jeff)))
```
- Alternatively, I could name a bunch of intermediate objects

```
awake_jeff = wake_up(Jeff)
clean_teeth_jeff = brush_teeth(awake_jeff)
happy_jeff = do_ds(clean_teeth_jeff)
```

Pipes

- Using pipes is easier to read and understand, and avoids clutter

```
happy_jeff =  
  wake_up(Jeff) %>%  
  brush_teeth() %>%  
  do_ds()
```

- Read “%>%” as “and then”
- The result of one function gets passed as the first argument to the next one by default, although you can be more specific
- Works very well with “tibble in, tibble out” philosophy
- You will probably never fully appreciate how great piping is
 - You should be glad that that’s true