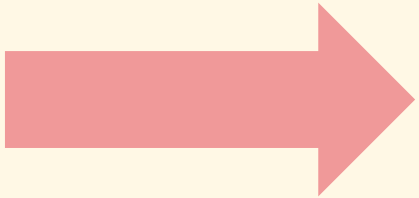
Writing Functions in R

There are probably some tasks you do a lot ...

Subject	Treatment	Time	Value
1	Additive	0	0.2
2	No Additive	0	0.34
...	...	...	...
1	Additive	2	4.7
2	No Additive	2	2.8



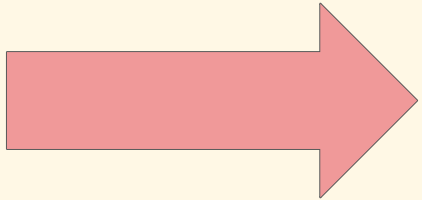
Treatment	Average Rate	Standard Deviation	Sample Size
Additive	1.3	0.04	45
No Additive	1.2	0.05	44

To Do:

- Tidy data so each sample is in a single row
- Calculate rate of change for each sample
- Get summary statistics for each treatment

`temp_df`

Subject	Treatment	Time	Value
1	Additive	0	0.2
2	No Additive	0	0.34
...	...	...	...
1	Additive	24	4.7
2	No Additive	24	2.8



`temp_summary_df`

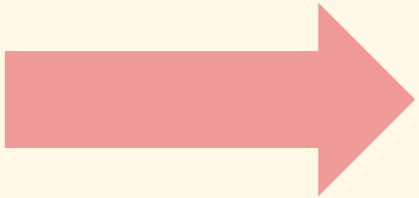
Treatment	Average Rate	Standard Deviation	Sample Size
Additive	1.3	0.04	45
No Additive	1.2	0.05	44

To Do:

- Tidy data so each sample is in a single row
- Calculate rate of change for each sample
- Get summary statistics for each treatment

`additive_df`

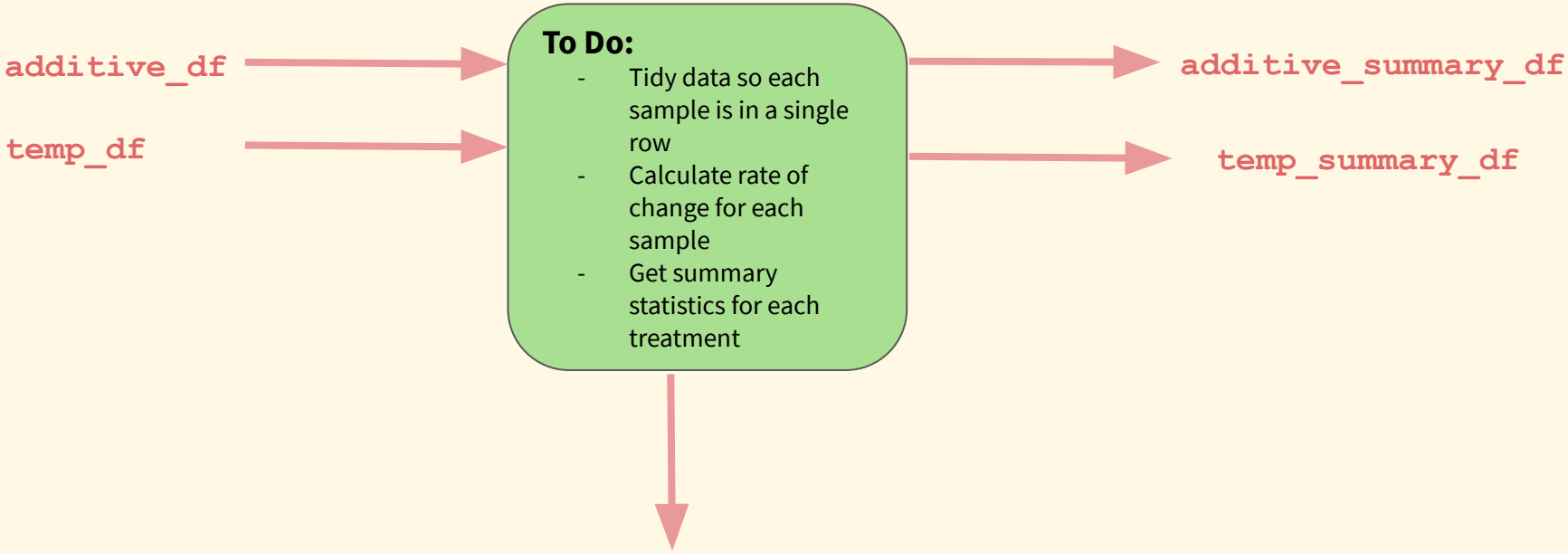
Subject	Treatment	Time	Value
1	High Temp	0	20
2	Low Temp	0	10
...	...	...	...
1	High Temp	24	60
2	Low Temp	24	20



`additive_summary_df`

Treatment	Average Rate	Standard Deviation	Sample Size
High Temp	10	3	30
Low Temp	5	1.5	30

Functions save you from repeating yourself




```
additive_summary_df <- my_function(dataframe = additive_df)

temp_summary_df <- my_function(dataframe = temp_df)
```

Function name- so you can execute the function later with its name followed by ()

Arguments - variables you want to be able to supply values for

```
my_function <- function(df){
time <- max(df$Time)

    df %>%
     pivot_wider(names_from = Time,
                 values_from = Value) %>%
     rename(Time_0='0', Time_24='24') %>%
     mutate(Rate= Time_24-Time_0/time) %>%
     group_by(Treatment) %>%
     summarize(Average_rate = mean(Rate),
               Std_Dev=sd(Rate), n=n())
}
```

Function Body- Code inside the function body is what is executed when you call the function. The function returns whatever is the result of the last line