# lettuce_growth_data

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2024-02-15

## R Markdown

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.2     v readr     2.1.4
## v forcats   1.0.0     v stringr   1.5.0
## v ggplot2   3.4.2     v tibble    3.2.1
## v lubridate 1.9.2     v tidyr     1.3.0
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(ggplot2)
```

##Assigning a variable to the lettuce dataset

```
lettuce_data <- read_csv("lettuce_dataset_1.5.csv",
                         locale = readr::locale(encoding = "latin1"))
```

```
## New names:
## Rows: 45 Columns: 9
## -- Column specification
## -------------------------------------------------------- Delimiter: "," chr
## (2): Date, ...9 dbl (6): Plant_ID, Temperature (C), Humidity (%), TDS Value
## (ppm), pH Level,... lgl (1): ...8
## i Use `spec()` to retrieve the full column specification for this data. i
## Specify the column types or set `show_col_types = FALSE` to quiet this message.
## * `` -> `...8`
## * `` -> `...9`
```

#This is an altered .csv file displaying data for only 1 of the 70 #specimens

#Alternatively, I could filter data down to each specimen with #this code block and a pipe operator:

#lettuce_data %>% # filter(plant_id = '1')

#but I decided it would be easier to alter the data range in the .csv itself

##Renaming col_names for plotting

```
names(lettuce_data)[names(lettuce_data) == 'Temperature (C)'] <- 'temp'
names(lettuce_data)[names(lettuce_data) == 'Humidity (%)'] <- 'humidity'
names(lettuce_data)[names(lettuce_data) == 'TDS Value (ppm)'] <- 'tdsv'
names(lettuce_data)[names(lettuce_data) == 'pH Level'] <- 'ph_lvl'
```

```
names(lettuce_data)[names(lettuce_data) == 'Growth Days'] <- 'growth_days'
names(lettuce_data)[names(lettuce_data) == 'Plant_ID'] <- 'plant_id'
```

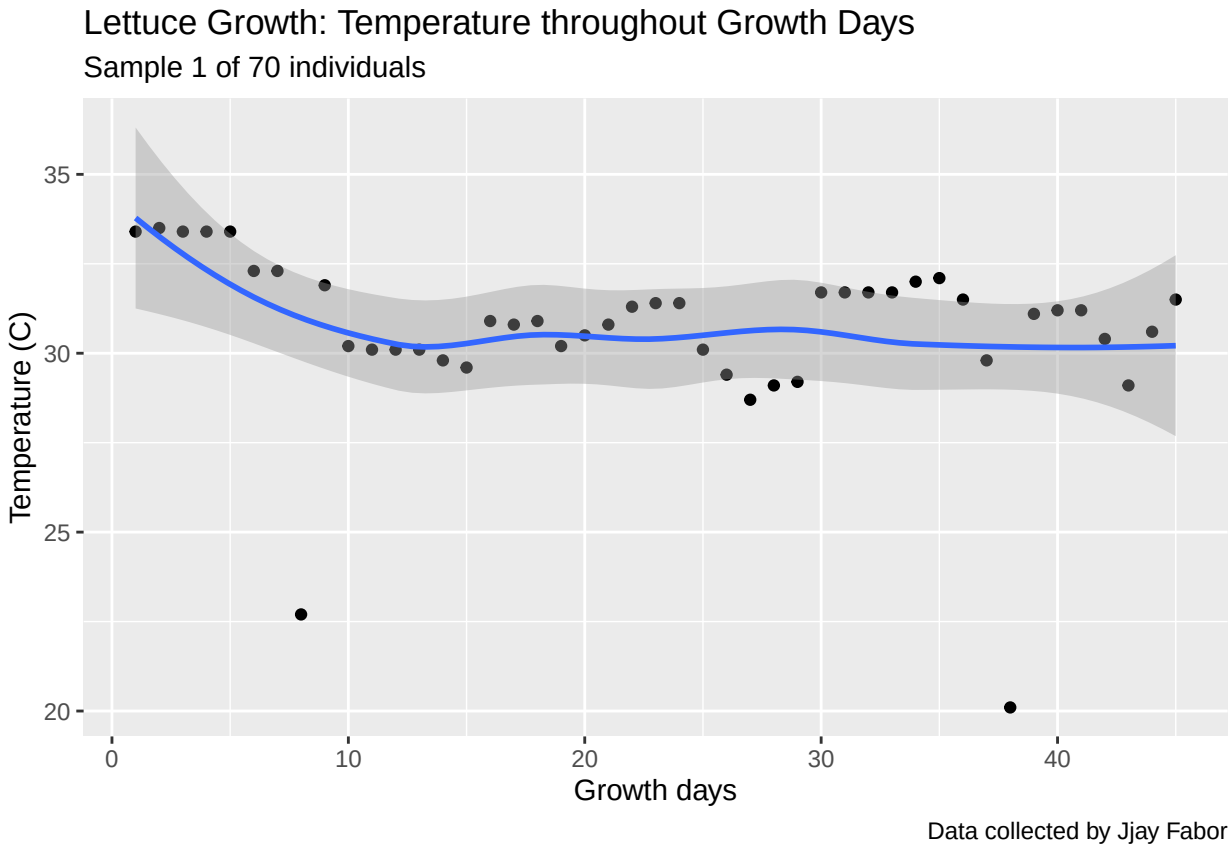
##Checking variable glimpse(lettuce_data) colnames(lettuce_data)

##Plotting data

##Reviewing temperature trends

```
ggplot(data = lettuce_data, aes(x = growth_days, y = temp)) +
  geom_point()+
  geom_smooth()+
  labs(title='Lettuce Growth: Temperature throughout Growth Days',
           subtitle='Sample 1 of 70 individuals',
           caption= 'Data collected by Jjay Fabor',
           x= "Growth days",
           y= "Temperature (C)")
```

```
## `geom_smooth()` using method = 'loess' and formula = 'y ~ x'
```

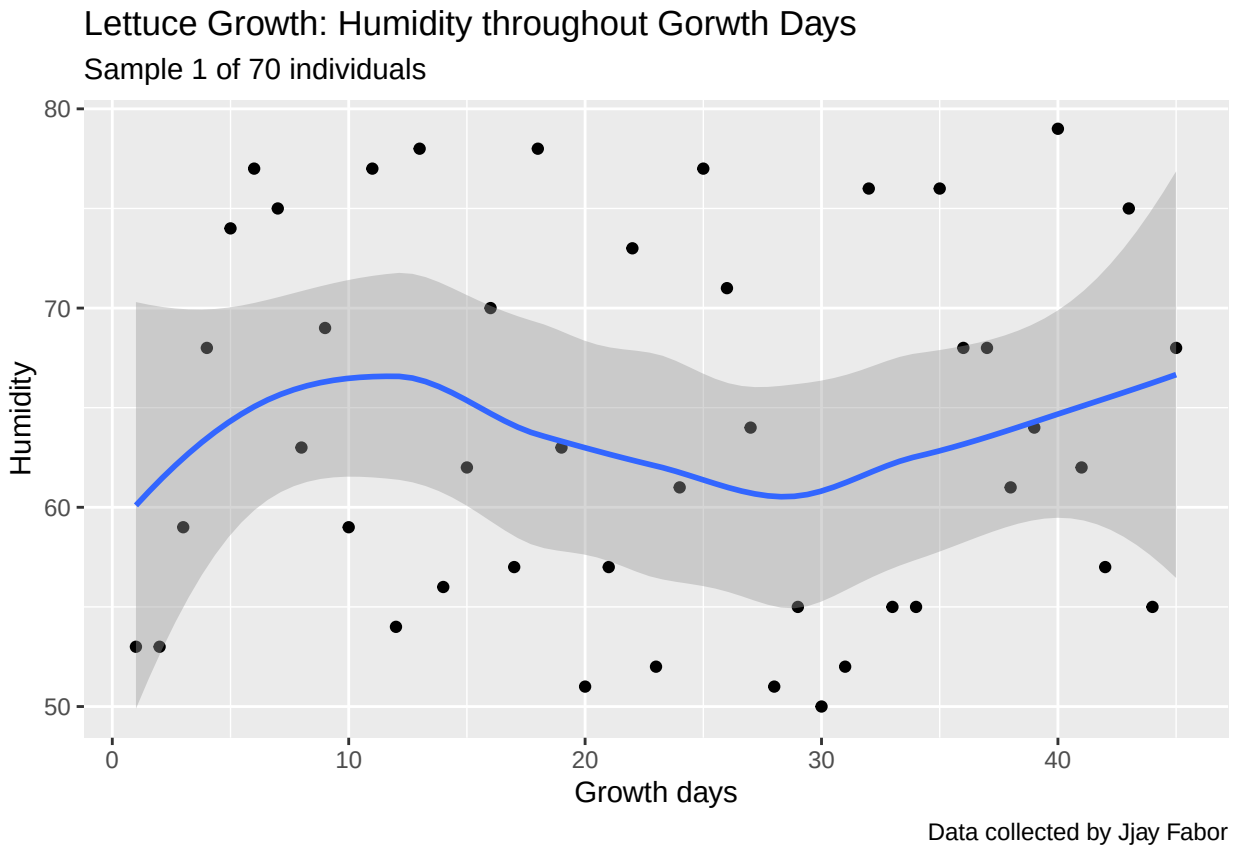



##Searching for patterns in humidity over growth period

```
ggplot(data = lettuce_data, aes(x = growth_days, y = humidity)) +
  geom_point()+
  geom_smooth()+
  labs(title='Lettuce Growth: Humidity throughout Gorwth Days',
           subtitle='Sample 1 of 70 individuals',
           caption= 'Data collected by Jjay Fabor',
           x= 'Growth days',
```

```
          y= 'Humidity')
```

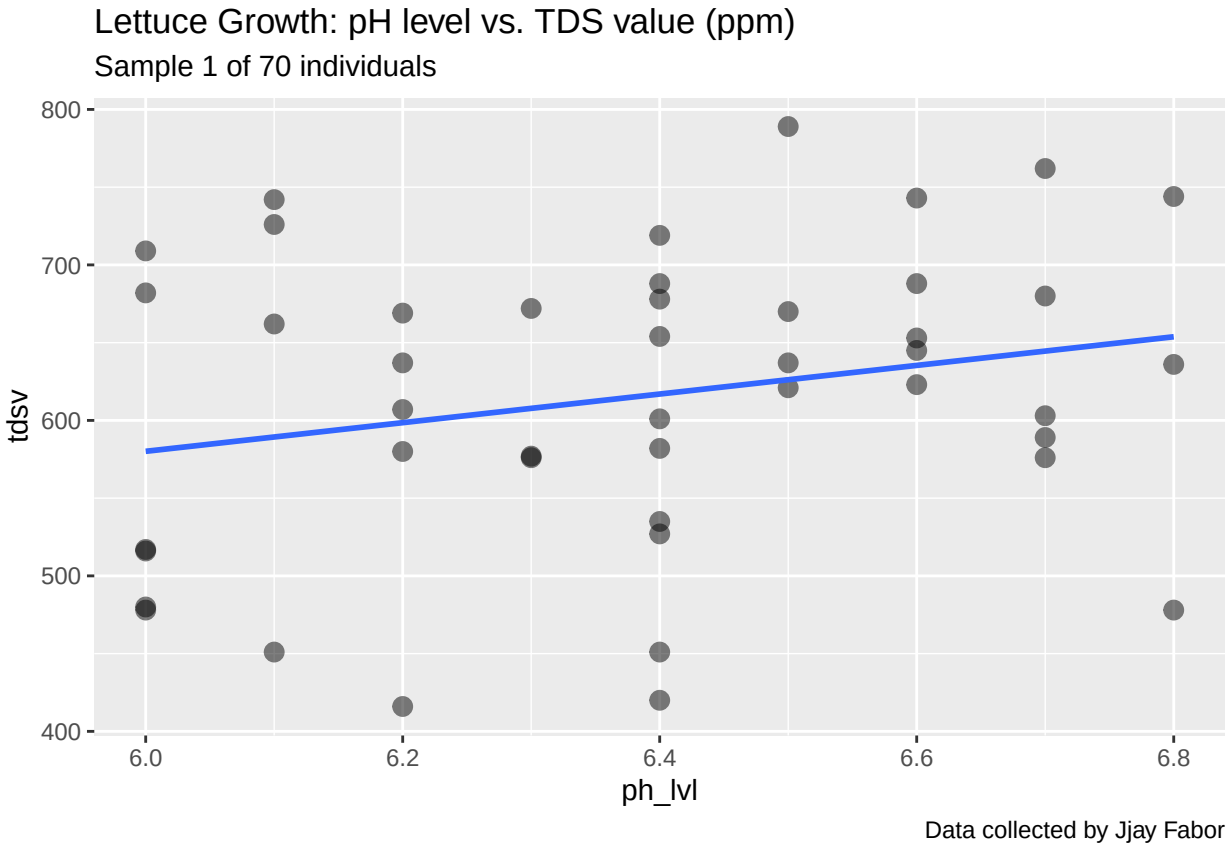
```
## `geom_smooth()` using method = 'loess' and formula = 'y ~ x'
```




##Analyzing the relationship between pH level and TDS value

```
lettuce_data %>%
  ggplot(aes(ph_lvl, tdsv))+
  geom_point(size = 3, alpha = 0.5)+
  geom_smooth(method = lm, se = F)+
  labs(title='Lettuce Growth: pH level vs. TDS value (ppm)',
       subtitle='Sample 1 of 70 individuals',
       caption= 'Data collected by Jjay Fabor')
```

```
## `geom_smooth()` using formula = 'y ~ x'
```


Lettuce Growth: pH level vs. TDS value (ppm)
Sample 1 of 70 individuals
800
700
600
500
400
tdsv
6.0
6.2
6.4
6.6
6.8
ph_lvl
Data collected by Jjay Fabor