

# Chicken Weight - Olivia Wu

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## Setup

```
data(ChickWeight)
head(ChickWeight)
```

```
##   weight Time Chick Diet
## 1     42   0     1     1
## 2     51   2     1     1
## 3     59   4     1     1
## 4     64   6     1     1
## 5     76   8     1     1
## 6     93  10     1     1
```

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##   filter, lag

## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

```
library(tinytex)
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
## v forcats   1.0.0     v readr     2.1.5
## v ggplot2    3.4.4     v stringr  1.5.1
## v lubridate  1.9.3     v tibble   3.2.1
## v purrr      1.0.2     v tidyr    1.3.1
```

```
## -- 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
```

## Summary Exercises

1. Find the average weight of a chicken on any diet on the 18th day of their feeding.

```
mean(ChickWeight$weight[ChickWeight$Time %in% 18])
```

```
## [1] 190.1915
```

2. Tabulate the total number of chickens that were on each diet.

```
table(ChickWeight$Diet)
```

```
##  
## 1 2 3 4  
## 220 120 120 118
```

3. Find the standard deviation of chicken weights on Day 0. Then, do the same for Day 21.

```
sd(ChickWeight$weight[ChickWeight$Time %in% 0])
```

```
## [1] 1.132272
```

```
sd(ChickWeight$weight[ChickWeight$Time %in% 21])
```

```
## [1] 71.51027
```

4. Finally, use dplyr to find the mean weight and standard deviation of all Chickens on Day 21, grouped by diet. Which diet led to the heaviest chickens? (When you do the summarize function, use mean\_weight and std\_dev as your labels).

```
ChickWeight %>%  
  dplyr::filter(Time==21) %>%  
  dplyr::group_by(Diet)%>%  
  dplyr::select(weight) %>%  
  summarize(mean_weight= mean(weight), std_dev= sd(weight))
```

```
## Adding missing grouping variables: 'Diet'
```

```
## # A tibble: 4 x 3  
##   Diet mean_weight std_dev  
##   <fct>      <dbl>   <dbl>  
## 1 1      178.     58.7  
## 2 2      215.     78.1  
## 3 3      270.     71.6  
## 4 4      239.     43.3
```

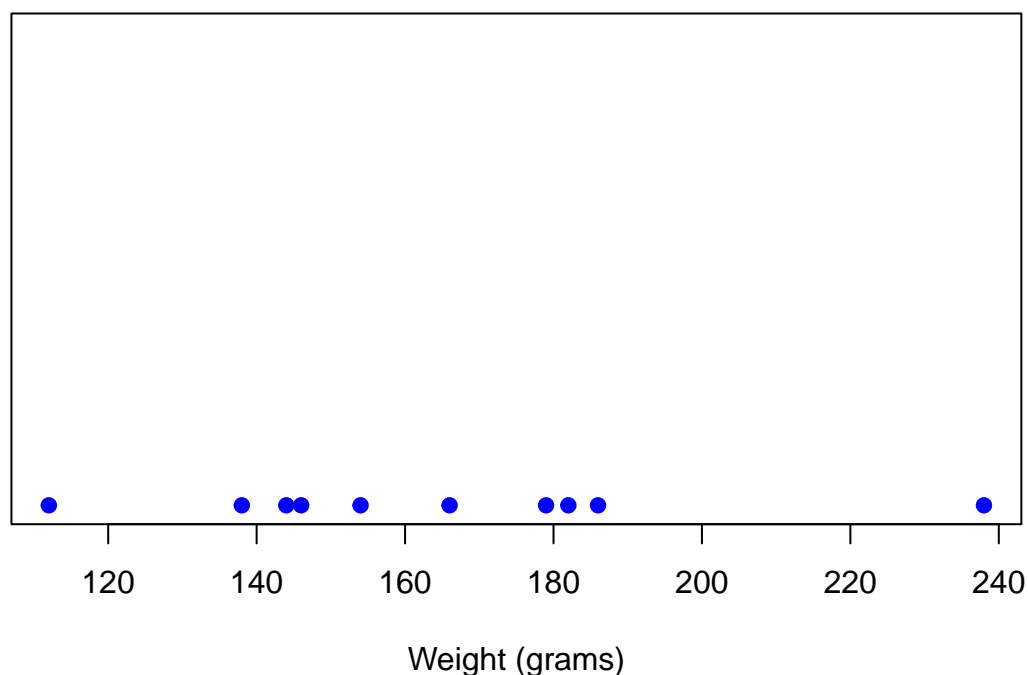
## Visualization Exercises

1. Filter the weight of chicken weights on Day 14 (remember that's the Time variable) that were on Diet 3, and save that as `wt_day14_diet3`. Then graph this variable in a dot plot. Use the following for your parameters:

- Title: "Weights of Chickens on Diet 3, on Day 14"
- x-axis: "Weight (grams)"

```
wt_day14_diet3 <- ChickWeight %>%  
  dplyr::filter(Time==14) %>%  
  dplyr::filter(Diet==3) %>%  
  dplyr::select(weight)  
stripchart(wt_day14_diet3$weight, method="stack", offset=.5, at=0, pch=19, col="blue",main="Weights of C
```

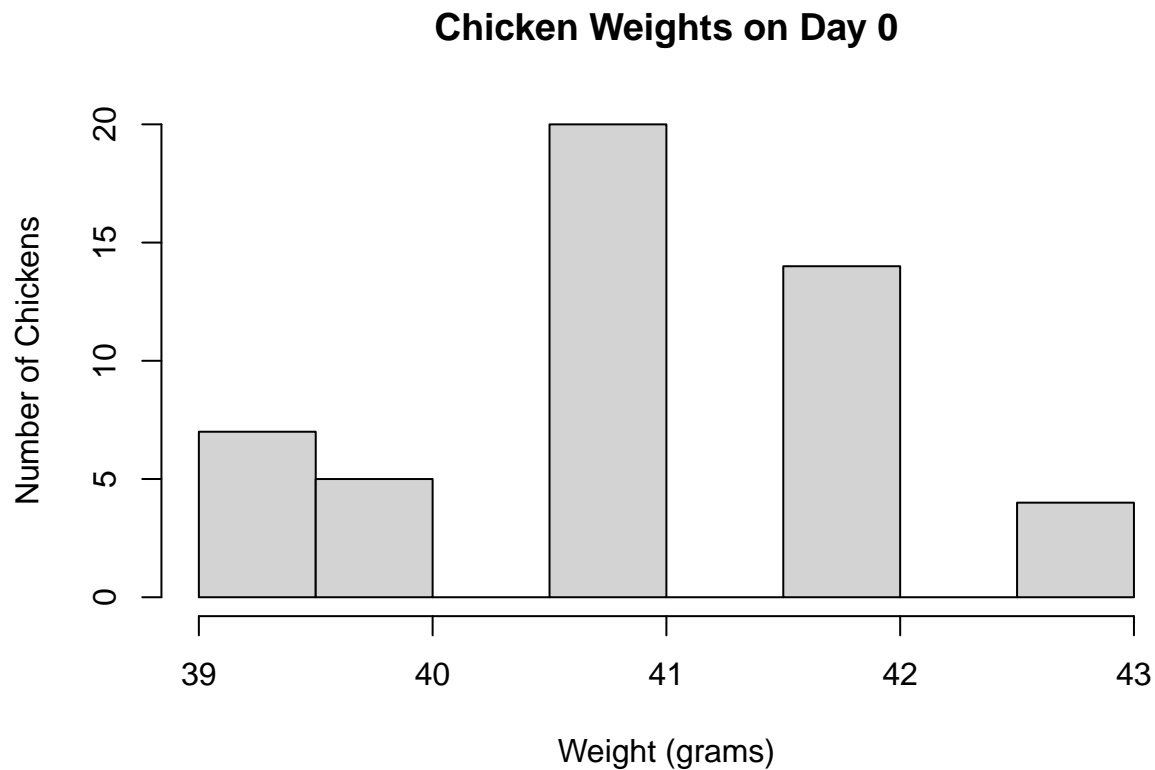
### Weights of Chickens on Diet 3, on Day 14



2. Create a histogram of chicken weights on Day 0, for any diet. Use the following for your parameters:

- Title: "Chicken Weights on Day 0"
- x-axis: "Weight (grams)"
- y-axis: "Number of Chickens"

```
day0wt <- ChickWeight %>%  
  dplyr::filter(Time==0) %>%  
  dplyr::select(weight)  
hist(day0wt$weight, main="Chicken Weights on Day 0", xlab="Weight (grams)", ylab = "Number of Chickens")
```

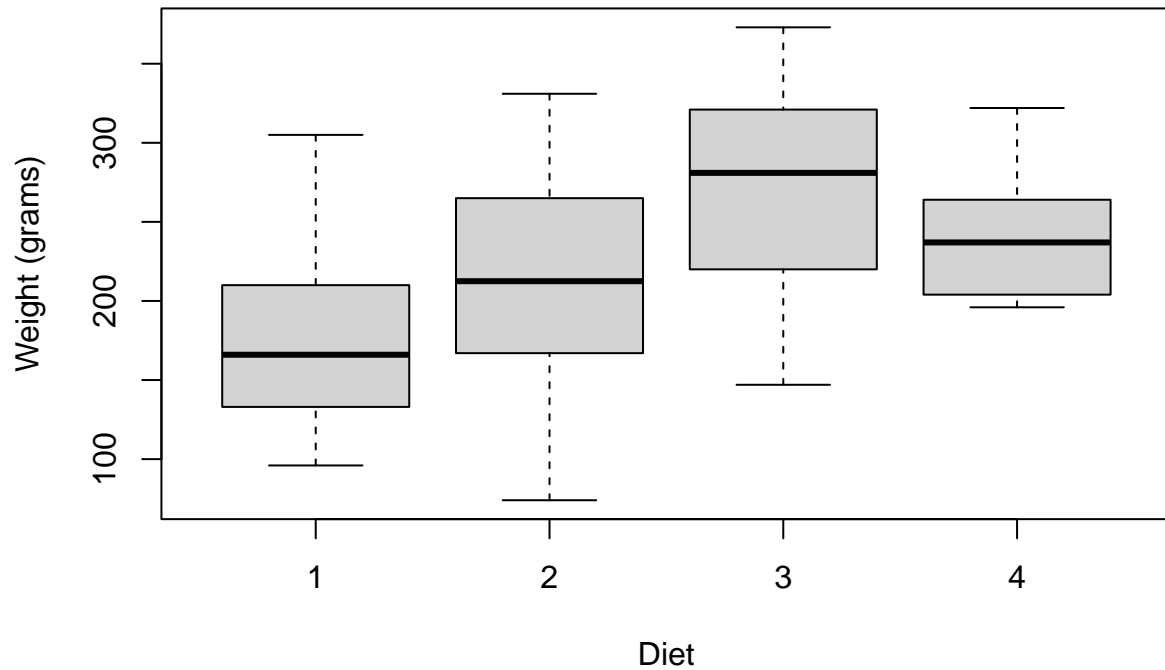


3. Create boxplots of chicken weights on Day 21, grouped by Diet. Use the following parameters:

- Title: “Comparison of Chicken Diets”
- x-axis: “Diet”
- y-axis: “Weight (grams)”
- You should also label each diet as “Diet 1”, “Diet 2”, and so forth.
- Colors: From left to right, your boxplots should be “pink”, “green”, “skyblue”, and “purple” respectively.

```
day21 <- ChickWeight %>%  
  dplyr::filter(Time==21)  
boxplot(weight~Diet, data=day21, main= "Comparison of Chicken Diets", xlab="Diet", ylab="Weight (grams)"
```

## Comparison of Chicken Diets



## Sampling from a table

```
chicken_sample <- ChickWeight %>%  
  dplyr::filter(Time==18, Diet==1)  
  
chicken_sample<- slice_sample(chicken_sample, n=5, replace=FALSE)  
  
chicken_sample
```

```
##   weight Time  Chick Diet  
## 1    100   18     9     1  
## 2    123   18    17     1  
## 3    250   18     7     1  
## 4    248   18    14     1  
## 5    112   18    10     1
```