Week 3 Lab

Arin Parsa

5/26/2021

```
library(statsr)
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 4.0.5
```

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.0.5
```

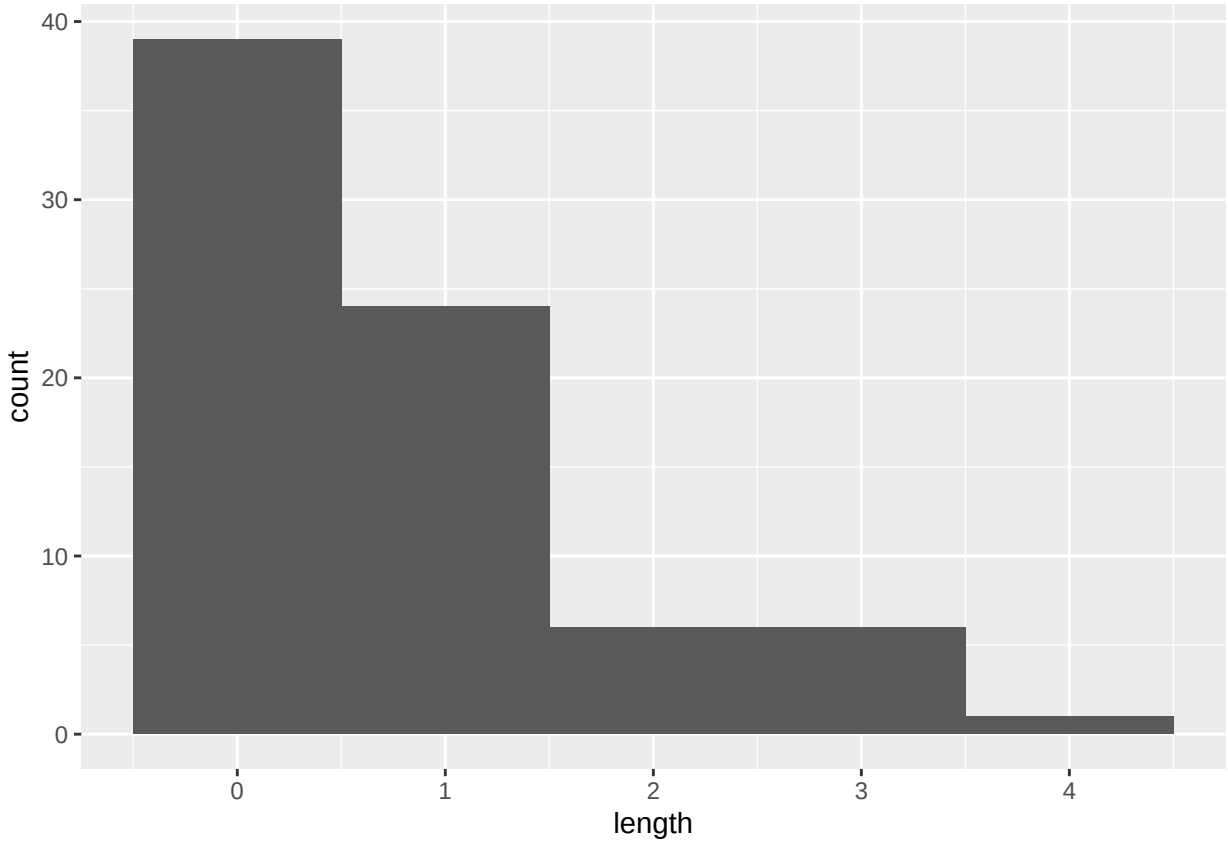
#Kobe Bryant Dataset

Our investigation will focus on the performance of one player: Kobe Bryant of the Los Angeles Lakers. His performance against the Orlando Magic in the 2009 NBA finals earned him the title Most Valuable Player and many spectators commented on how he appeared to show a hot hand. Let's load some necessary files that we will need for this lab.

```
data(kobe_basket)

kobe_streak <- calc_streak(kobe_basket$shot)

ggplot(data = kobe_streak, aes(x = length)) +
  geom_histogram(binwidth = 1)
```




```
#Question: Which of the following is false about the distribution of Kobe's streak lengths from the 200

#The shortest streak is of length 1.

coin_outcomes <- c("heads", "tails")
sample(coin_outcomes, size = 1, replace = TRUE)
```

```
## [1] "tails"
```

```
sim_fair_coin <- sample(coin_outcomes, size = 100, replace = TRUE)
table(sim_fair_coin)
```

```
## sim_fair_coin
## heads tails
##    44    56
```

```
#Exercise: In your simulation of flipping the unfair coin 100 times, how many flips came up heads?

sim_unfair_coin <- sample(coin_outcomes, size = 100, replace = TRUE,
                          prob = c(0.2, 0.8))

table(sim_unfair_coin)
```

```
## sim_unfair_coin
```

```
## heads tails
##    16    84
```

```
#21 heads

shot_outcomes <- c("H", "M")
sim_basket <- sample(shot_outcomes, size = 1, replace = TRUE)

#Exercise: What change needs to be made to the sample function so that it reflects a shooting percentag

sim_basket <- sample(shot_outcomes, size = 133, replace = TRUE, c(0.45, 0.55))

#Exercise: Using calc_streak, compute the streak lengths of sim_basket, and save the results in a data
sim_streak <- calc_streak(sim_basket)

#Exercise: Make a plot of the distribution of simulated streak lengths of the independent shooter. What

ggplot(data = sim_streak, aes(length)) + geom_histogram(binwidth = 1)
```