

<https://classroom.github.com/a/DCKBYKXL>

For this lab submit your R code solution that estimates the probability of a full house.

According to Wikipedia, a [full house](#) consists of "three cards of one rank and two cards of another rank." The (true population) probability of this hand is

```
choose(13, 1) * choose(4, 3) * choose(12, 1) * choose(4, 2) / choose(52, 5)
## [1] 0.001440576
```

where  $\text{choose}(K, r) == \frac{K!}{r!(K-r)!}$  and  $r! = r(r-1)(r-2) \cdot \dots \cdot (r-(r-2))1$ .

Some pointers follow.

1. Pretending that Ace = 1, Jack = 11, Queen = 12, and King = 13, we can define a deck of cards in R as

```
deck <- paste0(1:13, rep(c("H", "S", "D", "C"), each=13))
```

2. Sampling from `deck` is possible with `sample()`.

```
## hint:
?sample
```

3. Estimate the probability of drawing a full house. The hardest part, I imagine, will be manipulating a hand of 5 cards (a randomly selected 5 elements from the vector `deck`) to check if a full house was dealt.

```
## hints:
?stringr::str_extract
## I used the pattern "\\d{1,2}"
## which is a regular expression that matches 1 or 2 digits
?table
```

4. For more on regular expressions check out our book [R for Data Science](#).
5. Because there are so many decimal places before any significant figures, you'll need a very large sample size to consistently reproduce an accurate estimate.