Unit 6 Pre-Class Warm-Up

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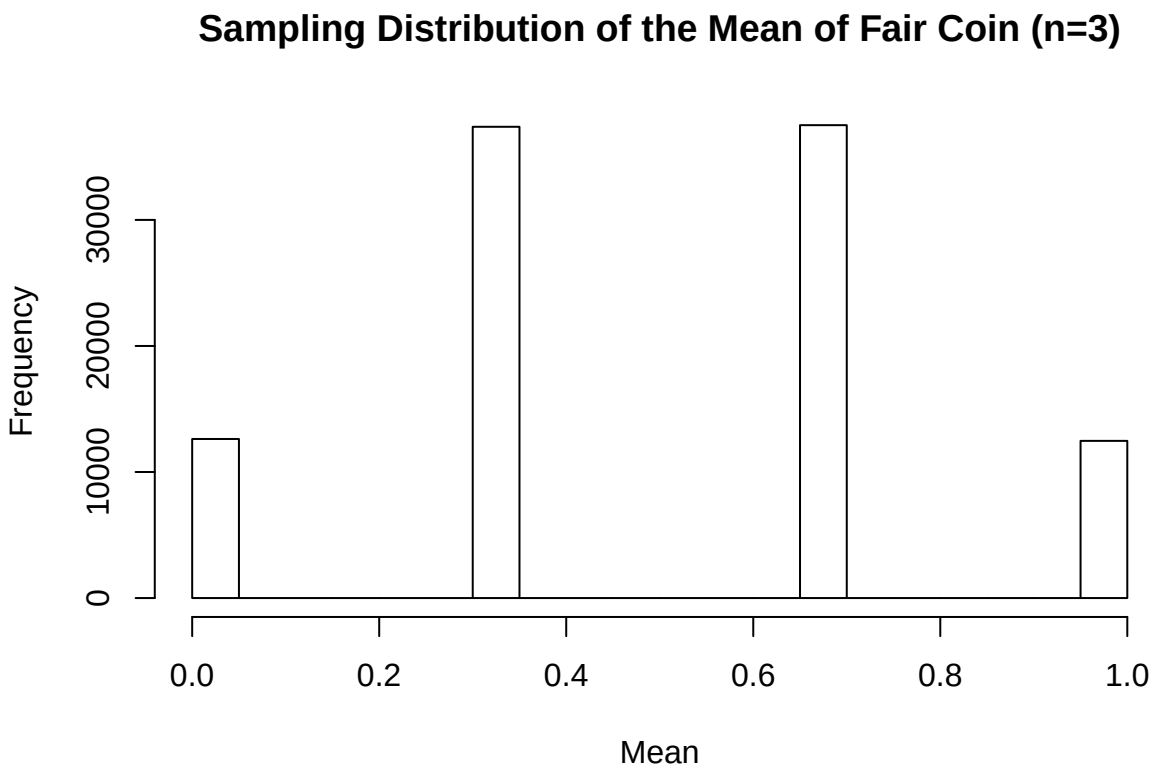
The difference between the sampling distribution of a statistic and the population distribution of a variable is that the the sampling distribution is the pattern in the samples as they are draw from the population. The population distribution of a variable is the actual pattern in the population itself.

The Fair Coin

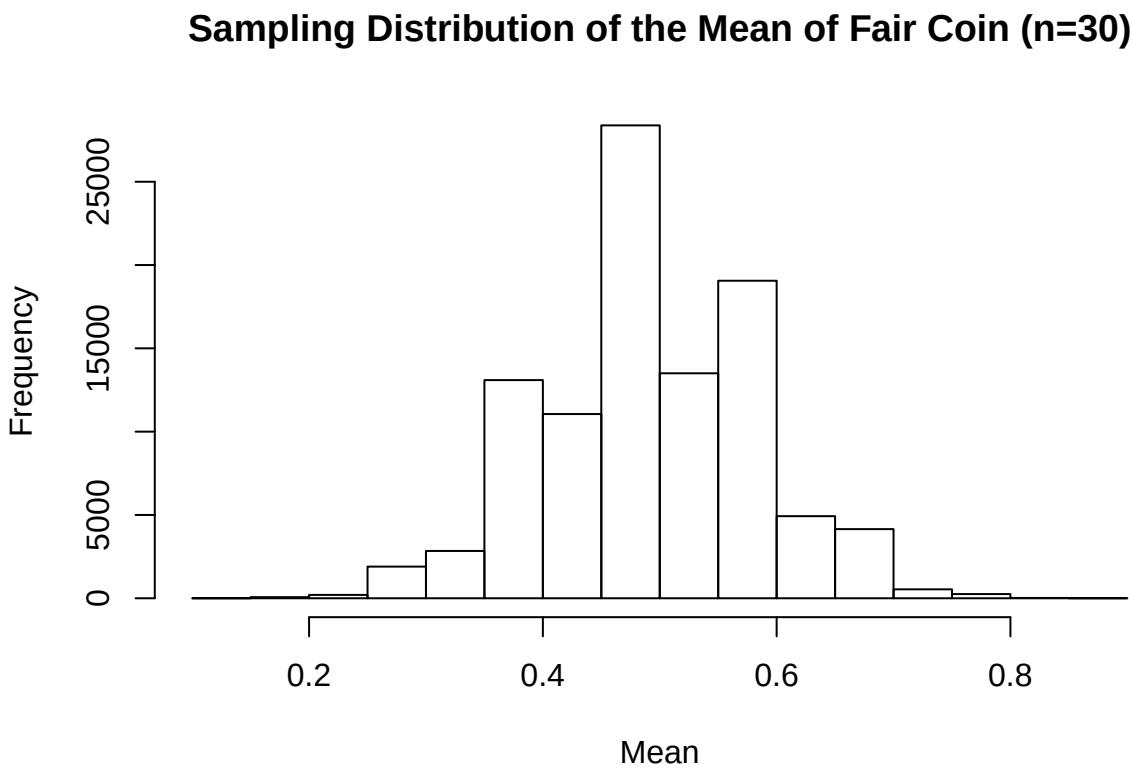
```
n=3
p=0.5
execute_study = function(n,p) {
  mean(sample(c(0,1), n, prob = c(1-p,p), replace=TRUE))
}

result = replicate(100000,execute_study(3,0.5))
hist(result, main = "Sampling Distribution of the Mean of Fair Coin (n=3)", xlab = "Mean")
```




```
sd(result)
```

```
## [1] 0.28903
```

```
result2 = replicate(100000,execute_study(30,0.5))
hist(result2, main = "Sampling Distribution of the Mean of Fair Coin (n=30)", xlab = "Mean")
```




```
sd(result2)
```

```
## [1] 0.09123885
```

The histogram represents the sampling distribution of the mean.