

HW6

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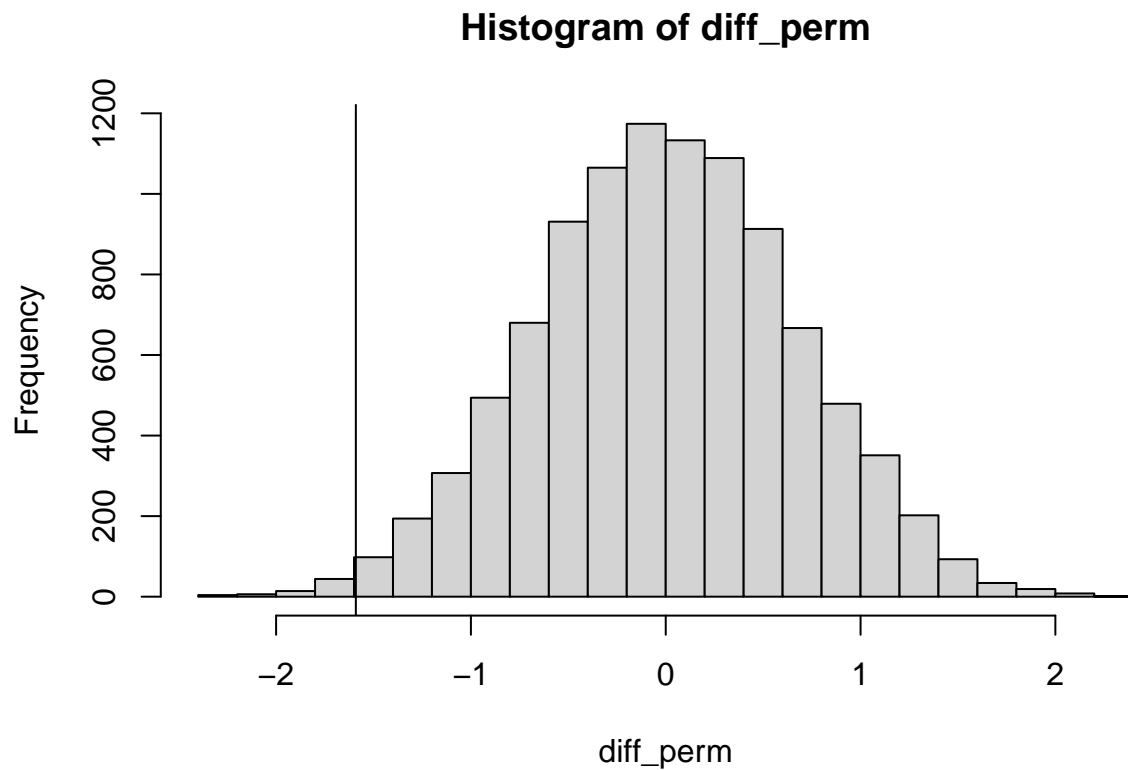
HW 6

Textbook 9.5 (b)

```
x <- log(c(25, 42, 45, 46, 51, 103, 124, 146, 340, 396, 412, 876, 1112))
y <- log(c(24, 40, 719, 727, 791, 1166, 1235, 1581, 1804, 3460, 3808))
mu <- mean(x)-mean(y)
print(mu)

## [1] -1.590684

diff_perm <- numeric(10000)
for (i in 1:length(diff_perm)){
  xy=sample(c(x,y),length(x)+length(y),replace=FALSE)
  diff_perm[i]=mean(xy[1:length(x)])-mean(xy[(length(x)+1):(length(x)+length(y))])
}
hist(diff_perm,breaks=20)
abline(v = mu)
```



```
pvalue=sum(diff_perm<mu)/10000
print(pvalue)
```

```
## [1] 0.0072
```

```
2.
```

```
x <- c(25, 42, 45, 46, 51, 103, 124, 146, 340, 396, 412, 876, 1112)
y <- c(24, 40, 719, 727, 791, 1166, 1235, 1581, 1804, 3460, 3808)
m_b <- sum(x)/(length(x)+3)
m_j=numeric(length(x))
for (i in 1:length(x)){
  x_temp=x[-i]
  m_j[i]=sum(x_temp)/(length(x)+3-1)
}
jackknife=length(x)*m_b-(length(x)-1)/length(x)*sum(m_j)
print(sprintf("After correction using Jackknife: %.3f." , jackknife))
```

```
## [1] "After correction using Jackknife: 275.275."
```

```
print(sprintf("The mean: %.3f and the mean without correction: %.3f", mean(x), m_b))
```

```
## [1] "The mean: 286.000 and the mean without correction: 232.375"
```