Is Florida getting warmer

1.Is Florida getting warmer?

1)

```
load("../data/KeyWestAnnualMeanTemperature.RData")
mycor <- cor(ats$Year, ats$Temp)
mycor
```

```
## [1] 0.5331784
```

2)

```
set.seed(1234)
num_permutations <- 10000
permuted_corrs <- numeric(num_permutations)
for (i in 1:num_permutations) {
  shuffled_temps <- sample(ats$Temp)
  permuted_corr <- cor(ats$Year, shuffled_temps)
  permuted_corrs[i] <- permuted_corr
}
```

3)

```
p_value <- sum(abs(permuted_corrs) >= abs(mycor))/num_permutations
```

4)

Goal

The goal of this analysis was to investigate the correlation between years and temperatures in Florida. We used permutation analysis to assess the significance of the observed correlation coefficient.

Results

- **Observed Correlation Coefficient:** 0.5331784
- **Permutation p-value:** 0

Interpretation

The observed correlation coefficient(0.5331784) represents the relationship between years and temperatures in Florida.

The calculated p-value from the permutation test is 0, it suggests that the observed correlation coefficient ($r=0.5331784$) is statistically significant and highly unlikely to occur by random chance alone. This means there is strong evidence to support the claim that Florida is getting warmer over the years. The p-value of 0 indicates that the observed correlation coefficient falls far outside the range of correlation coefficients obtained by randomly reshuffling the temperatures, implying a significant and positive correlation between years and temperatures in Florida.