Module 05 Assignment

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Instructions

Based on all available data from August 2017, the average Airbnb listing price was $150. You have a simple random sample of active Airbnb listings in New Orleans in August 2018. Compute the sample mean and conduct a test to determine whether the average listing price in New Orleans differs from the average Airbnb listing price in the previous year ($150).Assume = .05. For this problem, conduct analyses in SPSS and R. Upload an SPSS screenshot and a PDF knitted from R Markdown.

Import Data

The data file is in the "Data" folder. Use "read.csv" to read in the dataset.

```
Airbnb <- read.csv("Data/Airbnb_NOLA.csv")

str(Airbnb)
```

```
## 'data.frame':    250 obs. of  12 variables:
##  $ X                         : int  1429 960 1018 2806 307 5438 3540 2569 980 4853 ...
##  $ ID                        : int  11474214 7769748 8472709 17785739 1735810 25779739 20780437 171440
##  $ Name                      : chr  "Historic home overlooking Esplanade" "Historic House 2 Blocks 2 Sa
##  $ Host_ID                   : int  18152811 36964813 3689735 110428121 9141977 3010336 135412513 1143
##  $ Host_Name                 : chr  "Catherine" "Reneia" "Ben" "Minnette" ...
##  $ Neighbourhood             : chr  "Bayou St. John" "Central City" "Marigny" "West Riverside" ...
##  $ Room_Type                 : chr  "Entire home/apt" "Entire home/apt" "Entire home/apt" "Entire home/
##  $ Price                     : int  450 125 135 150 205 39 250 322 49 99 ...
##  $ Number_of_Reviews         : int  10 40 75 41 79 1 2 5 75 1 ...
##  $ Last_Review               : chr  "5/7/2018" "7/8/2018" "7/8/2018" "7/15/2018" ...
##  $ Calculated_Listing_Count: int  1 1 1 1 1 3 1 110 1 184 ...
##  $ Availability_365          : int  274 343 139 246 116 187 0 188 123 201 ...
```

Examine Data

We will now examine the data (summary), and calculate the sample mean and standard deviation of housing prices in 2018.

```
summary(Airbnb)
```

```
##        X              ID                Name              Host_ID
##  Min.   :  10   Min.   :   71624   Length:250         Min.   :   248404
```

```
##  1st Qu.:1129   1st Qu.: 9520203   Class :character   1st Qu.:  9737335
##  Median :2468   Median :16876400   Mode  :character   Median : 37182280
##  Mean   :2642   Mean   :15371887                      Mean   : 57779995
##  3rd Qu.:4041   3rd Qu.:22053320                      3rd Qu.: 99430572
##  Max.   :5847   Max.   :27342937                      Max.   :206058833
##   Host_Name         Neighbourhood       Room_Type             Price
##  Length:250         Length:250         Length:250         Min.   :  25.00
##  Class :character   Class :character   Class :character   1st Qu.:  87.25
##  Mode  :character   Mode  :character   Mode  :character   Median : 125.00
##                                                           Mean   : 188.88
##                                                           3rd Qu.: 203.75
##                                                           Max.   :2500.00
##  Number_of_Reviews Last_Review        Calculated_Listing_Count Availability_365
##  Min.   :  0.0     Length:250         Min.   :  1.00           Min.   :  0.0
##  1st Qu.:  6.0     Class :character   1st Qu.:  1.00           1st Qu.: 83.0
##  Median : 27.5     Mode  :character   Median :  2.00           Median :157.5
##  Mean   : 44.5                        Mean   : 16.69           Mean   :174.6
##  3rd Qu.: 63.0                        3rd Qu.:  4.00           3rd Qu.:292.0
##  Max.   :329.0                        Max.   :184.00           Max.   :365.0
```

```
mean(Airbnb$Price)
```

```
## [1] 188.876
```

```
sd(Airbnb$Price)
```

```
## [1] 229.3867
```

Conduct a Test

Now we will conduct a t-test to compare the sample mean from 2018 ($188.88) with the sample mean from 2017 ($150.00).

```
t.test(Airbnb$Price, mu = 150)
```

```
##
##  One Sample t-test
##
## data:  Airbnb$Price
## t = 2.6797, df = 249, p-value = 0.007861
## alternative hypothesis: true mean is not equal to 150
## 95 percent confidence interval:
##  160.3026 217.4494
## sample estimates:
## mean of x
##   188.876
```

Summary of Results

A one sample t test was performed to evaluate whether there was a significant difference between Airbnb prices in 2018 compared to 2017. The average change in price was $188.88 ($SD = 229.39$). The test was statistically significant, $t(249) = 2.68$, $p = 0.008$. This provides evidence that the prices in Airbnb's went up significantly in 2018, compared to 2017. Cohen's $d = 0.169$.