Price Analysis: Houses across the U.S. and its Neighborhoods

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The sale price of the houses in 2011 across the U.S. are being compared to the average sales price for homes in those neighborhoods. Data from 104 houses across the U.S. have been collected and the average sales price for homes in those neighborhoods in 2011 is assumed to be $162,487.

# Methods

The method used is t-test. Specifically one-sample t-test. All the tests are done using the programming language R. The console output of the R script is located in page [x].

# Objectives

There are two primary objectives. The two objectives are:

1. Did these homes sell significantly higher than the average selling price for the neighborhood?
   1. Test using an alpha of 0.05
   2. Test using an alpha of 0.01
2. Find and interpret a 92% confidence interval for the 2011 average selling price for these neighborhoods.

# Testing

To be able to perform a t-test there are assumptions to be made. The data count should be greater than 30. The dataset 2011 home sales contains data from 104 houses. Hence a t-test is possible.

## Objective 1

### Objective 1a

The null hypothesis is that the mean = 162487. The alternative hypothesis is that the mean > 162487. The confidence level is set to 0.95. The alpha = 0.05.

The sample estimate of the mean = 170627.9, se = 4751.79, t(103) = 1.7132 and the p-value = 0.04484. Since the p-value is less than the alpha, there is evidence to reject the null. We are 95% confident that the true average is greater than 162487 and is between

#### [Heading 4].

[When using headings, don’t skip levels. If you need a heading 3, 4, or 5 with no text following it before the next heading, just add a period at the end of the heading and then start a new paragraph for the subheading and its text.] (Last Name, Year)

##### [Heading 5].

[Like all sections of your paper, references start on their own page. The references page that follows is created using the Citations & Bibliography feature, available on the References tab. This feature includes a style option that formats your references for APA 6th Edition. You can also use this feature to add in-text citations that are linked to your source, such as those shown at the end of this paragraph and the preceding paragraph. To customize a citation, right-click it and then click Edit Citation.] (Last Name, Year)

References

Last Name, F. M. (Year). Article Title. *Journal Title*, Pages From - To.

Last Name, F. M. (Year). *Book Title.* City Name: Publisher Name.

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Tables

Table 1

[Table Title]

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| Column Head | Column Head | Column Head | Column Head | Column Head |
| Row Head | 123 | 123 | 123 | 123 |
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| Row Head | 123 | 123 | 123 | 123 |
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Figures title:

Figure 1. [Include all figures in their own section, following references (and footnotes and tables, if applicable). Include a numbered caption for each figure. Use the Table/Figure style for easy spacing between figure and caption.]

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R-Script: Console

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| --- |
| > setwd("M:/My Documents/math1150\_stats/t-test")  > getwd()  [1] "M:/My Documents/math1150\_stats/t-test"  > library(ggplot2)  > library(pastecs)  > library(reshape)  > library(Hmisc)  > library(WRS)  > library(psych)  > hSales <- read.csv("2011\_Home\_Sales.csv", header = TRUE)  > t.test(hSales$Sale.Price, mu = 162487, alternative = "greater", conf.level = 0.95)  One Sample t-test  data: hSales$Sale.Price  t = 1.7132, df = 103, p-value = 0.04484  alternative hypothesis: true mean is greater than 162487  95 percent confidence interval:  162740.9 Inf  sample estimates:  mean of x  170627.9  > t.test(hSales$Sale.Price, mu = 162487, alternative = "greater", conf.level = 0.99)  One Sample t-test  data: hSales$Sale.Price  t = 1.7132, df = 103, p-value = 0.04484  alternative hypothesis: true mean is greater than 162487  99 percent confidence interval:  159398.9 Inf  sample estimates:  mean of x  170627.9  > t.test(hSales$Sale.Price, mu = 162487, conf.level = 0.92)  One Sample t-test  data: hSales$Sale.Price  t = 1.7132, df = 103, p-value = 0.08968  alternative hypothesis: true mean is not equal to 162487  92 percent confidence interval:  162226.1 179029.7  sample estimates:  mean of x  170627.9  > describe(hSales$Sale.Price)  vars n mean sd median trimmed mad min max range skew kurtosis se  X1 1 104 170627.9 48458.97 151200 169115.5 46924.29 92400 259300 166900 0.39 -1.34 4751.79 |
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