Final Project

2022-08-20

# MIS503 – Final Project Part 2A & 2B

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### Zillow Home Value Index Analysis

### R Setup

knitr::opts\_chunk$set(echo = TRUE)  
library(tidyverse)  
library(readr)  
SingleFamilyResidenceRental <- read\_csv("SingleFamilyResidenceRental.csv") # copy original file  
SingleFamilyResidenceSales <- read\_csv("SingleFamilyResidenceSales.csv") # copy original file

### NC Rental Market

#### You are considering relocating to a new city and want to rent. You are looking at some of the larger cities within the state including Asheville, Charlotte, Durham, Fayetteville, Raleigh and Wilmington.

##### a1. What has been the overall trend in the rental market around the state?

The overall trend in NC is to increase over time.Even though these data points represent rental value until 2018, the changes in year to year currently are simply staggering (Greensboro rent up 74%)!

##### a2. Are there any cities that have not followed this trend?

The exception to this on our graph is Fayettville whose demand remains steady as they a military town and the number of residents is controlled by the government to a large degree.

##### b1. Where is the most expensive city to rent in?

In this graph, Raleigh was the most expensive but then Asheville creeped up. Currently, it is no doubt that Raleigh reclaimed this title.

##### b2. Least expensive?

Fayettville remains the least expensive. The single family homes are usually a soldier with a Congress controlled Basic Housing Allowance. That means that the money going toward housing is tronly influenced by the government.

##### c. You are trying decide between Wilmington and Asheville.Which market has the lowest rent?

Wilmington has lower Rental Costs, but they are a town that depends on tourists. I would prefer to live in Asheville and visist the Hurricane-attracted city of Wilmington.

# create a new dataset that will be used for all commands after the pipe sign  
Rentals <- SingleFamilyResidenceRental %>% select (RegionName,   
 State,  
 (starts\_with ("201") & ends\_with("-11")),  
 "2018-10")   
  
# Modify the variables names by taking off the suffix "-11" and removing NA's  
Rentals <- Rentals %>% # piping reduces redundant commands   
 filter(!is.na(RegionName)) %>% # don't use the na observations  
 filter(!is.na(State)) %>% # don't use the na observations  
 rename\_at(vars(matches("-11")), ~str\_remove(., "-11")) %>%  
 # remove suffix from Variables  
 rename\_at(vars(matches("-10")), ~str\_remove(., "-10")) %>%  
 # remove suffix from Variables  
 pivot\_longer(c('2010':"2018"),names\_to='YR',values\_to='ZHVI')%>%   
 # rewrite columns to rows  
 filter(!is.na(YR))%>% # don't use the na observations  
 filter(!is.na(ZHVI)) # don't use the na observations

# For whatever reason, the graphs initially printed with color but then after   
# that 1st time, they took way too much memory and RStudio locked up.   
# However, the non-colored versions work fine.  
  
# scatter plot of the City Rental info  
ggplot(Rentals,mapping=aes(YR,ZHVI, # x axis = YR, y axis = ZHVI  
 #color = RegionName  
 )) +   
 geom\_point() +   
 labs(title = "Rental Costs in NC Cities", x = "Year",   
 y="Average Rental Costs")+ # Graph Labels  
 # changes x-axis labels to display vertical values  
 theme(axis.text.x = element\_text(angle = 90, vjust=0.5))+   
 scale\_y\_continuous(labels = scales::comma) # labels get comma values

