Finding Ideal Neighborhood after Relocating to a New City

COURSERA IBM DATA SCIENCE CAPSTONE PROJECT

Background

- Suppose someone is relocating to a new city
  - He/she really enjoys the neighborhood that he/she currently resides in and would like to find a similar neighborhood in the new city
  - He/she is also considering buying a property upon relocation and is wondering what options are out there in the new city
- For this project specifically, assume
  - The client is moving from San Francisco, CA to Cincinnati, OH
  - The client currently lives in Sunset District
  - The client is considering buying a condo or single family house

Data

- To determine a similar neighborhood in Cincinnati, following data is needed:
  - A list of all neighborhoods in Cincinnati, which can be obtained from https://www.zillow.com/cincinnati-oh/home-values/
  - Types of venues in each neighborhood in Cincinnati, which can be obtained using **Foursquare API**
  - Types of venues in current neighborhood in Cincinnati, which can be obtained using **Foursquare API**
- To determine options for buying property, data needed would be:
 - housing price trend based on housing type for neighborhoods of interest in Cincinnati, which can be obtained from https://www.zillow.com/research/data/
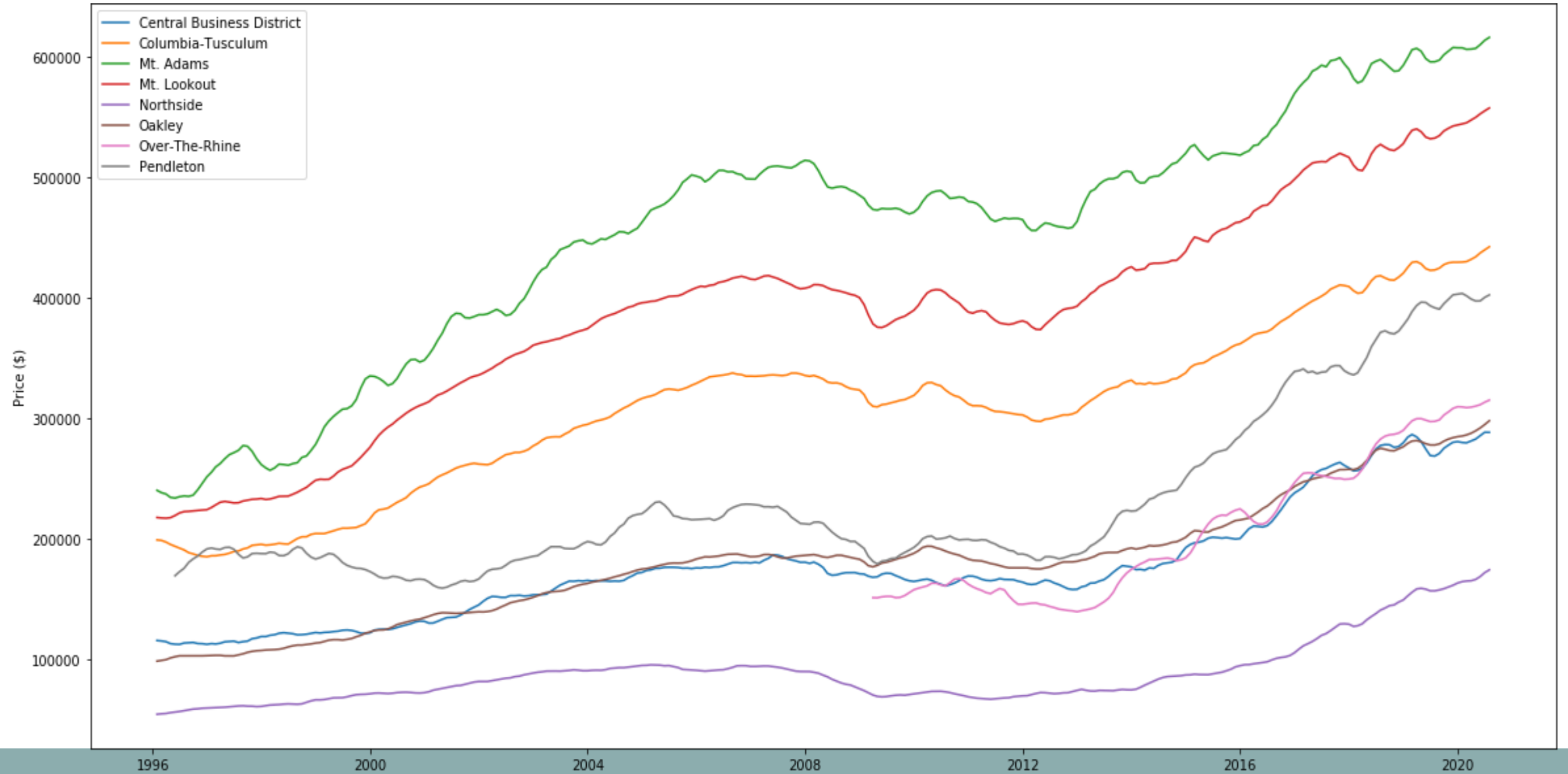
Similar Neighborhoods

- Using k-means clustering, 8 neighborhoods in Cincinnati belong to the same cluster with Sunset District in SF

|	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Central Business District	Sandwich Place	Bar	Hotel	Coffee Shop	Mexican Restaurant
1	Columbia-Tusculum	Bar	Yoga Studio	American Restaurant	Baseball Field	Cajun / Creole Restaurant
2	Mt. Adams	Bar	American Restaurant	Trail	Ice Cream Shop	Bakery
3	Mt. Lookout	Bar	Sushi Restaurant	Pizza Place	Thai Restaurant	Bank
4	Northside	Bar	Dive Bar	Coffee Shop	Bakery	Brewery
5	Oakley	Furniture / Home Store	Pizza Place	Art Gallery	Bar	Rock Club
6	Over-The-Rhine	Bar	Bakery	American Restaurant	Cocktail Bar	Coffee Shop
7	Pendleton	Bar	Coffee Shop	Bakery	American Restaurant	Sports Bar
8	Sunset District(SF)	Chinese Restaurant	Bubble Tea Shop	Dim Sum Restaurant	Bakery	Middle School

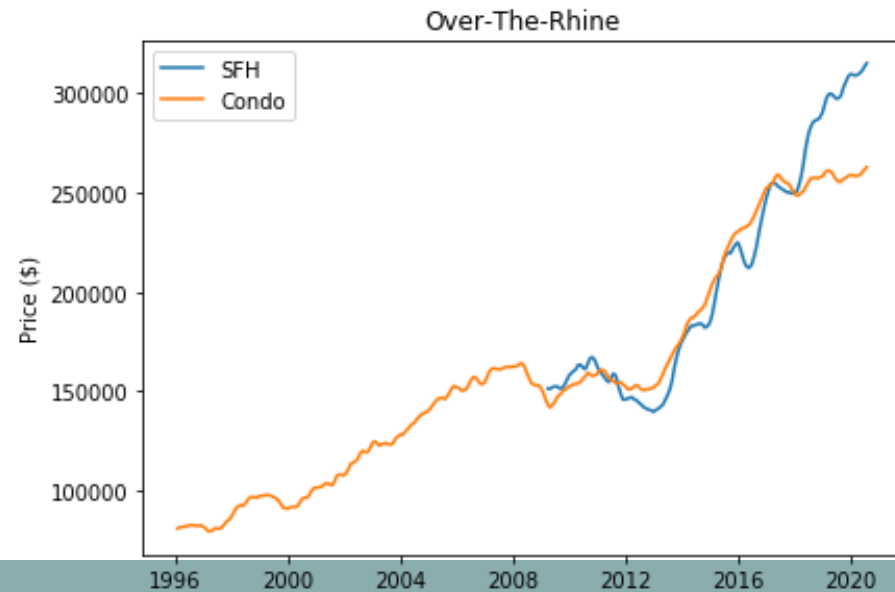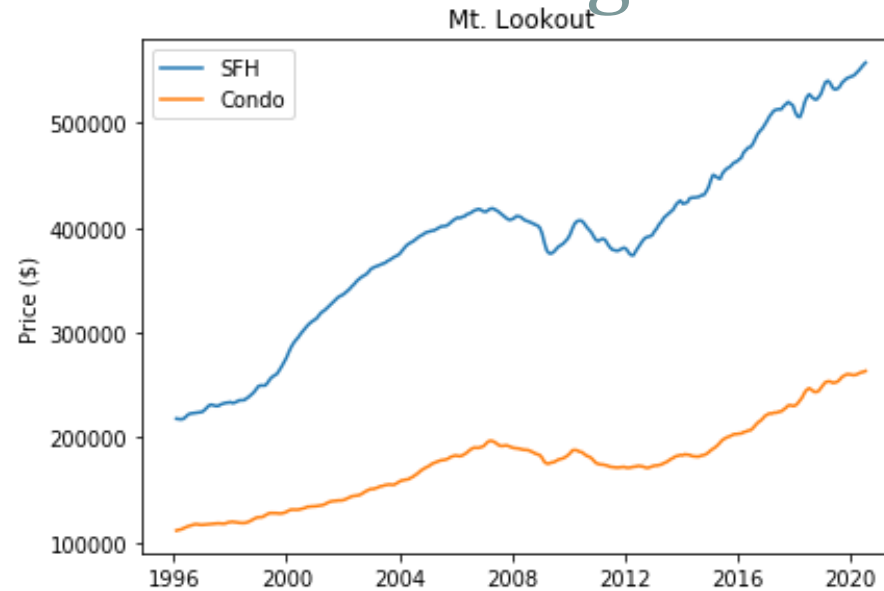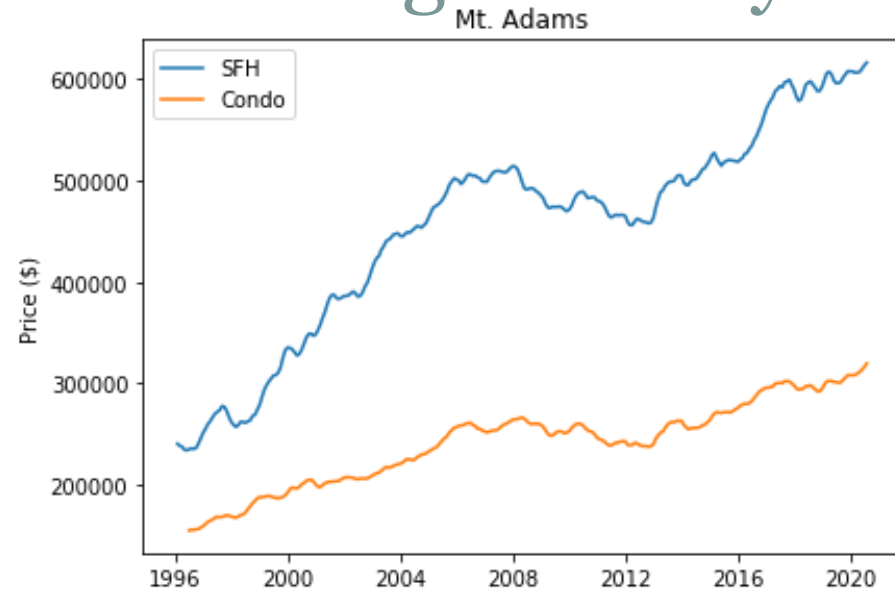Price Trend for Condo in Selected Neighborhoods
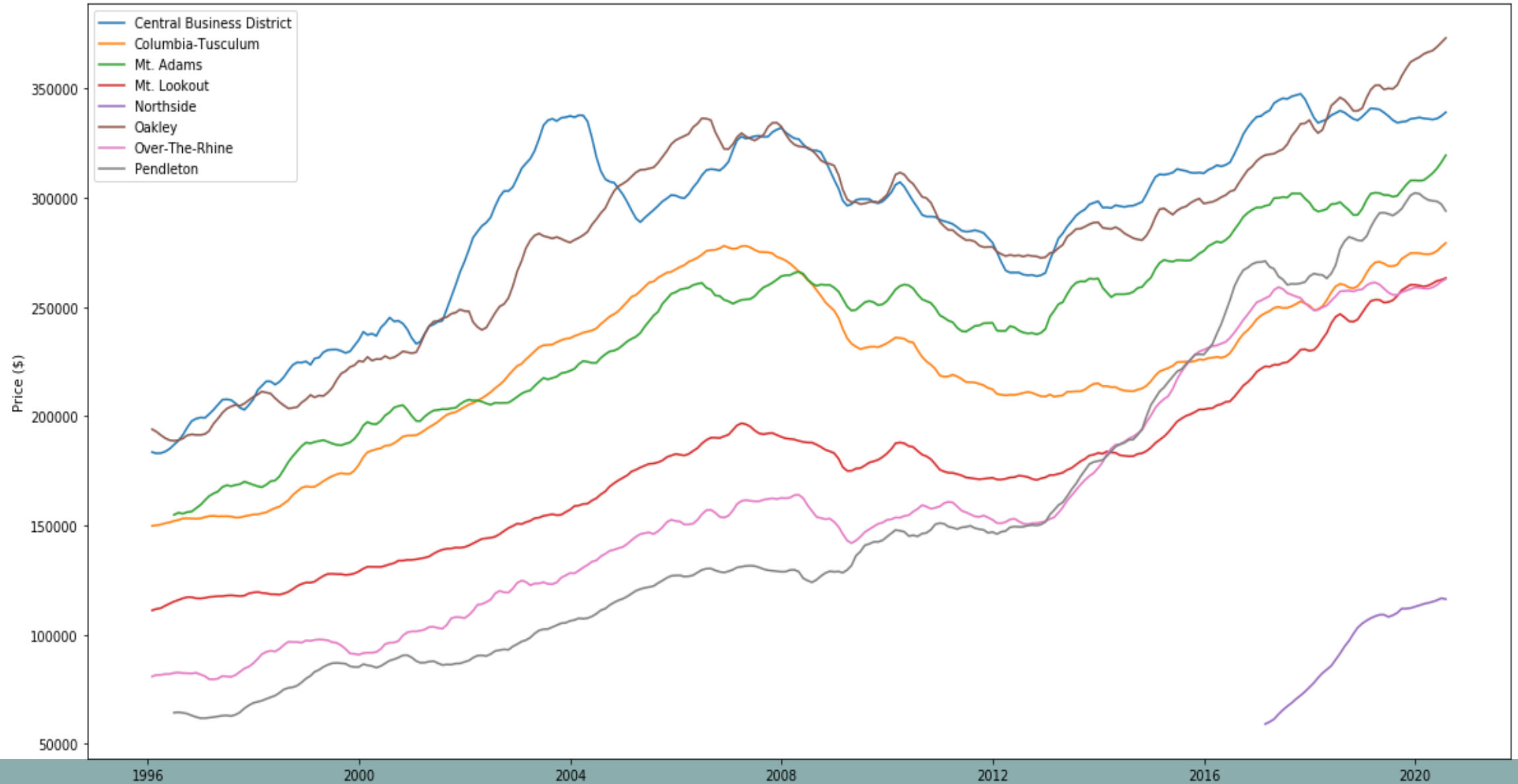
Price Trend for Single Family House in Selected Neighborhoods

Condo vs Single Family House in each Neighborhood
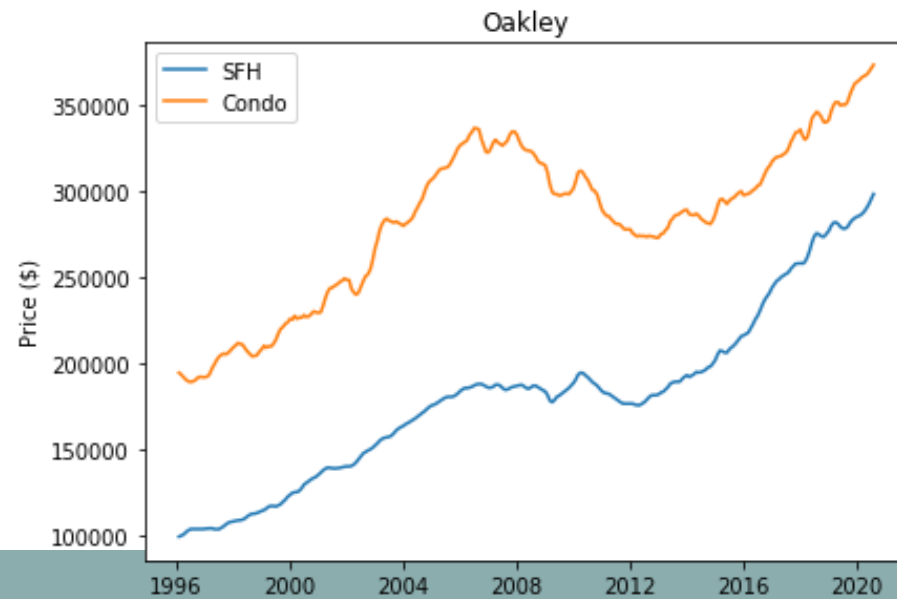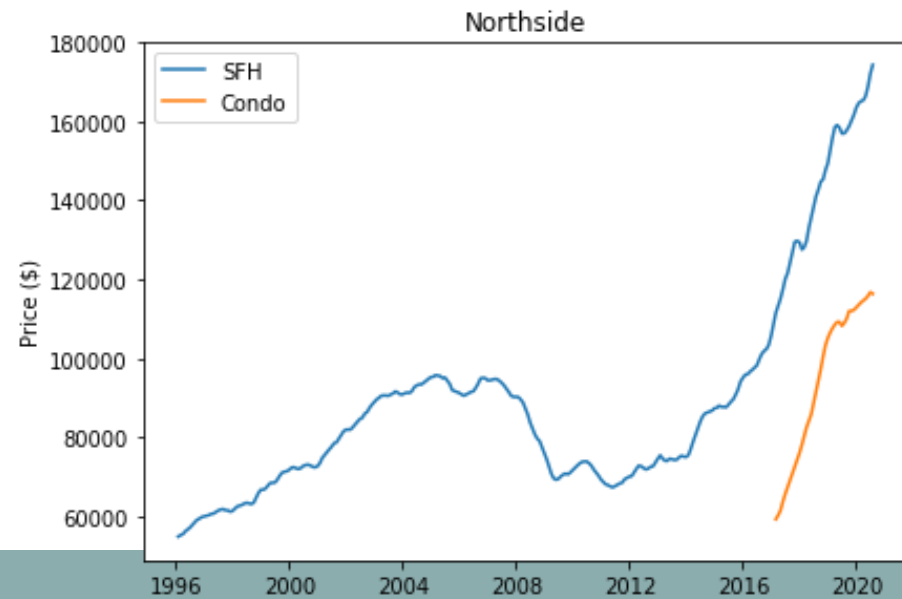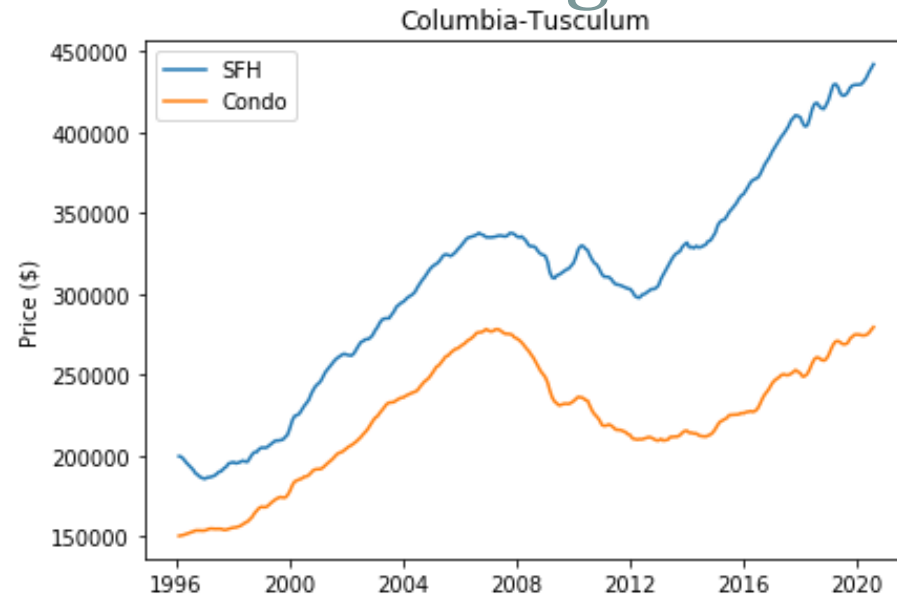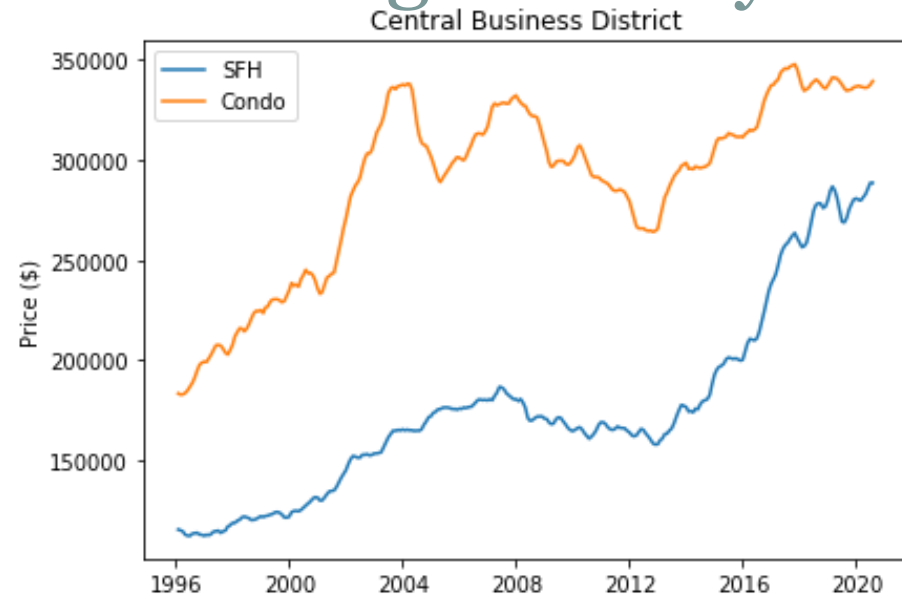
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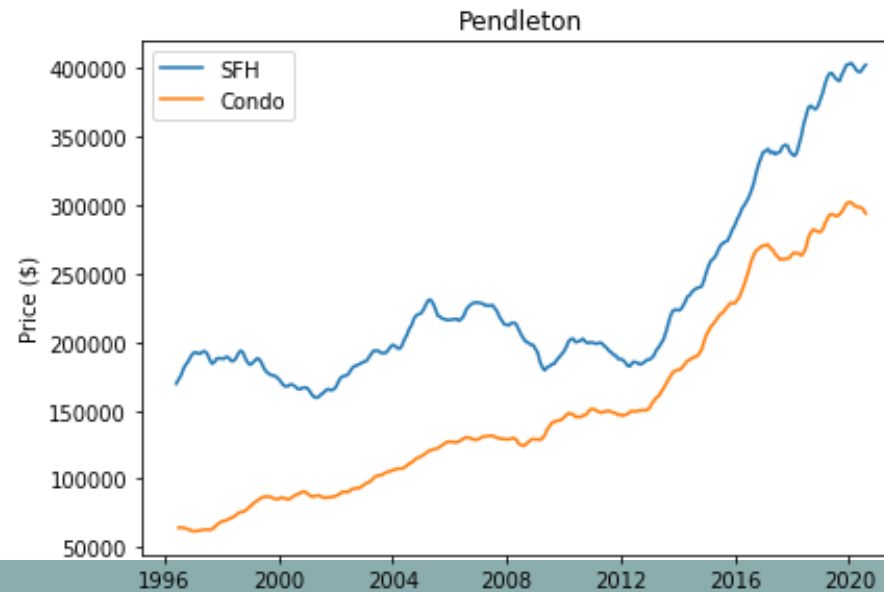
Results – Across Different Neighborhoods

- Condo price trend
  - Similar trend in all neighborhoods
    - Increasing trend from 1996 to 2008
    - Decline from 2008 to 2012
    - After 2012, increasing trend in house price up until today
  - Out of all neighborhoods, Pendleton has the highest increase, while Central Business District has the lowest increase
- Single family house price trend
  - Similar to the trend for condos
    - Increasing trend from 1996 to 2008, followed by a slight decline/plateau from 2008 to 2012; after 2012, there is an increasing trend up until today
  - Out of all neighborhoods, Pendleton has the highest increase

Results – Within Same Neighborhood

- ## Price comparison
  - neighborhoods where price for condo is always higher than price for SFH: Central Business District, Oakley
  - neighborhood where price for condo is similar to price for SFH: Over-The-Rhine
  - neighborhoods where price for condo is always lower than price for SFH: Columbia-Tusculum, Mt.Adams, Mt.Lookout, Northside, Pendleton
- ## Trend comparison
  - there is no neighborhood where the rate of increase in condo price is higher
  - neighborhoods where the rate of increase in condo price is lower: Central Business District, Columbia-Tusculum, Mt.Adams, Mt.Lookout, Pendleton
  - neighborhoods where the rate of increase is similar for both housing options: Northside, Oakley, Over-The-Rhine

Conclusion

- Single family house is always a better option in terms of growth potential, regardless of neighborhood
- This project only serves as the first step in helping narrow down the neighborhood search
  - Further analysis needed to determine final neighborhood from the 8 options
  - Other factors to consider
    - Commute time
    - Budget for property
    - Crime rate