



The future of real estate investment

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Motivation & Summary Slide

~ determining the investment opportunity of real estate can be time consuming and misleading.

~ Therefore justifying the pursuit of an application that simplifies the investment potential of real estate properties



Questions & Data

- Crime rates
- Ease of access to community services
- Historical property value
- School district ranking
- median income
- Trajected property value
- Transportation
- Entertainment



Data Cleanup & Exploration

- Process of data cleanup in jupyter lab using python
- Eliminating unnecessary data
- Find enough data to predict returns in real estate more accurately



```
price_on_zip.ipynb | Clean_House_Price_Index.csv | property_price.csv
[46]: import pandas as pd
import numpy as np
from pathlib import Path

[55]: #import data and create data frame
price_data = Path("../data_collection/property/property_price.csv")
HP = pd.read_csv(price_data, index_col= "Five-Digit ZIP Code")
#data cleanup
HP['HPI'] = HP['HPI'].replace(['.'], '0')
HP['Annual Change (%)'] = HP['Annual Change (%)'].replace(['.'], '0')
HP['HPI with 1990 base'] = HP['HPI with 1990 base'].replace(['.'], '0')
HP['HPI with 2000 base'] = HP['HPI with 2000 base'].replace(['.'], '0')
HP = HP.astype({'Annual Change (%)': float, 'HPI': float, 'HPI with 1990 base': float, 'HPI with 2000 base': float})
HP['HPI'] = HP['HPI'].div(50).round(0)
HP['HPI with 1990 base'] = HP['HPI with 1990 base'].div(50).round(0)
HP['HPI with 2000 base'] = HP['HPI with 2000 base'].div(50).round(0)
HP['Annual Change (%)'] = HP['Annual Change (%)'].round(0)
maxVal = 10
HP.loc[HP['HPI'] >= maxVal, 'HPI'] = maxVal
HP.loc[HP['HPI with 1990 base'] >= maxVal, 'HPI with 1990 base'] = maxVal
HP.loc[HP['HPI with 2000 base'] >= maxVal, 'HPI with 2000 base'] = maxVal
HP.head()

[55]:
```

	Year	Annual Change (%)	HPI	HPI with 1990 base	HPI with 2000 base
Five-Digit ZIP Code					
1001	1985	0.0	2.0	1.0	1.0
1001	1986	14.0	2.0	1.0	1.0
1001	1987	21.0	3.0	2.0	2.0
1001	1988	17.0	3.0	2.0	2.0
1001	1989	1.0	3.0	2.0	2.0

```
[56]: #export cleansed dat to csv
HP.to_csv(r'../data_collection/property/Clean_House_Price_Index.csv')
```

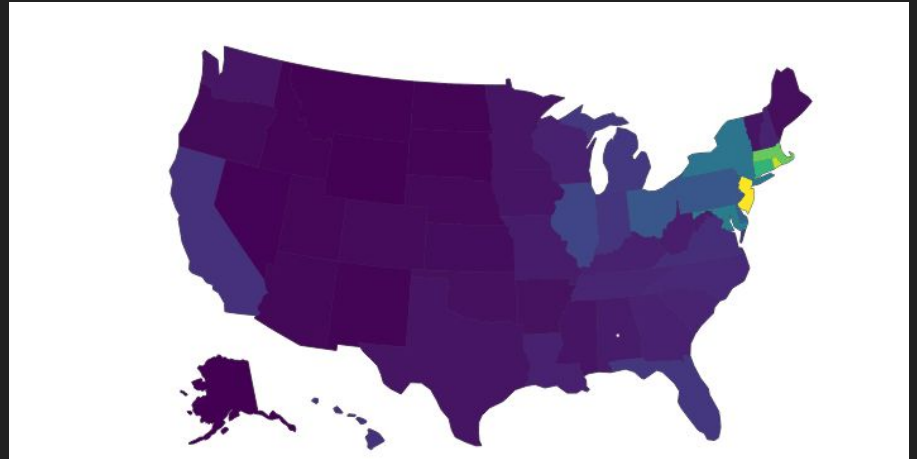
Data Analysis

- Matplotlib
- Jupyterlab(python)
- Monte carlo
- Rate of change
- Determining volatility of data
- plotly



Discussion

- Can making in investment in real estate be easier ?
- Is it reliable way to make investment ?
- Is there a better way ?



Postmortem

- How do you go about predicting future price of real estate property ?
- Getting proper data
- Balancing simplicity
- Making sense of data
- Time management



Q&A

