

Flatiron Data Science Mod 4 Final Project

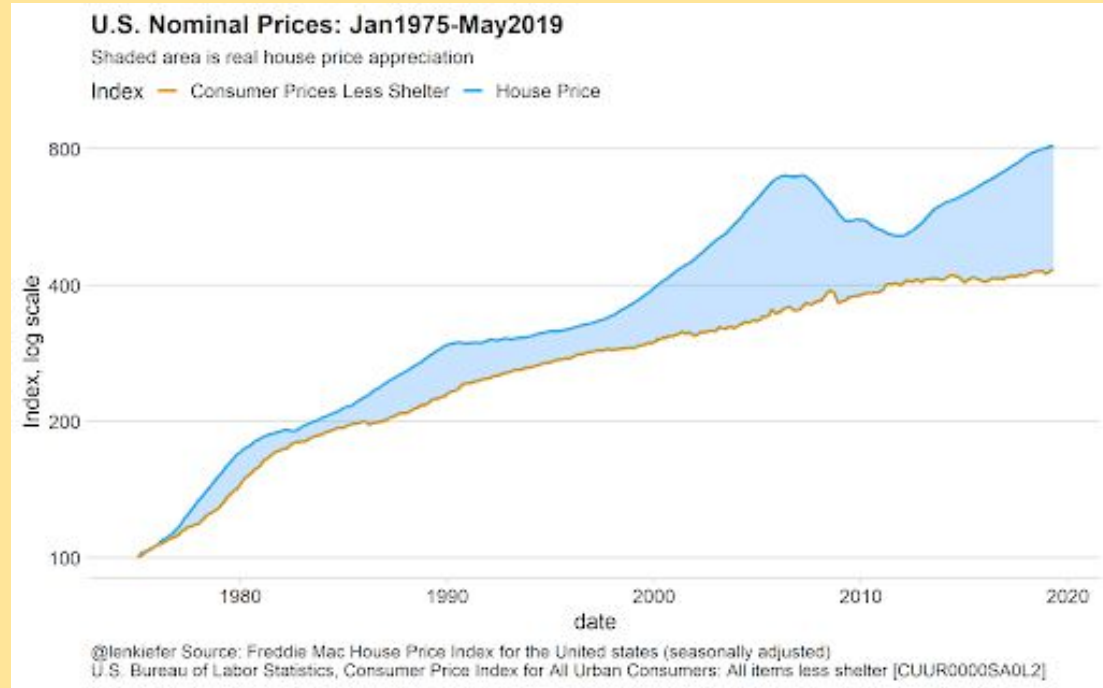
Time Series Modeling: Zillow US Housing Prices

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What are the top 5 best zip codes for us to invest in?

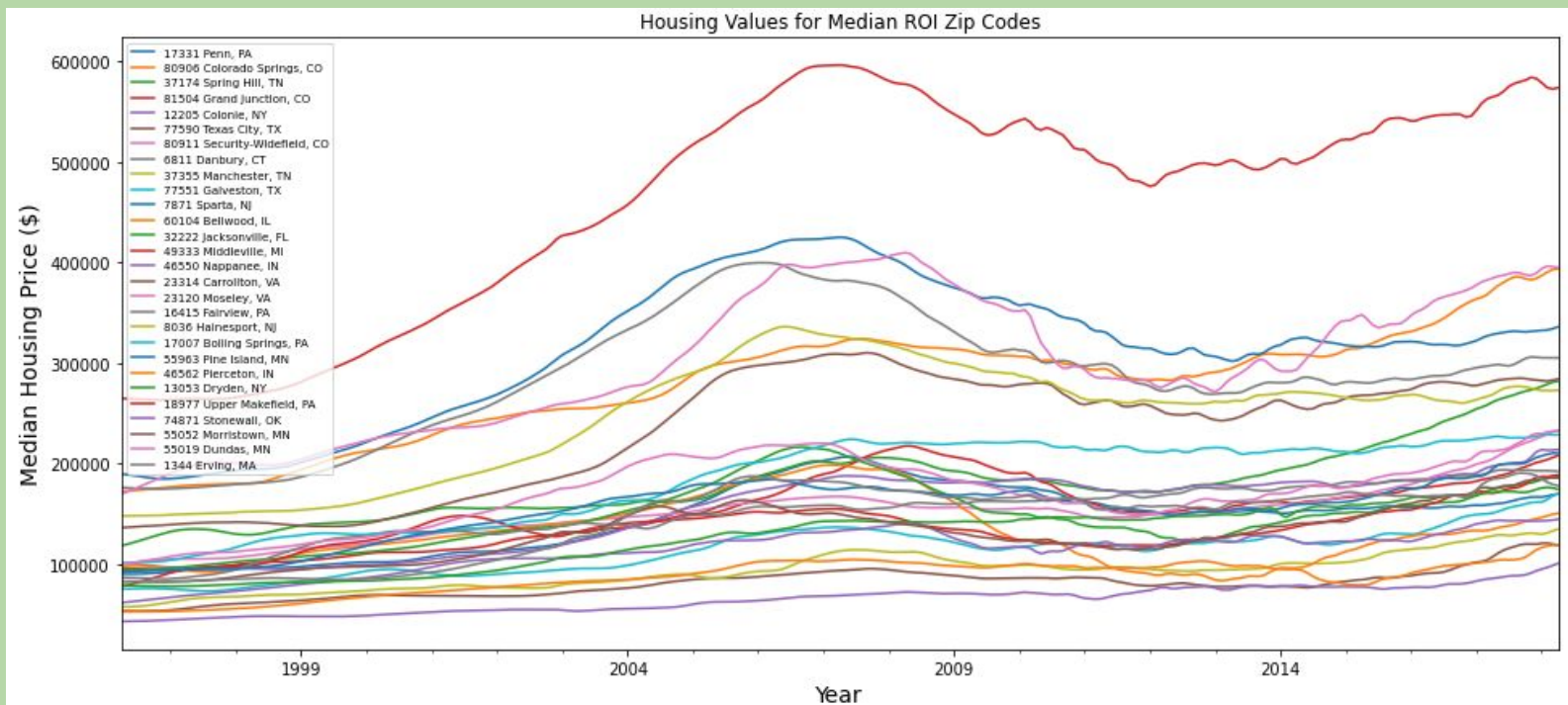
- **Data source: Zillow.com**
- **Timeframe:**
 - 1996 Apr - 2018 Apr
- **Zip Codes (United States):**
 - 14,723



Average US Housing Price History: 1996-2018

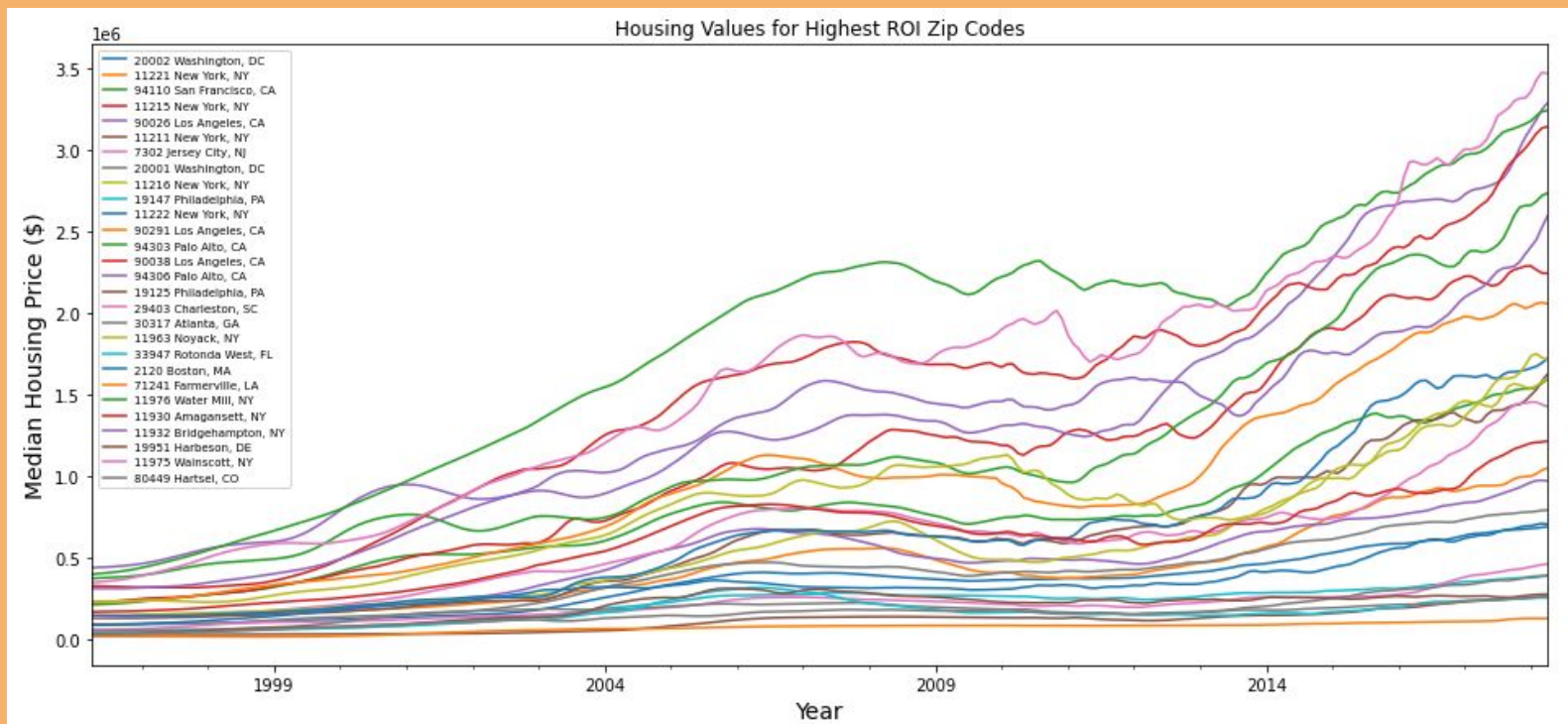
Break even @2.5% Inflation over 12 years: **35% ROI** | Median US zip code: **25% ROI**

Blame the housing crash of 2007/2008! ↓

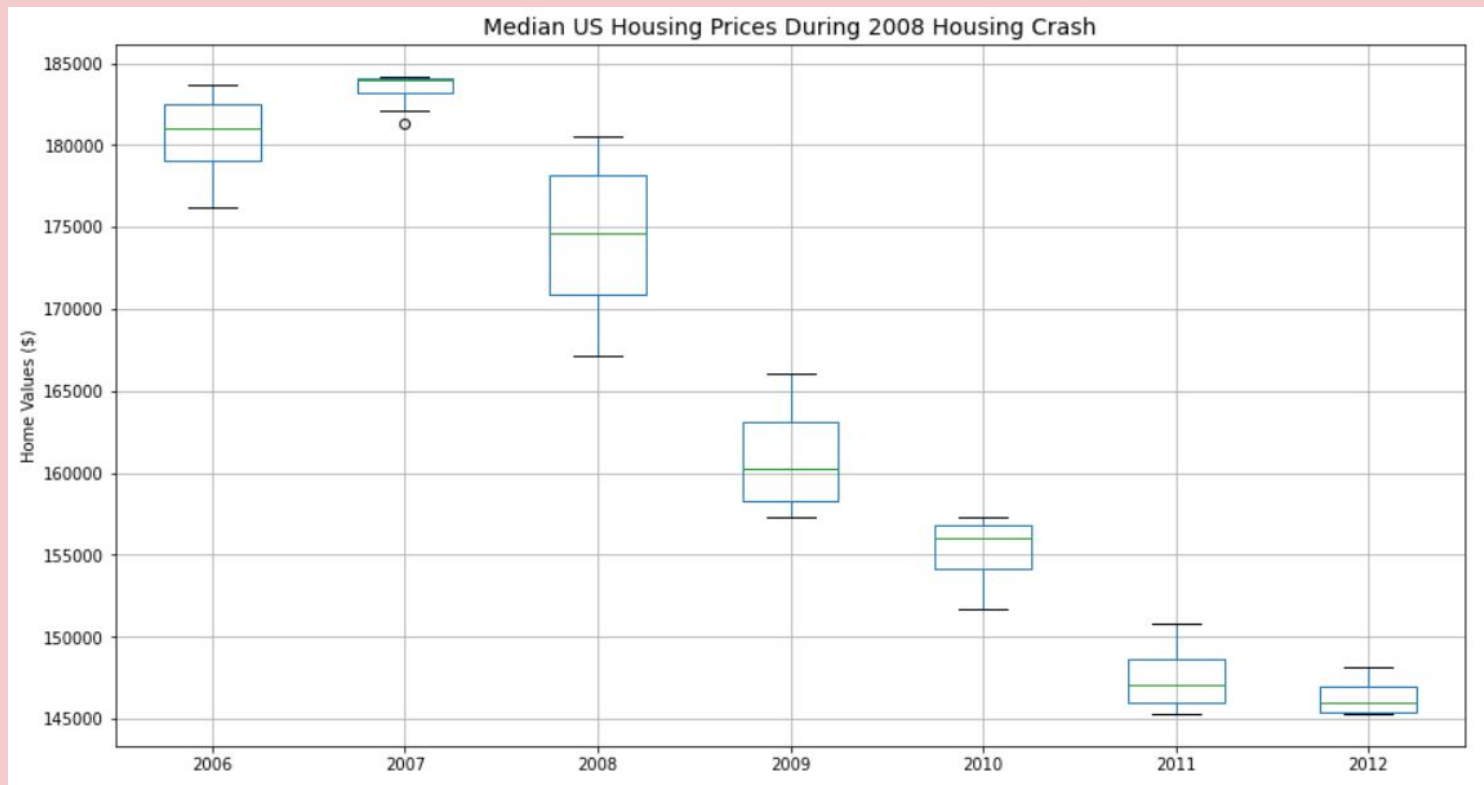


Highest ROI Housing Price History

Top 28 Highest ROI US zip codes: minimum **500%** return (**ROI>6.0**)



A Closer Look At The 2008 Housing Crash



Forbes:
Median loss
from 2007
peak to 2012
bottom: **29%**

How To Define Best Zip Codes?

	Min_Max_ROI	1996_to_2018	Drop	Recovery	Months
count	14723.000000	14723.000000	14723.000000	14723.000000	14723.000000
mean	1.387741	1.211672	0.276593	0.409551	60.552469
std	0.853103	0.858711	0.137918	0.297358	21.145218
min	0.062251	-0.641192	0.000000	-0.381078	0.000000
25%	0.806905	0.681247	0.175846	0.201349	48.000000
50%	1.219434	1.060237	0.251664	0.330827	64.000000
75%	1.736302	1.526706	0.349067	0.544575	75.000000
max	10.785706	10.785706	0.786567	2.376826	128.000000

Descriptive Statistics for all US zip codes

Initial selection process:
Top 5% of zip codes for
each metric

Return on Investment (ROI):

Percentage return of profit based on initial cost (Min-Max and Begin-End)

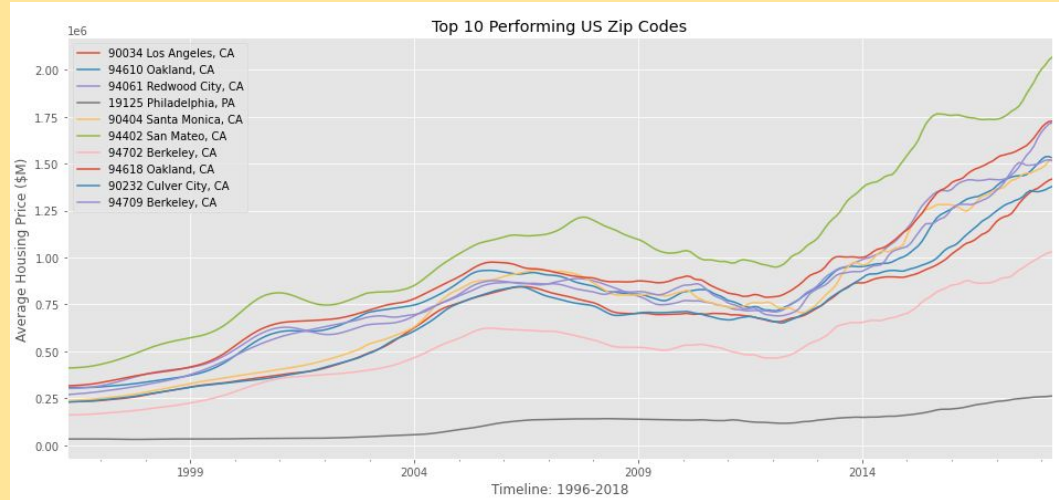
Drop: % loss from top to bottom due to 2008 housing crash

Months: # of months to retrace to top from housing crash bottom

Recovery: ROI from crash bottom to April 2018

Exploring the Data - Fun Facts (1996-2018)

- Despite the housing crash, the average US home more than **doubled** in value
- Our initial top ten zip codes on average more than **quintupled** in value
- The average home lost **25%** during the crash and by 2018 recovered **33%** - to almost exactly **break even**
- The average home took **over 5 years to recover**.. our top ten required **less than 2 years**



Final Selection: Top 5

Zip Code - City, State	Low Property Tax Rate	Price to Rent Ratio	Recovery Post Crash	High ROIs	Low Entry Point
94402 - San Mateo, CA	●				
94061 - Redwood City, CA	●		●		
19125 - Philadelphia, PA		●		●	
90404 - Santa Monica, CA			●		
90232 - Culver City, CA					●



Thank you very much for your time!