



Baltimore Real Estate Investment

By Seth Chart

Problem Statement

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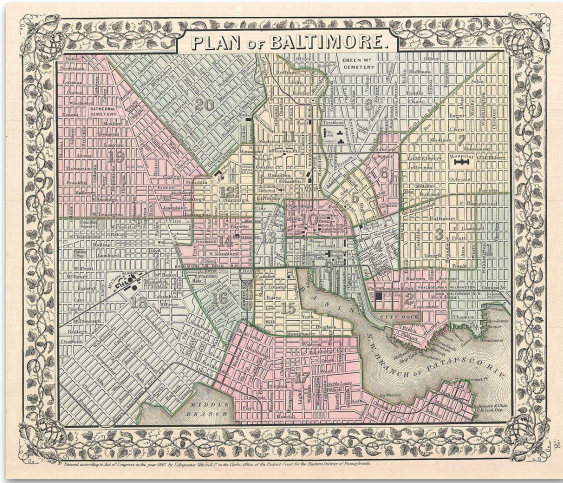


- Our client is an individual homebuyer who is moving to Baltimore Maryland.
- Our client plans to buy a single family home in the city of Baltimore, live in the home for two years, then sell the home.
- They want to select a house in a zip code that will maximize their expected return on investment.
- Our task is to identify the five best zip codes within the city of Baltimore for this type of investment.

Business Value



Business Value

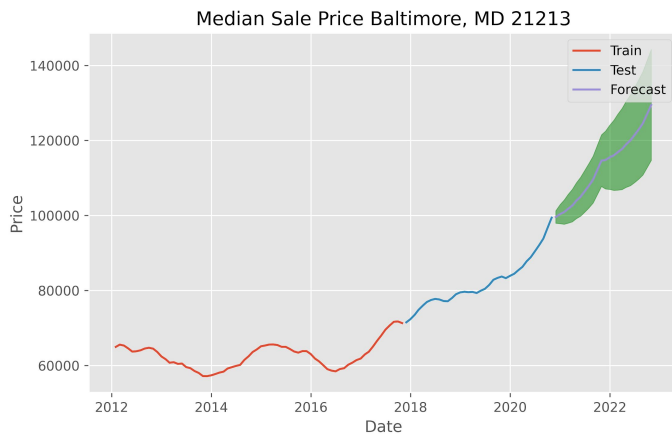


By identifying the five zip codes that are best suited to our client's investment strategy we expect to provide the following outcomes:

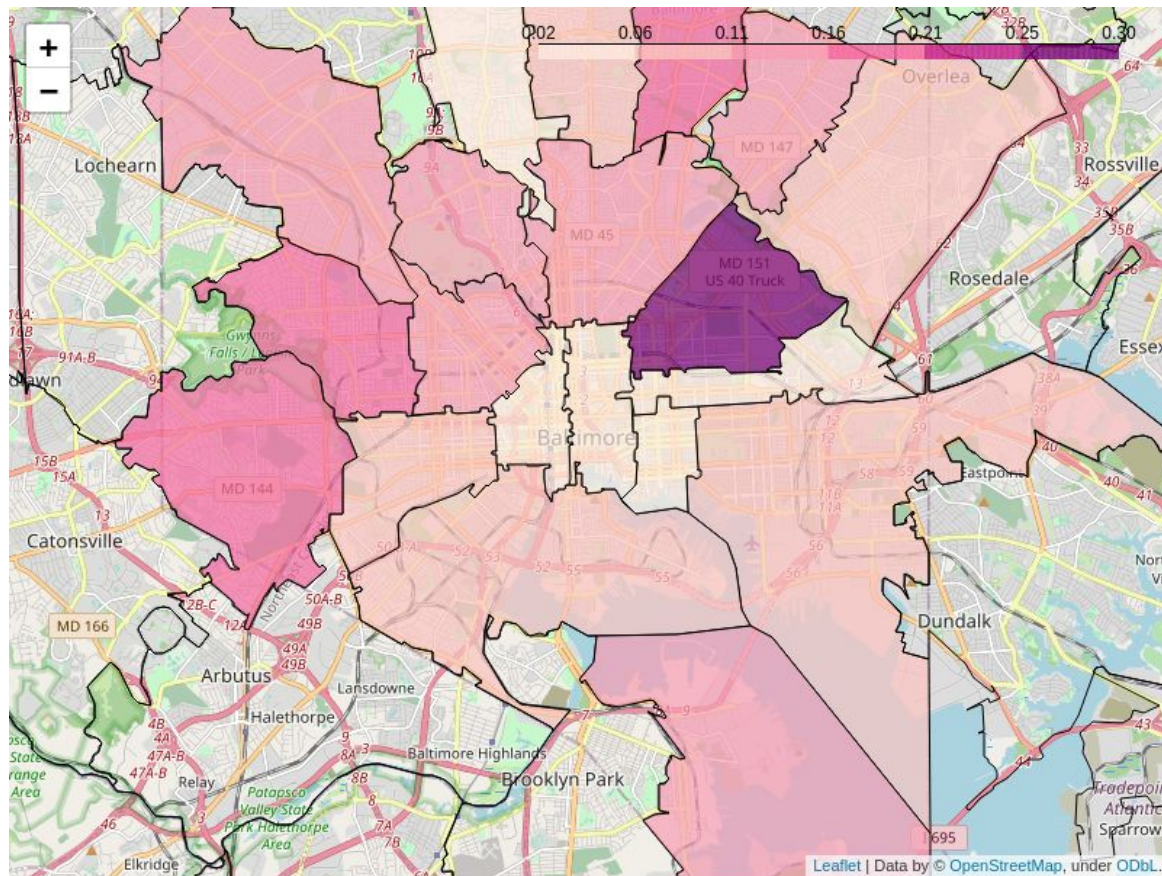
- Maximize return by identifying zip codes with favorable property cost trends.

Methodology

Methodology

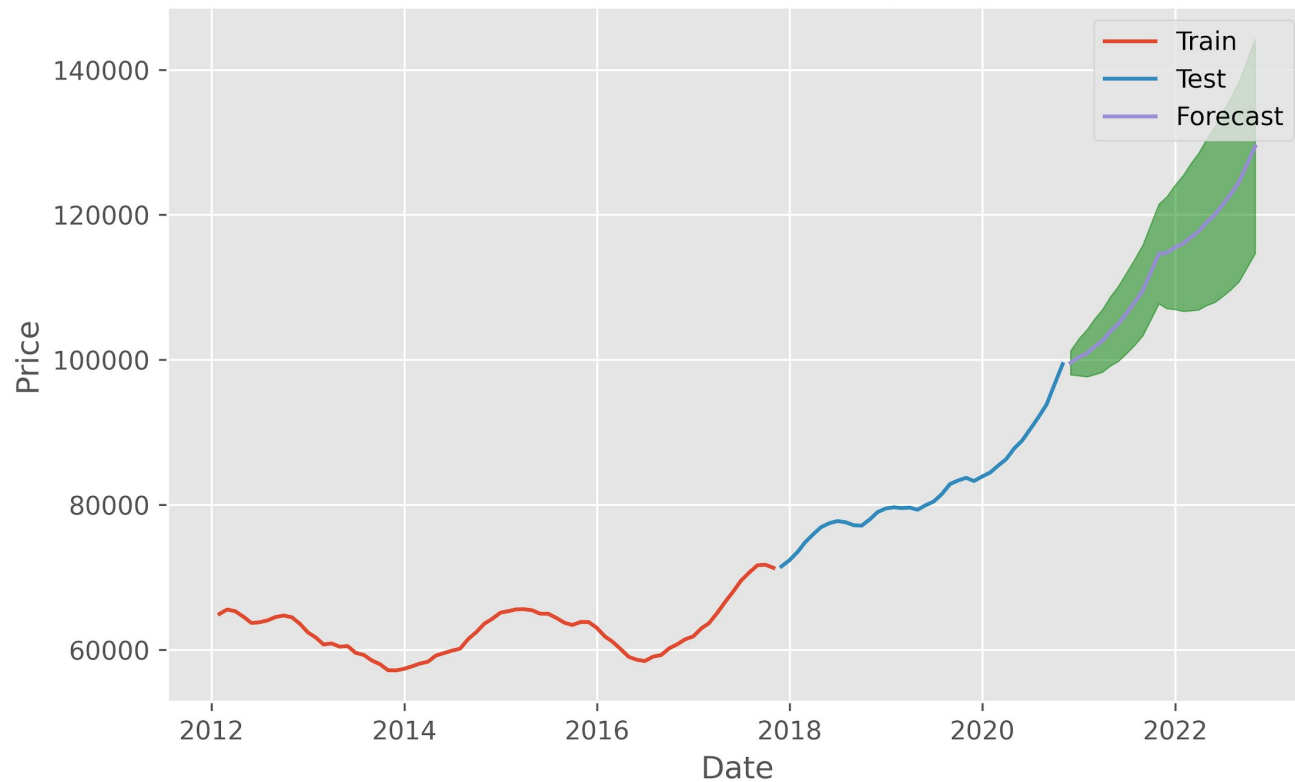


- Collect historical median sale price by zip code from Zillow.
- Fit a Seasonal AutoRegressive Integrated Moving Average (SARIMA) model for each zip code in Baltimore.
- Use SARIMA models to forecast median sale price for each zip code two years into the future.
- Select five zip codes with highest forecasted ROI.



Map of Baltimore zip codes indicating projected return on investment.

Median Sale Price Baltimore, MD 21213



Time series plot of median sale price for top zip code.

Recommendations

Best Zip Code: 21213



Belair-Edison Neighborhood:

- Median Sale Price: \$99,420
- Projected Median Sale Price: \$129,461
- Two Year ROI: 30%
- Main Attraction: Herring Run Park

Second Best Zip Code: 21229



Irvington Southwest Baltimore:

- Median sale Price: \$131,301
- Forecast Median Sale Price: \$157,004
- Two Year ROI: 20%
- Main Attraction: Gwynns Falls Park

Third Best Zip Code: 21216



Hanlon Longwood Neighborhood:

- Median sale Price: \$97,222
- Forecast Median Sale Price: \$115,741
- Two Year ROI: 19%
- Main Attraction: Hanlon Park

Fourth Best Zip Code: 21239



Idlewylde Neighborhood:

- Median sale Price: \$161,381 Forecast
- Median Sale Price: \$187,150
- Two Year ROI: 16%
- Main Attraction: Two Golf Courses
 - Country Club of Maryland
 - Mount Pleasant Golf Course

Fifth Best Zip Code: 21226



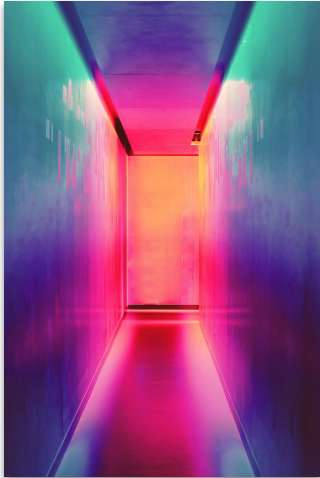
Curtis Bay Neighborhood:

- Median sale Price: \$245,953
- Forecast Median Sale Price: \$279,256
- Two Year ROI: 14%
- Main Attraction: Curtis Bay waterfront

Future Work



Future Work



- Optimize and parallelize code for a nation-wide search.
- Try Long Short-Term Memory neural networks in place of SARIMA models.
- Incorporate exogenous variables.
- Model a more realistic investment strategy.
 - House flipping
 - Rental property investment
- Build project dashboard.



Thank You!



Ways to find me:

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- LinkedIn: [sethchart](https://www.linkedin.com/in/sethchart)
- GitHub: [sethchart](https://github.com/sethchart)
- Email: seth.chart@protonmail.com
- Project Repository: [Baltimore-Real-Estate-Investment](https://github.com/Baltimore-Real-Estate-Investment)

Appendix



List of Images

- [city buildings near body of water photo](#) – [Free Building Image on Unsplash](#) by ActionVance
- [road near brown house photo](#) – [Free Street Image on Unsplash](#) by Erin White
- [Samuel Augustus Mitchell](#), Public domain, via Wikimedia Commons
- [multicolored hallway photo](#) – [Free Neon Image on Unsplash](#) by Efe Kurnaz
- By Belairedison (talk) - self-made, Public Domain,
<https://en.wikipedia.org/w/index.php?curid=16090003>
- <http://www.gwynnsfallstrail.org/>
- Benjamin, Jancewicz <https://goo.gl/maps/vMF6oUF8Qpq77rDv8>
- <https://belvederesquare.com/directory/atwaters/>
- <https://www.ccofmd.com/Golf/Golf%20Shop.aspx>
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