

Building Permit Analysis

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Overview:

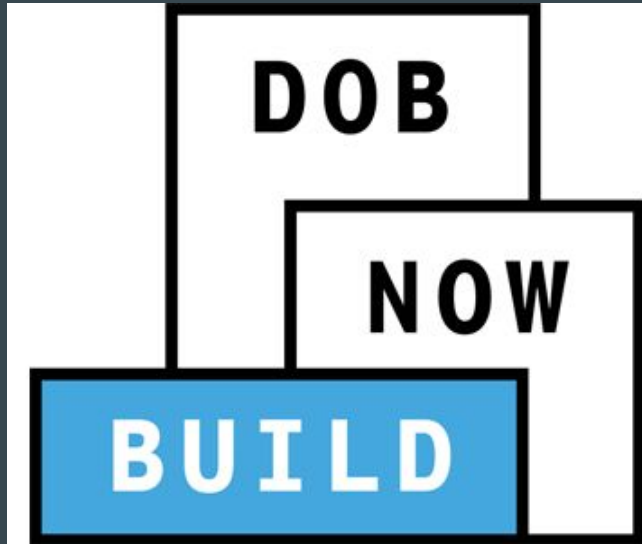
- Prediction of NYC new construction permit trends.
- Provide insights for investment firm stakeholders.
- Classification of pre-1940 buildings based on recent maintenance.
- Generate high quality lead list

Stakeholder: MetroStar Real Estate Investment Firm

- NYC-based investment firm focusing on new developments and renovations.
- Effective shaping of investment strategies through data analysis.
- Prediction of city construction trends for investment potential.

Data Understanding:

- Utilization of DOB NOW: Build – Approved Permits and PLUTO datasets.
- Comprehensive information on building permits and extensive land use details.



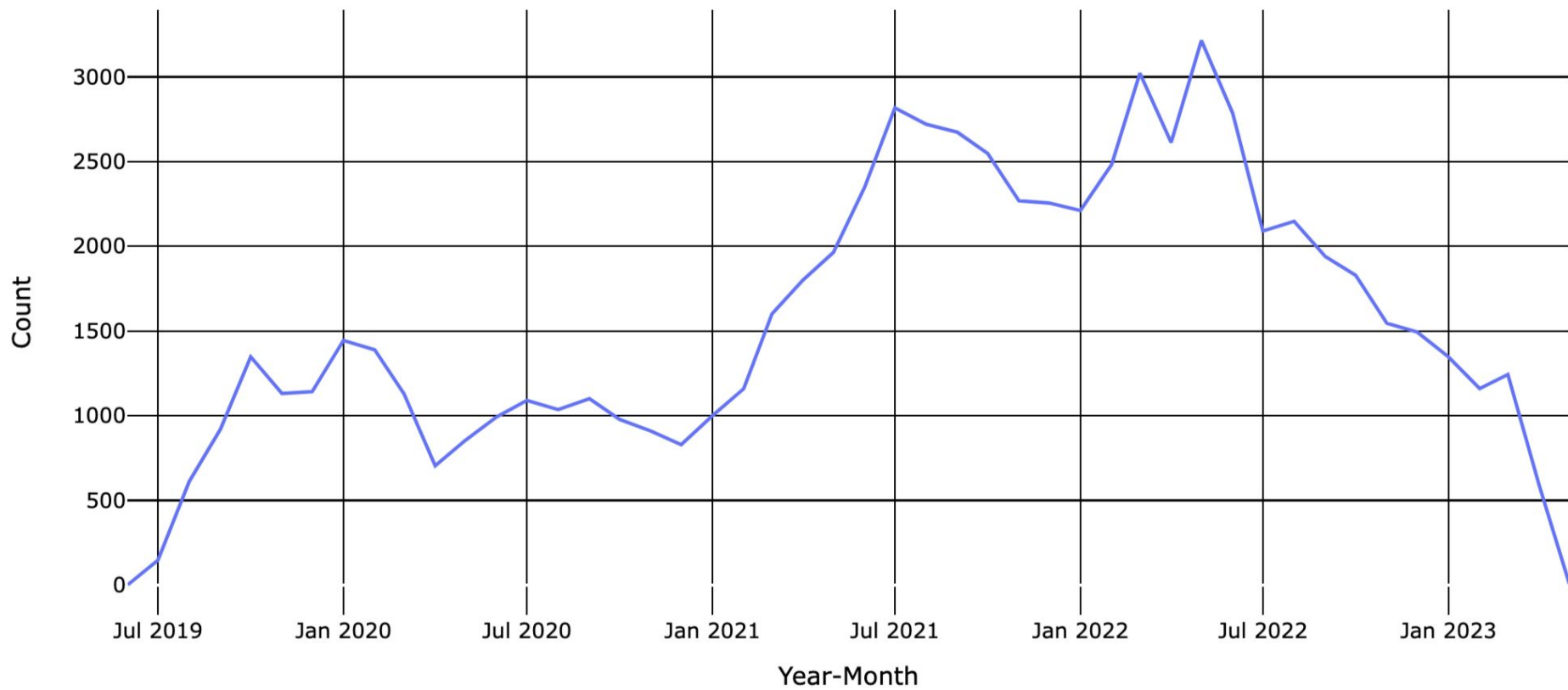
Data Understanding:

- Borough: Borough of the tax lot.
- Block: Tax block number.
- zipcode: Postal code of lot.
- bldgclass: Type of building.
- yearbuilt: Year building was constructed.

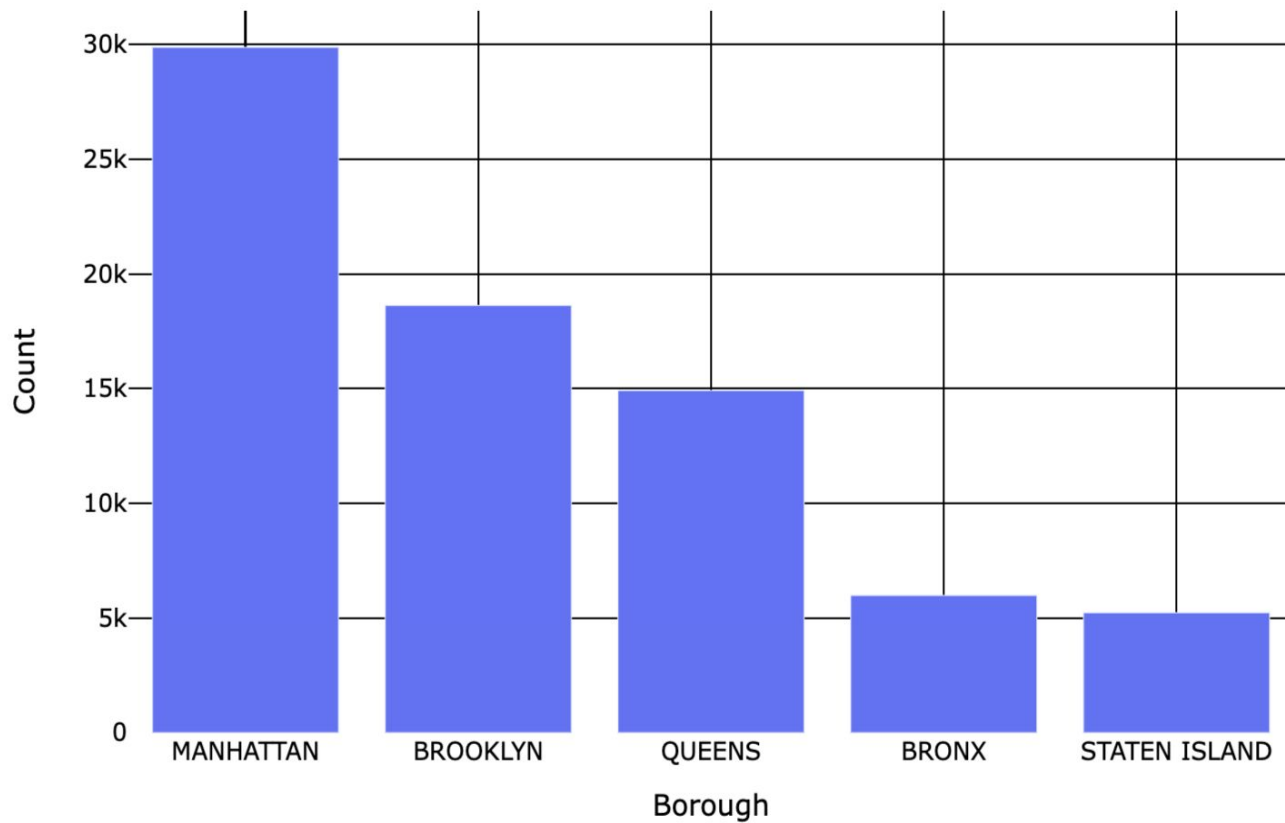


Part 1: New Building Permits

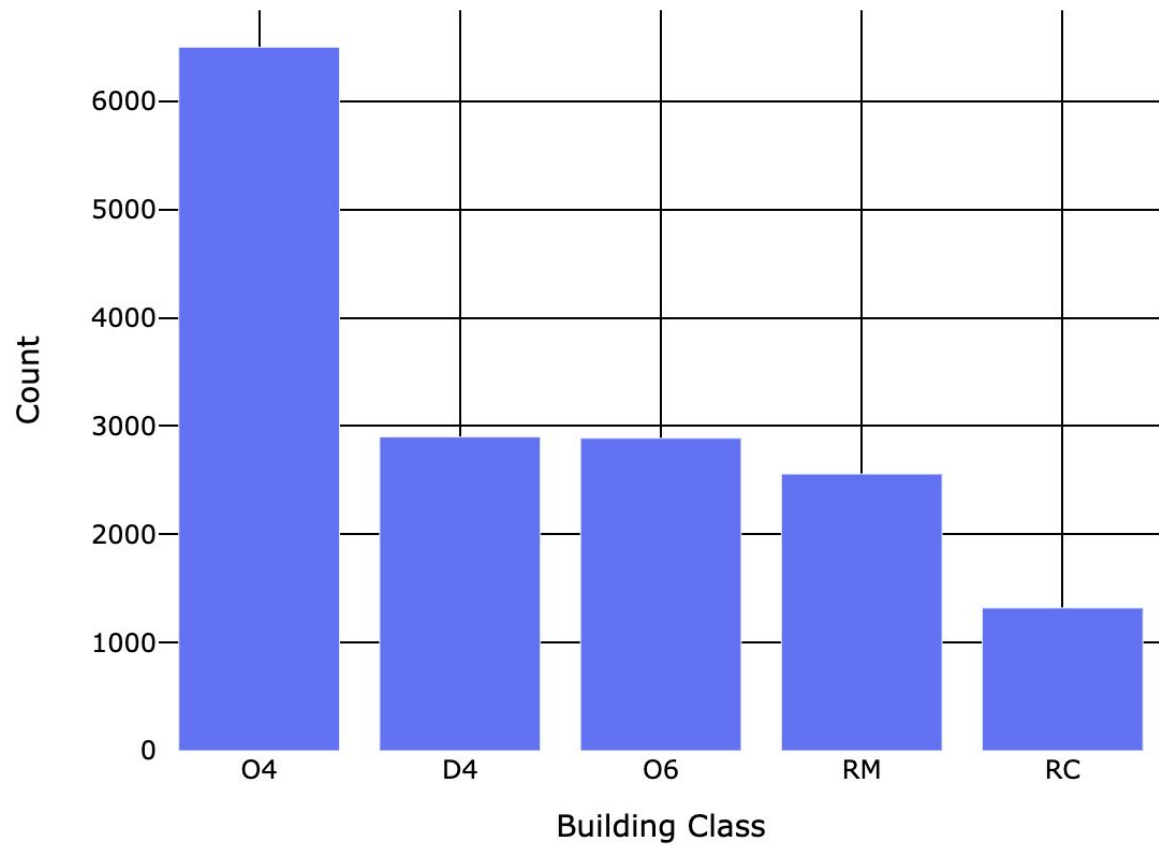
Total Permits Issued by Month and Year



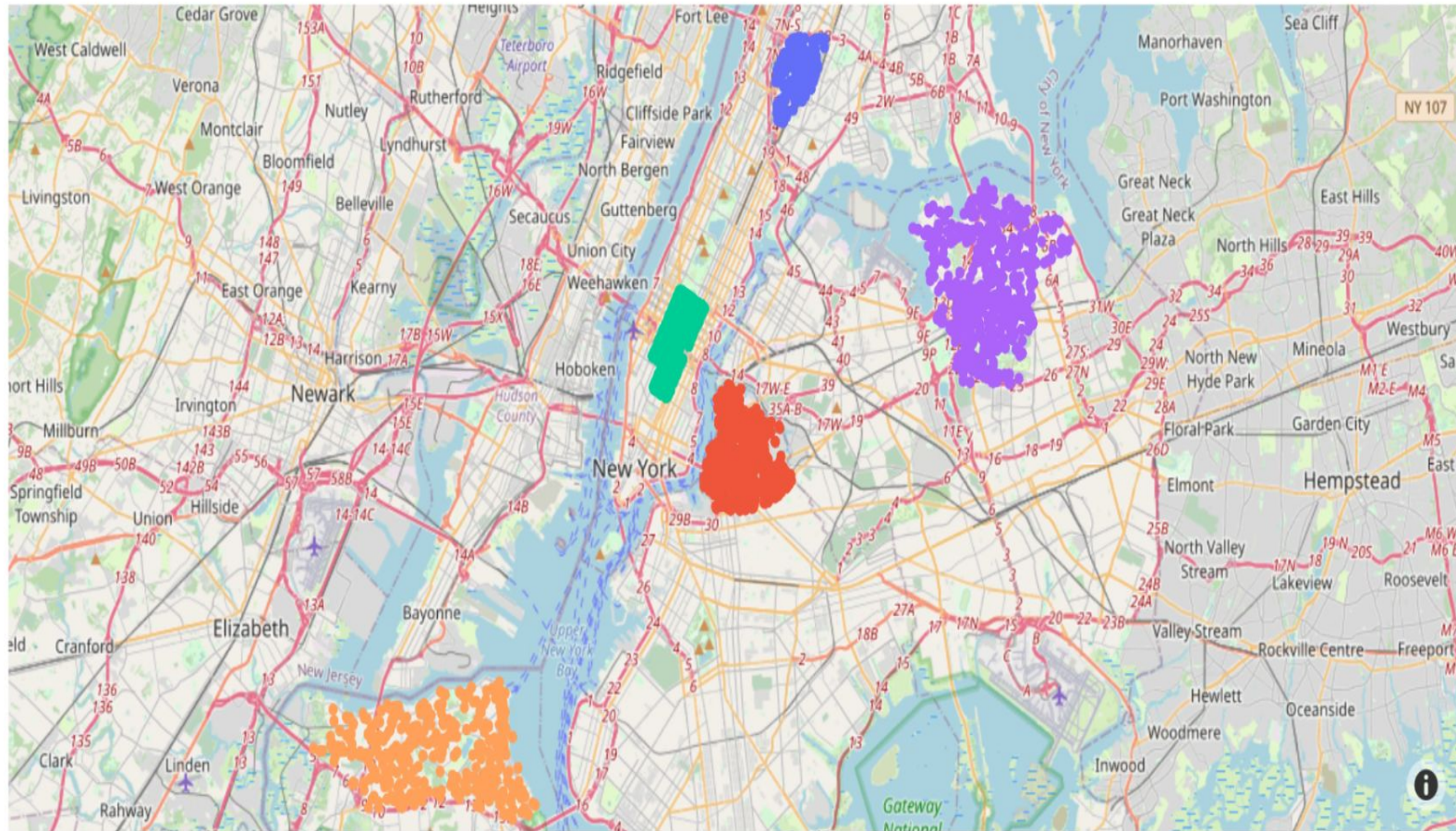
Permits Approved by Borough



Top 5 Building Class Distribution in MANHATTAN



Community Boards With Highest Growth



Borough

- BRONX
- BROOKLYN
- MANHATTAN
- QUEENS
- STATEN ISLAND

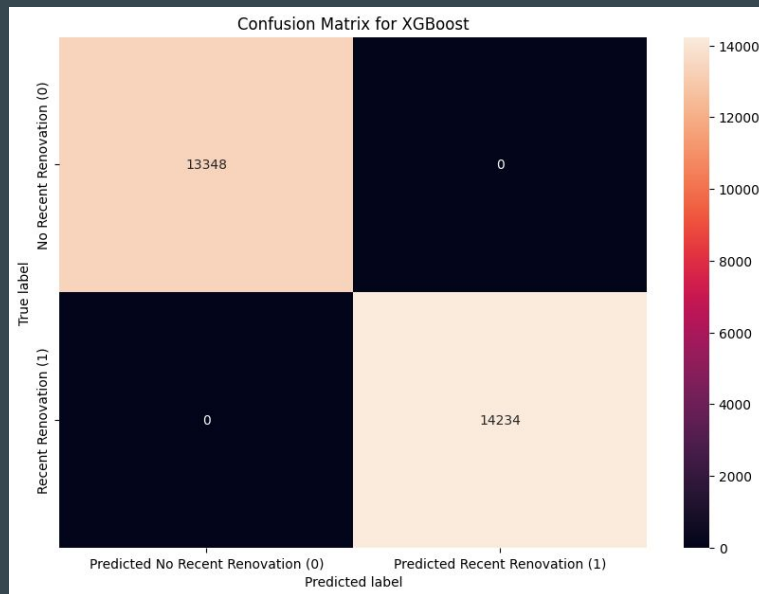
Time Series Results:

- Average RMSE: 26
- Bronx: 13
- Staten Island: 21
- Queens: 24
- Brooklyn: 33
- Manhattan: 37

Part 2: New Building Permits

Old Buildings Classification & Maintenance

- Categorization of pre-1940 NYC buildings based on post-2018 maintenance.
- Identifying renovation and value enhancement opportunities.
- 100% Accurate*



Classification Model Insights:

- 'Approved Year' feature critical to model due to strong connection with recent renovation activity.
- Potential data leakage due to tight correlation between 'Approved Year' and target variable 'recent_permit'.

Recommendations:

- Brooklyn: Develop walk-up apartments.
- Bronx: Focus on mixed-use buildings.
- Manhattan: Invest in mixed-use properties.
- Queens: Build family-oriented houses.
- Staten Island: Consider waterfront properties.

Further Analysis & Limitations

- Inclusion of additional influential factors.
- Detailed thorough analysis for micro-market trends.
- Refinement of predictive models.
- Application of methodology to different geographic areas.

Thank You

Please check out the full analysis below

[Github Repo:](#)