

# NS-Rentals

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**Transforming Halifax Rental Market For Southwest Properties**

Masters of Computing & Data Analytics

Saint Marys University  
Halifax, Nova Scotia

BlackHoles-X 

# MEET THE TEAM

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*MCDA - Student*  
**Tejasvi Bhutiyal**



*MCDA - Student*  
**Raoof Naushad**

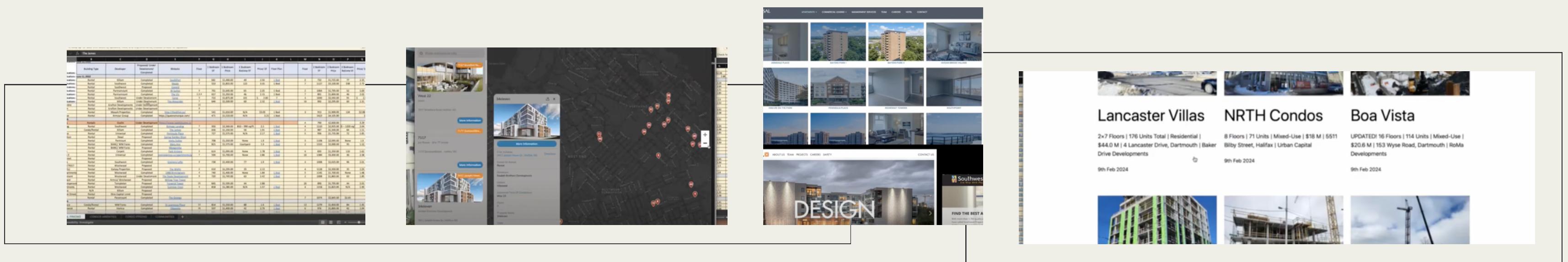


*MCDA - Student*  
**Rakshit Gupta**



*MCDA - Student*  
**Vrushali Prajapati**

# PROBLEM STATEMENT



## Overview of Current Method

- Manual compilation of competitor analysis data into Google Sheets.
- Data from Google Sheets is synced with an online platform to create visual and database dashboards.

## Challenges with the Current Method

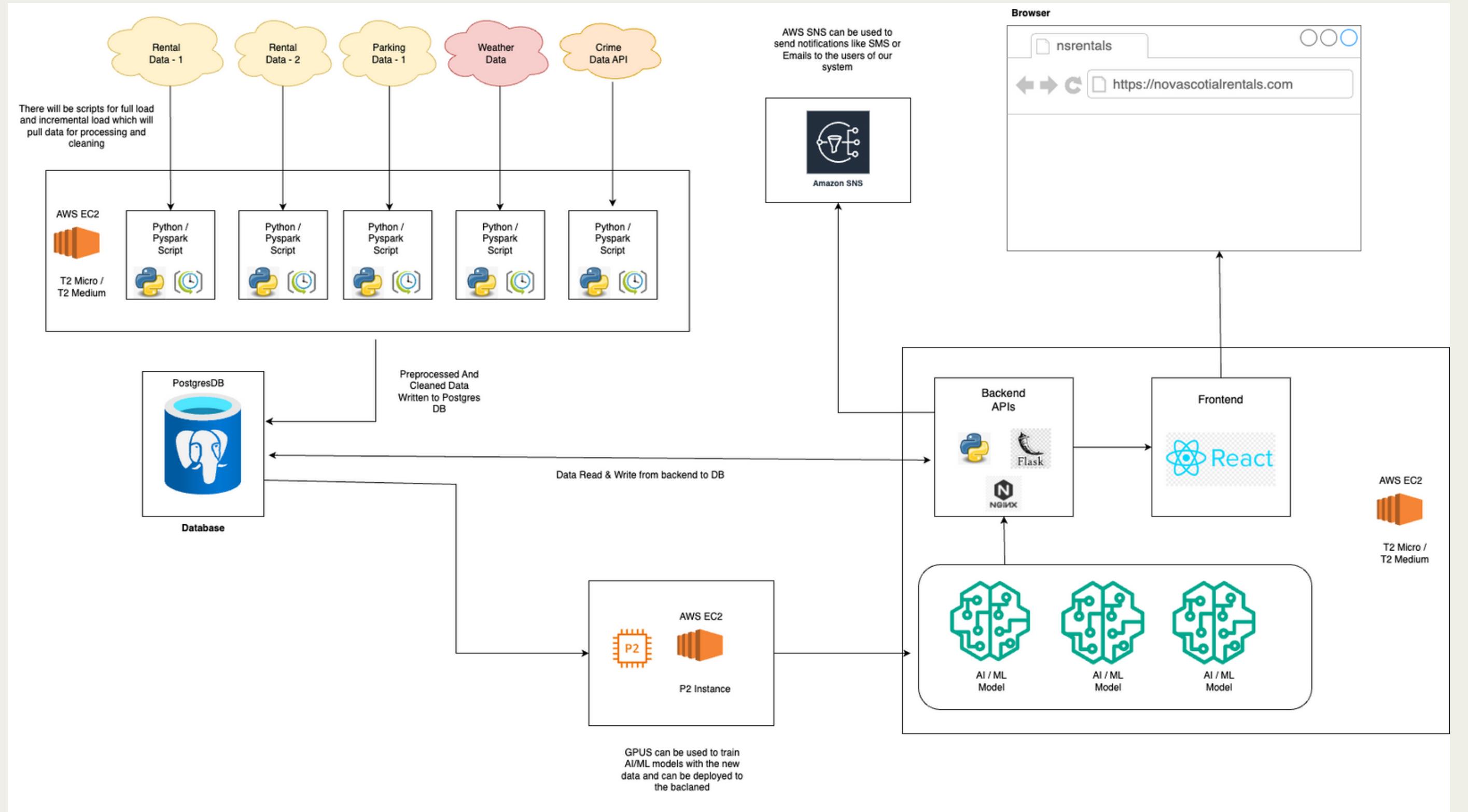
- Labor-intensive process requiring substantial manual input.
- Infrequent updates lead to the use of stale data.
- Time-consuming procedures reduce operational efficiency.
- Stale data negatively impacts pricing strategies and market competitiveness.

## Proposed Enhancements

- Automate the data collection process to eliminate manual spreadsheet creation.
- Implement advanced data scraping and analytics tools to ensure real-time data updates.
- Enhance dashboard system for more dynamic and accurate data visualization.



# ARCHITECTURE



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# OUR UNIQUE SOLUTION

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**Semi-Automated Data  
Collection**

**Rental - Prediction & Property  
Clustering**

**Automated ML Training**

**Deep Insights Dashboard**

**LLM-Generated Insights**

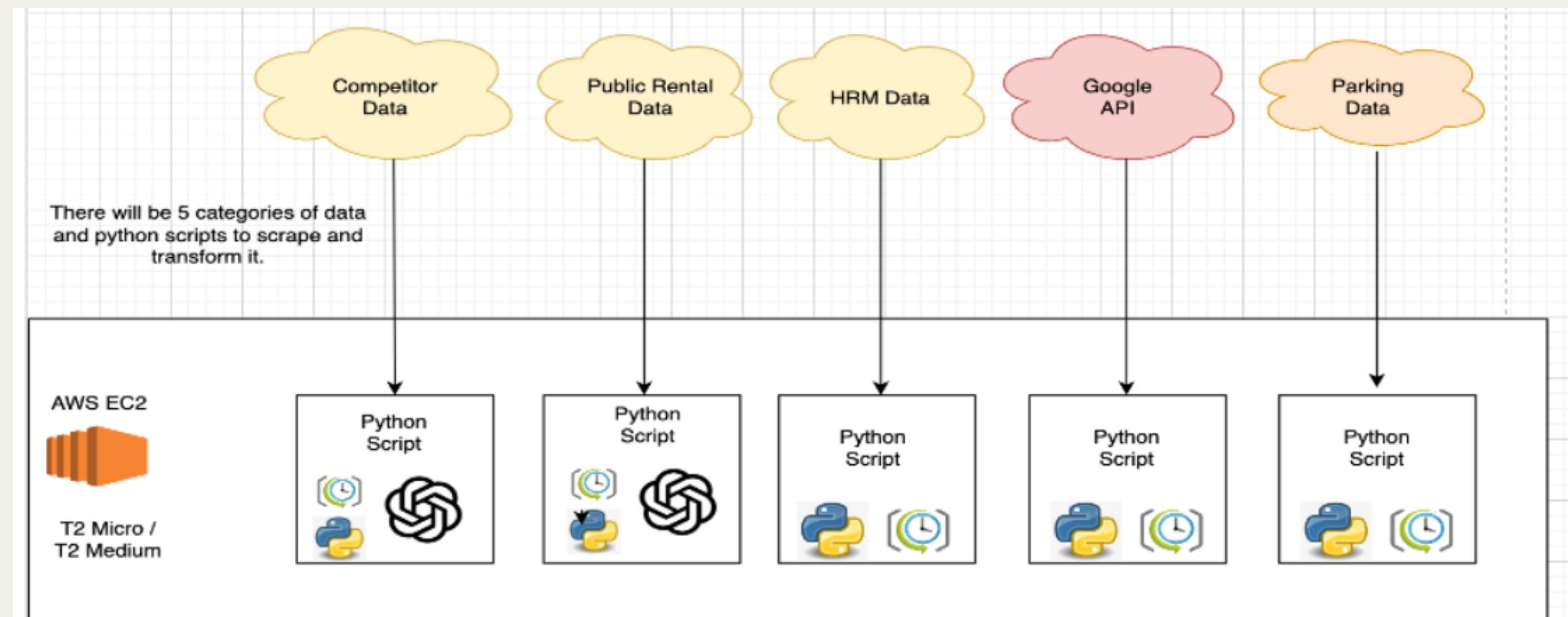
**Alert Systems**



# AUTOMATED DATA COLLECTION

Our semi-automated data collection module streamlines the extraction of real estate listings and competitor information, despite variations in website structures. We incorporate human oversight to ensure the accuracy and quality of the data collected. Verified data is immediately integrated into our database, supporting our dashboard and listings with the most current market analysis. Additionally, we employ Large Language Models from OpenAI, using a 'Chain of Thoughts' technique to adapt our scraping capabilities to diverse web architectures, enhancing the precision of our data extraction.

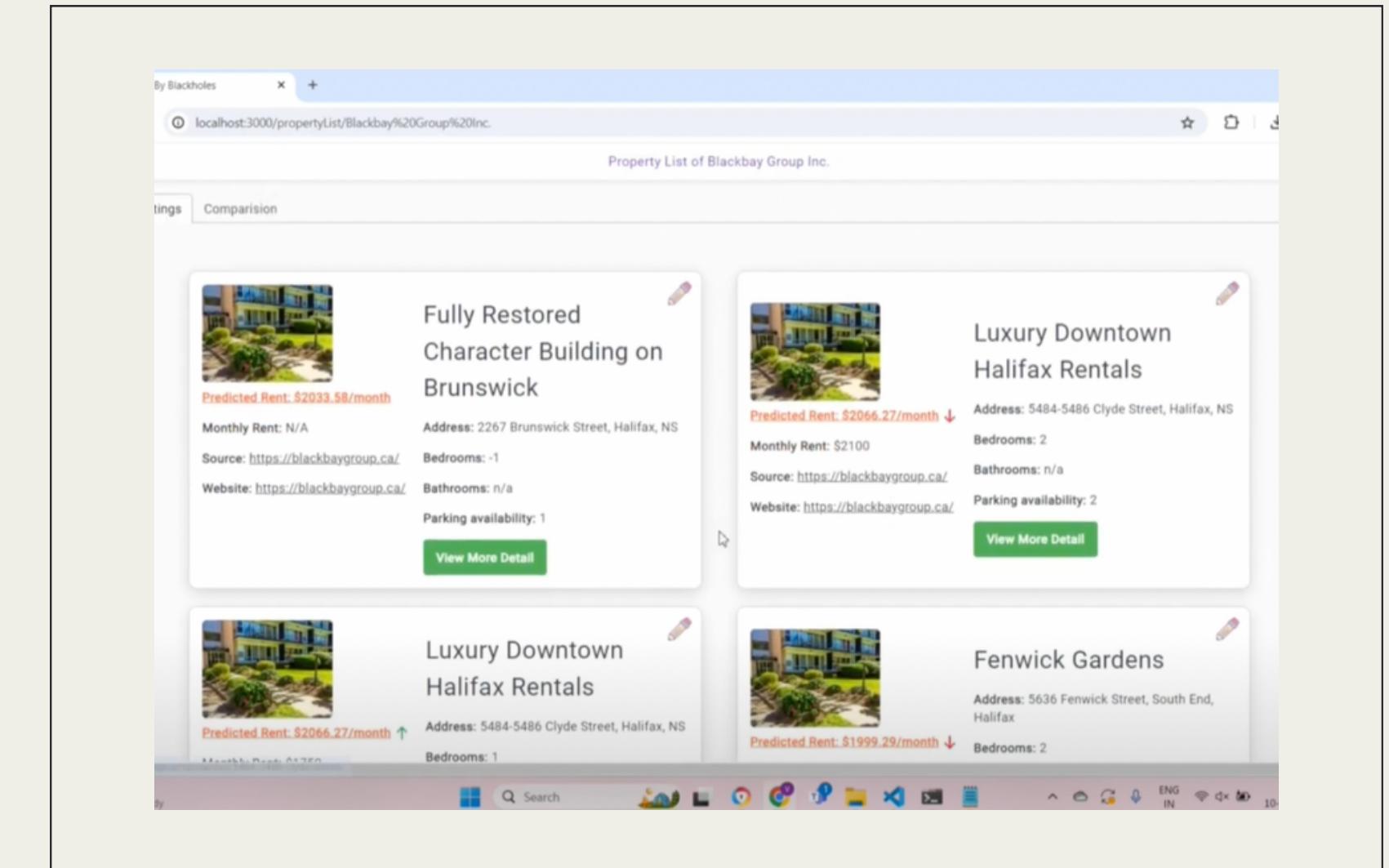
## Data Extraction / RealTimeAnalytics / OpenAIIntegration



# RENTAL - PREDICTION & PROPERTY CLUSTERING

To master the complexities of rental pricing, our advanced machine learning models utilize a vast dataset from public and competitor sources to forecast rental rates accurately. These predictions help analysts determine if listed rents align with or deviate from market trends, providing a vital competitive advantage. Furthermore, our property clustering module categorizes similar properties into groups, giving analysts a clear overview of the competitive landscape and facilitating more informed decision-making regarding rental pricing strategies.

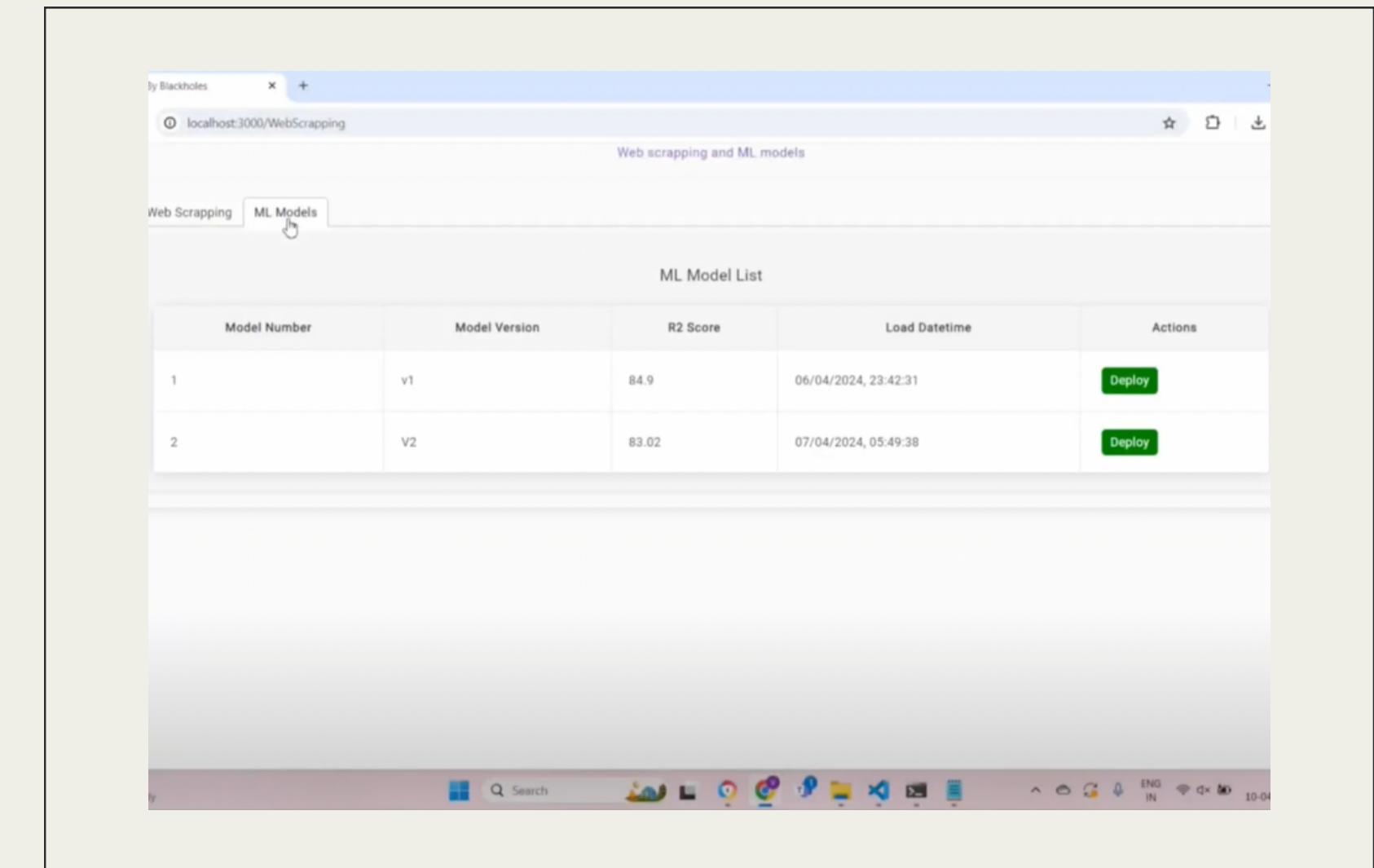
**RentalForecasting / PropertyClustering / CompetitiveEdge**



# AUTOMATED ML TRAINING

NS-Rentals includes an automated retraining pipeline that continuously updates our machine learning models with new data to maintain sharp and current insights. This robust system enhances model accuracy and permits real-time deployment of the most effective models. Once reviewed and scored, these models are immediately implemented through our user interface, ensuring that our tools are always equipped with the latest technological advancements to drive decision-making.

**MachineLearning / RealTimeInsights /  
AutomatedRetraining**

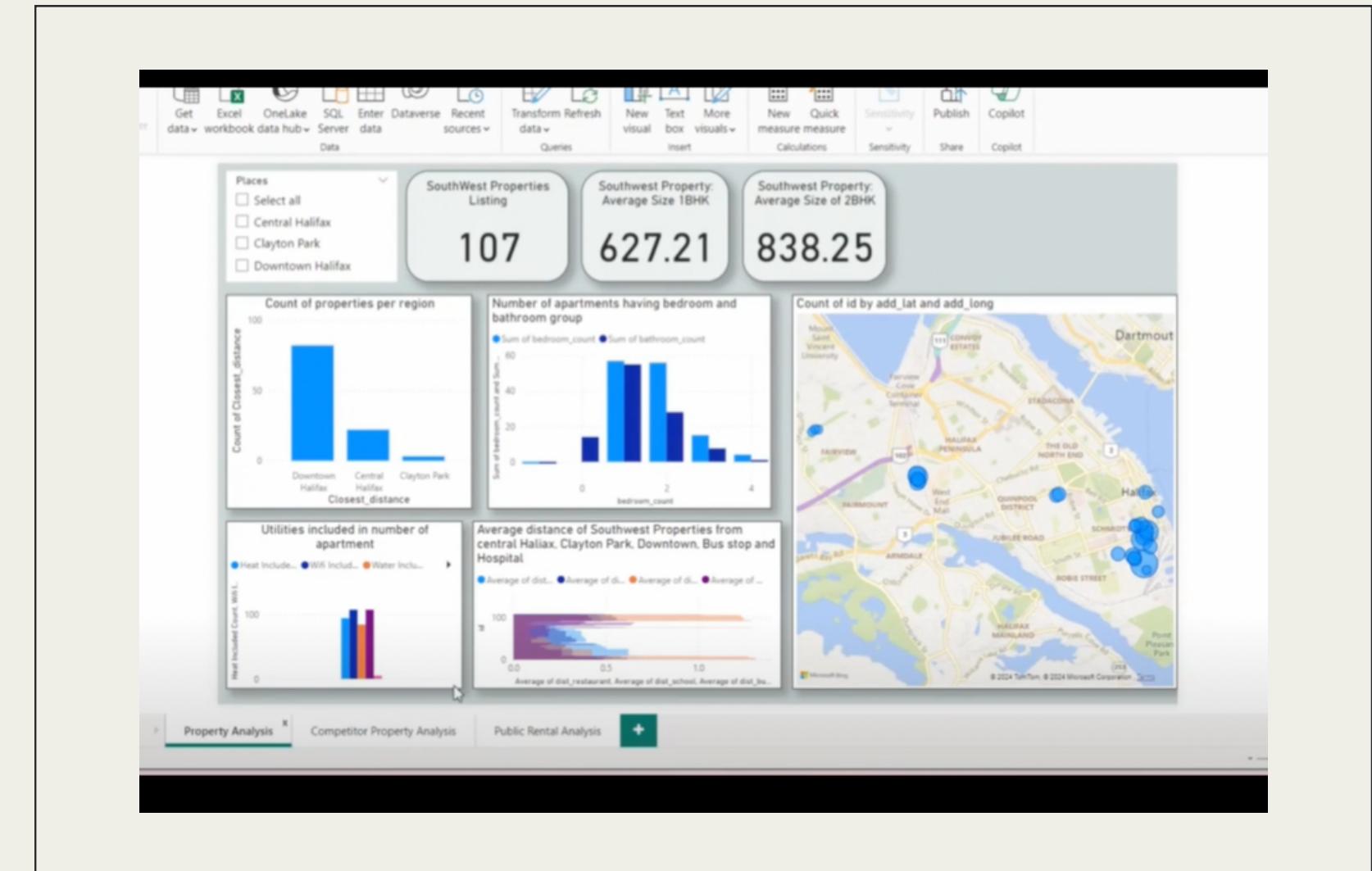


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# DEEP INSIGHTS DASHBOARD

Our dashboard transcends traditional data presentations by delivering deep insights into the Halifax rental market through advanced analytics. Enhanced by Google API, it offers practical features such as locating nearest parking options with availability and rates, and calculating distances from properties to key areas including Downtown and Southend Halifax, Central Halifax, Clayton Park, Rockingham, and Larry Uteck area, along with essential amenities like bus stops, restaurants, and hospitals. The dashboard includes a map-based system for visualizing properties and parking, facilitating detailed comparisons and tailored recommendations. Integrated with real-time data from our automated scraping tools, our dashboard provides a dynamic and current view of market conditions, making it an indispensable resource.



**AdvancedAnalytics / DynamicDashboard /  
RealTimeData**

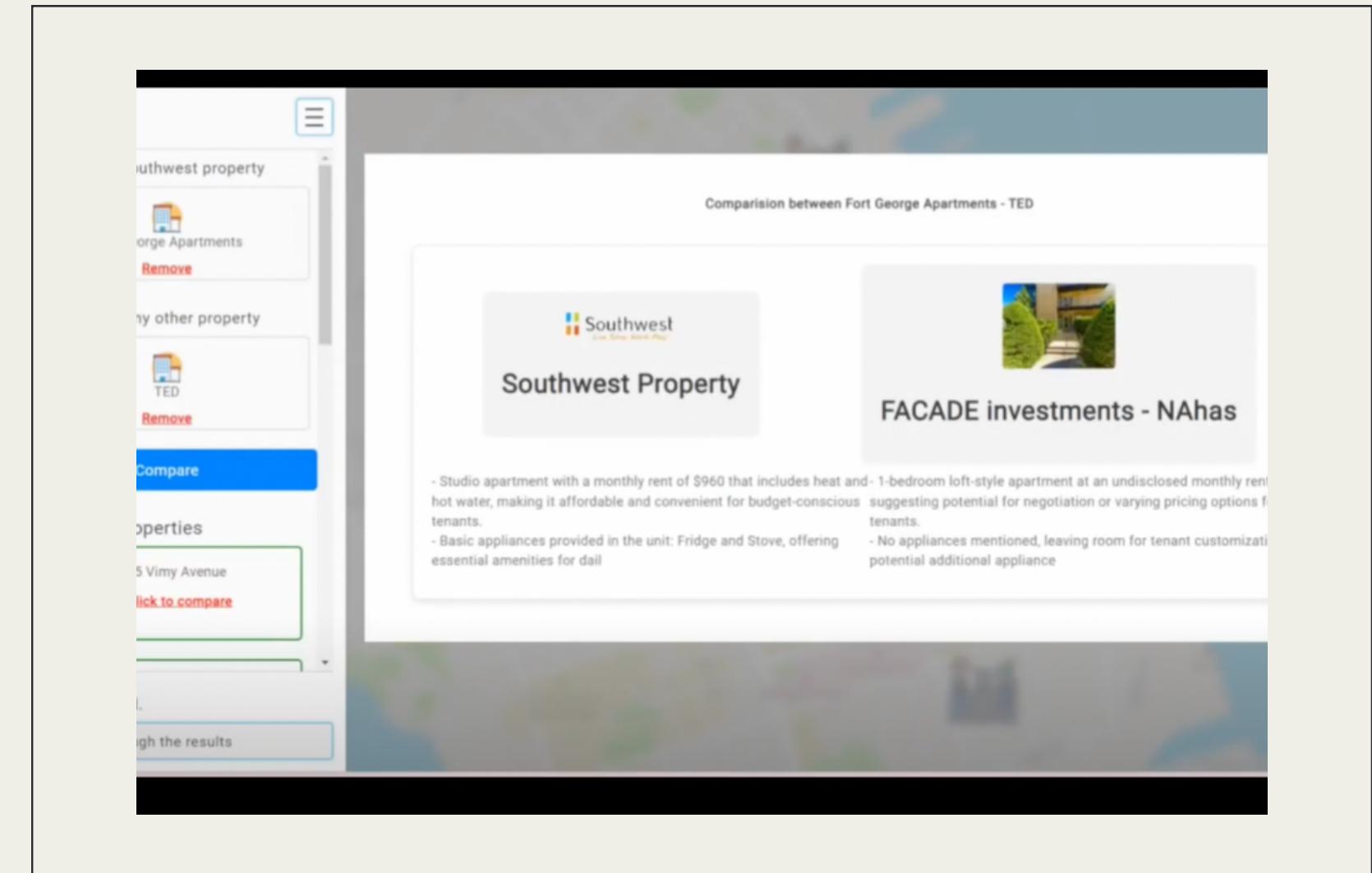
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# LLM - GENERATED INSIGHTS

NS-Rentals enhances its analytical capabilities by incorporating AI-driven comparisons using Large Language Models from OpenAI. This feature enables the analysis of two listings or property management firms by detailing their strengths and weaknesses, which aids in strategic planning. Our use of sophisticated prompt engineering techniques ensures that these comparisons are not only comprehensive but also tailored to be user-oriented, providing clear and actionable insights that help in making informed decisions.

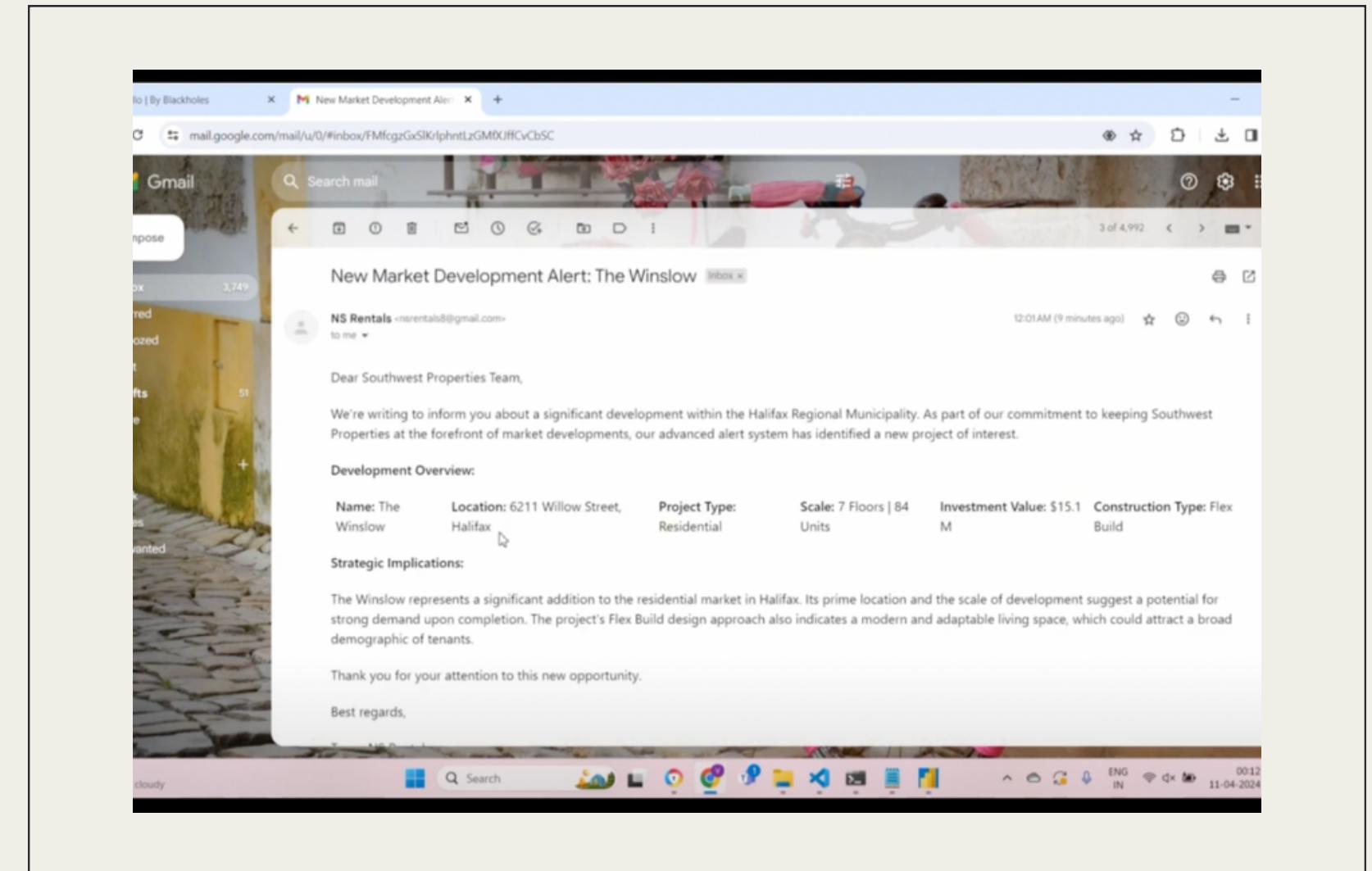
**AIDrivenAnalytics / StrategicPlanning / ComprehensiveInsights**



# ALERT SYSTEMS

NS-Rentals equips Southwest Properties with an advanced alert system to stay ahead in the competitive Halifax rental market. Our system meticulously monitors developments within the Halifax Regional Municipality by scraping HRM Blog channels. This ensures that all new market advancements are quickly communicated to our analysts through email alerts. This proactive approach allows Southwest Properties to swiftly respond to new opportunities and regulatory changes, thereby maintaining their competitive edge in a dynamic market environment.

**MarketAlerts / ProactiveUpdates / CompetitiveEdge**



# Thank you!

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