Real Estate Profitability Guide

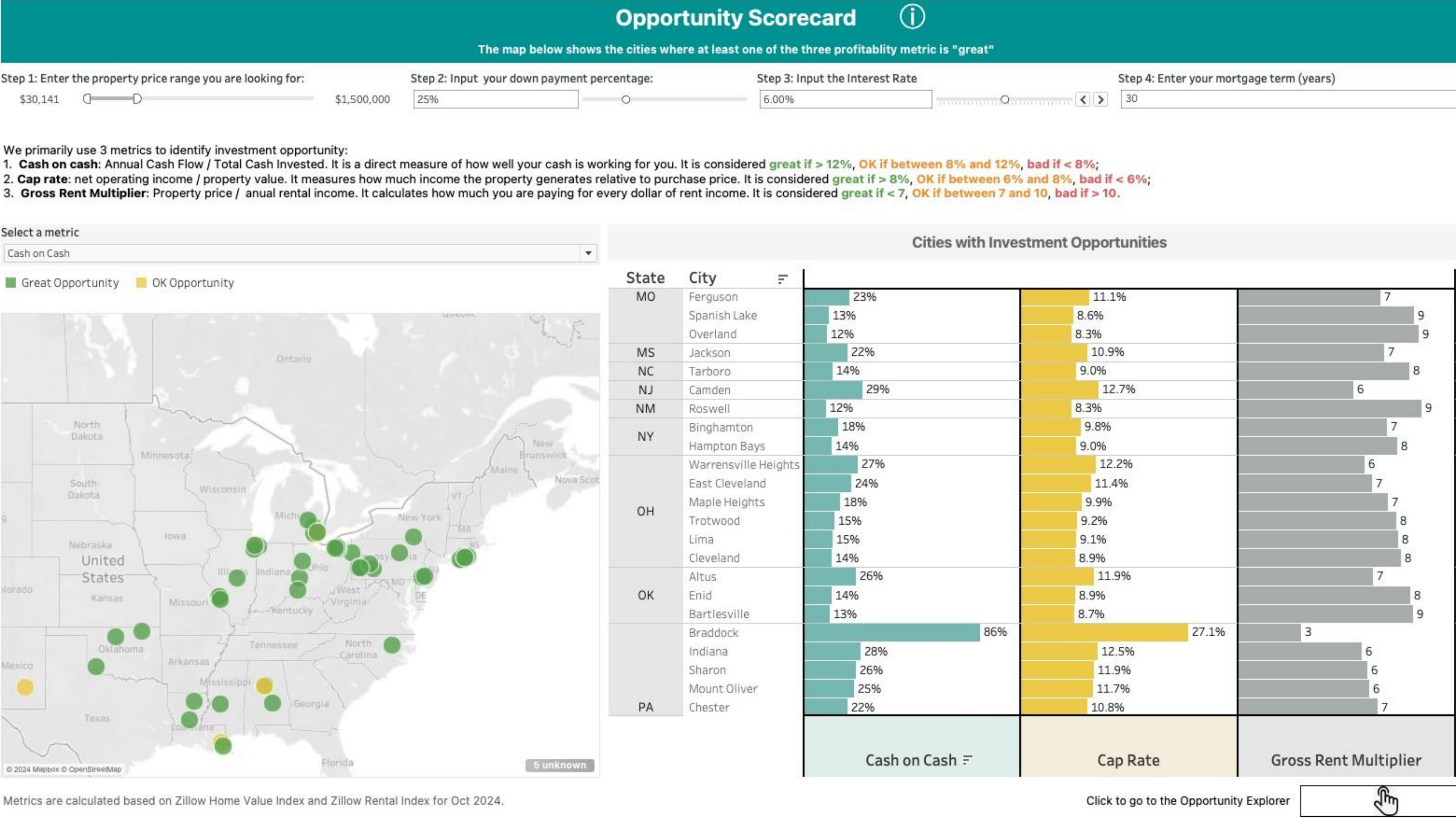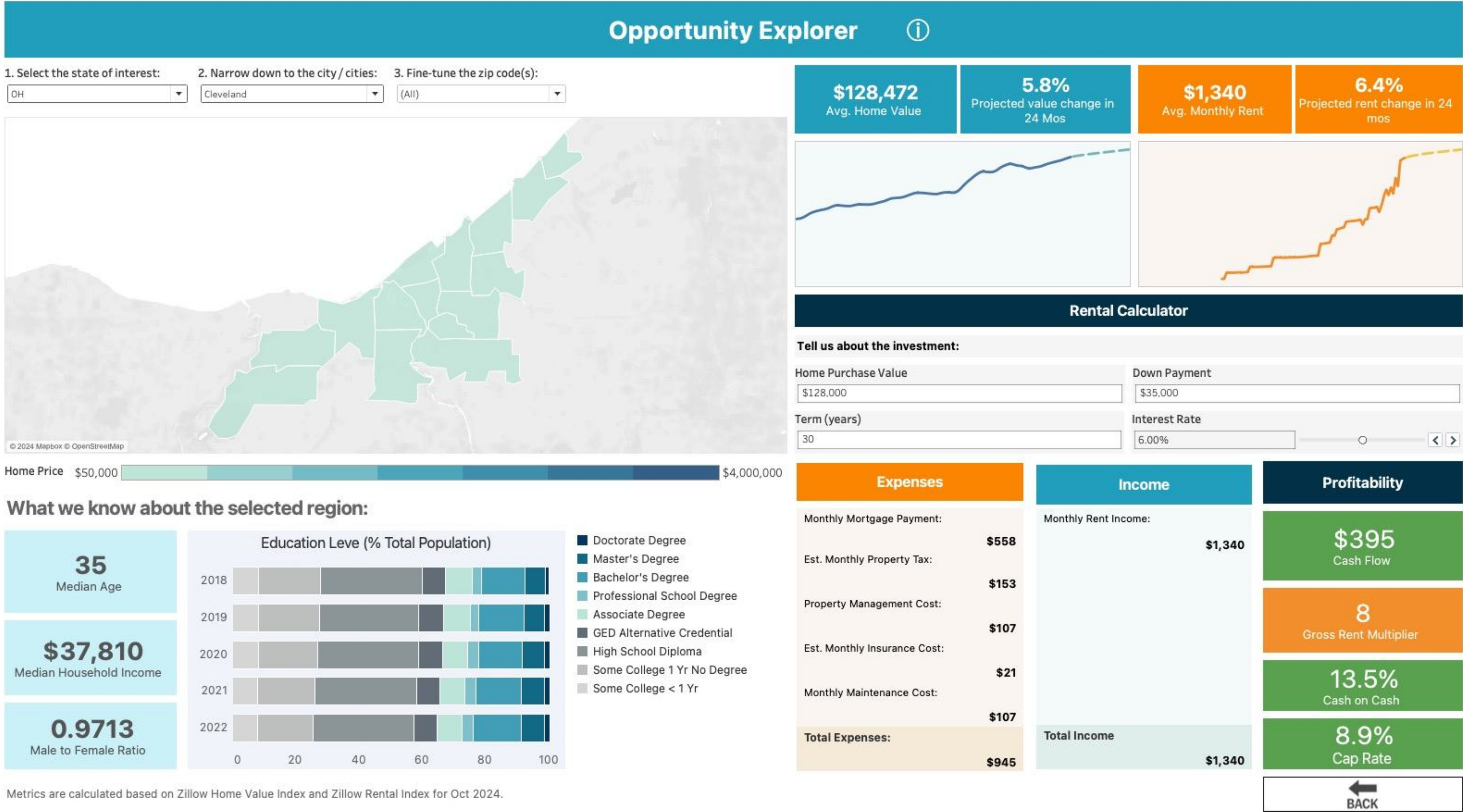**Tian Park, Ria Saini, Cole Gvozdas, Heidi Tandiono**

Summary

Real estate investors and landlords struggle to identify profitable investment opportunities in the competitive U.S. housing market due to the complexity of analyzing diverse data points, such as property prices, rental trends, and demographic factors. Making informed investment decisions is critical to maximizing returns and minimizing risks. **We've created a tool that simplifies this process making real estate investments accessible to both seasoned professionals and beginners.**

Opportunity Scorecard: A customizable tool that allows users to input their price range and down payment percentage to view key profitability metrics. The interactive map highlights selected locations, providing a visual representation of investment opportunities in the surrounding region.

Opportunity Scorecard: An interactive dashboard where users can select state, city, and zip code to access detailed insights, including demographic data, expense breakdowns, profitability metrics, and projected changes in rental and home values. Users can further customize their analysis by inputting investment details such as home purchase value, down payment, loan term, and interest rate for tailored projections.

Data Collection and Overview

We integrated diverse datasets structured at the zip code level, spanning from 2015 to 2024 to build a comprehensive real estate investment platform. Key sources include:

- **Zillow**: Monthly observed home and rental price indices at the zip code level (2015–2024).
- **U.S. Census Bureau (ACS)**: Demographic and socioeconomic data, including median income, education, and male-to-female ratios.
- **World Population Review & Money Geek**: State-level property tax rates and average home insurance premiums.
- **Kaggle**: Zip code-to-geographic coordinate mappings.

Transforming Data into Actionable Insights with Interactivity

With a user-friendly interface and **dynamic visualizations**, our tool simplifies complex analyses into intuitive, customizable features. Our solution features two primary components:

1. **Opportunity Scorecard:** View city level trends alongside metrics like cash on cash, cap rate, and gross rent multiplier based on customizable metrics.
2. **Opportunity Explorer:** Input property details to generate key investment metrics, demographic statistics, and profitability projections.

Key Metrics and Profitability Projections

Our tool calculates important profitability metrics—**Cash Flow, GRM, Cap Rate, and Cash-on-Cash Return**—to provide a comprehensive analysis of financial performance. Demographic data from the U.S. Census Bureau and **ARIMA-based (Auto-Regressive Integrated Moving Average)** projections for home and rental values further enhance decision-making by offering insights into market trends and future conditions. This integrated approach helps investors evaluate properties with both current and forward-looking perspectives.

A New Approach to Data Driven Real Estate Decisions

Our tool seamlessly integrates demographic and socioeconomic data alongside financial metrics, offering a holistic view of potential investment areas. Unlike traditional platforms that focus primarily on price trends or short-term rental income, our approach empowers investors to evaluate properties comprehensively, resulting in more informed and strategic decisions.

Our platform offers a **comprehensive nuanced, data-rich decision-making process**. The addition of a user-customizable interactive map, combined with robust profitability projections and ARIMA-based forecasts, makes our tool a unique and more comprehensive solution in the real estate investment space.

Performance Evaluation

We evaluate our tool using both quantitative and qualitative methods. Profitability metrics (Cash Flow, GRM, Cap Rate, and Cash-on-Cash Return) are tested against industry benchmarks, while ARIMA forecasts were validated by comparing predicted home and rental prices with actual market data. Scenario analysis examines the impact of changing input variables, and the map-based visualization was assessed for its alignment with demographic data. **Our tool accurately calculates profitability across various scenarios, providing reliable and actionable insights. Our results confirm its effectiveness as a comprehensive decision-support system.**