PREDICTING RESIDENT HAPPINESS BASED ON CITY METRICS

A Data-Driven Approach to Understanding What Makes City Dwellers Happy

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OBJECTIVES

3 Understand Key Drivers

4 Predict Resident Happiness

5 Enhance Data Collection

7 Develop a model

CAMPAIGN OBJECTIVES

- Objective: Develop a model to predict whether residents are "happy" or "unhappy" based on their ratings of city metrics.
- Approach: Analyze the impact of various factors like housing costs, school quality, and street maintenance on happiness.
- Outcome: Identify key drivers of resident satisfaction and provide actionable recommendations for city planners.

BUSINESS AND DATA UNDERSTANDING

PROBLEM STATEMENT: CITY PLANNERS NEED INSIGHTS INTO WHAT DRIVES RESIDENT HAPPINESS TO IMPROVE CITY LIVING CONDITIONS.

Data Sources: Collected data includes resident ratings on various city metrics such as housing, schools, and public services.

Data Sources:: Data was derived from Kaggle: is a data science competition platform and online community for data scientists and machine learning practitioners under Google LLC

MODELING

Exploration of Models

We tested multiple models to determine the best fit for predicting resident happiness.

Logistic Regression: This model was initially considered due to its simplicity and interpretability. However, it didn’t capture the complexity of the relationships between the city metrics and resident happiness, resulting in lower accuracy.

FINAL MODEL

Decision Tree Classifier

Why Decision Tree? The decision tree classifier was chosen as the final model because it better captured the nonlinear relationships in the data. It visually represents decision paths, showing how different factors lead to predictions of "happy" or "unhappy" residents.

Performance: The decision tree model outperformed logistic regression, providing more accurate predictions, especially when dealing with complex interactions among city metrics

EVALUATION

Model Accuracy: The model achieved a roughly 50% accuracy rate, predicting "happy" residents correctly 9 out of 16 times and "unhappy" residents 5 out of 12 times.

Interpretation: While the accuracy might seem low, it's important to consider that the model is working with a limited dataset. It shows potential, but there's room for improvement with more data.

Key Insights: The model highlighted some significant factors like housing costs and school quality, but further data is needed for more reliable predictions.

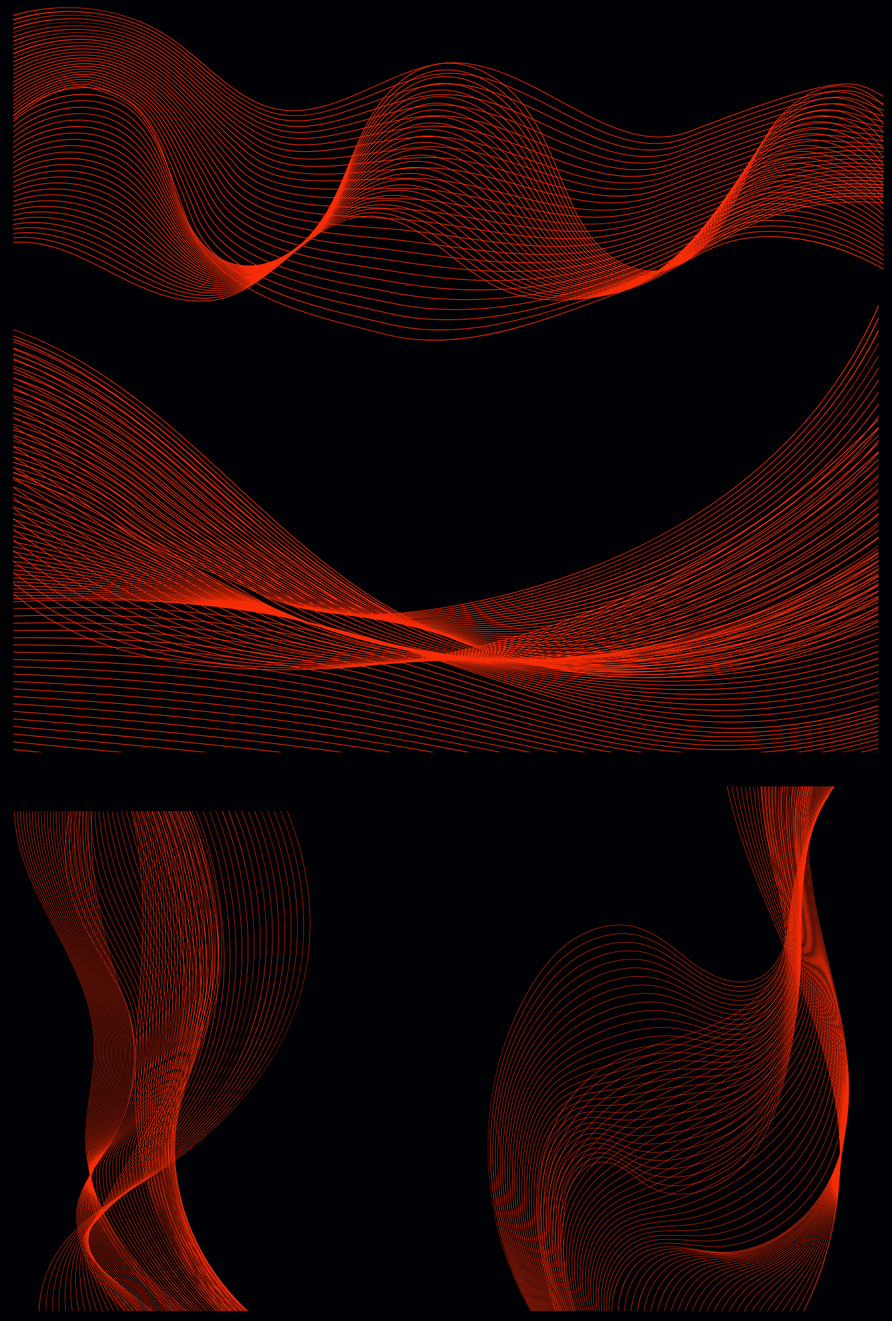
RECOMMENDATIONS

- **Data Collection:** Invest in gathering more comprehensive data to improve model accuracy.
- **Focus Areas:** Prioritize improvements in housing affordability and school quality, as these are likely key drivers of resident happiness.
- **Model Refinement:** Continue refining the model to enhance its predictive power.

- **Stakeholder Engagement:** Share these insights with city planners and policymakers to inform decision-making.

THANK YOU

Thank you for your attention. Looking forward to discussing how we can work together to enhance resident happiness



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