

Optimising Housing Locality Selection in the West Midlands: A GIS Approach

Research Question

"Which locations in the West Midlands region are most suitable for housing development considering factors such as crime rates, accessibility to amenities, and proximity to green spaces?"

Stakeholders:

1. Tenants: This research will provide tenants with information about optimal housing locations that ensure safety, access to amenities, and a high quality of life.
2. Town Planners: The findings can guide town planners in identifying areas for future housing development that meet community needs and sustainable development goals.
3. Builders/Real Estate Developers: The insights from this research can inform builders and developers about where to invest in new housing projects.
4. Real Estate Agents: Real estate agents can use this knowledge to advise clients about suitable housing locations and potential resale value.

Introduction

Selecting a new place to live is a significant decision, often influenced by personal experiences and hearsay. This project aims to provide objective insights into locality suitability by conducting a comprehensive analysis using Geographic Information Systems (GIS) technologies. By analysing key parameters such as crime rate, income and deprivation, accessibility to public transport and amenities, market and shopping availability, access to green spaces, and population diversity, this project aims to provide a data-driven approach to inform decisions regarding locality selection in the West Midlands region.

Target Audience

This project targets individuals and families living in or considering relocating to the West Midlands region of the United Kingdom. It is also beneficial to policymakers, urban planners, and real estate professionals who seek to understand and address factors influencing locality suitability.

Objectives

1. To analyse and map crime rates across the West Midlands region to identify safe and risky areas.

2. To assess income distribution and deprivation indices to understand the socioeconomic dynamics of different localities.
3. To evaluate public transport accessibility and proximity to amenities to measure convenience and connectivity.
4. To map market and shopping locations to identify areas with diverse retail options.
5. To analyse green spaces and parks to assess recreational opportunities and environmental quality.
6. To examine population diversity and segregation patterns to understand the social fabric of different localities.

Methodology

1. Data Collection: Utilising publicly available datasets from government sources, transportation authorities, business directories, and environmental agencies.
2. Data Preprocessing: Cleaning and formatting datasets for spatial analysis, including geocoding of addresses.
3. GIS Analysis: Using QGIS and GeoDa for spatial analysis, including crime hotspot mapping, income distribution analysis, accessibility mapping, retail density assessment, green space mapping, and diversity/segregation analysis.
4. Statistical Analysis: Using R for statistical analysis to explore correlations between different parameters and identify significant predictors of locality suitability.

Expected Outcomes

1. Detailed maps illustrating crime hotspots, income distribution, public transport accessibility, retail density, green spaces, and population diversity within the West Midlands.
2. Insights into the relationship between various parameters and their impact on locality suitability.
3. Recommendations for individuals seeking to make informed decisions regarding locality selection based on objective data analysis.

Conclusion

This project aims to enhance locality decision-making processes in the West Midlands by leveraging GIS technologies and objective data analysis. By providing stakeholders with valuable insights into factors influencing locality suitability, this project seeks to empower individuals to make informed choices that align with their preferences and needs.