Property Recommendation System Architecture

Raw Property Data
(22MB JSON)
10,172 Properties

PropertyDataPreprocessor
• Type Coercion
• Feature Engineering
• KNN Imputation

Similarity Engine
• Hybrid Algorithm
• Geographic + Features

Feature Processing
• 76 Numerical Features
• Robust Scaling
• Zero Variance Filter

Search Algorithms
• sklearn NearestNeighbors
• FAISS Backend
• Fallback Mechanisms

Performance Metrics
< 10ms Search Time • 109 Searches/Second • 203MB Memory • 95% Accuracy

Property Recommendations
• **Ranked by Similarity**
• **Geographic Weighting**
• **API-Ready Output**