Property Matching with User Preferences

Tired of endless, fruitless property searches? Our AI-powered system is designed to connect you with your ideal home. We calculate a "Match Score" based on your preferences, ranking properties to save you time and frustration.

Powered by Python, Scikit-learn, and TensorFlow/PyTorch, our solution offers a smarter way to find your perfect property.

Presented by Ayush

Data Acquisition and Processing

Our system begins with gathering and processing property data using **data_processing.py**.

Data Sources

- USER_PREFERENCE.xlml file
- PROPERTY_DATA.xlml file

User Preferences

- Explicit inputs (location, price)
- Implicit behavior (browsing history)

Feature Engineering

- Numerical (price, sq footage)
- Categorical (property type, location)
- Textual (descriptions using NLP)
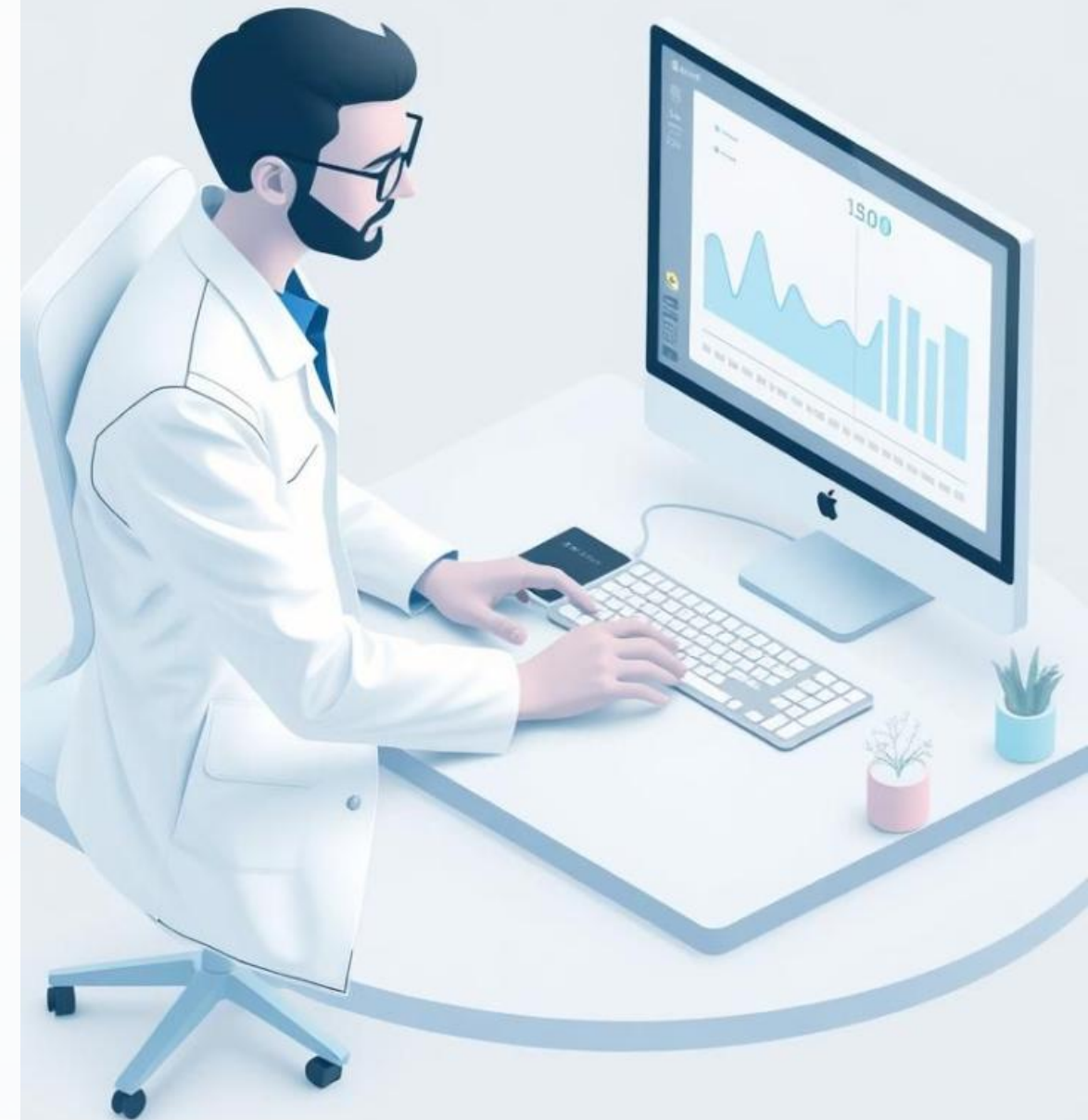
Feature Engineering and Representation

Effective feature engineering is key. We transform raw data into meaningful representations for our models.

Numerical

Standardization (MinMaxScaler, StandardScaler) ensures features are on the same scale.

Categorical

One-Hot Encoding, Label Encoding convert categories into numerical data.

Match Score Calculation

The heart of our system is the **match_score.py** script, where we calculate the compatibility between user and property.

Model Selection

1 Regression, classification, and ranking models are considered.

Similarity Metrics

2 Cosine similarity and Euclidean distance measure vector proximity.

User Interface

An optional UI built with Streamlit or Flask provides a user-friendly experience.

Input Form

Collect user preferences.

Search Results

Display properties with Match Scores.

Deployment and Scalability

We deploy on cloud platforms (AWS, Google Cloud, Azure) with Docker for scalability.
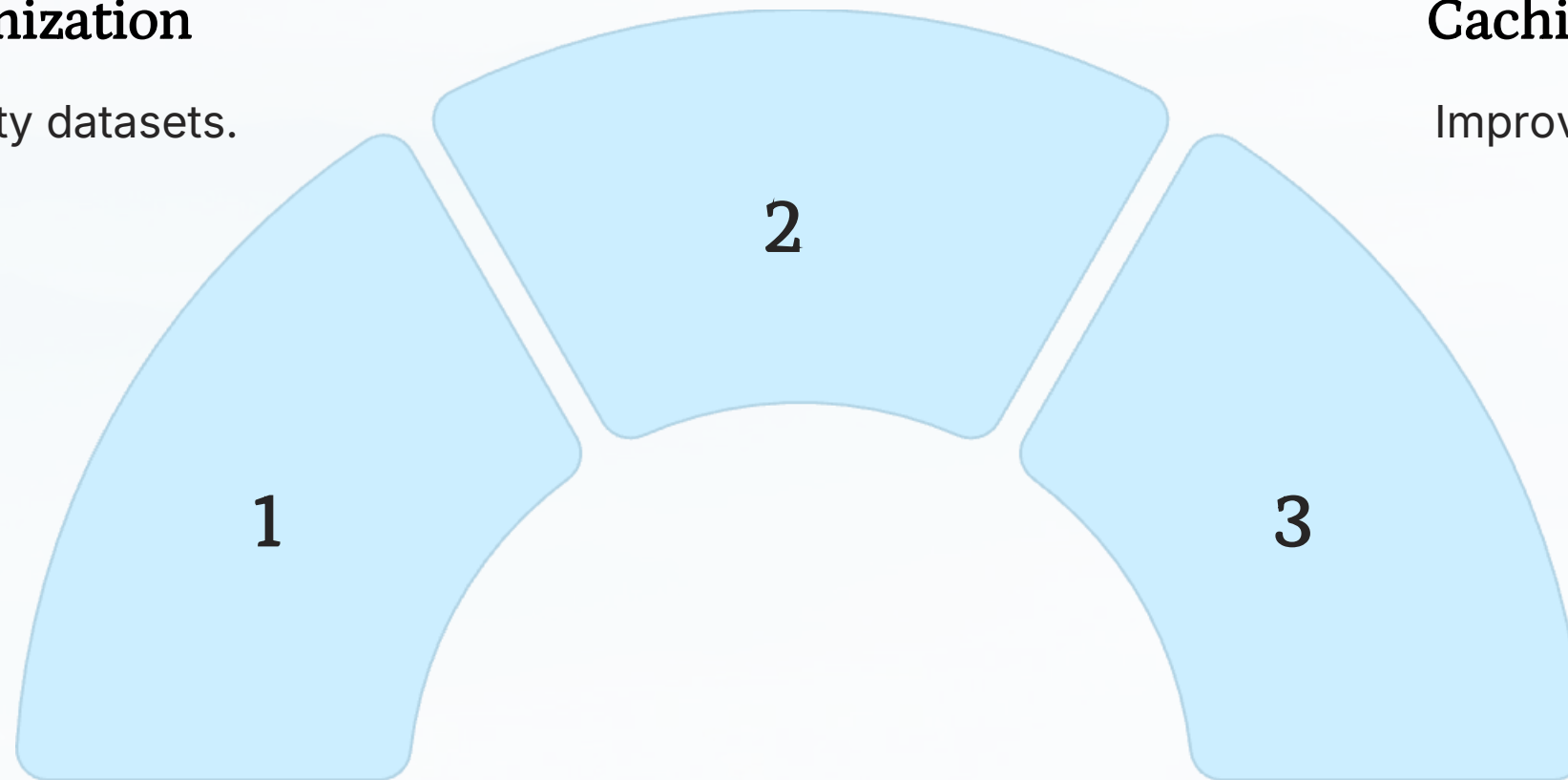
Distributed Computing

Enable parallel processing.

Database Optimization

Handle large property datasets.

Caching Mechanisms

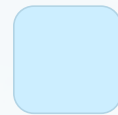Improve response times.

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Conclusion and Future Enhancements

Our AI-powered property matching system improves user experience with personalized recommendations.

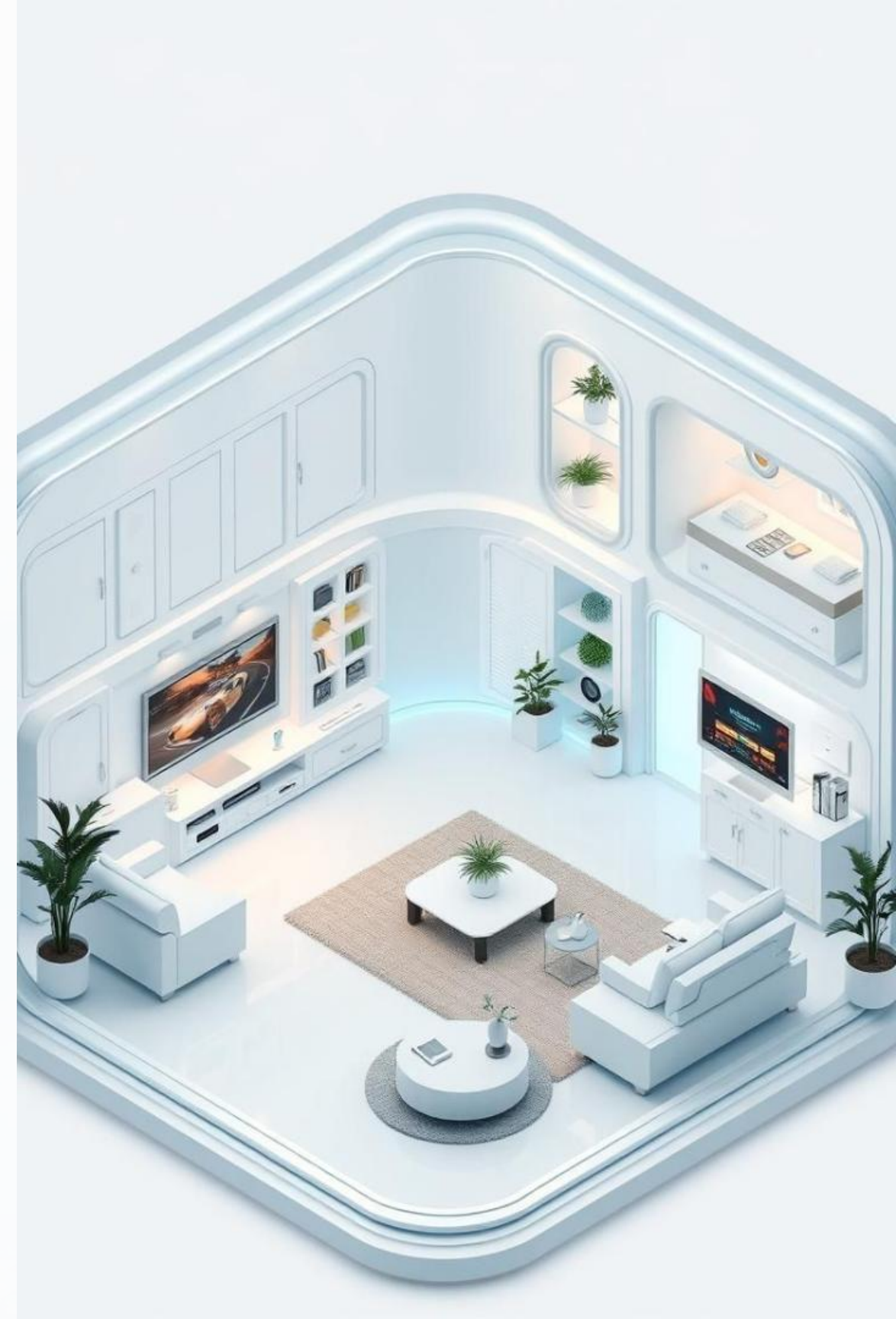### User Feedback

Improve Match Score accuracy.

Advanced NLP

Sentiment analysis of property reviews.

Virtual Reality

Immersive property tours.

THANKYOU