THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

HouseMatch: Swipe Right on Your Dream Home

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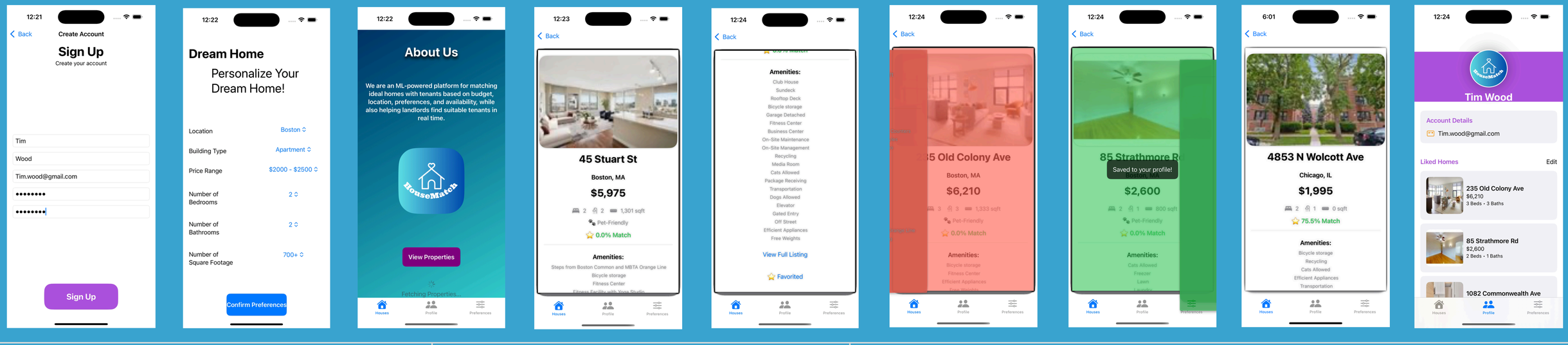
AVERAGE USER STORY



PROJECT OVERVIEW

Finding a rental property today is time-consuming and impersonal. HouseMatch solves this by using machine learning to recommend homes based on a user's preferences—like location, price, and layout. Our app learns from how users interact with listings and offers personalized results in a swipe-based, mobile interface. It's like Tinder for house hunting, but with intelligence behind every match.

KEY FEATURES

- Personalized property recommendations using collaborative and content-based filtering.
- Interactive swiping interface for liking/disliking properties.
- SwiftUI-based iOS application.
- Real-time property data from Realtor.com API.
- Preference-based and behavioral learning.

MACHINE LEARNING APPROACH

- **Hybrid Recommendation Model:** Combines deep learning, collaborative filtering, and preference matching to rank homes for each user.
- **User Behavior Training:** A neural network is trained on user interactions (likes, views, time spent) to predict future preferences.
- **Collaborative Filtering:** Finds similar users using cosine similarity and shares their favorite listings as recommendations.
- **Preference-Based Matching:** Compares users based on static criteria like price, location, and layout to enhance discovery.
- **Weighted Scoring + Evaluation:** Merges all three strategies with tunable weights; accuracy measured using precision, recall, and F1 score.

SYSTEM ARCHITECTURE