RenovationTracker

Team members: Courtney Van, Jaidon Lightfoot, Jonathan Netala, Sterling Glasheen | **Faculty adviser:** Preetam Ghosh | **Sponsor:** CoStar Group | **Mentor:** Syed Khajamoinuddin

Problem Statement

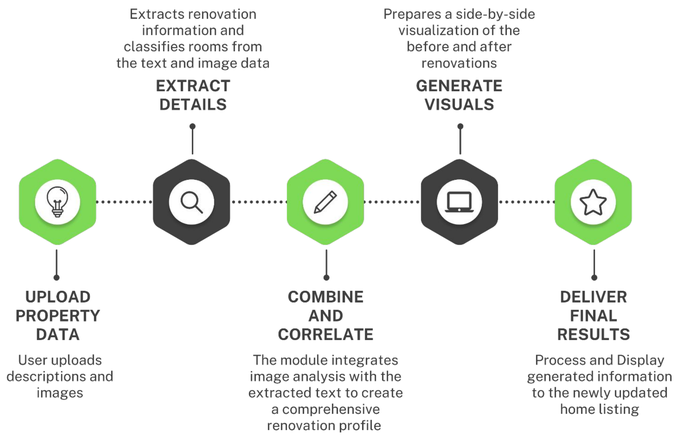
- CoStar Group plays a key role in a very competitive real estate market. Being able to accurately showcase renovations to buyers and sellers is crucial.
- Traditional methods are often static, unengaging, and sometimes inaccurate, leading to a lack of clarity and preventing users from fully appreciating the value of renovations.
- Buyers and sellers need a more dynamic approach that combines visual and descriptive information to better convey the scope and quality of property updates.
- Current methods often rely on text descriptions alone, lacking the visual evidence needed for users to fully understand renovation details and changes.
- Interactive tools, such as side-by-side comparisons and visual overlays, could enhance user engagement and provide a clearer, more immersive experience.

Social Value

- RenovationTracker aims to enhance the efficiency of real estate transactions and contribute to more informed and engaged buyers and sellers.
- By providing clear and visually appealing representations of property renovations, the system fosters better decision-making and enhances transparency in the real estate market.
- Improved visualization of renovations can elevate the overall property presentation, potentially leading to increased property values.
- RenovationTracker seeks to empower users with the insights they need to navigate property transactions confidently and effectively.

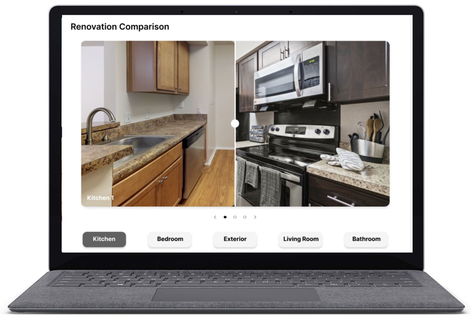
Solution Overview

- In building the RenovationTracker system, we employed a combination of advanced technologies to develop a platform that effectively visualizes property renovations.
- We used PyTorch to create an image classification model that identifies room types from images, enabling automated room detection and classification.
- To gather the necessary data, we built a web scraper to extract listing information, as well as current and historical images, from CoStar URLs.
- OpenAI's natural language processing capabilities were employed to analyze renovation descriptions, generating prompts that detail recent property updates.
- The front end was developed using React, allowing users to seamlessly view before-and-after renovation images.
- AWS provides the infrastructure to support data storage, processing, and delivery, ensuring a reliable and scalable solution.
- These components work to deliver a dynamic and informative user experience for showcasing property renovations.



Features

- RenovationTracker offers a variety of innovative features designed to enhance the user experience.
  - A natural language processing engine that extracts renovation details from property listings.
  - Link detected renovations to corresponding images of the property to provide contextual information.
  - A computer vision model to classify room types from property images.
  - An interactive side-by-side comparison tool for users to view previous and current images of specific rooms, including bedrooms, bathrooms, kitchens, living rooms, and exteriors.
  - Transition between images using sliders and overlays, highlighting specific renovations.



aws React OpenAI PyTorch node.js python™ CoStar Group™

VCU College of Engineering