Property IQ
CSE 772 CAPSTONE PROJECT SP-2009

Project Description and Tasks

The aim of the project is to develop a Real Estate Advisory web portal that would connect relevant parties and advises them on how to market and resell distressed and foreclosed real estate using real estate trends and sale of properties in the Franklin County area. PropertyIQ is a Web 2.0 Mashup that renders this advisory service and connects the user base using web social networking concepts. The entire system is divided into four components: Property Data, GIS, Collaboration, and Trends.

The modules and their descriptions are:
- **Property Data Module**: This module serves the project by providing all the relevant property data. It provides details of all properties in the Franklin county. It mines the data from the Franklin County auditor’s website.
- **GIS/Media/Mapping Module**: As the name suggests, this module provides visual data related to each property. The various forms of visual data presented are maps, images and closest amenities with regard to the property. Users can also search for specific locations from the subject property using this feature.
- **User Collaboration & Social Networking Module**: This module brings together various interested parties for each property. It allows authorized users to post appraisals (and other media files) of properties, and displays comments and feedback about the properties received from other users.
- **Trends Module**: This module is the heart of the portal. It observes past trends for a property, and projects future estimates for it. It also quotes estimated selling price for the subject property over a period of time. Users can use this information to decide the best time to sell the property.

Software Analysis and Design

The system like any engineering problem is subdivided into smaller sub-components. There are four sub-components which forms the primary foundation of our software design. These sub-components interact with a common database, which in turn interacts with the User Interface via a logical system where all these four components are running at the backend. Thus, PropertyIQ is the result of the cooperation between these four components.

The design and functions of the four components are as follows:
- **Property Data Component**: This component takes a street name and number as search criteria, mines different data sources, and brings back an aggregated property screen with essential property details. It captures comparable foreclosure and regular selling averages in the area. It also lists various property attributes and characteristics like the area trend, school district, and various provisions included in the property.
- **GIS/Media/Mapping Component**: Given a property (address, Parcel ID, Map Routing Number), this component mines different sources for GIS and satellite maps (satellite view, street view) and other media files (pictures, sketch etc). It also suggests hot spots that can be searched for proximity to the subject property.
- **User Collaboration and Social Networking Component**: This component creates a Discussion Forum for different types of registered users. It categorizes discussions into sub-tabs like Claimed and For Sale properties, Forum, Discussion Tab, Appraisals and Media Tab. Guest users can view posts, but may not post them.
- **Trends Component**: Uses quantitative data scraped from various 3rd party real estate websites. It uses this information for capturing the not only the past trends of the subject property, but also projects future distress and regular selling trends, to better facilitate the buying and selling of the property. The distress selling trends are based on similar trends observed in the area in the near past. This component also quotes estimates from various 3rd party sites include Zillow.com and CyberHomes.com.

Database Design

The database design is structured to store and retrieve data efficiently. The database is designed to support the four components of the system: Property Data, GIS Maps, Collaboration Data, and Trends Data. The database uses Microsoft SQL Server 2008 to store and manage the data. Stored procedures are used to perform all table operations.

User Interface

The user interface is designed using HTML, CSS, and JavaScript. It is compatible with IE 7 and IE 8, Firefox 3, and Safari rendering engines. The user interface consists of a header, navigation menu, content area, and footer. The content area is divided into various sections for Property Data, GIS Maps, Collaboration Data, and Trends Data.

Future Goals

- Automate data updating from the Franklin County database and other databases.
- Expand beyond Franklin County.
- Add features to access additional data for a given property which could be used as a factor in estimating projections. For example, number of garages.
- Additional media, like additional pictures and videos of the property, virtual tours, and more extensive neighborhood data.
- Auction and listing processes, rating system for sellers and buyers, user input on property values.
- Improve formula and statistical model used for projecting trends by ensuring it closely follows real estate trends.

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