Progress Report

IE-322

King Abdulaziz University

Real Estate Prices in Google Maps

Team members & ID

Hamad Adil Alharthi - 2136345
Mohammed Asaad Zahid - 2250957
Abdulrahman Sindi - 2338464
Salman Ali Al Homoudi - 1945850
Khaled Ibraheem Alsaleh - 2236020

DR. Atif Shahzad

Section: HA

Project Overview

The "Real Estate Prices in Google Maps – Jeddah Visualization Tool" is a software project developed as part of the ***IE322*** – Software Engineering course at King Abdulaziz University under the supervision of ***Dr. Atif Shahzad***. The purpose of the application is to provide an intuitive, visual, and interactive tool for exploring and analyzing real estate prices across different districts in Jeddah, Saudi Arabia.

The application uses a combination of C# Windows Forms and the Google Maps API to present a geographic visualization of property prices. By embedding an HTML/JavaScript-based Google Map inside a desktop interface, the tool color-codes different districts based on their average real estate values. This method enables users to quickly identify expensive, mid-range, and affordable areas briefly.

Objectives

- To develop a desktop-based mapping tool that integrates real estate data with geographic visualization.

- To enable users to interpret and compare property prices across Jeddah using a color-coded system.

- To gain practical experience in integrating APIs (such as Google Maps) within a Windows desktop application.

- To demonstrate the value of software tools in supporting decision-making in the real estate sector.

3. Tools and Technologies Used

- Programming Language: C# (.NET Framework)

- Interface Design: Windows Forms

- Mapping Integration: Google Maps JavaScript API

- Frontend Markup/Scripting: HTML, JavaScript

- Development Environment: Visual Studio

Methodology

The development approach followed the basic principles of the Software Development Life Cycle (SDLC), focusing on analysis, design, implementation, and testing:

- System Design: Designed a Windows Forms application with a built-in WebBrowser control.

- Map Embedding: Developed an embedded HTML page that loads a Google Map centered on Jeddah.

- Visualization Logic: Added JavaScript scripts that overlay colored circular markers on districts based on predefined real estate price data.

- Interaction Features: Included interactive tooltips displaying district names and average property values.

The markers were categorized using a simple visual scheme:

- *Green: Affordable properties*

- *Orange: Mid-range properties*

- *Red: Expensive properties*

Sample Data

For demonstration purposes, the application currently uses static sample data for selected districts in Jeddah:

- *Al-Rehab: SAR 500,000 (Green)*

- *Al-Rawdah: SAR 1,200,000 (Red)*

- *Al-Safa: SAR 800,000 (Orange)*

- *Al-Naeem: SAR 1,500,000 (Red)*

This dataset helps in demonstrating how users would interact with the real map once real-time or database-driven data is implemented.

Progress Summary

Significant progress has been made in the initial phases of the project:

- A fully functioning prototype of the application has been created.

- The Google Maps interface is successfully embedded and responsive.

- The color-coded mapping of sample districts is implemented.

- The interface provides smooth user experience with immediate visual feedback.

Challenges and Limitations

While the current implementation meets the basic functional requirements, several challenges and limitations have been identified:

- Static Data: The current version only displays predefined sample data. Real-time data integration (via an API or database) is a crucial future step.

- Scalability: Adding numerous districts may affect performance, which needs optimization.

- User Customization: No filtering or search options have been implemented yet.

- Map Control Limitations: Using legacy WebBrowser control in Windows Forms may introduce rendering issues compared to modern browsers.

Next Steps

To further enhance the functionality and usability of the tool, the following features are planned for implementation:

- Connect the application to a dynamic data source (e.g., JSON, XML, or database).

- Add user controls for filtering districts by price range or other criteria.

- Implement data entry capabilities for real estate agencies or property owners.

- Perform usability testing and collect feedback for interface improvements.

- Refactor the code for better modularity and maintainability.

Conclusion

This project has successfully demonstrated the integration of mapping technologies within a desktop application to visualize real estate pricing. It provides a practical example of how software can be used to support market analysis, especially in fields such as real estate. With continued development, this tool could be valuable for home buyers, real estate agents, and urban planners interested in property trends in Jeddah.

The work completed so far reflects strong progress toward achieving the stated objectives. The next phase will focus on enhancing functionality, interactivity, and real-world data application.