

## **Abstract**

The Landover Hills Business Directory Project aimed to modernize and update the town's outdated Excel-based business directory to support local marketing efforts. The goal was to create an interactive and user-friendly directory that includes business names, addresses, operating hours, and other key details. Initially, the project focused on updating the Excel sheet and adding businesses from a newly developed shopping center. As the project progressed, additional features were added, such as an interactive Power BI dashboard and a printable directory booklet, both of which help make the data more accessible to both town officials and residents.

The project was carried out in collaboration with the Landover Hills town administration. Hoang Nguyen served as the Data Analyst/Project Manager, Michael Abakah as the Researcher, Huimin Lin as the Outreach Manager, and Beka Meshesha as the Designer. The final deliverables were designed to be both digital and physical tools to support the community's efforts in promoting and managing businesses.

## **Methods**

To meet the project goals, the team followed these steps:

### **Data Collection and Cleanup:**

We began by updating the Excel sheet, ensuring that all business information, including names, addresses, and operating hours, was accurate. Some data, such as longitude and latitude, were added to allow for better mapping.

### **Power BI Dashboard:**

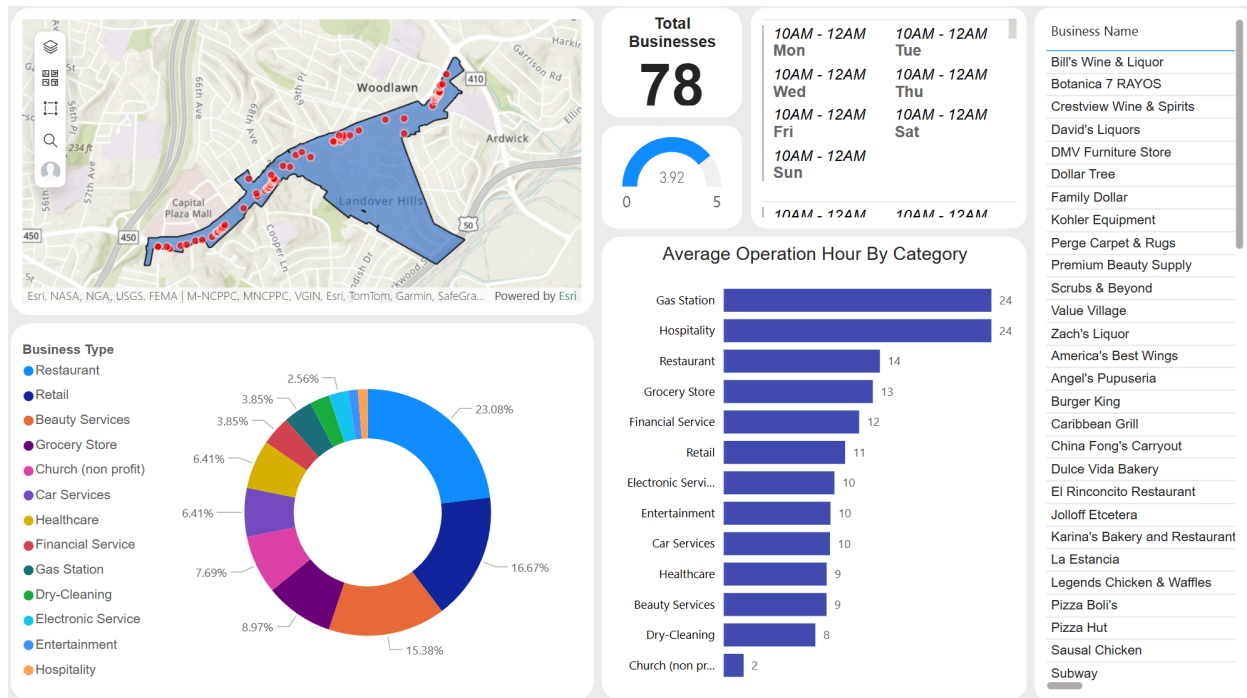
We created an interactive Power BI dashboard to give users a visual understanding of the business distribution and operating hours across the town. The dashboard included:

A map showing the location of all businesses.

A pie chart displaying the distribution of business categories.

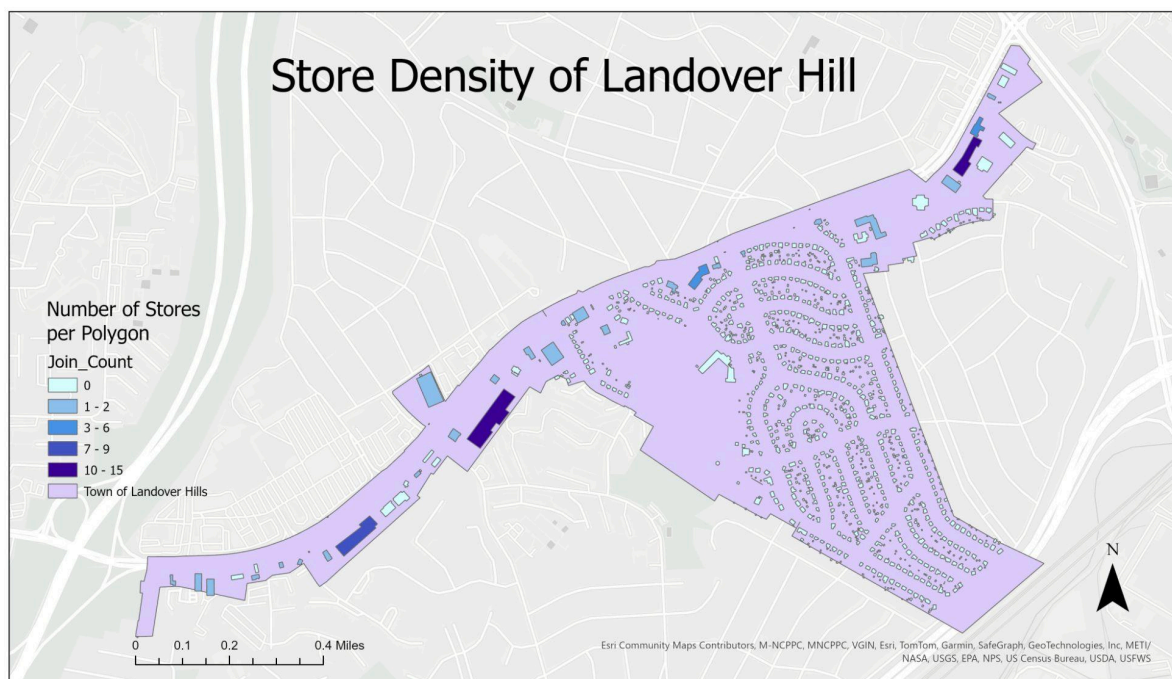
A bar chart illustrating the average operating hours for each business per day.

Tables listing businesses with their key details.



## ArcGIS Map:

Using ArcGIS, we created a map that visualized business locations across Landover Hills. This map was designed to be intuitive and help both residents and town officials find businesses easily.



Map Documentation:

<https://docs.google.com/document/d/1bVlh09KXZrr9AXH030R9WuIAx80Y1WFrG1LGIBySQk/edit?usp=sharing>

### **Printable Booklet:**

A comprehensive booklet was created, listing all businesses along with their names, addresses, operating hours, and QR codes for easy access to additional information online. Businesses were organized into categories, such as Healthcare, Restaurants, and Retail, to facilitate navigation.

### **Obstacles:**

We encountered some challenges during the project:

- **Access to Power BI:** At times, there were delays in accessing the Power BI tool, which hindered some initial progress. However, this issue was resolved through coordination with the client.
- **Inaccurate Data:** The original dataset had some errors, such as outdated business information. These were manually corrected by cross-referencing available public data and contacting businesses where necessary.

### **Descriptions of Deliverables/Findings**

Updated Excel Sheet:

The Excel sheet was updated to include necessary business information such as names, addresses, and operating hours. The sheet was also enhanced with longitude and latitude data to support mapping and visualization efforts.

Power BI Dashboard:

The interactive Power BI dashboard was one of the main deliverables. It provided easy-to-understand visuals to help town officials and residents:

- View the distribution of businesses by category.
- Analyze average operating hours per business category.
- Access an interactive map showing the locations of businesses in the town.

### **ArcGIS Map:**

The ArcGIS map displayed the locations of all businesses, with easy-to-navigate features, including zoom and category filters, which helped users locate businesses based on their needs.

### **Printable Booklet:**

The booklet was designed for both physical and digital distribution. It included:

- A list of all businesses categorized by type (Healthcare, Retail, etc.).
- Addresses, operating hours, and QR codes for additional online details.
- This booklet served as a simple, accessible resource for residents to find businesses in the area.

These deliverables met the project's short-term goals by updating the town's business information, providing tools for visual analysis, and creating a convenient, offline resource for residents.

## **Recommendations**

To enhance the functionality and usability of the Landover Hills Business Directory project, we recommend the following actions for future groups working on this project:

### **1. Dynamic Dashboard Updates:**

The Power BI dashboard should be updated to allow for dynamic data refreshes. This means that when new data is added or existing data is modified in the source Excel sheet, the dashboard should automatically update to reflect the changes without requiring manual intervention. This would ensure that the data presented on the dashboard is always current and accurate.

### **2. Linking Excel Sheets Together:**

The Excel sheets should be linked in such a way that when one sheet is updated, all related sheets are automatically updated as well. For example, when business information is added or changed on one page (e.g., the master business list), the updates should automatically propagate to other pages (such as the operations hours or category distributions). This can be achieved by establishing consistent references and formulas across the sheets, ensuring seamless updates throughout the entire dataset.

These changes would greatly improve the efficiency and accuracy of the system, allowing the team to maintain up-to-date information without needing to manually adjust each part of the project.

## **Conclusions**

The Landover Hills Business Directory Project successfully modernized the town's business directory, offering both digital and physical tools to promote and manage local businesses. The updated Excel sheet, Power BI dashboard, ArcGIS map, and printable booklet provide valuable resources for residents and town officials alike.

For future collaboration, we suggest ongoing data maintenance and further development of the dashboard and booklet to better serve the community. Should you have any questions or need additional information, feel free to contact us.

## **Contact Information**

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