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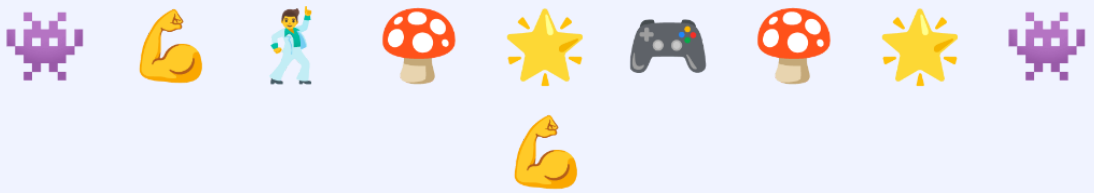

Project: LeadSmart App

Project report

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INTRODUCTION

LeadSmart - The Skillful Leadership Edition is a digital guide designed to develop leadership and business skills through interactive group exercises. Unlike a conventional game, this tool functions more as a structured instructional manual, providing facilitators with clear guidelines for leading engaging educational activities. The goal is to help users build essential leadership competencies in a collaborative, hands-on environment.

The idea for LeadSmart came from my experience designing educational games on leadership for master's students. This semester, I focused on adapting the application for Streamlit, aiming to make game instructions more visually intuitive while allowing participants to track their progress in real time. Designed for classroom and group settings, LeadSmart enables both instructors and students to follow along together, enriching the learning process through guided participation and structured exercises.

1. Development Process

The development process involved transforming an existing Python-based interface into a fully functional Streamlit web application. Since the original version was built with Tkinter, adjustments were necessary to adapt the code to Streamlit's framework.

To ensure a smooth development process, I followed these key steps:

- Conducted research on Streamlit functionalities using the official documentation (Streamlit, n.d.) and online tutorials.
- Redesigned the interface to support web-based interactions.
- Utilized session state to track user progress and facilitate seamless navigation between pages.
- Implemented several interactive features to enhance the user experience, including:
- A random skill selector, using Python's random module (Python Software Foundation, n.d.).
- Interactive buttons to improve engagement.
- A progress tracker for real-time updates.
- Custom CSS styling, based on techniques outlined by MDN Web Docs (n.d.), to refine the interface.

2. Challenges and Limitations

While building the app, I ran into a few challenges:

2.1. Moving from Tkinter to Streamlit

My original project was built with Tkinter, so switching to Streamlit meant rethinking many parts of the user interface. It was a steep learning curve because I had to redesign many elements to work well on the web (Streamlit, n.d.).

2.2. Handling Multiple Pages and Navigation

Each leadership skill has its own page, so making it easy to navigate while keeping track of user progress was tricky. I relied on Streamlit's session state, but it still took time to get everything working smoothly (Streamlit, n.d.).

2.3. Refining the User Interface

I spent a lot of time making sure buttons and text were aligned properly. Centering buttons, updating the progress tracker, and ensuring a consistent look across pages was challenging. I used the Streamlit documentation, experimented with different layouts, and even used custom CSS styling to improve the design (MDN Web Docs, n.d.).

2.4. Learning on My Own and Time Limits

Since I started studying in Hong Kong and missed some in-person classes, I had to learn many of the key concepts by myself. This required extra research and practice to fully understand how Streamlit works.

2.5. Style Limitations in Streamlit

To achieve the design I wanted, I had to add custom CSS with unsafe_allow_html=True, which sometimes led to slight inconsistencies across pages.

CONCLUSION

LeadSmart evolved from a simple Python program into an engaging, interactive web guide built with Streamlit. The new version is easier for both students and instructors to use, helping everyone follow the game instructions and track progress together. Even though I faced some challenges, the process taught me a lot about coding and solving problems.

Looking ahead, I plan to improve the user interface, make navigation smoother, and add more interactive features. Overall, this project was a great learning experience, and I'm excited to make it even better in the future.

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