

Economic: Developing an Android app that uses the camera to scan indoor boulder routes is constrained by financial limitations, especially since the team is relying on freeware or open-source tools for image processing and algorithms. Personal funds or institutional support limits the budget for acquiring premium libraries. However, the app's potential for commercial growth within the climbing community could attract future investments.

Professional: This project directly impacts the team's professional development, requiring expertise in computer vision, path-finding algorithms, and user authentication. By developing an app that incorporates personalized climbing recommendations, the team can enhance their portfolio in mobile development and user experience design, which are highly valued in the tech industry. Successfully completing this project could enhance the team's reputation in both software engineering and the climbing community.

Ethical: The inclusion of user accounts raises ethical concerns around the handling of personal information. Storing user data means the team must be compliant with privacy standards and avoid exposing users to potential data breaches. The app should have clear privacy policies and follow best practices to encrypt and protect user data, ensuring that their information is only used to enhance their experience, not exploited or shared.

Security: With user accounts and personal information being stored, there are significant security considerations. The app must implement strong authentication protocols and data encryption to protect user information. Ensuring secure transmission and storage of data, along with regular updates to address potential vulnerabilities, will be critical to prevent unauthorized access and potential privacy breaches.

Diversity and Cultural Impact: Since the app aims to offer personalized climbing paths, it must account for diversity in its user base, including different body types, abilities, and preferences. The algorithm should not favor one type of climber but instead cater to varying skill levels, body sizes, and cultural backgrounds, ensuring inclusivity. Additionally, expanding the app to support multiple languages could help it reach a broader, global audience.

Complexity: Due to the breadth of bouldering problems and their levels, we have to constrain our intended solution to a certain grade level. In this case, we are intending our application to work at level V3 and below, thus targeting beginner climbers. On top of this, there are other factors such as detecting wall angles and hold types through the scanned problem that we decided to eliminate in favor of focusing on other functionality.