The possible constraints of my senior design project.

Every project, regardless of scope or ambition, is shaped by its constraints. My senior design project is no exception. As I move from concept to execution, I've identified several key challenges—professional, legal, and security-related—that will influence both the development process and the final product. This essay outlines those concerns and reflects on how they may shape the trajectory of my work.

One of the most immediate challenges involves professional expectations, particularly in the areas of presentation, adherence to standards, and broader development requirements. Presentation is a critical component of any software product, especially one intended for public consumption. A visually engaging and intuitive interface can elevate a project's impact, but this is an area where I lack experience. My limited background in visual design and modeling may result in longer development cycles or underwhelming aesthetics. I recognize that bridging this gap will require additional learning and iteration.

Standards pose another challenge. The compressed timeline of a senior design project means that certain development phases—such as testing, documentation, and refinement—must be accelerated. This can lead to compromises in quality, especially when compared to the rigorous benchmarks expected in professional software and game development. Additionally, I hold myself to a high personal standard, often delaying progress until each component meets my expectations. While this mindset promotes quality, it can conflict with the need for timely delivery. Balancing perfectionism with practicality will be essential.

Professional requirements also extend beyond the technical realm. If the project evolves into a publishable product, I'll need to consider legal protections such as forming an LLC or similar entity to safeguard intellectual property. Furthermore, if the game is released publicly, I must ensure that the source code is protected and that distribution channels are secure. These considerations introduce a layer of complexity that goes beyond typical academic projects.

Legal compliance is a fundamental aspect of any product that interacts with users or enters the public domain. Whether it involves licensing, copyright, data protection, or business registration, there are rules and regulations that must be followed. Understanding these frameworks and ensuring that my project adheres to them will require research and diligence. This legal learning curve is an important part of transitioning from student developer to professional creator.

Security is another critical concern. Any software that users download or interact with must be designed with safety in mind. It's essential to ensure that my application does not introduce vulnerabilities—either to my own systems or to the user's device. This includes protecting against malicious code, securing user data, and verifying the integrity of third-party libraries and dependencies.

Building with security as a foundational principle will help ensure that the product is both trustworthy and resilient.

In conclusion, while these constraints present real challenges, they also offer valuable opportunities for growth. My senior design project is more than a technical exercise—it's a chance to engage with the full lifecycle of software development, from ideation and design to legal compliance and professional presentation. By confronting these issues head-on, I hope to not only deliver a successful project but also deepen my understanding of what it means to build software in the real world.