

Privacy Compliance for **Esports Leagues**

CS 3750 Project Deliverable #2

Suha Hussain

John Jones

Haolin Ye

Yayun Huang

Nealie Glasser

Project Description and Requirements Summary:

Esports leagues utilize large quantities of data from their players, often forgoing privacy when developing individual agreements. However, new data privacy regulations are being passed as players are beginning to form player associations. Hence, noncompliance with pertinent regulations can incur costs of billions of dollars. Nonetheless, privacy compliance is a nuanced, multi-faceted issue. The complexity of compliance limits the growth of eSports leagues and businesses, prevents players from controlling their data, and prevents professionals from implementing systematic changes. Henceforth, we will be building a system that facilitates transparency and privacy compliance to be used by league managers and players.

Privacy compliance for esports can be divided into three major tasks: compliance direction, violation detection, and information analysis that are entirely dependent on the results of each other. These three tasks answer three questions respectively:

1. Compliance direction: How does a league determine how to comply with privacy laws?
2. Violation detection: How does a privacy professional analyze a league for privacy violations?
3. Information analysis: How does a player share and track their data?

The system must be able to do each of the above in order to fulfill its mission of facilitating privacy compliance for esports leagues. Thus, the key requirements are:

1. Ensures that a league knows what privacy laws they must comply with
2. Informs league managers, minimally, of steps for compliance
3. Alerts league managers of potential compliance violations
4. Allows players to understand what is being collected from them and where that is being sent
5. Informs league managers and players of the consequences of each of their decisions
6. Does not require extensive experience in privacy or data management

7. Can be easily accessed and used at various locations

Design Space:

Initially, we had attempted to design a system that would fit the needs of league managers, players, and privacy professionals. However, we discovered a product optimized for privacy professionals would increase the complexity of the user experience for league managers and players, the integral components of the supply chain, especially considering that our research has shown that league managers and players heavily prioritize convenience over privacy. In realizing this system, it will likely be the most difficult to elucidate and emphasize the consequences of various privacy choices. Moreover, there exists a clear trade-off between the ease of ensuring privacy compliance and providing flexibility for the users. Do we force league managers to comply or merely provide suggestions? If the latter, how do we provide suggestions that clearly communicate the significance of each decision? Our different designs approach this trade off in different ways and succeed at compliance direction, violation detection, and information analysis uniquely.

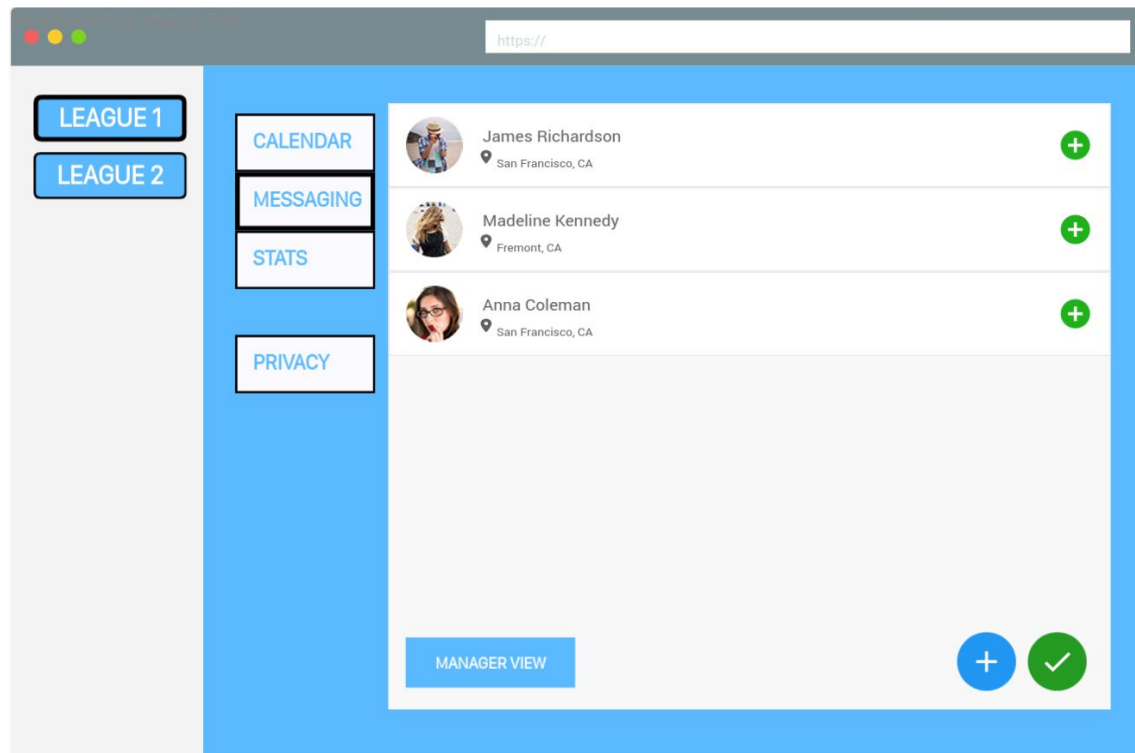
Our first prototype was deemed “the Walled Garden” - we’re considering developing a league management website for players and league managers to manage and utilize data in a privacy-preserving manner, forcing privacy compliance without requiring much exposition into the technicalities of privacy. Another prototype of ours is nicknamed “Push for Privacy”, an app that analyzes all of the services composing league management operations and informing players and league managers of potential violations through push notifications. Finally, we also thought of “Verify Privacy”. Verify Privacy is an app that guides league managers to make the optimal choice and lets players know about the consequences of each choice.

Prototype Presentations:

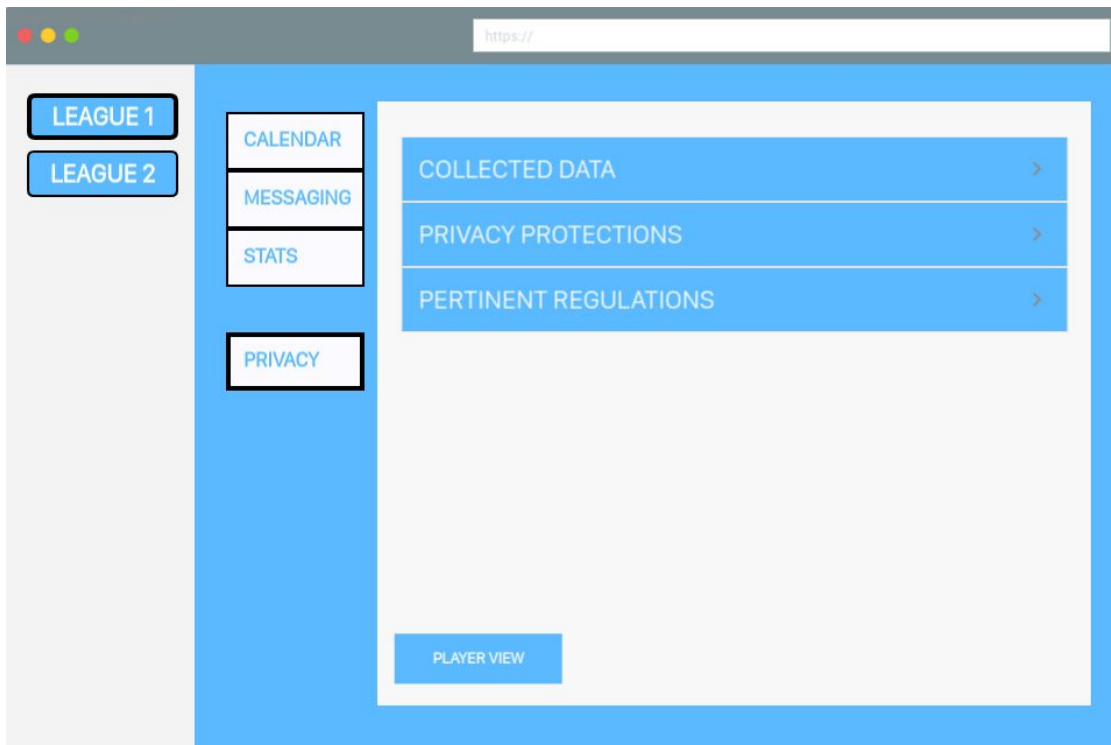
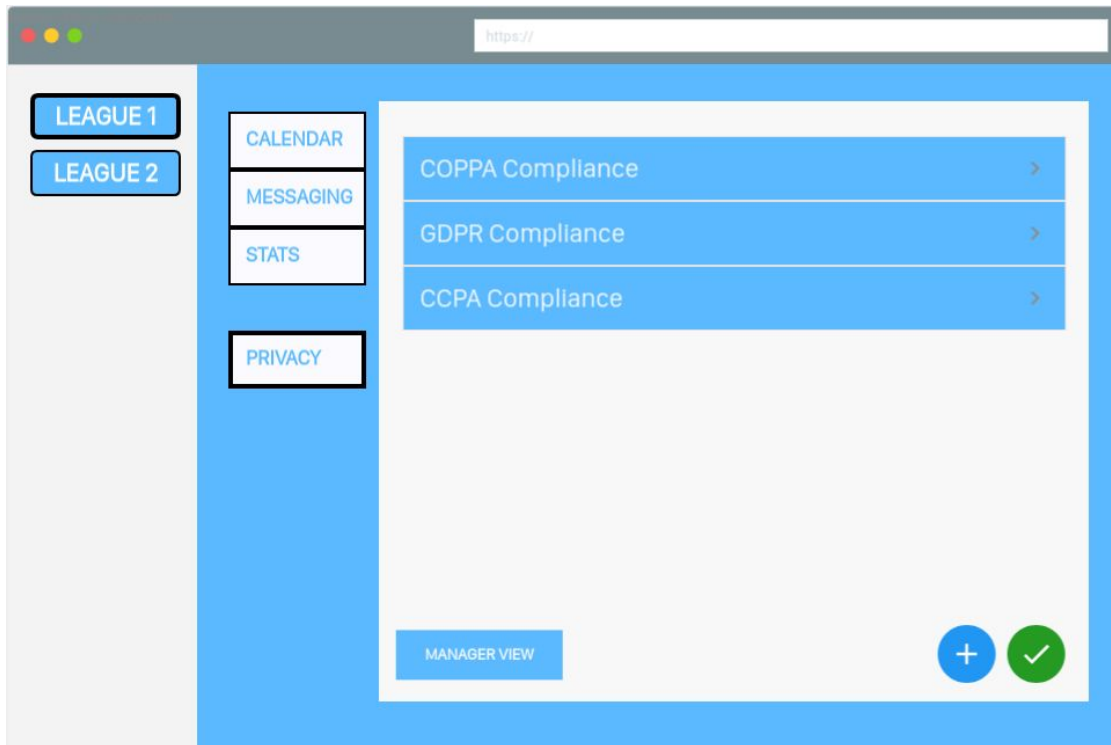
The Walled Garden:

The Walled Garden seems to be effective with regards to compliance direction, violation detection, and information analysis. Our research has indicated that not only are

league employees and players unaware of privacy issues, but they are heavily in favor of automatic privacy solutions. The Walled Garden enforces privacy compliance and abstracts away the technicalities of privacy preservation techniques and privacy regulation stipulations, making this an attractive option.



The Walled Garden presents differently for league employees and players (as well as those able to access player controls such as parents). A league manager logs in and is able to utilize the primary information-gathering services for league managers, including messaging and scheduling with the guarantee that they are complying with all pertinent privacy regulations. If he wants assurance, they can click on the 'Privacy' tab and see all of the regulations covered and the privacy-preserving techniques utilized.



While players (and those given access to player controls) can access the league operation services in a similar fashion, their privacy menu is quite different as information analysis for individuals is different from information analysis for the entire league. Still, the player can see all the information collected from them, the methods they are processed and shared through, where they are shared, what privacy regulations are they protected under, and what privacy measures have been taken as shown above.

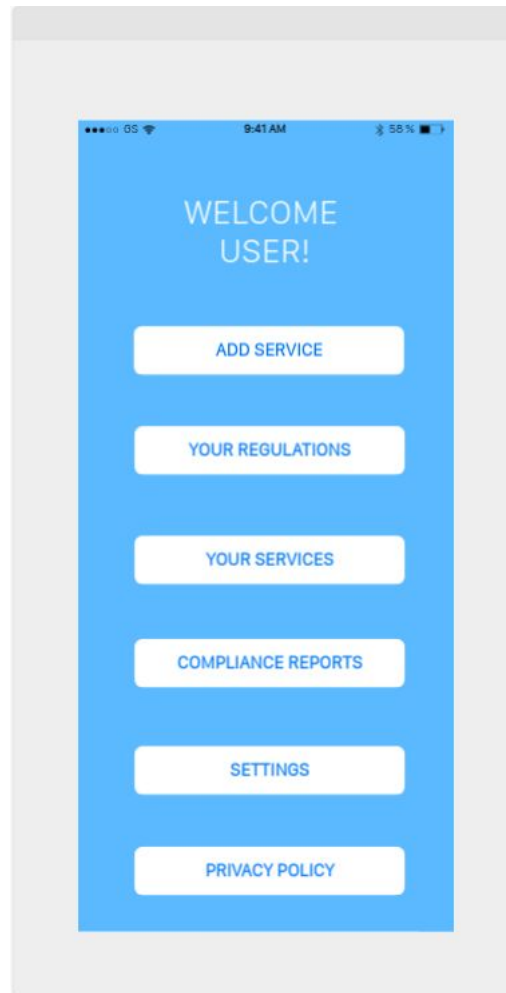
Consider the hypothetical scenario of Jonah. Jonah is very proud of his daughter; she just received an invitation to join the Brooklyn Overwatch League. Despite this, he is quite concerned about her privacy, having read stories about stalking, harassment, and data breaches. He is able to sign into our system as a parent and generate an information flow diagram from the league. Thus, he is able to see that her name, age, and email address has been collected and added to the Brooklyn Overwatch League's encrypted and differentially private database that complies with privacy laws in NYC, Illinois, California, and the European Union.

Push for Privacy:

After conceptualizing The Walled Garden, we criticized its learnability and convenience. How willing are consumers to migrate to an entirely new service? Thus, we moved to the opposite end of the aforementioned trade-off. Push for Privacy is what happens when this system is optimized for convenience. Violation detection was cited as the most difficult task relative to information analysis and compliance direction. Push for Privacy makes violation detection a priority.

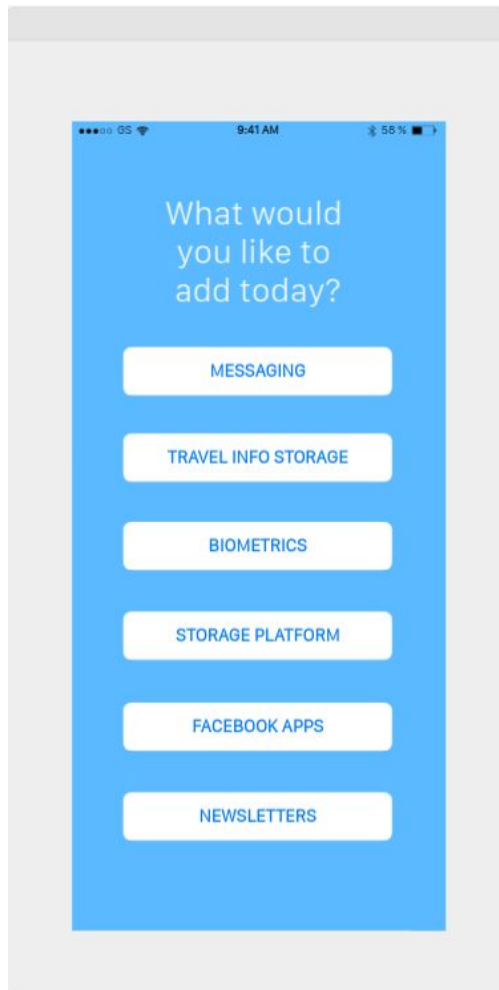
Sending push notifications from a simple app that analyzes existing league operations services is the objective of this system. This approach has a simple and straightforward UI and it allows users to access and add services. The main feature of this system is to provide league managers and players with warnings and suggestions when using various services. The system also allows for information analysis and compliance direction by allowing them to see compliance reports and regulations. The user interface is similar for the players (and those with player access) and the league

employees as the main functionalities are merely adding services and checking for compliance. The user interface is shown below.



As previously implied, there is a clear issue with effectiveness. It will be difficult to create notifications that adequately explain and explore the consequences and ramifications of the various choices made as well as the reasoning behind the decisions. In terms of usage, consider the scenario of Mac. Mac's Smash team is currently using CashApp for team transactions. Unfortunately, CashApp has just had a major data breach. Mac and every member on the team will receive a notification from our service letting them know their data is at risk and what steps to take to ensure compliance with the relevant privacy regulations.

Verify Privacy:



After seeing what could be done with our walled-garden and push for privacy approaches with regards to compliance direction, violation detection, and information analysis, we wanted to create a system that sat in the middle of these two when it came to these goals. We also realized that neither the walled-garden approach or push for privacy approach excelled at our compliance direction approach so we took that into consideration when coming up with our verify privacy alternative.

We realized the Walled Garden had, in a sense, abstracted away compliance direction. We also realized Push for Privacy would suffer for it. Hence, Verify Privacy was our method of optimizing for compliance direction; it would provide a roadmap for league

managers and users for privacy compliance. Verify Privacy essentially creates a space for league managers and players to analyze the privacy ramifications of their various options for different league operations. The interface is shown above. As shown, there is a button for the potential league options that will lead to a report exploring the options. For example, if a league manager wants to add a new messaging app for the team to use, this system can give them recommendations for different messaging apps out there and the level of privacy each service has. They might decide to choose Whatsapp over Facebook Messenger for COPPA compliance.

Assessment:

We asked users to rate and rank each of our alternatives with regards to the three major tasks as well as effectiveness, convenience, and learnability. A scale from one to seven was utilized for the tasks. Ratings were not utilized for the latter three as we felt that it would complicate evaluation for the users. We developed new usability criteria from the initial deliverable as (a) we thought more emphasis needed to be placed on analyzing each task individually and (b) our previous criteria reflected the Walled Garden, but not the other two alternatives.

Task Analysis:

	Compliance Direction	Violation Detection	Information Analysis	Total
Walled Garden	6	7	7	20
Push for Privacy	3	7	4	14
Verify Privacy	7	5	5	17

Informational Metrics:

	Effectiveness	Convenience	Learnability	Total
Walled Garden	1	3	2	6
Push for Privacy	3	1	3	7
Verify Privacy	2	2	1	5

The Walled Garden approach leads in effectiveness as it essentially encompasses all of our alternatives into one and allows a singular point of access for all users. It lacks in convenience as league managers would have to move all of their information over to this system, but effectively achieves information analysis, compliance direction, and violation detection. No privacy issues need to be explained in depth. The Push for Privacy approach is optimal for convenience since users are not required to consistently search for and investigate violations. It is low in effectiveness as it is only optimized for violation detection, but not information analysis and compliance direction. It asks users to take the extra step and learn about privacy. Verify Privacy serves as the middle ground between the two alternatives at both sets of metrics except that it is the easiest to learn.

Reflection:

While we maintained the three tasks essential for privacy compliance, we decided to only focus on league managers (and other employees) and players (including those with player access controls- namely, parents and guardians). Removing privacy professionals was necessary as our data had shown that introducing this third stakeholder would create many entirely new functional requirements. Our previous usability criteria were scrapped in favor of task effectiveness analysis and more generalized metrics. Prototypes were generated using FluidUI, and were confirmed with various users. Brainstorming was fueled by affinity mapping, suggestions from interviews, data analysis, and other activities.

Breakdown:

Name:	Tasks:
Suha Hussain	Brainstorming Prototype Development The Walled Garden, Push for Privacy Poster Development Usability Criteria
John Jones	Brainstorming Prototype Development Verify Privacy Poster Development Usability Criteria
Haolin Ye	Brainstorming Push for Privacy Scenarios Usability Criteria
Yayun Huang	Brainstorming The Walled Garden Scenarios Assessment
Nealie Glasser	Brainstorming The Walled Garden Scenarios Poster Development