University of Nevada, Reno
Department of Computer Science and Engineering

Project Title: <u>Guild</u>

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Abstract

Guild is an event planning app for the iPhone and Android with a strict focus on tabletop gaming, collectible card games, and LAN gaming. In addition to a traditional event planning interface, Guild will provide a large generalized tool set to users and event organizers, helping to facilitate every step of organizing an event, from initial planning to actually running the event. In this way, Guild intends to be considered a 'go-to' application as far as creating easy to organize, effectively run events that are enjoyable for both attendants and organizers. As of now, Guild is a mostly-offline set of tools for facilitating in-person gaming events, with intention to expand into an online social service as well.

Project Description

Guild is an event planning application at its core, and intends to provide users with a suite of features that make planning and organizing events significantly easier, such as the ability to set meeting times, invite players and group message with individuals attending the event, as well as allowing individuals to input their established calendars into guild and allow the application itself to suggest meeting times that make the most sense for all attendants. With this in mind, what sets Guild apart is the highly specialized set of tools that it carries to appeal specifically to the target demographic. Guild intends to offer features like in-app character sheets, dice rollers and direct player-to-dungeon master 'note passing' for tabletop games, as well as bracket generators and player profiles for competitive events, including information like deck lists for collectible card games and preferred characters or playstyle for LAN gaming. Guild's core goal is to make a robust and easy to use mobile application that works for the specialized niche of dedicated gamers that it would attract.

Members of Guild's intended audience are active participants in local, in person gaming scenes. These individuals, simply put, do not have a single application that caters towards their needs. Existing applications are either too limited in their functionalities, or are simply not high enough quality to be well regarded within the same niche of Gamers that Guild intends to cater to.

Guild is being developed, for both iOS and Android, using Xamarin as the main platform for the application, utilizing Xamarin Forms as the primary cross-platform library for UI development, which makes use of C# as it's primary programming languages. For database management, Guild will utilize an AWS-hosted SQL server in addition to a on-device SQLite database. Guild will utilize Flask as a rest API in order to allow the back-end and front-end to communicate. Guild will utilize no custom hardware components.

As far as safety and reliability goes, Guild intends to utilize a token-generation login security system that will ensure each user the can access guild has a registered email, ensuring that interactions from the application itself only happen with approved users. In addition, Guild intends to host an offline 'backup' of it's SQL server in order to ensure an AWS outage or similar issue does not cripple the application's functionality. Any application that focuses on user-generated content will require moderation, and the Guild team intends to keep close tabs on what information is posted in-app in order to maintain Guild as a safe environment for users.

Significance

One of the main advantages of Guild's niche group of users is that there does not exist a great deal of applications that cater towards the same subgroups as Guild intends to. While applications like D&D Beyond or Roll20 do try to cater to the same market, these apps are all poorly received or simply lack the functionality that Guild intends to boast. Despite highly negative reviews for both of the aforementioned services, they still have high downloads and frequent users, with over a hundred thousand downloads on D&D Beyond despite an average review score of 2.8/5 on the Google play store. This indicates that while there clearly exists a market and user interest for Guild, there also doesn't exist a product that does what Guild intends to do well.

There are other event planning applications that allow for people to set up events or meetings. Facebook allows for large events to be planned, and these events can be open to the public to join. If someone joins the public event, their friends will also get a notification that the person has joined the event, or at least showed interest. For Evite, one is able to send online invitations to specific people, along with automatic reminders. Evite specifically ask if if the guest is attending, not attending, maybe, or not yet replied. Both Facebook and Evite will be a indirect competitor with Guild since both have the ability to plan for events. Gamefor is a tabletop and card game event app that allows people to plan local events and search for additional people to join based on their area. Smash.gg is a website that allows people to create tournaments brackets along with local events and scheduling for video games along with a ranking system.

Facebook and Evite don't focus on a specific demographic since both are used for the general public; no function directly related to gaming. Gamefor and Smash.gg provide specific tools but lack the all-in-one specialization of Guild. In these ways, Guild would provide a more specialized experience than most general-purpose apps, while offering improved functionality and more tools over more niche applications.

The novelty of Guild is that it will be created to appeal to a specific demographic, allowing for a much better tailored experience. There will be additional tools with Guild,

such as dice rollers and character sheets, allowing for the players to be able to play games with less focus going towards having all of the necessary tools. Guild intends to get an edge by doing a lot for a few people, rather than a little for a lot of people.

Guild, in addition to all this, will also be a valuable learning experience for the team. No member of the team has ever developed a mobile application, much less used Xamarin, SQL, AWS, or Flask, and as such working with those programs will definitely assist in the team's professional development.

Legal and Ethical Aspects

Team 21's project may encounter some legal roadblocks as the content of the application draws heavily on existing intellectual properties. As such, the team may need to reach out to Wizards of the Coast, the company which owns both Magic the Gathering and Dungeons and Dragons. To maximize the utility of Guild, the team may need to obtain permission from Wizards of the Coast to create some of the higher end tools and features that the team has in mind, without crossing any legal boundaries. For instance, Magic The Gathering cards utilize custom art in order to make the cards recognizable at a glance. In order to maintain the glance value on these cards in tools like deck-builders that may be present within Guild, there may come a point where Guild will require the permission of Wizards of the Coast and the associated artists in order to include the cards in the app's interface.

The team has been striving for several months now to create a quality product in order to best represent themselves, stakeholders, and the university. Maintaining open communication with advisors, stakeholders, teaching assistants and professors throughout the development of Guild has been a boon to the development cycle. Accepting constant feedback and criticisms is one of the main ways which the team plans to hold their product to the highest professional standards. (2.1).

Changes and Progress Since the Initial Project Concept

The original concept of Guild has not changed since its inception in early October of last year. There are no currently planned overhauls or changes to Guild and the team is still busy developing the core features that have been laid out. Guild's initial feature list was intentionally large. Team #21 believed that it was a smarter decision to start with an ambitious list of goals. In this way, Team #21 does not expect to finish the entire feature list of Guild within CS 426's span (Likely needing to trim down the 'tool kit' section in particular). The team, as of now, has not decided on any specific features to cut, but does acknowledge that time restrictions may call for such cuts to occur.

Team 21 has accomplished what they set out to in the first semester. The majority of the framework of the application has been finished, including setting up the database, rest API, and a basic UI structure. These modules are nearly all communicating properly together, and development has begun on full fledged tools and game specific features. Dice rollers, file upload for character sheets, life and board state interface for card games, stage strikers for fighting games and initiative trackers are set to be completed within the coming weeks.

Project Responsibilities

Riley's focus throughout the development of Guild has been on the user interface and front end design. He is responsible for the implementation of a majority of the in application tools. With help from Blake, Riley will be able to develop a clean theme for the mobile application, as well as the online and offline tools for specific local games. In cooperation with Ryan, the backend developer, Riley will develop the event managing system.

Blake Cash focused on project management, branding, and presentation, but also work alongside Riley on user interface and front-end design. Blake, in addition to taking on the position of 'team lead', assists Riley with front-end visual design. While Riley focuses on the workings of the application, Blake is in charge of creating and finalizing UI presentation as well as assisting Riley in the creation of the tool section of the app.

Ryan's responsibility is to focus on the backend development for Guild. Ryan will be managing the MySQL database and the Ubuntu VM being hosted on Amazon Web Services. Managing the database will consist of creating and linking the proper tables to be used to store all the necessary information created from UI of Guild. Ryan will also be handling the coding for the Flask API to allow information from the database to be read by the frontend interface of Guild. Flask will be ran in the Ubuntu VM.

Project Monitoring and Risks

To ensure Guild's development is progressing smoothly, the team will meet at least once a week to discuss what is needed to be completed before a certain date.

- Likelihood Scale: 1 - 5 (1 = Least Likely, 5 = Most Likely)
- Impact Scale: 1 - 5 (1 = Low Impact, 5 = High Impact)
- Severity Scale: 1 - 15 (1 = Not Severe, 15 = Very Severe)

Risk Register									
Risk ID	**Risk**	**Current Risk**			**Status**	**Mitigation Strategies**	**Residual Risk**		
		Likelihood	**Impact**	**Severity**			**Likelihood**	**Impact**	**Severity**
RP-01	Team Member has a medical emergency	1	5	15	Open	- Ensure team members know how to do the task of each other	4	4	12
RP-02	External Advisor has a medical emergency	1	4	13	Open	- Have bi-weekly meetings - Ensure Advisors discuss additional task needed to be complete further into development of the project	3	3	10
RP-03	Application files get corrupted/lost	3	5	10	Open	- Have a repository of the files	2	4	7
RP-04	Database gets corrupted/lost	3	5	10	Open	- Have an offline database backup	2	4	7
RP-05	Project deadlines are not met	3	4	8	Open	- Keep team members updated on progress of task	1	3	5
RP-06	Legal troubles over licenses	1	2	7	Open	- Be familiar with copyright laws/rights	3	2	4
RP-07	Project testing device damage/destroyed /lost	1	2	5	Open	- Handle devices properly - Keep accountability of all equipment - Backup device	1	1	3
RP-08	Team Member unable to attend planned meetings	2	2	5	Open	- Ensure everyone is free during meeting time - Plan the meeting at least 1 week prior	1	1	2

Table 1: A risk register table used to indicate risks related to the development of Guild

Contributions of Team Members

Blake Cash: For Project Part #1, Blake focused on the abstract, project description, and significance section of the project. He also assisted Riley with the legal section of the

paper, and, like all team members, took part in proofreading and editing. In total, Blake put about four hours into this project section.

Riley Moore: Riley Moore handled the legal and ethical portion of Project Part #1. He also logged the changes and progress of the team's work from the beginning of project conception until now. Riley also assisted Ryan with the risk management and project monitoring section of the assignment. In addition, Riley also help proofread the assignment, working for a total of approximately three hours.

Ryan Van: For Project Part #1, Ryan focused on writing the Project Monitoring and Risks section with assistance from Riley. The References section contains sites used in previous assignments. Ryan spent around three hours working on this project assignment.

References

Project Related Websites:
"Building Cross-Platform Applications." Website. Retrieved October 21, 2018 from https://docs.microsoft.com/en-us/xamarin/cross-platform/app-fundamentals/building-cross-platform-applications/
- The site teaches one the process of how to build a mobile application using Xamarin. It goes through the steps of what knowledge is needed to understand how to build cross-platform applications, such as discussing the architecture of Xamarin and getting the app to the store.

"Database Structure and Design Tutorial." Website. Retrieved October 21, 2018 from https://www.lucidchart.com/pages/database-diagram/database-design
- Summarizes what a database is and what functionality it provides. The site discusses how a databased if primarily used to store existing data and input new data if needed by using SQL. A database allows one to take data or create a query to gather information from within the stored data.

"What is an API? In English, please." Website. Retrieved October 23, 2018 from https://medium.freecodecamp.org/what-is-an-api-in-english-please-b880a3214a82
- The site provides a simple explanation of what an API or Application Programming Interface is used for. APIs allow for developers to sync other applications such as Google calendar to their application to either improve the user experience, or same time by using a product that exist already.