



G4MET

CM 2020 AGILE SOFTWARE PROJECTS MID-TERM

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1.0 Problem statement:

Players in Multi-Player Games are not fully engaged due to the existing matchmaking algorithm in the game. Currently Our team focuses on improving the gaming experience for team-oriented games. These games rely heavily on teamwork between different members. Most times these players are unknown. Each player has different skills, goals and roles. When matched randomly by the game, it will lead to issues. The two main issues that we aim to target is mis-matched teammates and the need to always must get used to new teammates.

1.1 Mismatched Teammates

More than often, players put together by the game are mismatched, Mismatch in skills or goals. Uneven matchmaking in skills will cause loses in the game or even loss in their ranks or skills. Players may also have different goals to achieve in the game.¹ Most video games have different goals for players to achieve, for example collectors' items. Some players also have goals in terms game play. For example, some players may want a casual game while other players may want a serious game.²

¹ <https://www.pcgamer.com/players-are-unhappy-about-rocket-leagues-new-casual-mode-rules/>

² <https://www.washingtonpost.com/video-games/2022/05/27/skill-based-matchmaking/>

1.2 Unknown Teammates

When players join in the game, they consistently must get used to new players.

Great Teamwork is best exhibited when players know what each other weakness and strengths are.³ This is common even in sports. Sports players in team games like basketball are actively seen practicing together, as this fosters teamwork, and they get the practice to work as a team. However, in video games, when players always get new teammates, it is unrealistic for players to achieve perfect teamwork immediately. There will be occasions of miscommunication or misunderstanding, this can cause losses which leads to unhappiness and strife among players.⁴

Thus, our application will allow players to control the matchmaking on their side, allowing them to choose their own teammates for their own goals.

³ <https://video-answers.com/why-is-teamwork-important-in-a-game/>

⁴ <https://www.cybersmile.org/what-we-do/advice-help/gaming-help-centre/improving-your-game>

2.0 Background of Matchmaking

Microsoft's Xbox Live service popularized matchmaking for console multiplayer games, with its flagship **Halo 2** title being the first to use a ranking system and a variety of playlists. There are existing algorithms that involve the matchmaking for gamers in respective games itself. We have rank-based matchmaking and then followed by skill based matching making.

2.1 Rank-Based Matchmaking

Rank based matchmaking runs on matching players on similar ranks.⁵ Games like overwatch or earlier versions of Valorant will match make players on the ranks that they have achieved.⁶ This will disregard the skills that players have and their playing history. For example, a diamond level player would have been matched with another diamond player. However, if player A has a different skill or even weapon that are not compatibles with player B, this will affect their gameplay. It may even lead to losses in the game and eventually lead to deranking.

⁵ <https://us.forums.blizzard.com/en/overwatch/t/the-skill-based-vs-rank-based-matchmaking-dilemma/36191/2>

⁶ <https://departmentofplay.net/guide-building-matchmaking-to-engage-and-retain/#:~:text=As%20a%20general%20concept%2C%20matchmaking,giving%20players%20a%20rewarding%20experience.>

2.2 Skill Based Matchmaking.

Thus, more video games are moving to skill-based matchmaking. Skill-based matchmaking is analysis based on the players recent games. It does rely on rank-based matchmaking as games still have the ranking system. The matchmaking is not based on the ranks.⁷ The algorithm in the game will consider each player's performance along with skill's level of their opponent. Then based on this, they will predict this player's ability and who would an opponent that are able to challenge this player.⁸

⁷ https://ubm-twvideo01.s3.amazonaws.com/o1/vault/gdc2016/Presentations/Menke_Josh_SkillMatchmakingAnd.pdf

⁸ <https://www.esportstalk.com/blog/the-pros-and-cons-of-skill-based-matchmaking/>

3.0 Deliverable Contents

At the end of the project, we will be submitting the source code and documentation which explains our development process as well as how the app works. In this report, we will be focusing on the wireframing and prototyping of our app, as well as some market research and the timescale on which we intend to complete this project.

3.1 Login Page

The login page will act as a security gateway for users to either create a new account, or access their existing account, using their email address as the primary key. This enables the user to conveniently access their account, as gamers would most likely possess an existing email address when creating their user account for their respective games, which would also allow the ease of synchronisation when obtaining game relevant notifications/ updates.

3.2 New User Sign-Up

Users are then required to fill up a simple registration form to provide data for their preferences and game related information for their profile, so that we are able to generate a match-make potential amongst gamers of similar interests

Components to include are:

- Genre of game
- Name of game
- Roles that the player/user frequently fill in a game
- Specialised skill set
- User social media/ email (for contact and link highlight clips)

3.3 User Profile Creation

Users are able to customise their profiles according to their intention, such as displaying relevant game history/ information to allow the matchmaking process to be based on tangible results. For instance, each team would require specific roles to be filled based on their specialities and level of experience, which could further contribute to a team's victory in a competitive game.

Components to include are:

- Profile picture for identification
- Short Bio of what they are able to offer as a teammate
- Genre of game
- Name of game
- Roles that the player/user frequently fill in a game
- Specialised skill set
- Period of experience in the game
- Level of attainment in the game
- Recent Match history
- User social media (for contact and link highlight clips)

3.4 New User - What you're looking for

The main feature of the project is to allow users to scout their ideal teammates, and after the matchmaking making process, they will be able to have an agreement to play on the same team.

Components to include are:

- What they are currently looking for in their teammates
- Level of experience they have in the game
- their specialities
- how they can contribute to the team
- Time zone/ region they are playing in
- Availability

Afterthought: after the matchmaking process is done, and an agreement is made, the chat function will be made available to share/ devise tactics on their approach in the game.

3.5 Home Page

The home page of our app is the page that we foresee users spending the most time on. It will feature a matching area, on which a profile that our algorithm would have found that matches the user's criteria, with options for the user to match with the profile or pass it, a system reminiscent of dating apps such as Tinder and OkCupid. The top bar will also have a list of categories to allow the user to switch to finding buddies for a different game, as well as possibly a tab that allows the user to match with other users that are currently online on the app. A navigation bar that allows the user access to the other pages will also be included.

3.6 Profile Page

The profile page will be accessible through the navigation bar, and will display the profile that the user has created when they first joined the app. It will have multiple tabs, one for each game the user has listed themselves as playing and will display information such as what rank the user has attained in a certain game, what time the user is usually active on the game, and so on. The page will also include an edit button, which when clicked will allow the user to change the information their profile displays.

3.7 In App Chat Function

In-app chat is a chat interface within an app or product, enabling users to communicate in real time privately or in a group. When two users like each other's profile, they will be considered to have matched. When they are matched, a chat room will open up for them, allowing them to chat with each other until one of them decides to unmatched. This allows both users to utilise the in-app chat function to talk to each other and to arrange play sessions.

The chat function allows for the user to chat with any of their matches simultaneously.

The in-app chat page also provides the option to un-match with an already matched user. This will delete the existing chat tab from the chat page and the users will not be able to chat again unless both of them match again.

4.0 Timescale

Phases	Start	End	Duration	Member(s)	Month 1				Month 2				Month 3				Month 4			
					W1	W2	W3	W4												
Introduction																				
1 Brainstorm App Ideas and Finalise	10/5	14/5	5 days	Group																
2 Define Deliverable Components	17/5	21/5	5 days	Group																
3 Define Scope	17/5	21/5	5 days	Athittan																
4 Come Up with Specifications	17/5	21/5	5 days	Rui Hang																
5 Define Time Scale of Work	24/5	28/5	5 days	Group																
6 Define Stakeholders	24/5	28/5	5 days	Joyce																
7 Find Challenges in Domain	24/5	28/5	5 days	Aaron																
Planning																				
1 Come up with UI of app	24/5	30/5	7 days	Aaron																
2 Define Approach	28/5	2/6	6 days	Joyce																
3 Do Market Analysis	28/5	2/6	6 days	Rui Hang																
4 Assumption Testing	30/5	7/6	8 days	Athittan																
5 Finalise Proposal and Submit	5/6	12/6	8 days	Group																
Implementation																				
1 Login Page	25/6	30/6	6 days	Athittan																
2 Profile Creation	25/6	2/7	8 days	Joyce																
3 Home Page	1/7	7/7	7 days	Rui Hang																
4 Profile Page	1/7	6/7	6 days	Aaron																
5 Messages page	7/7	13/7	7 days	Athittan																
6 Contact Us	15/7	21/7	7 days	Rui Hang																
Testing																				
1 Document Issues	23/7	3/8	12 days	Group																
2 Perform Initial Testing	23/7	27/7	5 days	Aaron																
3 Correct Issues	23/7	27/7	5 days	Joyce, Athittan																
4 Perform System Testing	30/7	3/8	5 days	Rui Hang, Aaron																
5 Correct Issues	3/8	12/8	10 days	Joyce																
6 Finalise Report and Submit	6/8	16/8	11 days	Group																

4.1 Milestones

Our group has two goals to achieve: Proposal completion and G4MET completion. Our proposal completion has to be done by 27th June. Our G4MET has to be completed by 13th September.

1) After the introduction stage, we would have defined our requirements and planned our timeline

2) After the Planning Stage, we would have done with all our research and survey needed for our application

3) After the Implementation stage, we would have been done the coding of our project, G4MET

4) After the end of testing, we would have been done with our thorough testing and documentation of our application, G4MET.

4.2 Dependencies

These are the dependencies of our project procedure as shown in our Gantt Chart

- The proposal must be completed before app development
- The flow of our page coding will be as followed: Login Page, Profile Creation Page, Home Page, Profile Page, then Messages Pages.
- After the coding of our pages, we will implement our application
- Then we will start testing and any documentation
- Initial Testing will be performed first followed by system testing

4.3 Contingencies

- We have designed our time scale so that no one is working perpetually or will be working in the event that a team mate becomes ill. In order to make it simple for someone else to fill in for the one who is ill, we would put a few people on reserve.
- We have allotted a full week as a buffer at the end of both planning and testing where we will complete templating and tidying up the report in case we don't finish it in time. We can use the previous week to make up for any overages if we were to go over schedule. We intend to provide each person enough time for each segment, and we also intend to assist one another when each person's allocated duty is completed within that time.

5.0 Formal Specification

5.1 User Stories

- As a casual gamer, I want to find gaming buddies whom I can get along with to join me in the games I can play.
- As a user, I want to be able to view profiles, indicate which other users I would like to match with, and chat with them if they like me back.
- As a competitive gamer, I would like to find other players who are of a certain standard, and are able to complement my gameplay, to join me on my team in the games that I play.

5.2 User Acceptance Criteria

1. Users must require a user account that can be logged into with their email address.
2. Users must be able to specify at least one game, for which we offer services, that they play.
3. Users must be able to view profiles that match criteria that they have specified and be able to press the like button on their profile.
4. Users must be able to view certain information on the profiles they view to verify that it matches their criteria.
5. When two parties have ‘liked’ each other, a match must be established.
6. Both parties must be notified of matches and be able to chat with the people they have matched with.
7. Users must have the ability to ‘unmatch’ someone they have matched with.

With this acceptance criteria in mind, we can determine the scope of the functionality for our application in the next section.

5.3 Use Case Diagram

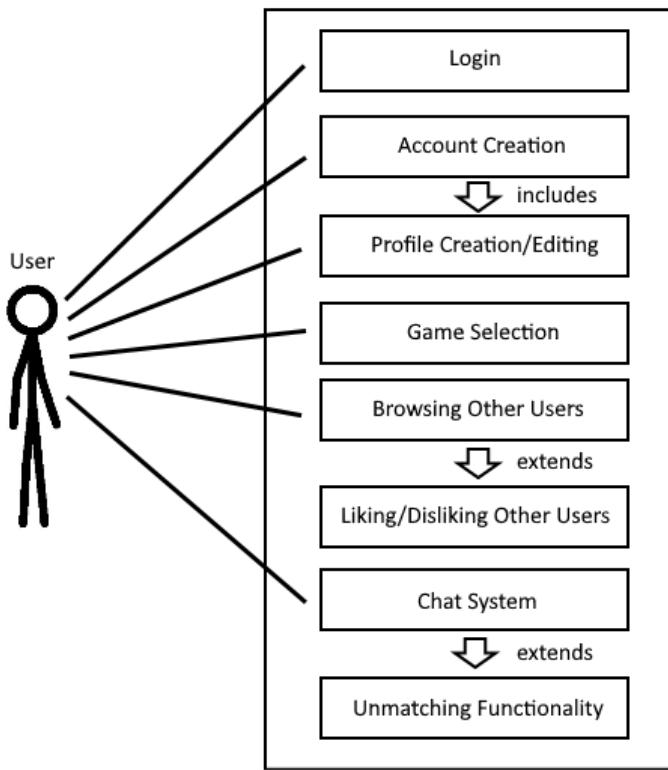


Figure 1: Use Case Diagram for G4Met

Figure 1 shows the use case diagram for G4Met, where the stickman represents a user, and the rectangles represent our use cases. The lines linking the stickman to the rectangles represents interactions between a user and the use cases.

5.4 Use Case Description

Use Case	Matching with another user	
Actors	2 users	
Precondition	Each user must have at least one game in common that they play and must have liked the other's profile.	
End Result	The users match, and chat with each other.	
Main Flow	Step	Action
	1.	Users will log into the application with their registered account.
	2.	Users will be shown profiles that match the criteria they have specified during their profile creation, and their profile will be shown to others whose criteria they fulfil in turn.
	3.	As each profile is shown to the user, they choose whether to 'like' or 'dislike' the profile shown to them.
	4.	When two users have liked each other, the application will inform both users that they have found a match, and the chat tab of the application will create a new chatroom with the two users inside.
	5.	Users will then proceed to chat, and likely arrange a time to play their game together.
Alternate Flow	1a.	If the user is new, they will have to register for a new account.
	1b.	Following the creation of the new account, the user will have to go through the profile creation process, where they have to list details about the games they play, as well as their criteria for their gaming buddies.
	5a.	Alternatively, if a user determines that their match is unsuitable for them, they can choose to 'unmatch' them, at which point the chat room will be closed.

5.5 Customer Journey Map



Figure 2: Customer Journey Map

Figure 2 shows our customer journey map, which represents the path a user would take as they use our application. Using this, it will make it clearer to us that we should focus on from the user's point of view, and what part of the customer experience we should seek to enhance.

6.0 Scope of Application

Scope for the functionality of our application

- Register account: This allows new user to register for a new account.
- Log in: This will let users log into their own registered account to access the application.
- Edit profile: This allows users to edit their personal details and other information.
- Make request: browse through multiple user profiles and request for a match.
- Accept/reject request: user can accept or reject match request from another user.
- Chat function: This allows user to converse with the other users they have matched with.
- Un match: Allows a user to remove someone from their friend list
- Subscription: Allows users to subscribe to the application's premium services

Scope we won't be working on

We will not be implementing the subscription function into our application for the time being. This is because, we strongly believe that developing and perfecting the core features of our application is our utmost priority. Focusing on secondary features like subscription may end up hindering the development of the core features. Thus, upon initial release, there won't be any premium features. Our main focus will be on constantly updating and fine tuning the app with the help of user feedbacks.

7.0 Evidence of Requirements Elicitation

7.1 Stakeholders Analysis

Our main stakeholders will be the players of these games itself. They are our prime focus as this application will be catered to them. These services are intended for users to find new teammates on an assumption that they do not have existing teammates or have players of that skill they are looking for. Hence through our service they will be able to fulfil their needs more efficiently.

We have conducted one interview and a survey to assist in our analysis.

7.2 One on One interview With Stakeholder

Transcript:

Question:" What is your experience as a gamer with game matchmaking?

As a gamer who plays competitive First-person shooter games and battle royals, my experience has been fairly good. However, the biggest factor in which gaming for me gets ruined is bad gamers who are matched by the game.

I mostly play first person shooter games (FPS), such as Counter Strike Global Offensive (CSGO), Valorant, Overwatch. I also play battle Royale games as well such as Apex Legends, Call of duty warzone, player unknown battle grounds (PUBG).

I play all these games on my PC only. I do not feel as effective being restricted in a controller if I played on a gaming console.

For CSGO, I've hit the highest rank, Global elite, by playing competitive games that are in the game itself. After hitting max rank, I went on to play in a community-based match ups to further improve in my skillset. It's a service which lets people play in better servers and allow to filter the good players from the best. The service is called FaceIT. I hit peak level 9 in FaceIT as well. The max is level 10. I've also competed in CSGO online tournaments. Both locally and regionally. Unfortunately, we did not win any, but we realise that there are just better players worldwide as well. This further fuelled us to improve on ourselves as well. I'm quite good at CSGO. My friends would do anything to just queue with me as I could help them win most games.

Valorant is a game I just started to play back in December. I've played the game for 6 months now. I only play during weekends as I've enlisted to Army. However, I still managed to climb to the 2nd highest rank in the game which is Immortal. Radiant is the highest and I will achieve that as well. It's a new game but it's very trendy now. I'm happy to have hit Immortal rank as it holds a good value.

There are days I play CSGO and Valorant, my teammates are lovely, caring and just good at the game. However, the next day I meet racists, players who bought their ranks, players with no means of communication at all. Matchmaking in competitive games is still a growing problem. I maybe immortal in Valorant but somehow other immortals are 100 times worse than me. I always wonder how they got to the rank. It might be a bad day for them, but I feel like generally all immortal players should have a fair sense of knowledge. CSGO was worse. Players who had high ranks always was a 50-50 gamble. Either they are insane at the game, or they just are the ones who bought their ranks and did not actually play the game. They ruin other players who played their hearts out to reach that same rank. Battle royal games, however, comes down to hacking. Many hackers tend to play there. Every match I play is either against hackers or with bad teammates. Anti-cheats are there but it's just not good enough, I guess.

Matchmaking in games is very fickle. I am not even able to choose the teammates I want. The game chooses the teammates for me, but they do not have the skill I need or have very bad ethics. I am not able to get other unless I restart the game. This ruins the game for me.

There is no other platform also for gamers to interact solely and fine new gamers. Yeah, there is Discord or Twitch or even Reddit, but these do not have the specific

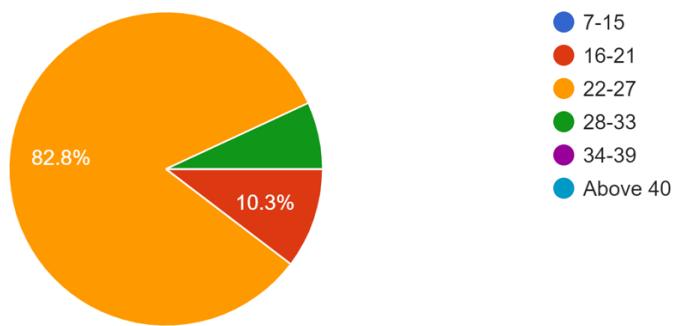
feature for gamers to interact and get teammates. I wish there were something like Tinder so that we can select our teammates and get to know them better. Finally, I just want to say that I hope there are applications that allow gamers to have a platform to interact and pick their own teammates.

Takeaway:

Players prefer to have an application so that they can have autonomy over their teammates. They feel that the game matchmaking restricts them and even in some cases ruin the game for them. This is due to the fact they are forced to play the whole game with those undesirable teammates if they do not want to forfeit the game. This ends with the players feeling unhappy with the game itself.

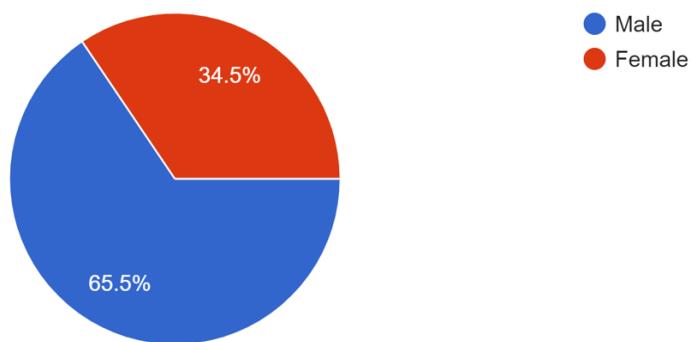
7.3 Survey of stakeholders

Age
29 responses



The above pie chart shows the range of age of our stakeholder

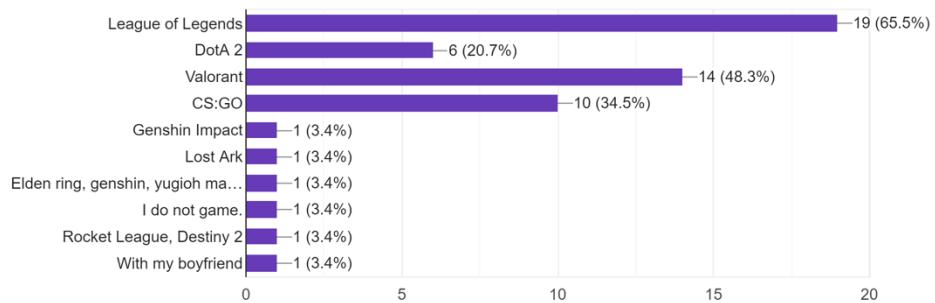
Gender
29 responses



The above piechart shows the gender distribution of our stakeholders

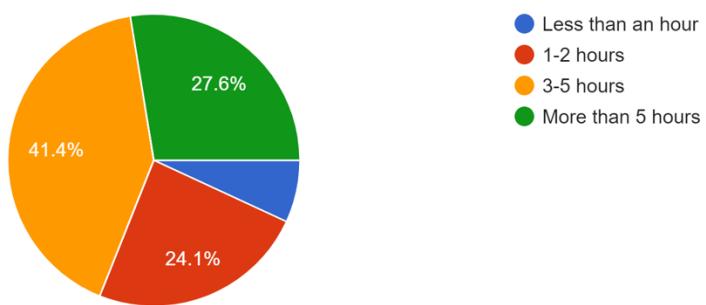
What games do you play regularly?

29 responses



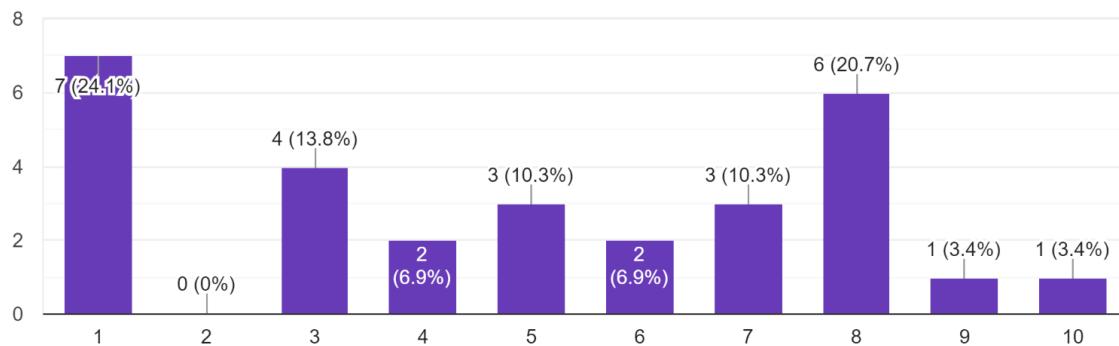
How many hours do you spend gaming daily?

29 responses



What is your opinion on the in-game matchmaking system of the game(s) you play?

29 responses



What problems (if any) do you have with the in-game matchmaking system? 22

responses

Nil

its dota everything has problems

Too many china bots

my elo is ~~fucked~~ im always against fucking diamonds/immos when im just a gold player

Slow

Toxicity

Sometimes they match me with too pro players and I lose...

It does not take into account history of toxic behaviour, and sometimes matches players against opponents which are of a much higher or lower skill level.

Trash anticheat and unfair matching of players

Trolls

Latency

teammates can't really tell what logical thing to do or no comms.

I would very much prefer to be matched with players in the same country, or at least players that speak the same language.

Many laggy players.

opponent either too bad, or too good

It does not match me to the right players with the right skills

It does not give me any choice on my teammates. I am not able to get teammates with the same idea sometimes

Smurfs

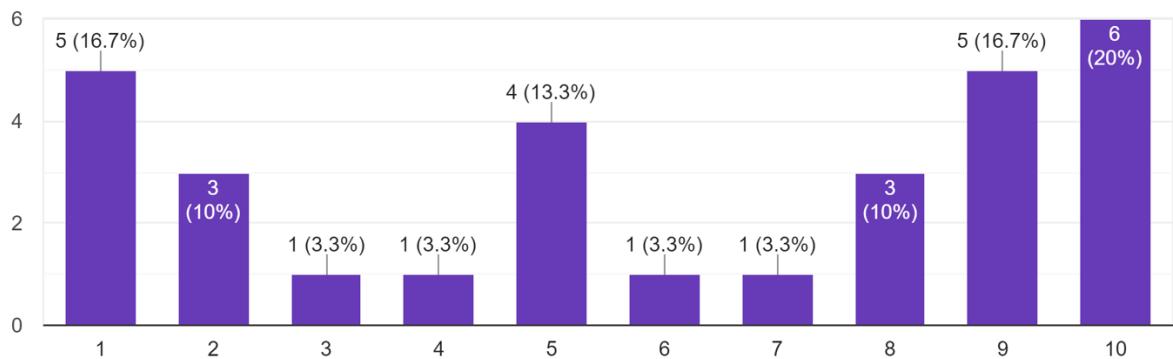
Match made with bad team mates. Match made against high level players despite me being Low leveled

Mis-match of gamers' skill levels due to in-game boosting

getting teammates that spoils the gaming experience with toxicity

How likely will you be to use a third-party application to find people to play with?

30 responses



Why or why not? 22 responses

Too lazy

To meet new people, but usually I play with my friends so I don't use third party apps

Troublesome

I would try but not sure if i would use regularly

It's awkward.

I would rather play with friends and people that I know out of game, but I am open to meeting new people.

I alr am using a third party program

Inconvenient

It depends on the kind of games. If the games matchmaking is not tied to region and the third party app helps to match nearby regions then maybe.

shy

I am not that a very competitive "gamer"

Unless it features functionalities that I cannot live without, I would very much rather not have to sign up, install or make use of another application.

Could be troublesome to use an app when the game already has matchmaking.

i do not like to meet new people

It will be easier if i can control the teammates i want

Better to choose my own teammates

To build a better team with common goals

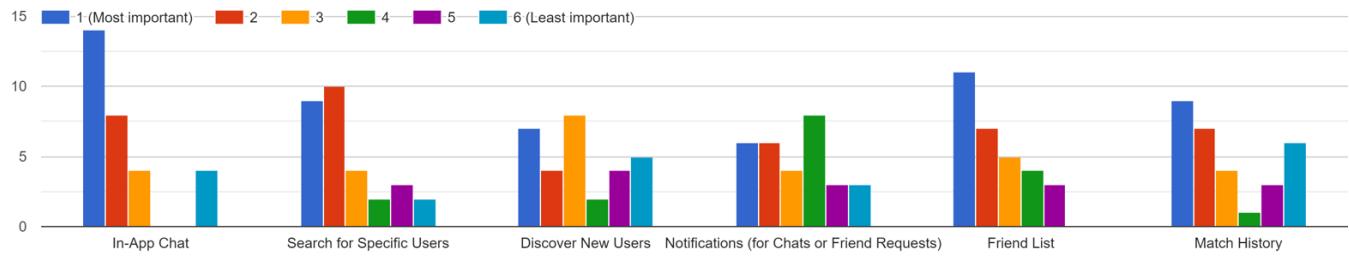
It's easier for me to choose people with a shared goal or similar idea

Because deep down, it really depends on your skill level. If you're good = you're good.

To find friends to play with who are of the same skill level

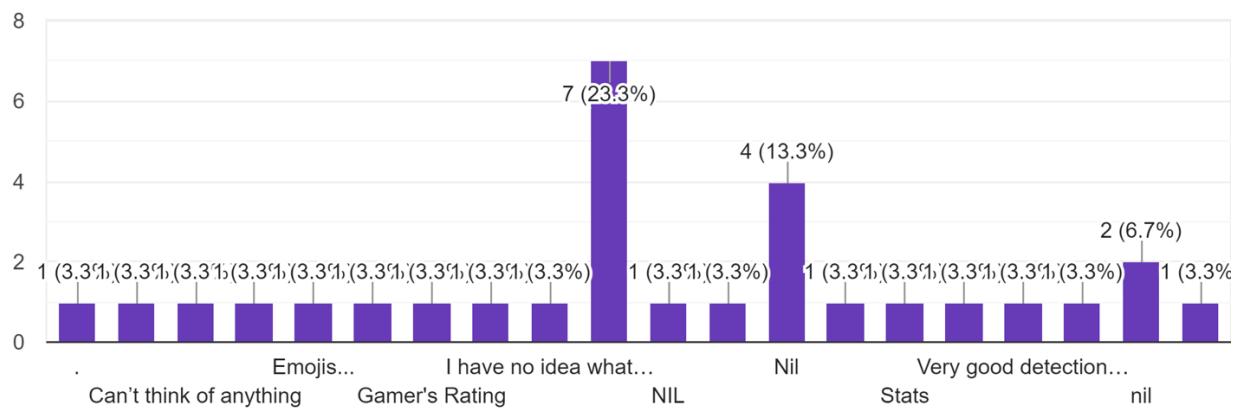
Would definitely use anything that improves the gaming experience
matching teammates before in game random matching decreases chance of toxicity.

Rank the features you would like to see in order of importance.



What other features would you like to see in such an application?

30 responses



7.3 Survey analysis

1. Majority of our stakeholder are young adults who are male. 65.5% of our survey holders are male and 82.8% are from ages 22-27. They also do play a decent amount of hours as 41.4% has stated that they play from 3-5hrs a day followed by 27% for more than 5 hours, Showing that more 60% play videogames for at least 3 hours.

2. Most of the population do state they do hate the in game-matchmaking. They have stated various reason on this. Some state they are forced to play with teammates who have bad attitudes. They also state they feel very restricted and wish to have some control over selecting the players

3. There is high likelihood that users are interested in a third party software that will allow them to choose their own teammates. They do express their hesitancy in operating on a third party application . However most of the applicants seem to be open to such an application

4. A high population have requested for in-house chat feature,giving it a high ranking of importance. Thus following this, we have added in feature to allow our users to chat with one another.

8.0 Steeple Analysis

We used steeple as a way to analyse the challenges our application might face.

Social:

One social impact we would have had is the acceptance of this service. This is a third-party application so the tendency for gamers to trust this application will be difficult. So, it might be difficult for us to get gamers to voluntarily give information on their games. Not only that some gamers maybe feel reluctant to fully divulge their ranks or items they have

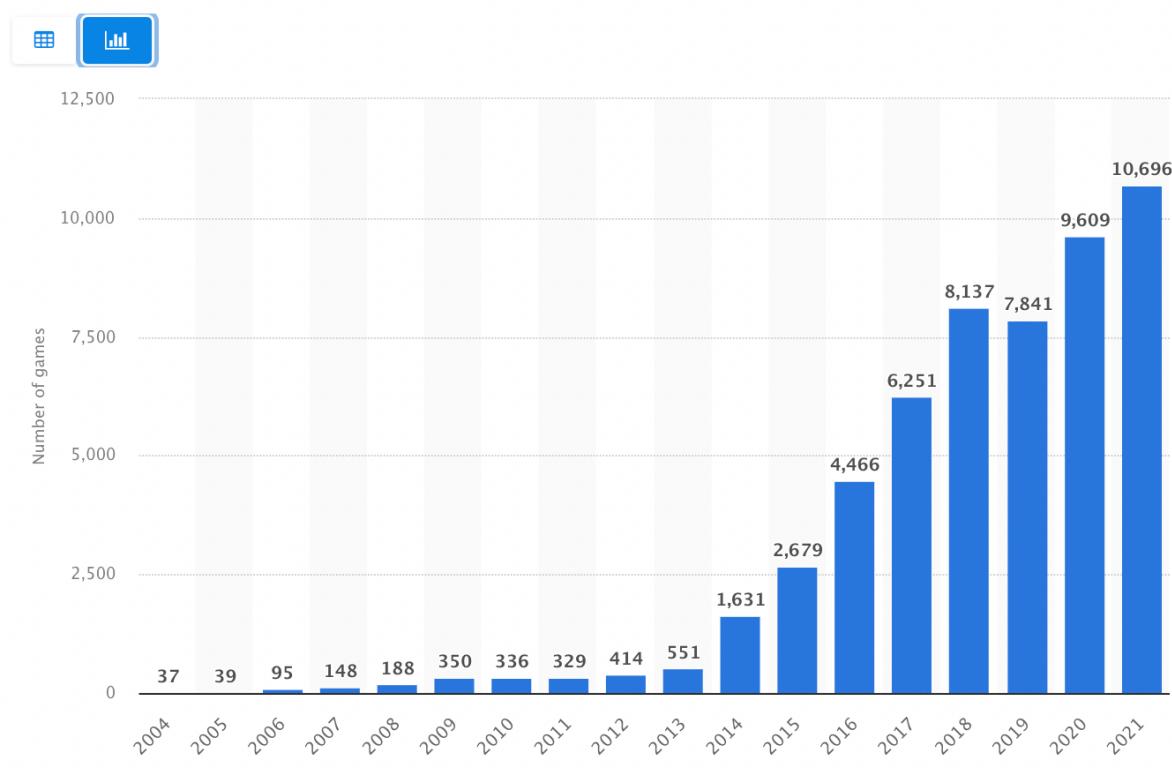
Technological

Technological aspect is where we might face high competition. Due to the constant improvements, we will have to do frequent advancements to stay ahead of the market. Not only that we might have to create unique features to ensure that we will stay abreast of competition and ensure a contrast flow of users.

Economical

The revenue inflow will be unexpected for this and will fluctuate. This is because that gaming market has shown increase of drastic measures over the years in the game generation each year. Each year the top game changes and it also changes within a year. It is a very fickle market which will cause us to change our interface or add new games for the matchmaking. We would also have to anticipate the market beforehand to adapt the changes for the users.

Number of games released on Steam worldwide from 2004 to 2021



© Statista 2022

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As the figure shows, years 2004 to 2013 shows a gradual increase in the release of video games. However, from years 2014-2021 there are great increases overall between each year in the games that are released out. This shows that the market is always expanding and that it will ever-changing. So as developer of this application, we will always have to predict the market and put out developments in order to stay attractive to our users.

⁹ <https://www.statista.com/statistics/552623/number-games-released-steam/>

Environmental

Video games do contribute to climate change. This is due to data usage that video games use, leading to internet pollution.

However, our application will have little to no effect on this. We will only be working on existing video games and will not be exacerbating it.

Political

There are no political difficulties. There are no internal political conflicts in Singapore, a politically uncharged nation, that would jeopardize our application.

Legal

The only issue we might have been when gamers try to sell their items from the game on our site. This may cause strife from

Ethical

We have encountered players lying about their skills and ranks. We may also face players harassing other players on chats. These issues may lead to players to stop using our application. It may also lead to some legal issues involving harassment.

Hence to ensure that we have a support team, that when such cases are brought to us, we will take immediate action on it.

9.0 SWOT Analysis

Strengths:

Based on our research, other than video games algorithms, there are no specialized application for users to find players on their own. There are forums and application like Reddit and Discord respectively. These applications do have pages and groups for players to join and meet online. However, this does not provide gamers the right environment for gamers to meet the teammates they want.

This need is shown specially in Singapore through the application, Carousel. Carousel is an application where people exchange. Or buys goods and services. There are multiple advertisements where it shows players are trying to get similar players of certain skills or ranking for their teams as show per the figure below.

The screenshot shows a user profile on the Carousell app. The profile belongs to a user named "SedCabbage" (ID: 97385143 (2224)) located in Singapore/North-East. The user has a current rank of II and a highest rank of IV. They are a Weekly Champion's Weekly Champion's and a Tournament Expert. The profile has 4220 likes and 7 images. The user is looking for friends for mobile legend and is offering it for free (\$\$0). The profile is posted by Eden Ong (@eden_ong) who has a 5.0 rating from 40 reviews. The post is located in the Bulletin Board section under the Looking For category.

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¹⁰ https://www.carousell.sg/p/lf-looking-for-friends-mobile-legends-1159423649/?t-id=jYzTwVa6DF_1656254863429&t-referrer_browser_type=search_results&t-referrer_page_type=search&t-referrer_request_id=ZhDC4Q8BjWxIQRK9&t-referrer_search_query=looking%20for%20players&t-referrer_sort_by=popular&t-tap_index=39

The screenshot shows a Carousell bulletin board post. The title is "Valorant friends looking for gold plats and diamonds". The price is listed as "\$\$0". The post includes a profile picture of a Valorant character, a "Share" button, a "1 like" button, and a "1 image" link. Below the post, there is a user profile for "KenYahNot" (@kenyahnot) with a 5.0 rating and 8 reviews. There are also "Chat" and "Privacy - Terms" buttons.

¹¹This shows that our application has the demand for this.

Through this application our users can have the control in choosing the teammates they want. Our swipe system allows users to view different gamers and their profiles. This simple system allows for easy usage and increased efficiency of selecting teammates. Users can browse through the profiles of potential teammates that we have filtered and curated for them with no excess effort needed on their side. This gives users a higher level of autonomy than most games do or application like reddit and discord.

¹¹ https://www.carousell.sg/p/valorant-friends-looking-for-gold-plats-and-diamonds-1158111390/?t-id=jYzTwVa6DF_1656254863429&t-referrer_browse_type=search_results&t-referrer_page_type=search&t-referrer_request_id=CBgCxRSwlK9tcWmp&t-referrer_search_query=looking%20for%20valorant&t-referrer_sort_by=popular&t-tap_index=15

Weakness

Due to the chat feature, we might notice cases of harassment. This application relies heavily on human interaction with the application itself and among different users. This may bring out negative interactions too, like verbal abuse in chats and even sexual harassments. We will not be able to control the interaction as we will not be able to predict the user's behaviour.

However, what we can do is to rectify it by allowing users to report any abusive behaviour. Then we will be able to immediately evaluate the situation and take the necessary action against the culprit.

Opportunities

The gaming industry is a booming sector in this age. It brings in a huge revenue. It is estimated to be worth 179 billion in 2021. The gaming industry now valued higher than the global box office sector. This shows that this application will fall in line with economy's direction. This has the potential to be one of the forefront applications that are catered to gamers.

Threats

The threat we might face for our application is the population of our users. We might not garner enough users in the beginning. This will affect our matchmaking as we might not be able to have the right match for our existing users. Due to that, users may find that they are not provided matches that fit their criteria and may instead be recommended to other users that are a poor fit for them. If we are unable to progress past this, our app may even lose users instead of gaining them, leading to this being a self-perpetuating issue.

10.0 Description of Your Approach

Agile project Management

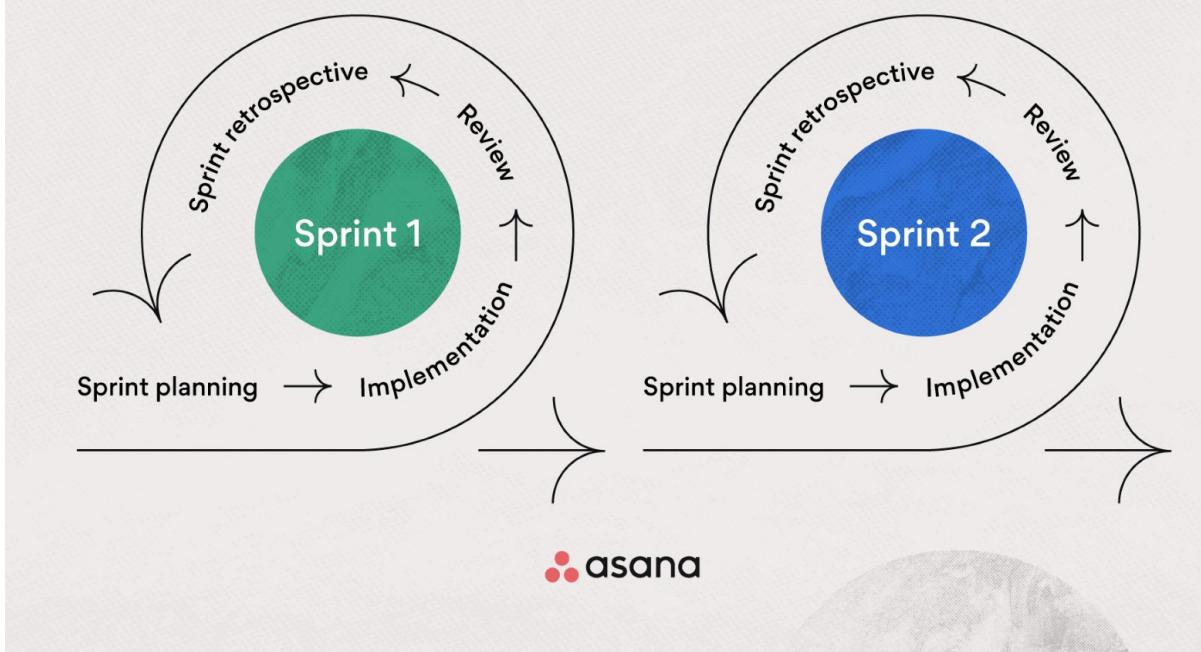
The agile methodology is the project management methodology that we will adopt.

This is a collaborative, iterative project management strategy that includes continuous testing and change response. Four essential values guide this approach.

These core values are:

- Individuals and interactions are more important than tools and systems.
- Customer relationships take precedence over contract negotiations.
- the importance of focusing on adapting to changes rather than sticking to a precise plan
- putting more emphasis on useable software than on good documentation

How Agile works



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Sprints, which are repeating phases of predetermined lengths that result in a prototype, draft, or working version of the ultimate product, are another name for the iterative approach described above. They'll be detailed in more detail in the scrum framework, which is a type of agile technique that we'll use in our approach.

¹² https://asana.com/resources/waterfall-agile-kanban-scrum?gclid=Cj0KCQjwkrUVBhCHARlsACVliOxTk-95ulZY_1DA2n-M9J56eXFrW5LXqnjzJlkdlCKbBROF30PK2QaAvZIEALw_wcB&gclsrc=aw.ds

Why choose agile over waterfall

We chose to adapt this process over the usual waterfall approach for a number of reasons. For starters, its sprints provide us with greater freedom. With its iterative process, we will be able to make regular changes and react to any shifting priorities by focusing on continuous input. Unlike the linear waterfall method, which does not examine prior phases and processes for continuous improvement, this method uses real input rather than expected results to make focused and meaningful changes to the output.

Second, it leads to higher levels of consumer satisfaction. In contrast to the waterfall approach, agile methodology places a high importance on customer collaboration and hence collaborates closely with its stakeholders to attain its end goal. This is particularly significant for our project because our deliverable provides an interactive service for users to meet their match; hence, customer satisfaction is critical to ensuring that our applications stay relevant and useful in the foreseeable future.

PROJECT SUCCESS RATES AGILE VS WATERFALL



WWW.VITALITYCHICAGO.COM

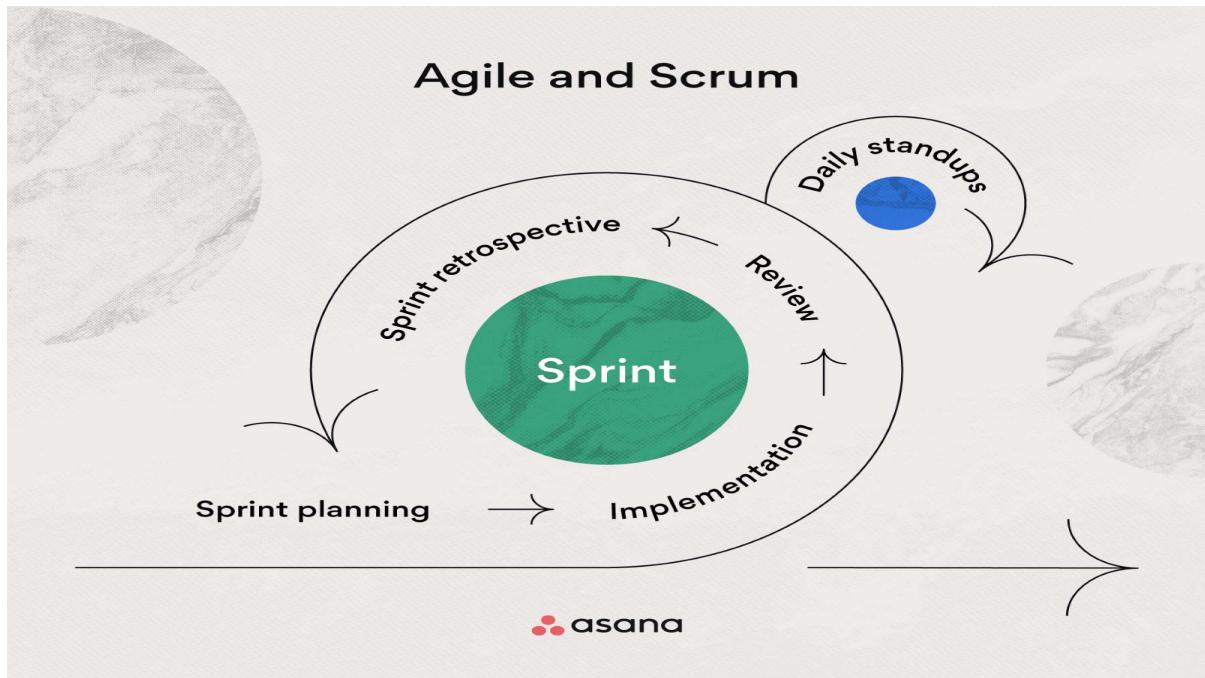
Source: Standish Group Report 2020

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The Scrum Framework

Under the agile methodology, the scrum framework is a precise step-by-step process. We changed the workflow to incorporate short, frequent sprints that last a few weeks and produce meaningful outcomes that may be enhanced in the next sprint.

¹³ <https://vitalitychicago.com/blog/agile-projects-are-more-successful-traditional-projects/>



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Sprint planning, daily scrum, sprint review, and sprint retrospective meeting are the primary events in a sprint. To begin, sprint planning necessitates the team defining a goal and mapping out how to achieve it. Second, during the implementation stage, we must carry out our plan and hold a daily scrum, during which our team reviews our progress and develops a plan for the next steps. Finally, the sprint review is a summary of all finished work, which should include a unique feature that can be presented to stakeholders. Finally, the sprint retrospective meeting would need our team to evaluate the success and failures of our completed work, as well as any potential improvements that could be implemented in the next sprint

¹⁴ https://asana.com/resources/waterfall-agile-kanban-scrum?gclid=Cj0KCQjwkruVBhCHARlsACVliOxTk-95ulZY_1DA2n-M9J56eXFrW5LXqnjzJlkdlCKbBROF30PK2QaAvZIEALw_wcB&qcls=aw.ds

What is User Centred Design (UCD)?

UCD is an agile methodology that refers to an iterative design process that focuses on users' demands in each phase. To build a feasible and accessible product for users, design teams must involve them throughout the process by employing a variety of design and research methodologies.

What is Test Driven Development (TDD)?

TDD refers to a "software development practice that focuses on writing unit test cases before developing the real code" and is a sort of agile practice. As a result, the team must write small test cases on a regular basis based on their current understanding of the project and only adjust them when the tests fail.

Why We Chose UCD?

We've opted to go with a user-centred design for our project. The main reason for this is because our product places a strong emphasis on client satisfaction. We're working on an app that necessitates direct consumer interaction, with the ultimate goal of creating a community-based matchmaking platform. As a result, it must give value in a way that encourages them to stay invested. It is also meant for casual and everyday use; therefore, we want to keep the interface simple. We may make regular changes to our product to suit the needs of our users by using iterative development and frequent testing, as well as collecting regular feedback. As a result, our primary goal with UCD is to achieve long-term product cohesiveness by focusing on making the application user-friendly

A benefit of pursuing a user-centred design is that it might assist in cost reduction. This is because UCD allows us to communicate directly with our users at an early stage, eliminating the need for other forms of professional assistance in order to reach our goal of giving customer happiness. This also cuts down on staff training costs, and a project that is

directed by customer satisfaction every step of the way is less likely to need to be repeated, saving time, money, and labour.

To make this possible, our team has decided to adopt user-centred design by conducting a survey in the early stages of development to learn more about the market. It asks about our rivals and, in particular, how they could be improved to make products more user-friendly.

We also investigated user stories and conducted user testing for our prototypes in order to obtain feedback for future improvements. All of these are discussed in further detail in other sections of the study.

9.0 Wireframes

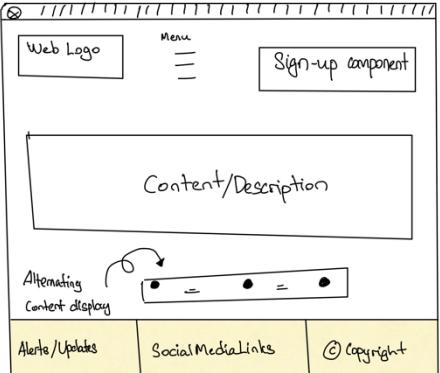
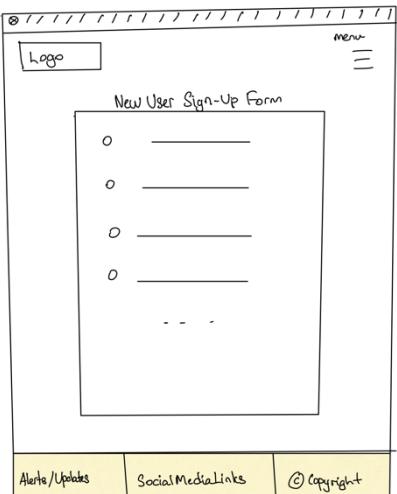
We have produced a total of 3 types of wireframes, namely low, medium, and high fidelity, with user acceptance criteria in mind.

Acceptance Criteria:

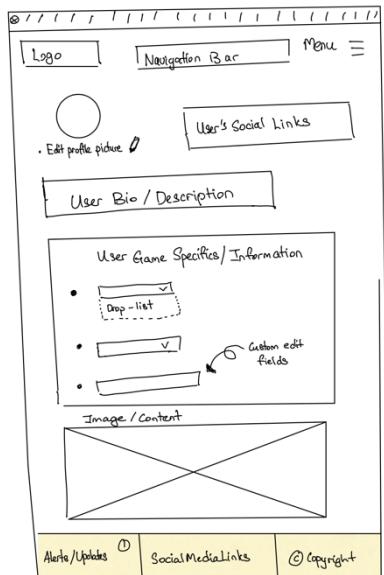
- 1) Users would want a gamer profile for viewing to understand the background of potential teammates. Current in-game matchmaking does not provide sufficient details, or it does not provide any information at all before matching teammates in queue.
- 2) Users would prefer an integrated chat function before matching with teammates, or schedule a game with teammates, instead of using different applications/ platforms, for convenience.
- 3) Users would need search for teammates with a specific role to fill, for a specific game, during the matchmaking process.

9.1 Low-Fidelity Sketches

Before designing the actual prototype, the wireframes are drafted out in pen, to sketch out the various concepts containing specific features to be implemented in the actual web application.

<p>Login / Home Page:</p> 	<p>This is the homepage/ log-in page.</p> <ul style="list-style-type: none">- Consist of contents which displays the various features of the web application for matchmaking- Consists of a log-in and sign-up button for potential/ interested users
<p>New User Profile Creation Page :</p> 	<p>This is the sign-up page.</p> <ul style="list-style-type: none">- Consist of a form that requires the user to key in specific details to create a user account, that will be reflected on the user profile page- Details entered in the form can be displayed and recorded backend for the matchmaking process, in the search of potential teammates.

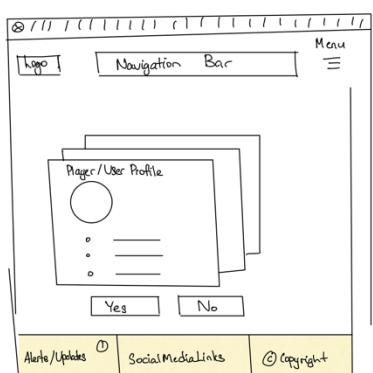
User Profile Page:



This is the user profile page.

- Consist of details related to the specific games the user is involved in.
- User can edit fields according if there are changes/ updates for one's gamer's profile

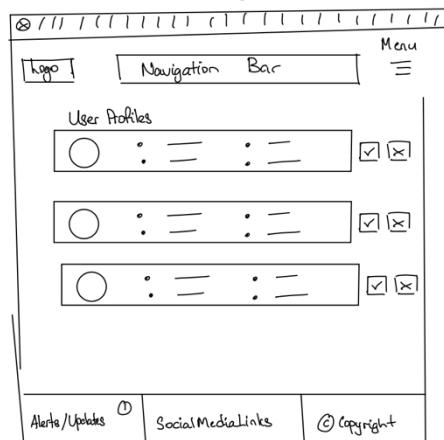
User Search For Matchmaking : <Option 1>



This is the first version of the search/ matchmaking page.

- It was rejected by a team consensus after discussing the user interface interaction, and the ease of viewing for users.

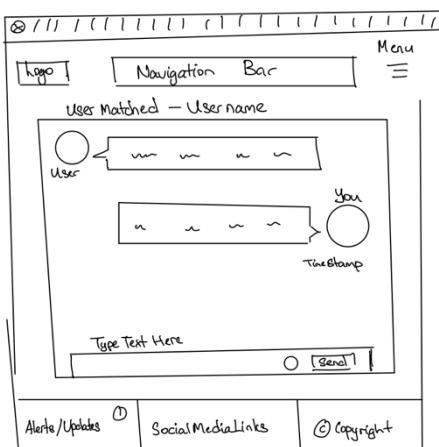
User Search For Matchmaking : <Option 2>



This is the finalised search/ matchmaking page.

- Consist of a different gamer profiles that the user can match with according to what the user is looking for in a teammate.
- The user can either select to match with or reject the gamer profile on the right.

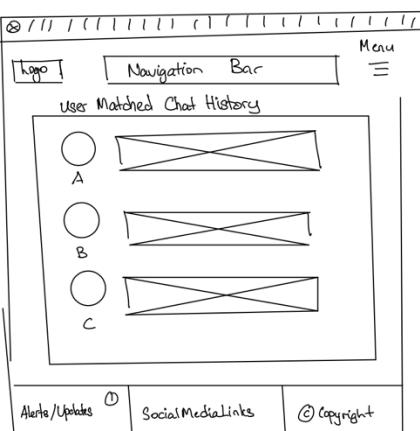
Chat Page :



This is the chat page for matched users.

- Matched users can chat with each other to discuss the specifics of their potential gaming sessions with each other.

Chat History Page :

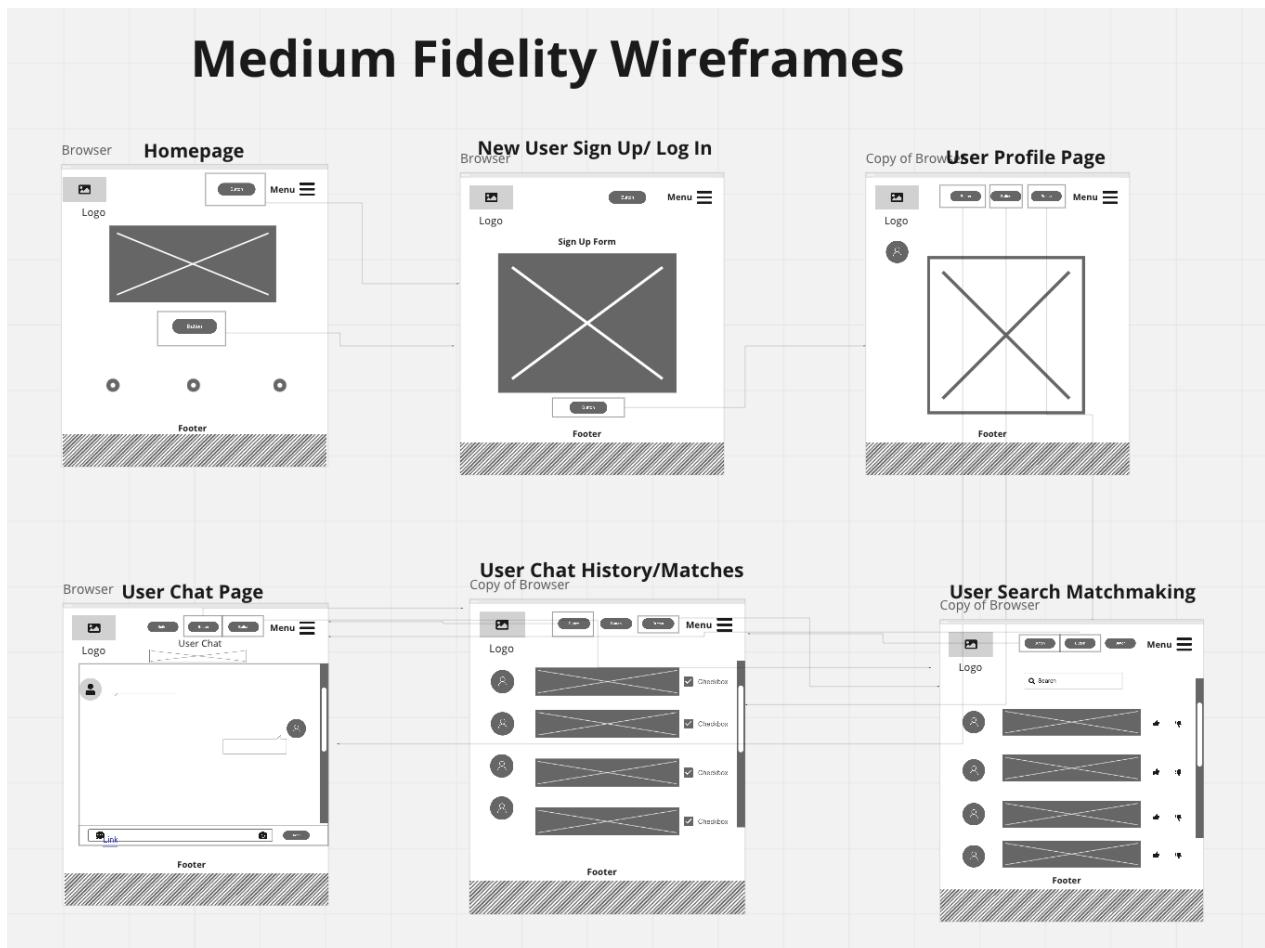


This is the chat history page/ matched users page.

- Users can view the chat history with each matched user
- The page also lists the current matched users

9.2 Medium-fidelity Wireframe

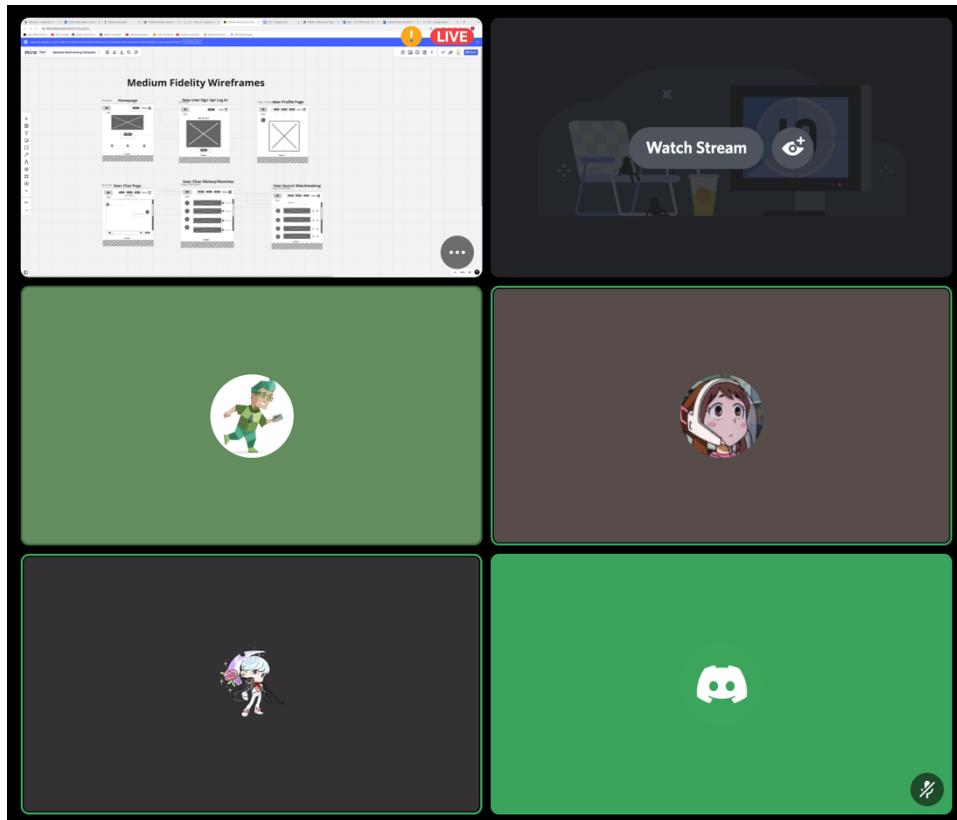
The sketches were then illustrated with more detailed features using digital diagrams/templates available on Miro.com (www.miro.com). The linkages between the pages are also displayed for a clearer presentation of page orientation and for potential users to understand the distinct features and navigation between the pages and key features of the entire web application.



Since we are adopting a user-centred design, we interviewed gamers that could be potential users of our web application. The wireframes and user suggestions are shown in the table below.

9.3 User Testing

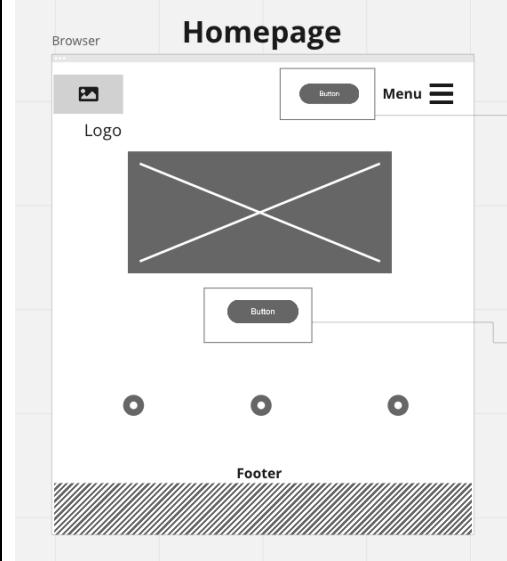
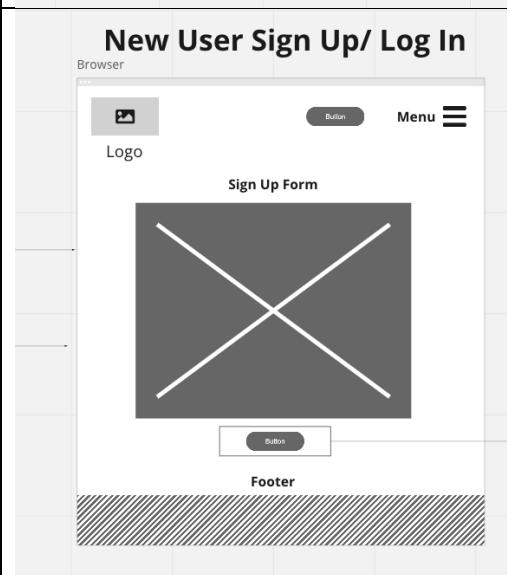
Firstly, this is the screenshot of the interview over the Discord platform (www.discord.com), for screen-sharing and feedback gathering, due to social gathering restrictions and convenience for interviewees and interviewers to share the digital wireframes over a live-stream.

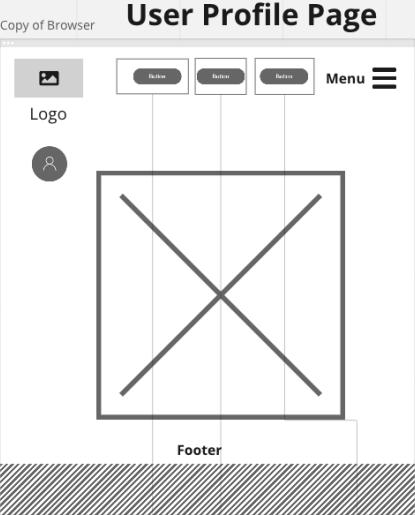


Discussion flow:

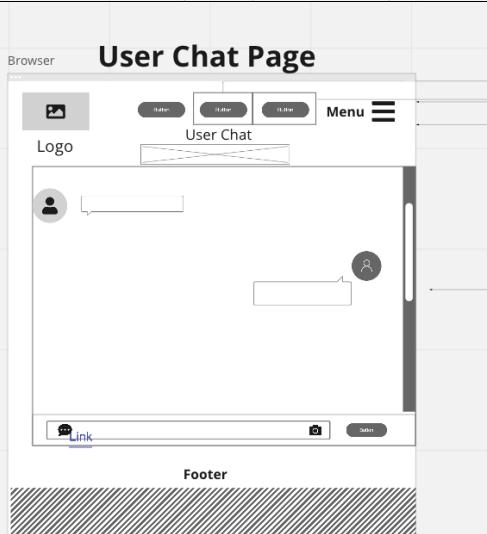
- UI/UX interface feedbacks
- Flow of navigation of the features
- Any other improvements to be made

User Feedbacks Gathered:

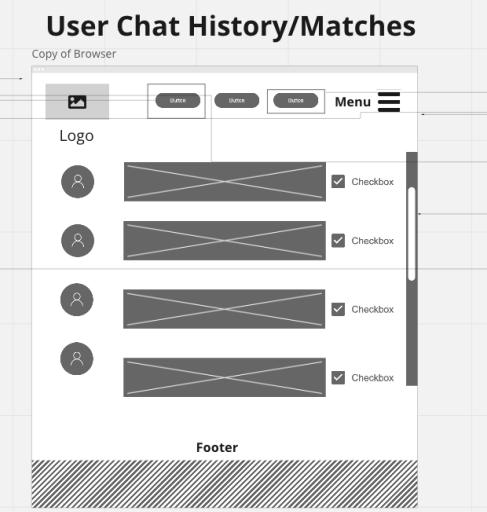
Wireframe Page Screenshot	User Feedbacks
 <p>The wireframe shows a "Homepage" with a "Logo" at the top left. Below it is a large rectangular area containing a large white "X". To the right of the logo is a "Button" and a "Menu" icon. At the bottom of the page is a "Footer" section with a hatched pattern.</p>	<ul style="list-style-type: none"> - Interface should be as simple as possible for Homepage as there should only be a button for Log-in/Sign-up - Show key features in a slideshow format on the homepage, to allow potential users to understand the web application interface.
 <p>The wireframe shows a "New User Sign Up/ Log In" page with a "Logo" at the top left. Below it is a "Sign Up Form" area containing a large white "X". To the right of the logo is a "Button" and a "Menu" icon. At the bottom of the page is a "Footer" section with a hatched pattern.</p>	<ul style="list-style-type: none"> - Sign up page should be simple, and the initial sign-up form should not be overly comprehensive as the objective is to get a potential user to sign up first. - Button to sign up should be at the end of the form, after filling in the sign-up details.



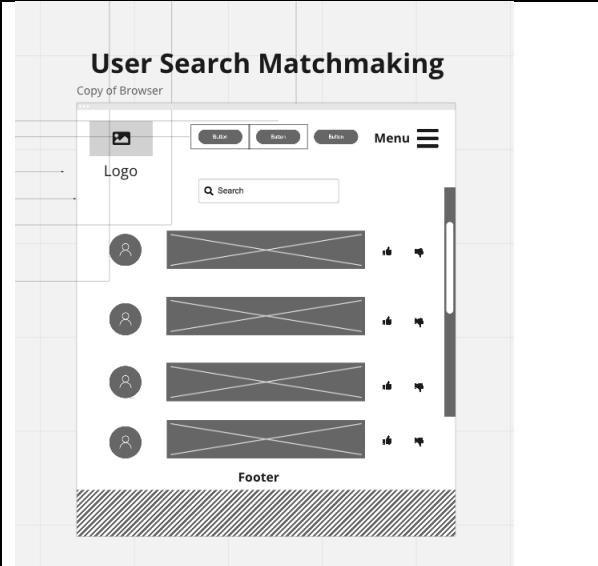
- The navigation bar on the top should not be too convoluted and evenly spread out for simplicity and easy access
- Details of the user's profile should be displayed clearly, without appearing like a document
- There is no need for a "menu" tab if there is a navigation bar, unless there are more distinct features of the web application



- User chat interface should be kept simple
- Chat functions should include adding pictures/ files for sharing



- Simple display of information of matched users while scrolling
- There should be a button for accessing user chats on the right
- Can display brief information about the users, be it win rate with the user in games, or games they play
- The other users' profile can be accessed by clicking on their icon

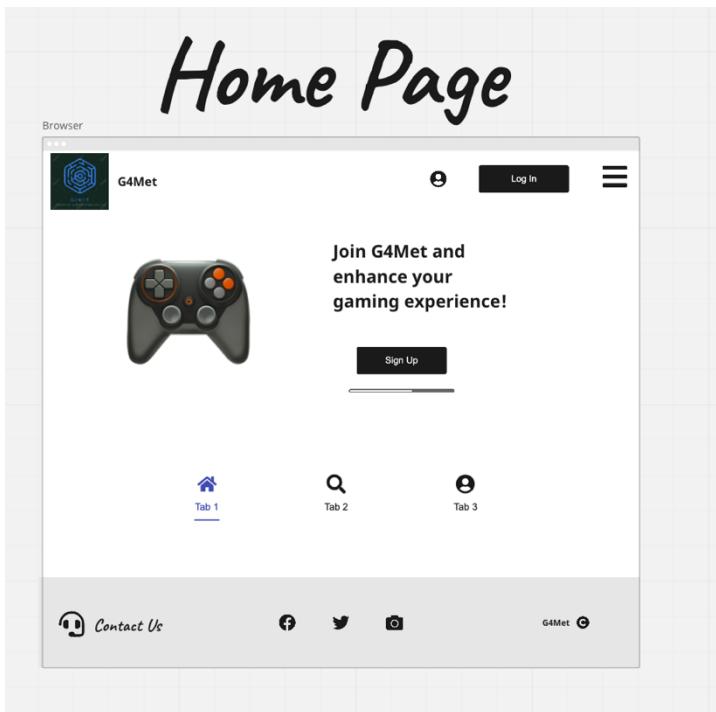
	<ul style="list-style-type: none"> - The matchmaking process should be simple - The selection icons for matchmaking should not be thumbs up or down as its usually associated with liking and disliking the user profile
<p style="text-align: center;">Additional Feedbacks</p>	<ul style="list-style-type: none"> - Pop-up messages to ascertain details entered are correct - User profile page can be edited - Confirmation pop-out message before saving changes

With the feedback we gathered, we listed some strengths and weaknesses that our web application possesses, and some improvements that can be made without changing the core features of our web application:

Strengths	Weaknesses	Improvements
<ul style="list-style-type: none"> - Allows users to edit their profile and status - User interface is generally user friendly, easy to use and navigate - Match making process made simple 	<ul style="list-style-type: none"> - We do not have a forget password link 	<ul style="list-style-type: none"> - Add a forget pass link

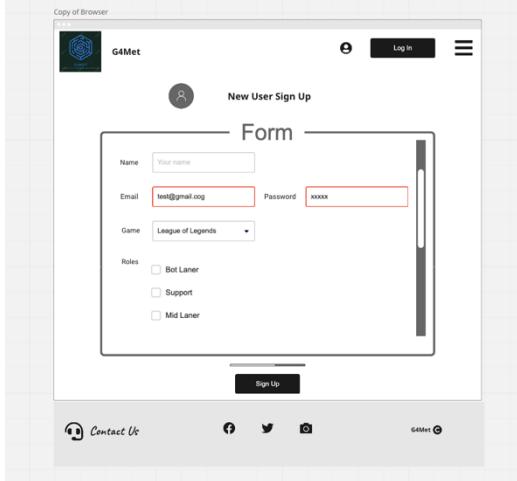
10.0 Prototype and Design

The prototype was also done on Miro (www.miro.com) due to the various templates and components they have. The components of the prototype also factored in the user feedbacks from the interview conducted for the medium-fidelity wireframe. The purpose of this high-fidelity wireframe (prototype) is to clearly communicate our ideas and demonstrate some interactions of the web application features. Below are the screenshots of the web pages.



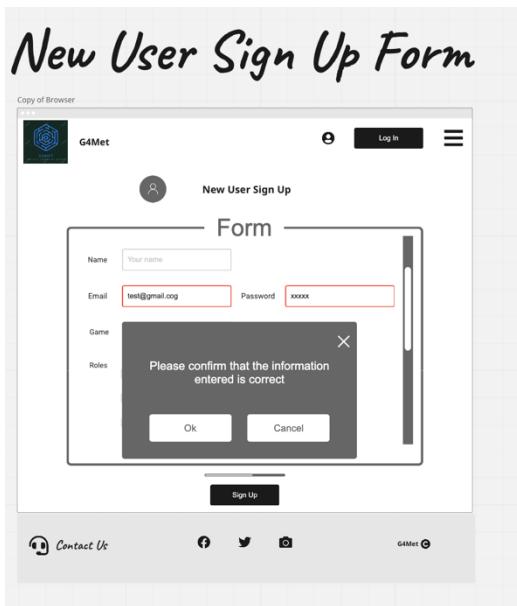
Our homepage displays some key features of the web application in a slideshow format, with radio tabs at the bottom, enticing potential users to sign up as an official user. Also, there will be a log in button at the top for existing users to log in to their profile.

New User Sign Up Form

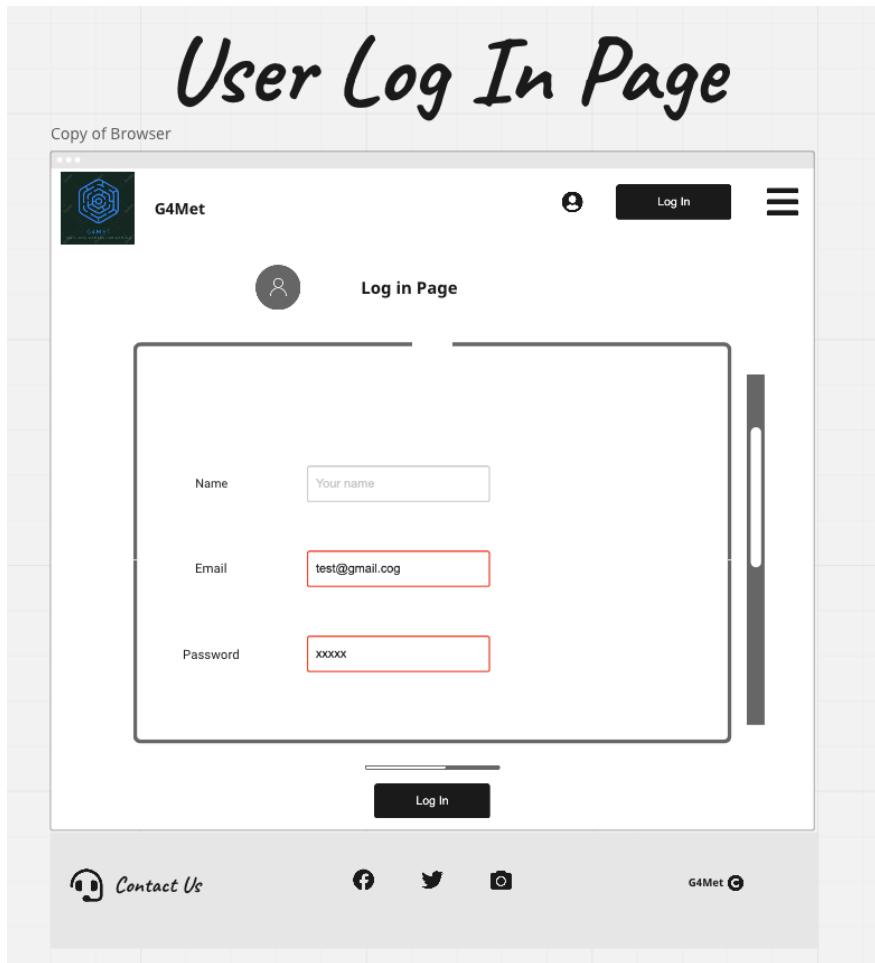


The user sign-up page will require a potential user to enter their log-in credentials, using their name, email address and password. The reason email addresses are used as log in credentials is for the ease of creating the account, as most online users would have an existing email address. Also, confirmation emails for an account can be sent to the user to validate the authenticity of the user.

The user sign-up form would also require the potential user to enter brief details of their gamer profile, such as the games they play and the roles they fill, for the matchmaking process.



A pop-out message will ask user to confirm the details entered before the account is being created.



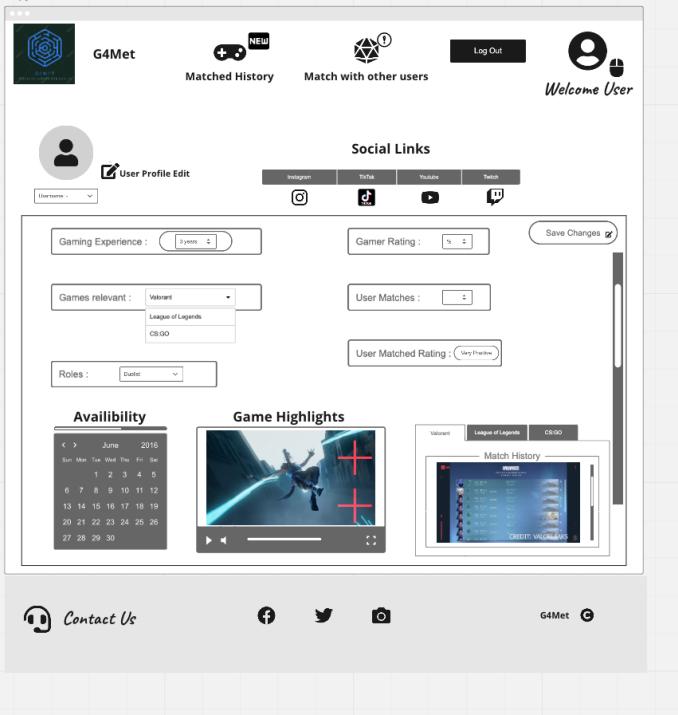
The log-in page is kept simple for users to log in to their profile page.

Additional feedback:

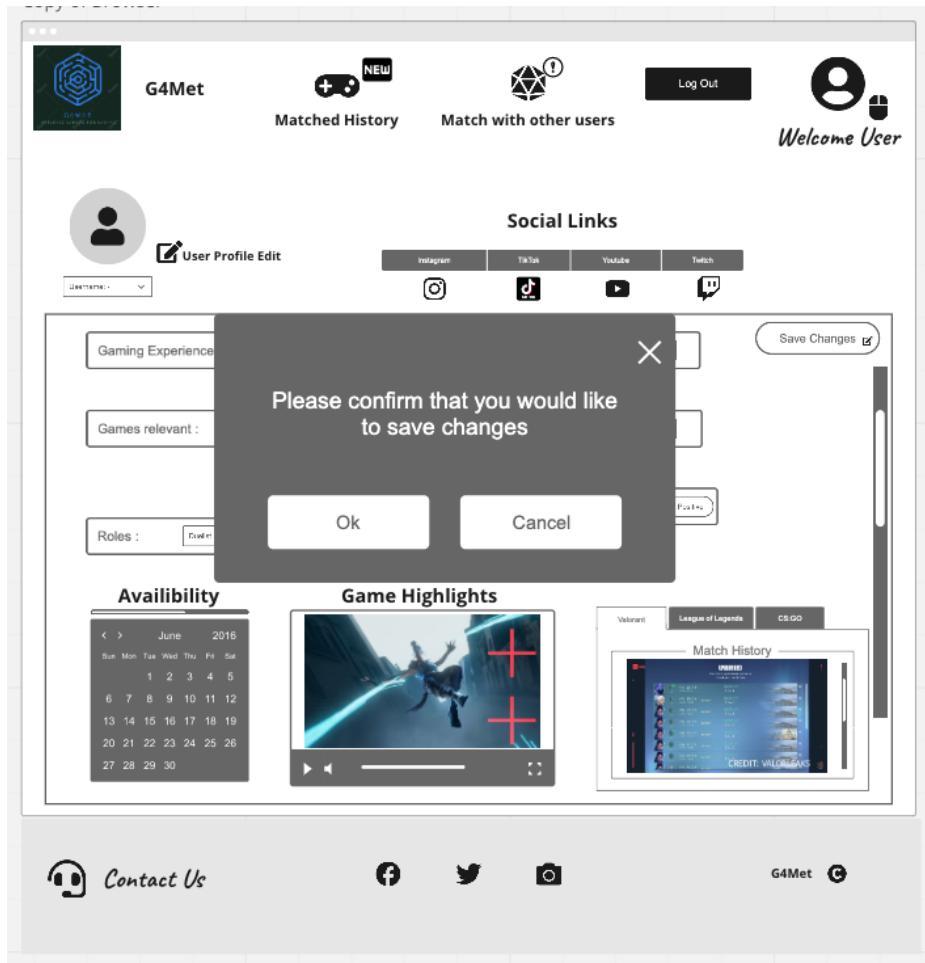
- A “forget password” option can be made available for users to retrieve their passwords

User Profile Page (For User Edit)

Copy of Browser



This is the page which existing users will arrive in after logging in. The profile page will consist of the genre of games they play, the roles they fill, amongst other details, such as gamer's rating and their availability to schedule gaming sessions. The user's will be able to edit this profile page, after changing certain details in the fields, by clicking on the "Save Changes" button on the top right of the page.



There will be a pop-out message to confirm the changes being made, before implementing them officially.

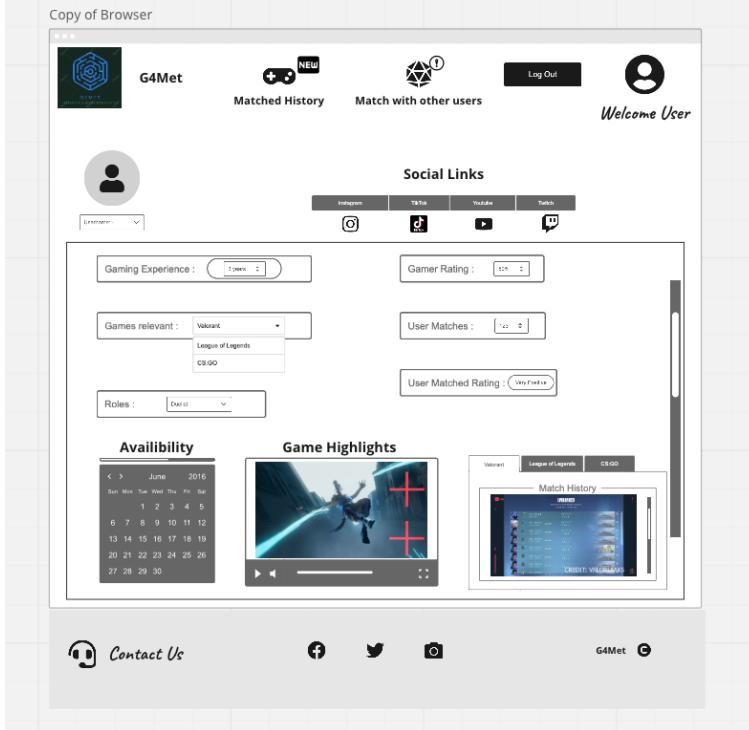
Matched Users Page

Copy of Browser

The screenshot shows a wireframe of a web application interface titled "Matched Users Page". At the top, there is a navigation bar with the "G4Met" logo, a "Matched History" section featuring a "NEW" icon, a "Match with other users" button, a "Log Out" button, and a "Welcome User" message. Below the navigation bar, the main content area is divided into four sections: "USER NAMES", "GAMES RELEVANT", "WIN % WITH USER", and "CHAT". The "USER NAMES" section lists three users with their names (LUCAS227, GAME1125, and TOM) and small profile icons. The "GAMES RELEVANT" section displays three game cards: VALORANT, League of Legends, and DOTA 2, each with a "More information" dropdown menu. The "WIN % WITH USER" section shows win percentages (60%, 70%, 80%) next to speech bubble icons. The "CHAT" section is currently empty. At the bottom of the page, there is a footer bar with "Contact Us" (phone icon), social media links (Facebook, Twitter, Instagram), and the "G4Met" logo.

This page can be accessed by clicking on the “Matched History” page on the navigation bar on the top. The “new” icon will pop out when there are new user matches. The feedbacks gathered during the wireframe interview have also been implemented, including the brief details of the matched users and a chat button to access the chat function on the right.

User Profile Page (Matched Users)



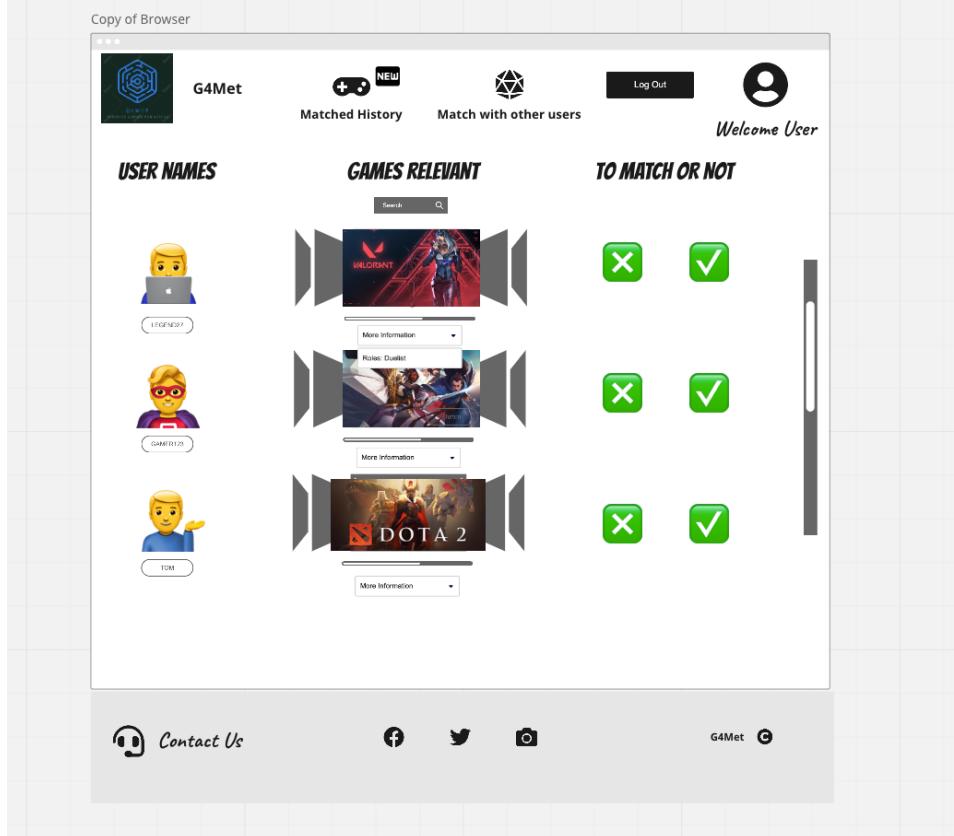
Upon clicking on the user icons on the left of the “Matched users page”, they are also able to view the user profiles with more details, like their own user profile page, only that there are unable to make any changes to the profile page.

Chat Page



The chat page with respective matched users by clicking on the chat button on the “Matched Users Page”. In the chat itself, users can also share images and files relevant to their conversations for more detailed communication. This added feature is also implemented after taking in the feedback during the interview with potential users.

User Matchmaking Page



This page can be accessed by clicking on the “Match with other users” button in the navigation bar on the top. Taking in the feedback from the interview conducted with potential users who are gamers, the buttons to match users have been changed to cross and check buttons, for easier understanding. Users can also view brief details of the games relevant to the other users for potential matchmaking, in a drop-down list.

11.0 Critical Evaluation

11.1 Critical Evaluation of Formal Specification

The scope and functionality of our app is based largely off of the framework of a dating app, though our intention and goal for the app differs, and we believe that we have encapsulated that through our customer journey map, user stories, and use case diagrams. Our aim is to make the application simple and easy to use, while still fulfilling its intention to enhance the gaming experience for all our users, such that the benefit derived from having found more friends to play games with heavily outweighs the perceived hassle of using a third-party application.

11.2 Critical Evaluation of Research Summary and Other Tools

Based on our steeple analysis we will do foresee challenges in this application along with some setbacks.

However, our swot analysis shows that our application has strengths that outweigh the cons. Hence, we are to conclude that our application will have a competitive advantage in this industry

11.3 Critical Evaluation of Our Approach

According to our strategy, we are combining user-centred design and agile project management. By maintaining user friendliness and employing brief and concise sprints to help us evaluate any short comings along our implementation stage that we can quickly repair, in compliance with the preferences of our stakeholders. This will help us ensure that our application can effectively target customers. So, this is a quick and exact approach that not only targets our aims effectively, but it is also time and money efficient.

11.4 Critical Evaluation of Prototype

At the current stage of our project, we have identified the key issues and the overarching problem many competitive games' matchmaking systems in place, which is our target focus, to improve the overall experience of both serious and casual gamers. The direction of our project expansion will also be catered more towards a user-centred design, as ultimately, we strive to create a conducive and productive environment for gamers through a more comprehensive, yet simple and efficient matchmaking system. With that in mind, we have a focus group which became our target audience, while developing this application, seeking their advice and validation upon improving on our application interface and features. From the latest interviews conducted and feedbacks gathered, we received positive affirmation that our application would be of great assistance to their gaming experience. The interviewees (our focus group), like the idea and features we have included in the prototype, and we have concluded that this is the direction that we continue to develop towards. Minor changes will also be implemented based on the feedback we have received, like the user

password retrieval, in the log in page. Our team has also decided to design a web application, as most users/gamers would have a computer to access our application and functions. Our team has also decided to craft and develop the application using software technology, like ReactNative.js to create the framework and interface, as the software flexible and has the capability to integrate various libraries for the web application. Also, due to it being a hybrid application development platform, if there is ever a need, we could expand towards mobile platforms and further optimise usability for our potential users of the web application.