



# GAME GUIDE

THE PROGRESS YOU KNOW

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# Introduction

The project we've been developing is a guide system exclusively targeted to gamers with the intention of helping them enjoy and get through their favourite games in an efficient but fun manner. It will be conveyed through a website and it will provide users with tips and advice through text and video popups for games the user is interested in playing.

We have heard a lot of negative comments from several gamers where they complain about the lack of in-game help in some games where they get stuck in certain aspects, be it puzzles, places or/and missions, and they are forced to open about said games' wiki or visit a random youtuber that will hopefully offer them the help they require. With our game guide system, however, the users will only have to keep one thing open in the background, and that is our website. The users will be able to choose whichever game they require help in and the website will provide them with implementation of video assistance and written text on screen while they are playing their game.

In this project, the main agenda is to receive valuable information that is filtered by the creator, which is us. All the data that can be hard to understand or mislead with false one's is made to have simple information with text. can be annoying for people that love to understand from the video to make it simple. However, looks for answers can be that seeks for crucial information and helps gamers to view and review the news.

The reason for using this website is to provide information with details of data sources collected into one acquired space to gather and get to key information. It is a start of establishing the project with vital information gained from research and getting the necessary data shown on our website along with videos sourced from YouTube.

We understood what was required of us after conducting surveys and constant testing with stakeholders. This helped assure us that our website will be of good use to the gaming world. We managed to complete most of our targets outlined in the proposal in time creating a minimum viable product.

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# Planning and Research

## Planning

Planning to work in a group was difficult to get around with communication sources that required attention to detail of design.

### Managing time and the software used

We have decided to start work on this project from very early on as we determined that the earlier we start on it, the earlier we can spot potential mistakes and correct them accordingly. We decided to keep in contact with each other through whatsapp and to save files and meet-up via discord voice call every two days a week, and fortunately, all of our members were familiar with both applications, so none of us needed support when using them, ensuring that we effectively talked with each other. We also ensured that our voice call meeting times did not interfere with our members' personal lives, their work schedules and their daily plans. Furthermore, for the report, we have settled to use google docs, as it lets us share the same document and enables us to adjust and correct any errors any one of us did while writing up their part of the document.

Since we did not know each other in the beginning, we also have decided to have two meetings a week instead of one, as it allowed us to get to know about each of our members and made communicating with each other gradually easier than it was when we started off, as well as making our teamwork more effective. This was because by the nearing of the deadline of this project we were aware of each other's strengths and weaknesses, and allowed us to complement one another and made the tasks and assignments given to each of us more simple to carry out.

## Research

Before settling up with our desired product, which we agreed it to be a website, we had to see if there was already some websites that were existent and similar to what we had come up with, as having to make a product that already exists and has settled in the market would be unfavourable for us, since it would make what we came up with as a cheap copy of the already existent one. To further prove the legitimacy and uniqueness, we decided to also come up with our own USP(unique selling point), which would allow our product to stand out over our other competitors.

## The Market

After some research we found that there were several websites that allowed users to track their games, which was what we had decided to focus our website on. Two of the most prominent ones among them were Grouvee, MyVideoGameList and GGApp, which were the most visited and used. This would make them our competitors once we got a foothold in the market. [1]

Now that we made a note of our competitors, the next step is to make ourselves stand out from them and settle with our unique selling point. Following some more research to get ideas on what our USP would be, we discovered that the websites mentioned above did not have one particular feature that we thought would be essential for anyone tracking their games. The websites did not have a way for gamers to be of help during gameplay, like hard missions and objectives. This would mean that gamers would not be able to rely on the websites during hard and frustrating times where they're not able to get past said missions. We decided that other than allowing gamers to track their games, we would also help them by including tips, tricks and walkthroughs in our website, which, we thought, would hopefully aid them during their gameplay.

To further help identify how we can understand our audience and make improvements for our system, we conducted a user questionnaire in the last proposal. Down below you will be able to see the responses of our questionnaire and the results of our research.

Questions	Answers
What age group are you associated with?	18-21, 22-25, 26-29, 30+
Would you use a game guide, and recommend one?	Yes, No, Unsure, Likely
How often do you play games?	Once a week, couple of times a week, almost everyday, everyday, I play a lot
Which genre of games do you play?	RPG, FPS, Sports, Puzzle, Strategy, Other
What accessibility options would you like for the game guide?	Colour contrast/colour blind settings, Text to speech, Settings for the visually impaired i.e (Font size, bold texts)

The responses were very helpful as it allowed us to determine what type of gamers we would be dealing with. From the responses that we gathered, we were able to create a summary of them in our proposal. It was important for us to note that not everyone plays games and/or even has the time to play them.

The data gathered from this questionnaire was very valuable to us in the early stage of research and when composing our proposal, but that's just because we needed information on our target audience and on our users. Since this time we were required to physically create our website, we needed data that would deliver helpful insights and clear priorities on what features would potentially benefit and aid our users the most. The questions asked and responses answered on the questionnaire would not help us in this stage of research, meaning that we had to scrap it all up and create new questions that would be the most relevant for us.

Consequently, we determined that doing focus groups would be the best way for us to gather new, more relevant and accurate information. We broke off into groups of two and decided that each of us would bring in 5 people. We called in some of our friends and colleagues, which totaled to about 30 people (10 per group) and asked them new questions about how we can go about or improve on our website.

The first and most obvious question we asked to our friends and colleagues was whether they have ever used a game tracking website. 19 of them said that they have never used it, 4 of them said that they used it or used it in the past and 7 of them said they didn't know what that was. As we can see from the responses, most of them never used that type of website, which would normally make us question whether it would be a good idea to go about with our project, as there are also the 7 that don't even know what it was. However, we have seen from our previous proposals' questionnaire that 70% of the people we asked said that they would use a game guide and even recommend one to other people. This means that even if people don't know about what a game tracking and game guide website is, they would use it if given the chance, which then gave us more of a reason to bring about the completion of our project.

We then asked about what feature they would like to see the most, 12 people said that they would like the website to be easy to navigate. This is expected as users wouldn't like it if a website is messy with no clear distinction between its diverse buttons and colours. 9 people said that they would like a dark mode to be added to the website, with a choice to enable and disable it. The rest only wanted that the website would be responsive, as having an unresponsive website would be frustrating to navigate in.

When asked which colour scheme they would like the website to have[2]. We found out that the majority (16 people) liked websites that had the colour red on it. After some research, we found out that red is the colour that attracts customers the most, as it's a vibrant colour and it instantly catches the eye[3]. The other responses were pretty mixed, from blue to green, however, we did note that users wouldn't like it if our website was only one colour, meaning that when they say they want red,

they mean that there should be a hint of it, and not covering the whole page. They also further reinforced the idea of wanting a dark mode while still keeping the original colours.[4]

As the last question, we asked if they would prefer their personal tracking collection of games and guides to be public or private. The responses here were pretty controversial, as 17 people preferred them to be private, saying that they would not want to share it with others, while 13 said that they didn't care if other users saw their collection and guides or not. After some research, we found out that having a private account would bring more advantages than disadvantages, as, to name one, a private guide collection will make users able to choose who is able to view it. Because of this, we decided that, just as dark mode, we would implement a way to make it so users are able to hide their collection and what guides they need, if they decide not to share it with other users. This also means that if they do want to share it, they will also be able to keep it public, which would allow everyone to be able to view it.[5]

## Stakeholders

Before partaking in further research, we had to ensure that all of us were familiar with the stakeholders that our product will be dealing with. This guarantees that when researching, we would have been dealing with and targeting the right stakeholders, as if the opposite happened, it would slow our testing and analysis for a good amount.[6]

The stakeholders we would be dealing with are:

- The users of our product, our consumers;
- The developers, those that deal with the coding and programming;
- The designers, those who design our website and make it look presentable;
- The content writers, those that form communities and set up forums and provide assistance;
- The testers, who will be a combination of friends and colleagues;

Now that we have listed our stakeholders, let us go more in-depth with them;

The consumers, which are the users of our product, are the ones who will have the most influence in our product and its settings and updates. Our target audience for our consumers is mainly going to be users of the age range between 18 and 25, as, shown in our previous report, were the group that the people that took our questionnaire associated with the most. However, we are aware that some users might not be the audience that we were hoping to target, as gaming is a practice that is not only limited to young adults, so accordingly, we will ensure that our website is easily accessible and interactive for all ages, while also including assistance for people with disabilities. We are establishing all this because since the consumers will be the main source of the importance of our website, we will

have to ensure that their experience of our product will have to be positive, and it should be a no brainer to say that their feedback will be treated as the priority.

The developers are the ones that will be working behind the scenes and deal with the coding and programming aspect of our website. These stakeholders can furthermore be divided into two types of developers; the frontend ones and the backend ones.

Our front-end developers will be in charge of building the visible features of the website, meaning the part that users can see and engage with, including the creation of the layouts and styles of each page, and making sure that they look interactive and user friendly. The backend developers, on the other hand, will be responsible for maintaining, debugging and implementing the areas of the website that users won't be able to see, like databases, servers and other processes that make it possible to run the website, as well as encryption to keep the website secure and protected from unwanted attacks.

Both of these types of developers are crucial to the creation of our website, as it would not come to fruition with the absence of either one. Their input on the website influences how the website turns out, and, if fully informed of all project updates, will be the ones that will be able to respond to our clients needs.

The designers will be in control of creating and building the web pages by combining visual elements including text, photos, animations and video. This is important because the many users' experience of our website will need to be positive, and that feeling will increase the more appealing and aesthetically pleasing the website is. The measuring of the “average session duration” further reinforces the need of a web designer. This tracks how long users spend on a website in minutes or seconds. Thus, users' experience of our website and how much they find it appealing should be prioritised, as a negative user experience will mean that users that visit our website are less likely to avoid visiting the website in the future or recommend it to other potential users.

The content writers are the stakeholders that make our website lively and vibrant. They form communities of the games they mainly play and create forums so that users with the same interests in mind can interact with each other and provide assistance. Different content writers may focus on specific topics such as walkthroughs, mapping and even news. Users will be able to choose the content they are interested in, whether they want to get past certain bosses or enemies by following walkthroughs, or find special or hidden locations within a game's map, they will be able to do so thanks to the content writers that are using their time to provide aid to those that require it. Without them, we are confident in saying that there would be no content within the website.

## Prototyping and Iteration

As a group, our original focus was to present something both visually appealing and incredibly usable. The iterative process throughout the lifecycle of the website's development made it both challenging and exciting to see what we could create and bring to life. We had in mind many imperative factors that could contribute to a pleasant experience. This was further reinforced by our UML diagram, which was changed quite a bit contrary to our previous diagrams that we presented in our proposal for Game Guide.

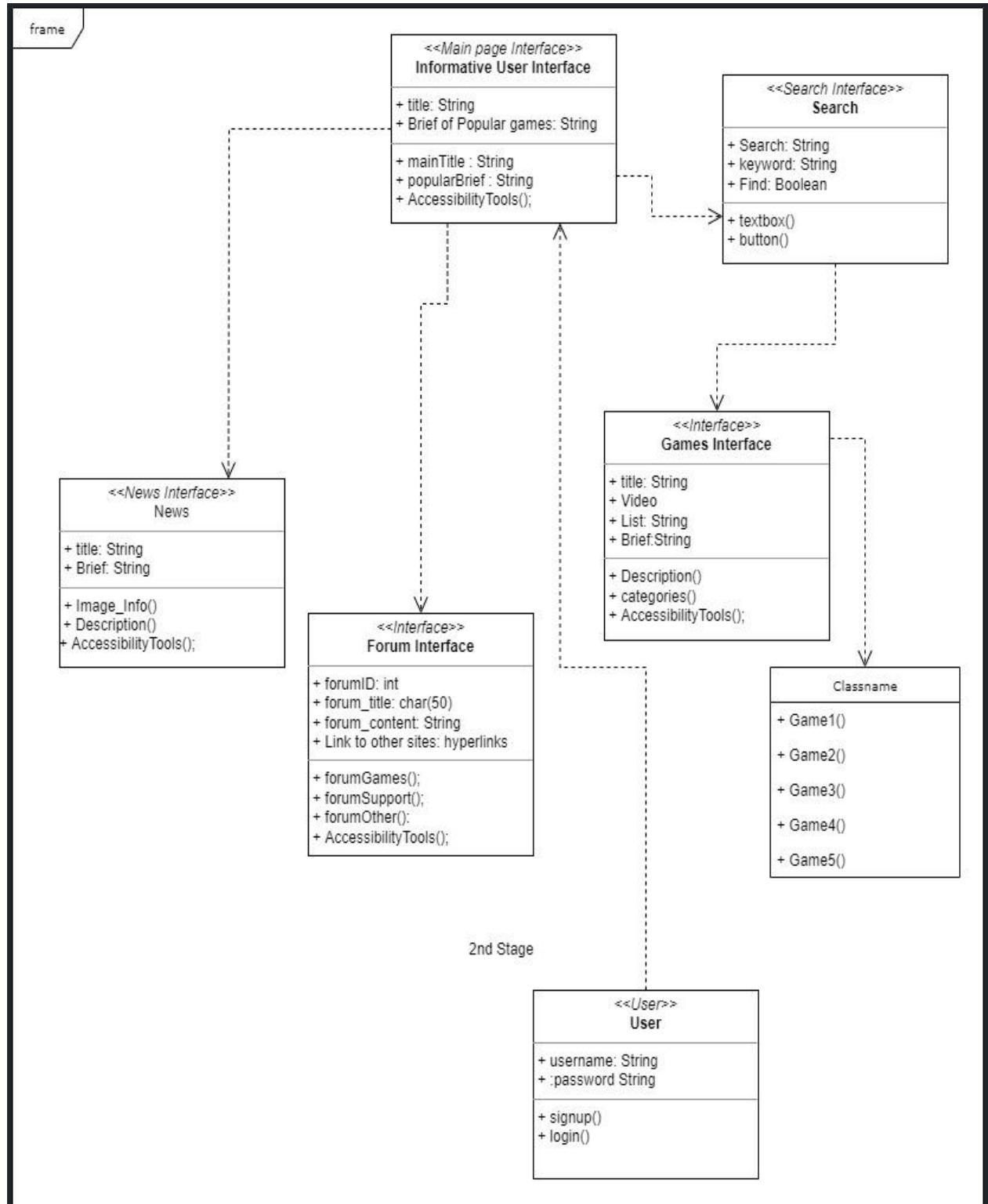


Figure 1: Games page finished product :

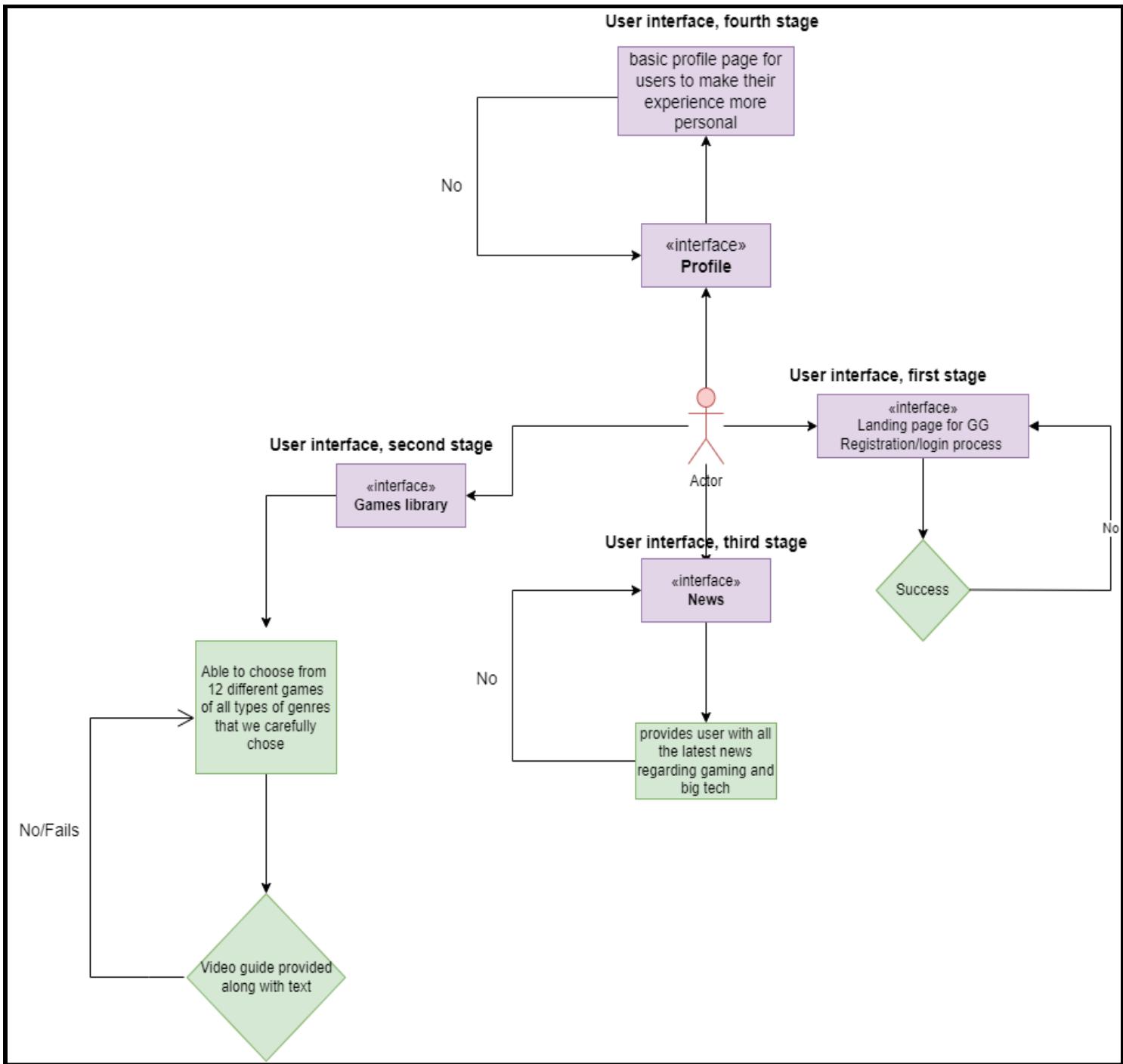


Figure 1.1: Games page finished product :

The following list displays user interface stages presented in our UML diagram:

- User Interface first stage - landing page
- User Interface second stage - games library
- User Interface third stage - news
- User Interface fourth stage - profile

These four stages are shown to the user initially, and through multiple iterations of design and development, we will make sure that these are the final user interface features available. The structure of the newly developed UML diagram illustrated in *Figure 1.1* saw us make many changes to our website and previous UML. The search bar in particular (we mention more thoroughly later on in this report) and user interaction with the profile and login features were important features to decide to leave out. Despite the intent to follow through on many of our aims and objectives, we felt that this current form of the website would not see much development if we were to pursue this project. Furthermore, this led us to believe many of the features that we left out were not necessarily fit for the project.

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*Prototyping and Iteration for the Home Page - first stage*

*Prototyping and Iteration for the Games Page - second stage*

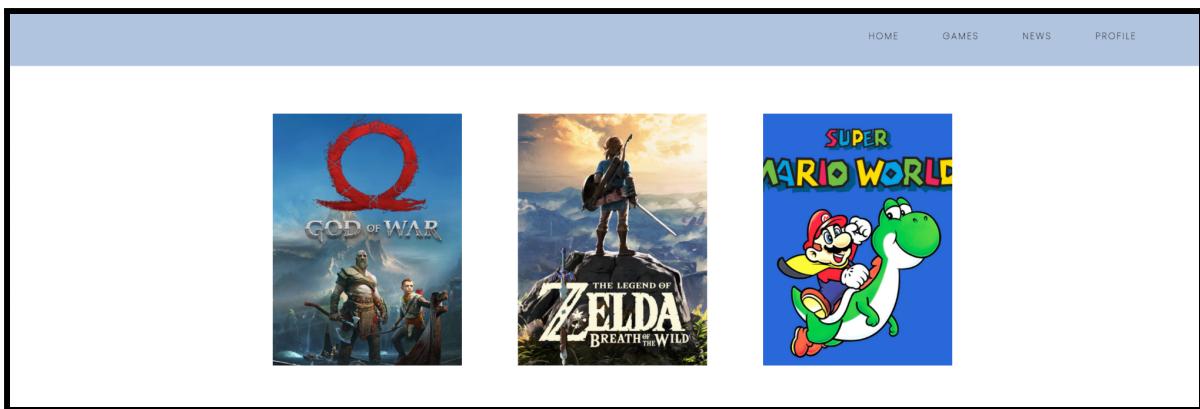


Figure 2: Iteration 1 of our finished product.

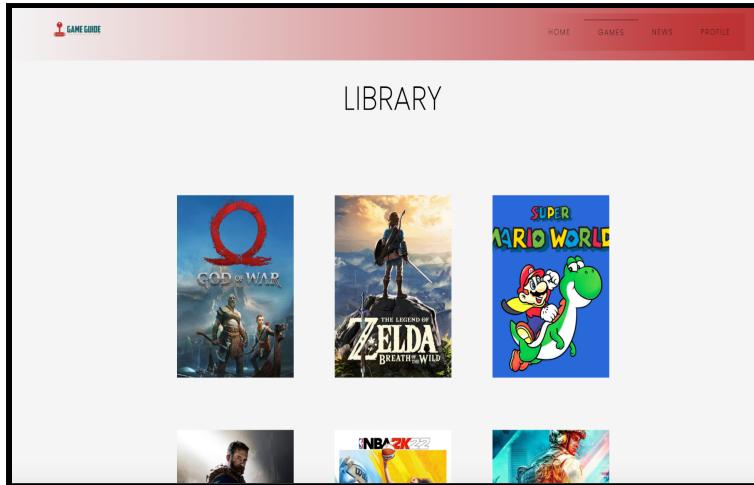


Figure 3: Iteration 2 of our finished product:

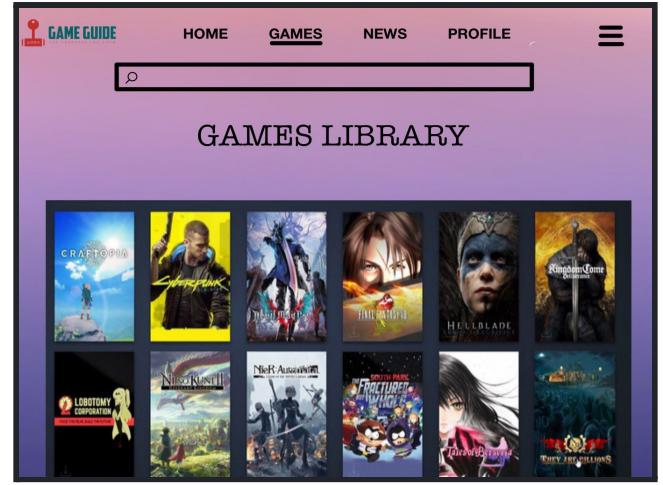


Figure 4: high fidelity prototype from Proposal

The site's styling in relation with our prototype from the proposal (Figure 4) saw us make many changes, as noted in our evaluation process "...*We received feedback that the colour scheme should change to make it more clear to read as we had a contrast of colours.*...". The clear change which was recommended by one of our many stakeholders, Sean, conveyed a disinterest in the background colour of the screen. Due to this, we decided to choose a simple colour palette when it came to the website's UI and we began this process through our first iteration of development, this was our first time actually coding and using HTML, CSS AND JS to bring this project to fruition. The simple white background you see in both Figures 2 and 3 were a few of the many ideas where we were constantly changing our backgrounds to best complement the games images and box containers present. There was also a big contrast in the way the high fidelity prototype and early iterations of the product were set up. We felt that creating a row of six to even eight images would create a clutter

which strays from the simple and minimalist design we wanted. This 3x4 design perfectly mirrored what we were after. Throughout this report, there were lots of different coloured navigation bars that we had. These colours were also constantly changing, as you will see in later figures attached in the appendix.

Since *Figure 2* was the first iteration of design, there were many things left out that would end up changing. The branding in the top left hand corner and also the indication of which page you are on, highlighted by the overlining detail in the nav bar. Between both iterations, we wanted to focus on getting all these details out the way so we would not forget. For example, an overlining detail helps the user know which page they are on.

Another massive difference between our high fidelity prototype and iterative design process listed above, revolves around the search bar. This was key for us during our original development plan back towards the end of 2021. However, through our testing phase for the games page primarily, we were very conscious of deciding to leave out an element we considered important. A survey was conducted by members of our working team. We concluded that perhaps usage for a search bar in this given time would be futile, as suggested in *Figure 5*. We received several responses to the question posted to family members, friends and colleagues. Choosing from a list of twelve games does not seem to warrant a key implementation like a search bar. Although there could be important use for it in the near future if we continue to pursue development of the website. Being able to conduct surveys for constructive criticism made the decision far more easy on us and took a lot less pressure. However, an integral part to making this guide work is the fact that we are willing to cater to users' wants and needs. If this guide was further developed, and we had many more games available, this would be an imperative feature. We hope that this idea is further explained in the evaluation process later on in the report.

Being able to conduct surveys warranted a key feature implemented in this games page. When choosing particular games for our library, it was important to understand the market of certain games for our users. Market research had shown a variety of different games that our users preferred to play - from RPG, sports, puzzles etc. so when choosing certain games for our guides, this led us to make assumptions about what exactly our users would prefer. Due to this development, we ran a particular survey for games which we felt could have multiple guides. *Figure 6* shows the game modes which people choose when they play Call Of Duty, as we can see the stand out mode was online, as expected. The video guide which we chose was for learning the basics of COD online. On the other hand, games like God of War are solo story games where users found the most trouble when playing certain missions. As a result, we catered to those users as opposed to solely choosing online games. Perhaps in the near future if we continue development for this guide, it would be a good idea to

provide users with a pop up modal message conveying our decisions behind certain guides and why they were picked would clear up uncertainty.

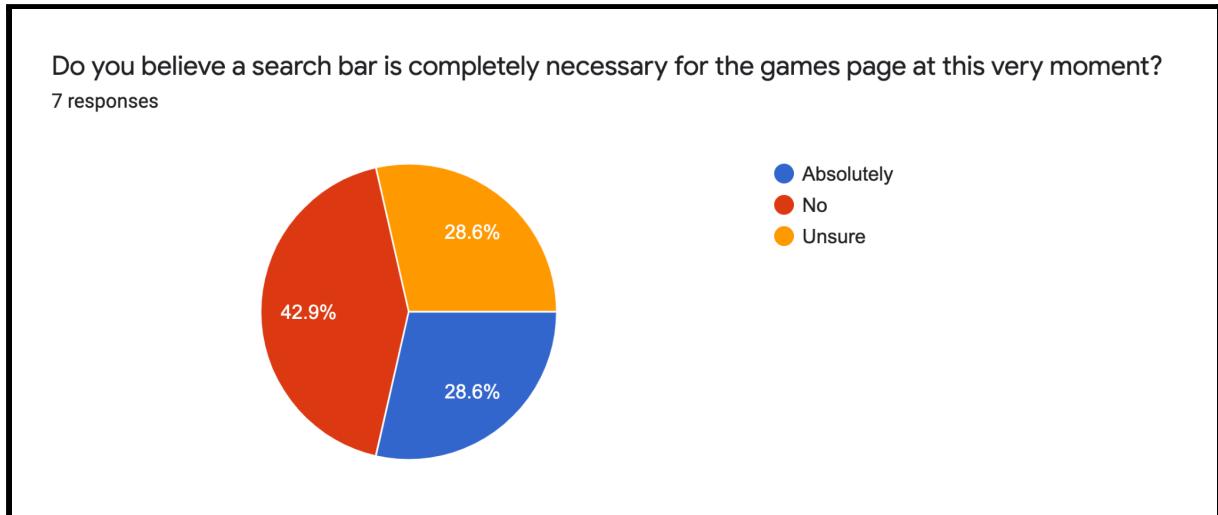


Figure 5: Survey questionnaire for issues concerning development

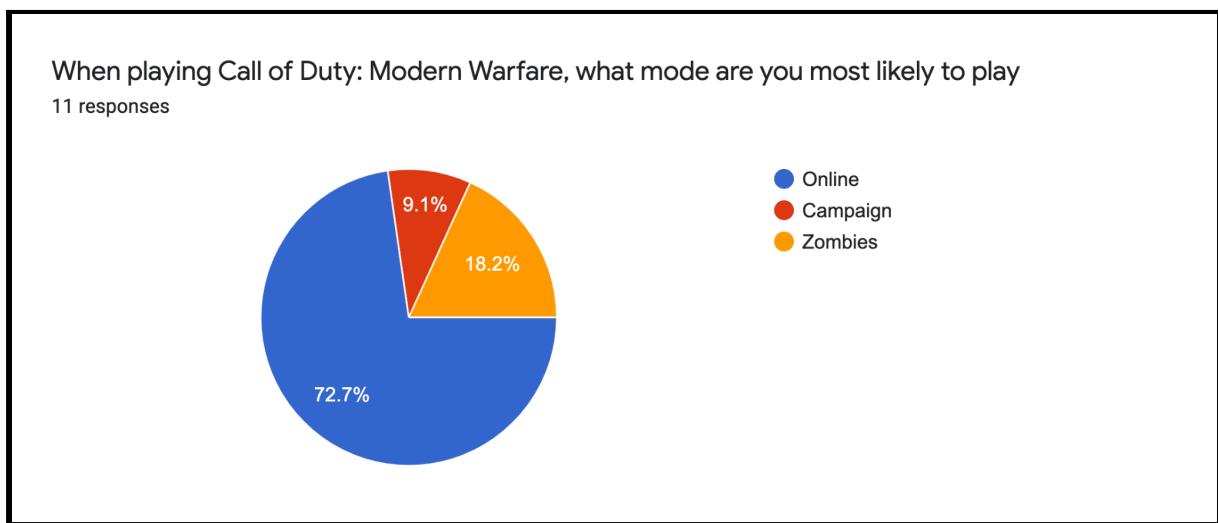
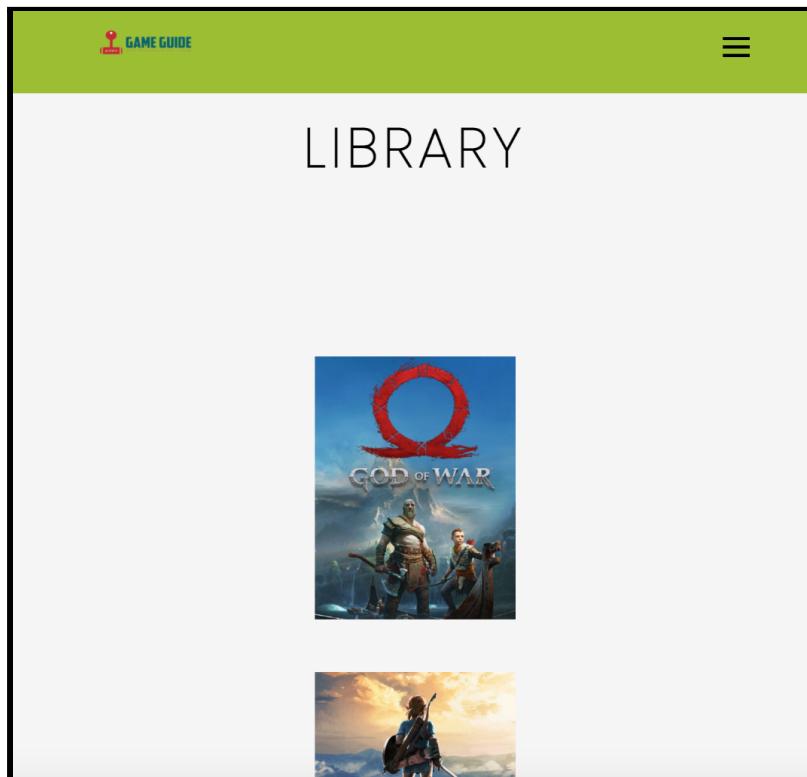


Figure 6: Survey questionnaire for issues concerning development

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*Figures 7 and 8* are displays of the hamburger feature and games page for much smaller displays ranging from 375px to 768px. This is one of the final iterations of smaller displays for both features listed. Changing the scale of the game's images from 3x4 to a single file-like display helped avoid creating a boring monotonous experience for the user. Also we felt it made it look far more minimalist than copying a similar layout to the wide 1024px display. Furthermore, the single file display makes it far more easier for mobile users of all sizes of devices. As for the hamburger feature, many of our competitors like IGN implemented a similar feature where it would appear when you minimise the display. This also makes it far easier for mobile and devices other than laptops or computers to access the video guides. Throughout our design process we felt trying to find the right colour for the hamburger feature was important. *Figure 8* shows the gradient effect we tried out, this was just an iterative process and perhaps could change as we further change the website. We were unsure about whether we wanted a consistent green, as shown in *Figure 7*'s navigation bar, or whether we wanted the user to feel some personality while still keeping this theme of minimalism.



*Figure 7: Display of games page from 375px to 768px.*

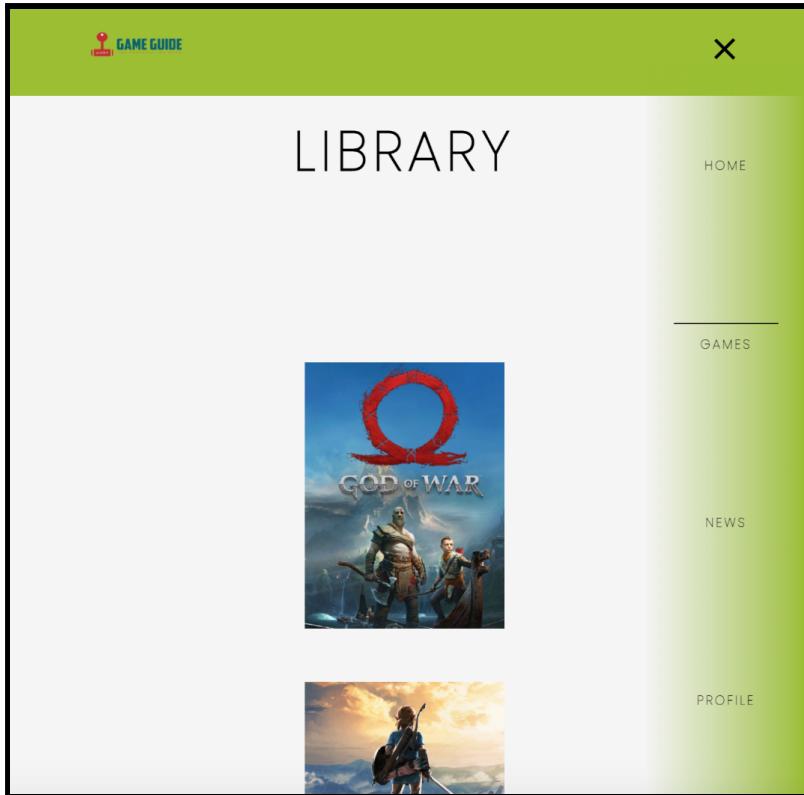


Figure 8: Hamburger feature shown.

Figure 9, 10 and 11 finally display the actual video guide in action. This was perhaps the most important feature since it the culmination of everything that we've mentioned in our proposal and objectives. We had many plans for how we wanted to present each game to the user. Figure 9 is indicative of the many approaches we had in mind when watching a video guide. The very simple and overused aspect of having a video on the side as well as text on the other was just one of the few things we decided to change with this page. This led us to the Figure's 10 and 11 where the obvious change was the implementation of the button, this was a CSS feature, where when clicked, would redirect the user downwards, essentially scrolling the page and showing the text for the guide chosen. Being able to watch the video in the centre of the screen allowed us to keep this minimalist design and also made it much easier to follow suit when displaying this for smaller displays such as phones and tablets. In terms of background colour, this was an ongoing discussion for us as we were more than willing to choose from an array of colours. The finished product of this page in action perhaps will

change as we run surveys and more testing for users to decide whether they think such change would be necessary.

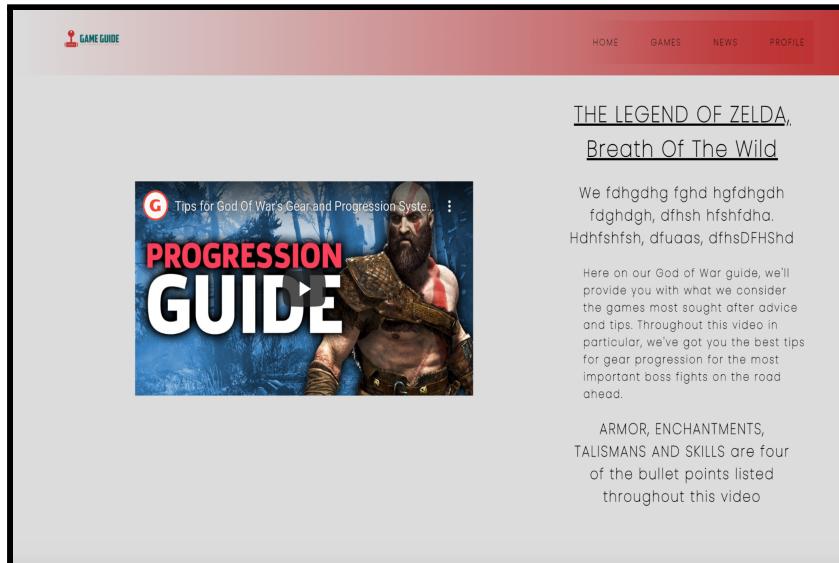


Figure 9: Example of game called God of War iteration 1

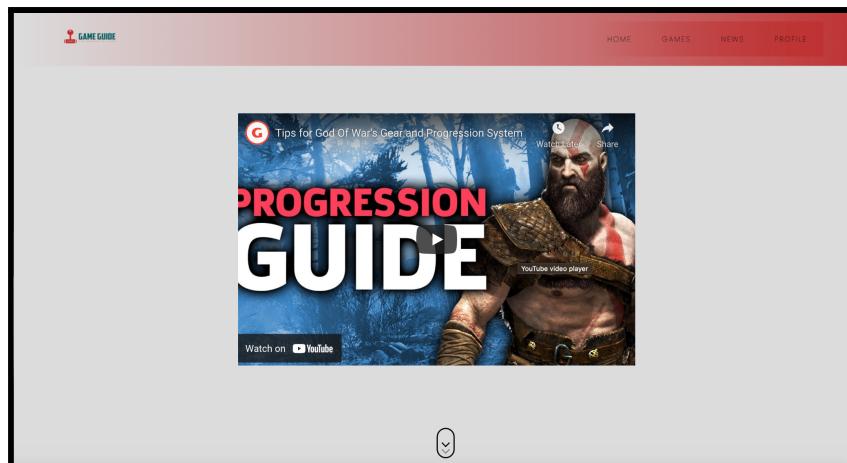


Figure 10: Example of game called God of War iteration 2. Final product

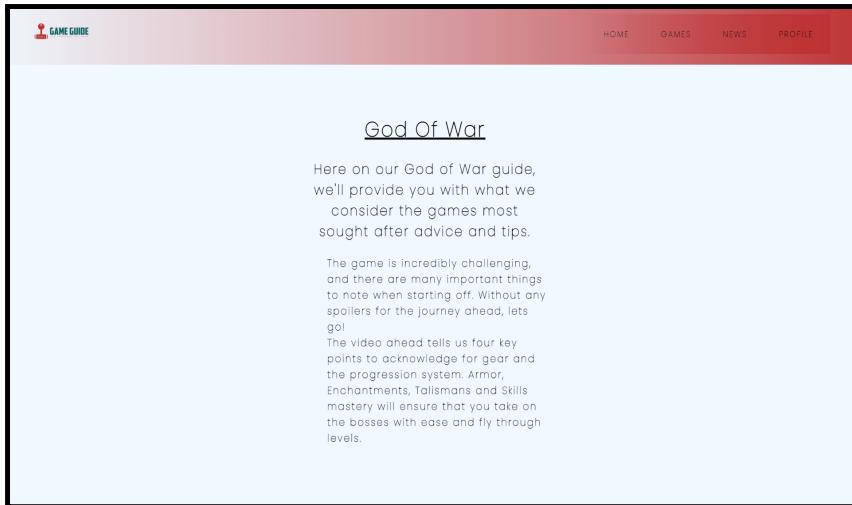


Figure 11: God of War after mouse scroll animation is pressed.

### Prototyping and Iteration for the News Page - third stage

A screenshot of a news page prototype. The header is white with the logo 'GAME GUIDE' and navigation links 'Home', 'Games', 'News', and 'Profile'. The main content area is divided into three columns. The left column is titled 'Gaming News' and contains placeholder text: 'Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.' The middle column is titled 'Latest Gaming news' and contains placeholder text: 'Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book'. The right column is titled 'Top 10 Current Games of the Year' and contains placeholder text: 'Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book'. The bottom of the page shows a dark footer.

Figure 12: First iteration of the news page.

During the process of coding for the news page we made a couple of iterations which were due to the feedback we received from the stakeholders, Sean and from each other. The feedback that we received from the stakeholders on the first iteration of the page were through questionnaires which are shown in figure 13 & 14. Looking at figure 12 we can see the first iteration of the news page has a very simple layout and style. The news page is broken up into 4 different sections which include: popular gaming news, latest gaming news, esports news and top 10 games of the year. Each article is in a simple black bordered box and the content for each has not been added at this point. The first iteration of the news page laid out the basic structure of the page and this was done through using CSS grid layout.

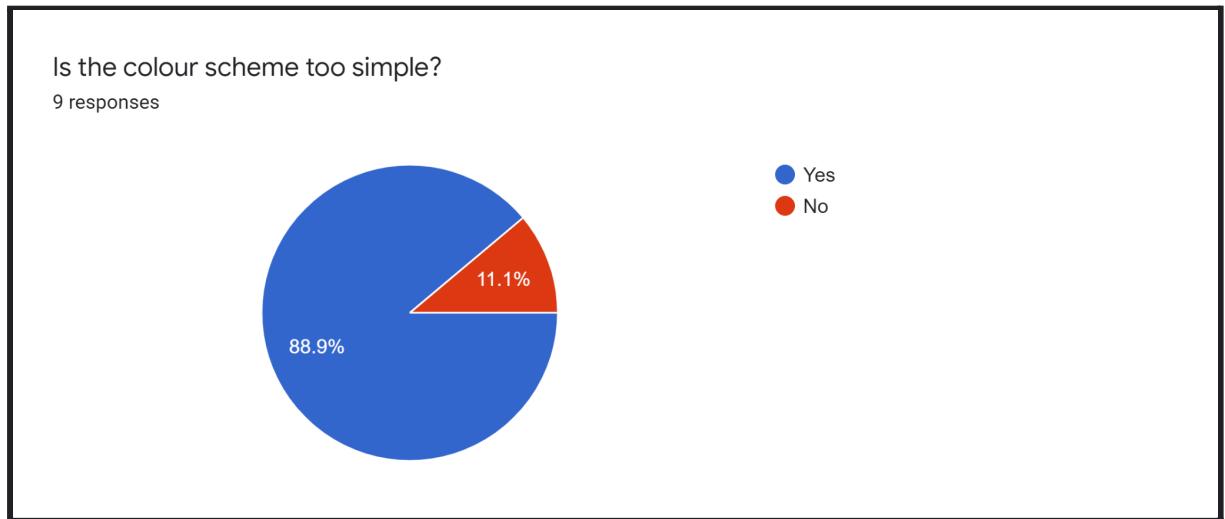


Figure 13: Newspage questionnaire feedback Q1.

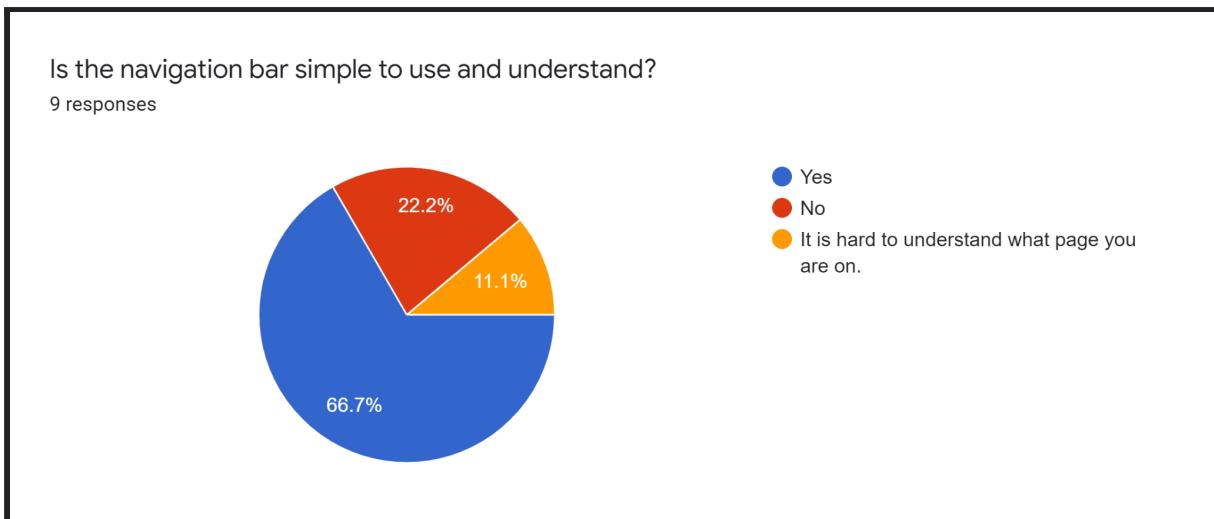


Figure 14: Newpage questionnaire feedback Q2.

The results shown in figure 13 & 14 are feedback that we received for our first iteration of the news page which is shown in figure 12. The results of the feedback suggest that the colour scheme for the news page was too bland.

**Gaming News**

Developers at IGFonic have revealed Ghostbusters: Spirits Unleashed, a new 4v1 asymmetrical multiplayer game that is set to be released on all major platforms.

Gran Turismo 7 has reduced in-game rewards, leading to fans taking a stand. This change is leading to players grinding even more to earn credits in order to purchase cars.

The lastest update to the PS5 has added a number of features which Sony have confirmed and these include: a variable refresh rate, voice commands in some regions and new party options. VVR will lead to smoother gameplay, sharper graphics, and reduced input lag.

**Latest gaming News**

Microsoft have confirmed that it was hacked by the same group involved in Nvidia's data breach.

Lastest Elden Ring Patch Fixes NPC questline and multiplayer bug, in the new 1.03.2 patch.

**Esports News**

North American esports organisation Faze Clan have revealed its new public Board of Directors

European esports organisation G2 have reportedly filed a lawsuit against Bondly, a NFT solutions provider for misleading its leadership and missed deliverable deadlines.

**Top 10 Games of the Year by User Score**

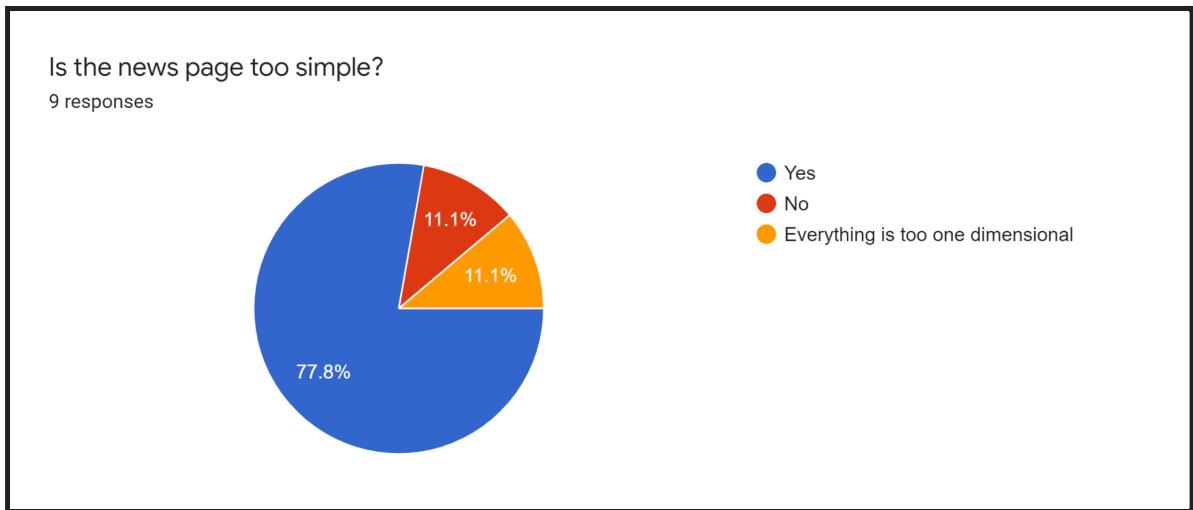
1. Elden Ring (All Platforms)
2. God of War (PC)
3. Desting 2: The Witch Queen (PS5)
4. Horizon Forbidden West (PS5)
5. Destiny 2: The Witch Queen(PC)
6. Gran Turismo 7(PS5)
7. Uncharted: Legacy of Thieves Collection (PS5)
8. OlliOlli World (PC)
9. OlliOlli World (Switch)
10. Master Hunter Rise

Activate Windows  
Go to Settings to activate Windows.

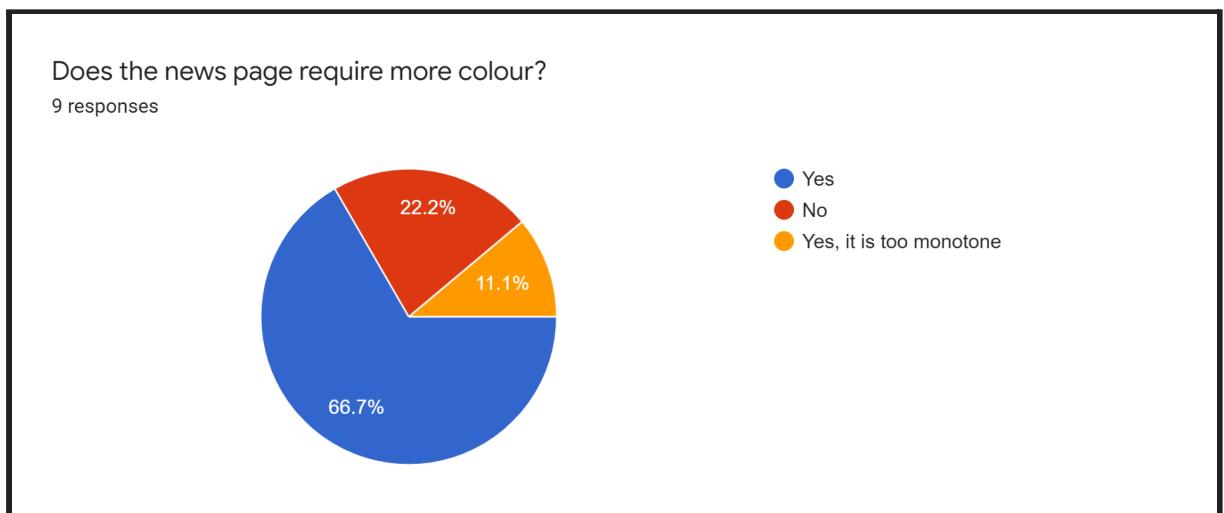
*Figure 15: Second iteration of the news page*

The following changes were made with the feedback:

- The colour scheme was changed from white throughout to grey and a darker grey, giving it a more contrast feel. This makes it easier on the eye when reading the content on the news page.
- The news page is still simple in terms of colour.
- Lastly, we added some content to the page which included general gaming news, latest gaming news, esports news and top 10 games of the year (so far).



*Figure 16: Newspage questionnaire feedback on second iteration.*



*Figure 17: Newspage questionnaire feedback - second iteration.*

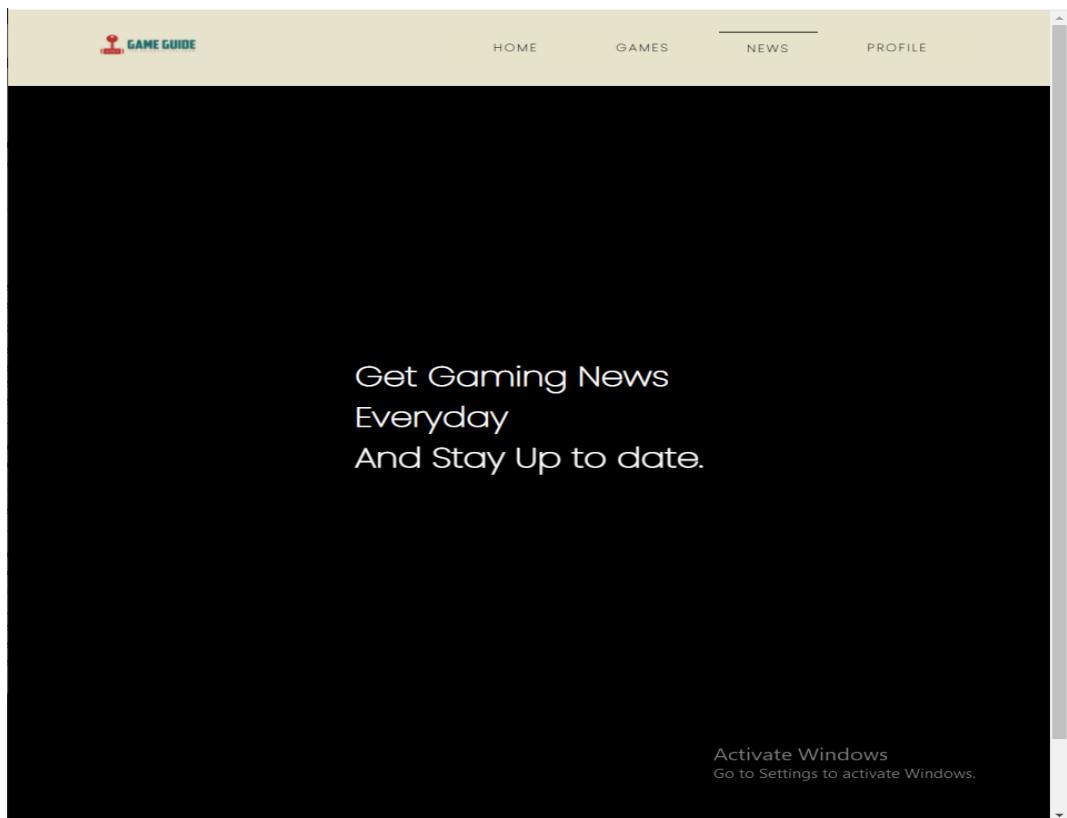


Figure 18: Last iteration of the news page

A screenshot of the news page featuring a grid of four news cards. The first card is titled "Gaming News" and discusses the reveal of Ghostbusters: Spirits Unleashed and changes in Gran Turismo 7. The second card is titled "Latest gaming News" and mentions a Microsoft hack and Elden Ring patch fixes. The third card is titled "Top 10 Games of the Year by User Score" and lists the top 10 games, including Elden Ring at #1. The fourth card is titled "Esports News" and covers Faze Clan's new Board of Directors and a lawsuit against Bondly. At the bottom right of the grid, there is a "Activate Windows" message. A vertical scroll bar is visible on the right side of the page.

Figure 19: Last iteration of the news page

After the second iteration of the news page we received further feedback from the shareholders through a questionnaire which can be seen in figure 16 & 17. The feedback from the questionnaire unanimously showed that the page was still too simple and was bland in terms of colours. The following changes were made using the feedback:

- When clicking onto the news page you will see an animation in the form of figure 18 with a little piece of text which slides up revealing the rest of the page, as seen in figure 19.
  - We added a 3D effect to each of the articles to make it stand out and to make it pop out of the screen, making it the main point of the page.
  - Each of the article headings were given different colours to break up all the black text and to give the page some colour.
- 

## System development

Using GitLab, we created multiple repositories to divide into groups and maintain the source code and create branches showing how the website was built, along with showing testing and design improvement iteration versions and the final version that was decided by the group.

For the final version, GitLab has all the frontend and backend code available for the public to see. These codes have been altered and suited for users and finding a fitting requiring needs that are simple and coded from other sources.

This is the beginning for a few people who have to get used to GitLab. It was important to make a notice of making a repo with name and email address to show the version that has been edited by developers. These steps using bash and setting up the file linked via Git to GitLab. The issues were with the version control logs, as updating the files other members could not update and see their version on the GitLab, so we created and stored different versions on our personal drive as they would be updated into GitLab with different branches later on when it was set with correct settings.

The repos accommodate various files to run the webpages:

- Images - .jpg, .png
- Scripts - .js, .env
- Style - .css
- Views - .hbs,
- Database - mysql
- Frameworks - .html

Creating this project, we were considering selecting the technology we knew from before. Using what we learned was to our advantage to make it understandable for our group with different background knowledge, which will help everyone to develop this project with further ideas to solve everyone's expertise in this basic language. However, the idea to learn well toward understanding frontend design is developed in React, which is a flexible and efficient JavaScript library. Anyhow, we did not have the skill set within the members, and picking up such a huge library in such a short period of time, we would have resulted in stress and wouldn't have found the correct path to solve problems quicker.[9]

During the time of connecting the database, there were various options that were useful for building the database. One of them was phpmyadmin, which was seen as being used by developers from industry and numerous project creators. Because there was an issue that was encountered by learning it is local hosted running for temporary use. Also, this can be used for testing the database, giving beginners the outline of CRUD. There are options for exporting into a package file to keep all data created.[8]

On the other hand, we found another way that could be managed to access was using MySQL from the server(IGOR) that was useful and able to run via links of resources to the middleware to run all the executable code running Linux server that was provided.

We have thought about making a bigger platform for those who want to know and find filtered, simple details to understand the website for our users. Signing up on the webpage is storing data of users that want to access our website that creates profile details. The idea behind this use of the profile page is to have further access to store various games in the personal library of the user and also show previously viewed game information as it will be saved and will be worked on.

The use of the MySQL database was agreed in the proposal that will carry the data entries by the established table shown in *Figure 20* and *Figure 21* as it runs cross platform when it is called by middleware using JavaScript. The reason to save the info is to be able to access the system and have a structure of the table. For instance, in *Figure 22* the table has 4 key elements to be referenced. The system inserting them will be automatic as it increments and the length for the name is limited to 100, so it will be short and, on the other part 255, because there can be a string of words which is counted. In userPwd, using varchar meaning characters and 255 number of characters' will make it secure as users can make it stronger password.

```

mysql> show databases;
+-----+
| Database      |
+-----+
| information_schema |
| myBookshop    |
| myforum       |
| mysql          |
| performance_schema |
| sys            |
| usersLogin    |
+-----+
7 rows in set (0.00 sec)

```

Figure 20: Database in the server "Users Login"

```

mysql> use usersLogin;
Database changed
mysql> show tables;
+-----+
| Tables_in_usersLogin |
+-----+
| users                |
+-----+
1 row in set (0.00 sec)

```

Figure 21: Database table "Users"

```

mysql> describe users;
+-----+-----+-----+-----+-----+-----+
| Field   | Type    | Null | Key | Default | Extra        |
+-----+-----+-----+-----+-----+-----+
| userID  | int(11) | NO  | PRI | NULL    | auto_increment |
| userName | varchar(100) | NO |     | NULL    |               |
| userEmail | varchar(255) | NO |     | NULL    |               |
| userPwd  | varchar(255) | NO |     | NULL    |               |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.06 sec)

```

Figure 22: Database contains all the elements of "Users".

In MySQL, creating a table for users which stores details is performance by database. There are additional features that are needed for running the website such as JSON packages that will be configured. In Figure 23, making a successful run of the application it needs to be connected from a middleware that uses a port that shows backstage of the technicality version which covers accessible connection over database in form GUI. The connection was simple to get started with creating a connection with the use of node js. So, we defined our database with user "root" as it is similar to an

admin. Currently we can see all these details in connecting which are unprotected. However *Figure 24*, shows the database has a variable stored in the database on the server that will be secure by keeping the information hidden by using an env file. The .ENV is a text configuration controlling application by adding a package for json file when providing the particular user environment variables which override the file's variables. The file is stored with valuable details that are hostname, user, password and database that are all directed to the server. This makes it easier to edit the file via the administrator when it does so, for any change of authorization to use another server or administrative changes.[11]

```
// Create the express application object
const app = express()
const port = 8000
app.use(bodyParser.urlencoded({ extended: true }))

// Define the database connection
const db = mysql.createConnection ({
    host: 'localhost',
    user: 'root',
    password: '',
    database: 'usersLogin'
});
// Connect to the database
db.connect((err) => {
    if (err) {
        throw err;
    }
    console.log('Connected to database');
});
global.db = db;
```

*Figure 23: Database connections*

```

// Define the database connection
const db = mysql.createConnection ({
  host: process.env.DATABASE_HOST,
  user: process.env.DATABASE_USER,
  password: process.env.DATABASE_PWD,
  database: process.env.DATABASE
});
// Connect to the database
db.connect((err) => {
  if (err) {
    throw err;
  }
  console.log('Connected to database');
});
global.db = db;

```

Figure 24: Database connections with variable

In the process of inserting the database by users, a few things will be considered key points: collecting information of users' names, email and password that will be encrypted, and using cookies for sending the data across the machines which saves into the databases. The information stored on the database is shown in *Figure 28*.

The middleware that was used was Nodejs, a third party module that runs as JavaScript. The reason for choosing Node was its availability on all platforms, running the compiler is simple because it uses JavaScript frameworks. There are modules that are built-in and additional can be installed to run the application. The use of Node is a web application that sends when a user requests the server for a particular URL to check the page.

In the process, we have to think about users' privacy as passwords need to be secure, from getting the data out from the authenticated server. Concerning the fact, the details have to be protected, so we thought about adding a small feature that will authenticate the password in the process shown in fig 26, that password is converted into hashing as there are JSON packages that support the files when a user logs into our system. The package is known as `bcryptjs` json giving the ability to hide while operating or transferring to the database.

```

let hashedPassword = await bcrypt.hash(password, 8);
console.log(hashedPassword);

```

Figure 25: adding on the code snippet

```

RowDataPacket {
    id: 1,
    name: 'lol',
    email: 'admin@mail.com',
    password: '$2a$08$FqJSeD26TV13gI0KwRX.TefDD3uvbxxICBDiStzM0Lncg8CZohoQC'
}

```

Figure 26: secured passcode

```

[Object: null prototype] {
    name: 'admin',
    email: 'admin@mail.com',
    password: '123',
    passwordConfirm: '123'
}

```

Figure27: unsecured passcode

The screenshot shows the phpMyAdmin interface. At the top, a green bar indicates "1 row affected." Below it, the SQL query "UPDATE `users` SET `name` = 'admin' WHERE `users`.`id` = 1;" is shown. Underneath the query, there are links for "Edit inline", "Edit", and "Create PHP code". A message below the query says "Showing rows 0 - 1 (2 total, Query took 0.0004 seconds.)". The next section contains the SQL command "SELECT \* FROM `users`" and its execution status. At the bottom, there is a table view of the "users" table with two rows. The first row has an ID of 1, name "admin", email "admin@mail.com", and a long hashed password. The second row has an ID of 2, name "lol", email "lol@mail.com", and another long hashed password. There are "Edit", "Copy", and "Delete" buttons for each row. Below the table are standard navigation and search controls.

Figure 28 : phpMyAdmin hosted locally

The purpose of using phpMyAdmin was to run the database locally that is creating a backup database which is able to run for developers with this protocol so, when the developer is able to run the software shown in figure 28 is qualified to Update and Insert data for logging and browser over the website with use of a software called “XAMPP” the database has be export into the files and will be able to function when the user register and login. However, the profile will be not displayed but it is on future wishlist.

In Figure29,30&31 is showing evidence of running the register and login system are running to during the time that was hosted giving the feedback for user to get the authentication of the login.

The screenshot shows a login form with a red border. At the top, there's a green header bar with the title "LOGIN TO GAME GUIDE" and navigation links for "HOME", "LOGIN", and "REGISTER". The main content area contains a "Login Form" with fields for "Email Address" (admin@mail.com) and "Password" (represented by a series of dots). A blue "Login" button is below the fields. At the bottom of the page, a red error message box displays the text "Email or Password is incorrect".

Figure 29 : Login into with incorrect Password

The screenshot shows a register form with a red border. At the top, there's a green header bar with the title "REGISTER TO GAME GUIDE" and navigation links for "HOME", "LOGIN", and "REGISTER". The main content area contains a "Register Form" with fields for "Name" (admin), "Email Address" (admin@mail.com), "Password" (represented by three dots), and "Confirm Password" (represented by three dots). A blue "Register User" button is at the bottom. The entire form is enclosed in a light gray box.

Figure 30: register an account

The screenshot shows a register form with a red border. At the top, there's a green header bar with the title "REGISTER TO GAME GUIDE" and navigation links for "HOME", "LOGIN", and "REGISTER". The main content area contains a "Register Form" with fields for "Name", "Email Address", "Password", and "Confirm Password". A blue "Register User" button is at the bottom. Below the form, a red error message box displays the text "Email is already taken".

Figure 31: Can't Register with same details

## Testing

Being able to test the project was incredibly important. It meant that we were able to minimise bugs and errors, as well as finding new ones during the process. One of the few ways we managed to test our projects was through checking the markup validity of web documents. *Figure36* was just one of the few ways we could validate our code and see if there were any errors that would potentially stop us down the line.

While testing the data input, it failed by not showing the output but giving the result as “undefined”, so when we had to figure out certain ways to get the method solved and find out something is missing, there was an added code shown in *Figure 32* that was resolved after researching online.

The test for checking the data is called when the user is filling up the details on the form on the register page. There is information that the user may not know but when we test for running the application. In our system, while building this kind of structure, we have to figure out what we know the data will be called. So, in the shown figure 33 & 34, it runs the JSON library giving the result of inputted data from the form.

In the folder, it is called by displaying the details of the form which is shown in *Figure 25* that follows the request to send out the message from the file directed to “authController” that will load up the message shown in *Figure 32* on the page showing that the test was running successfully.

```
// testing Parse URL-encoded bodies
app.use(express.urlencoded({ extended: false }));
// testing the Parse JSON bodies
app.use(express.json());
```

*Figure 32: testing to show result*

```
bshet001@doc196:~/projectsGG$ node index.js
App listening on port 8000!
Connected to database
[Object: null prototype] {
  name: 'dsf',
  email: 'asd@mail.com',
  password: '846',
```

*Figure 33: result of data*

```
const authController = require('../control/aut');

const router = express.Router();

router.post('/register', authController.register );
```

*Figure 34: authentication file*

```
exports.register = (req, res) => {
  console.log(req.body);
  res.send("Form");
}
```

*Figure 35: show the authentication file of output when called*

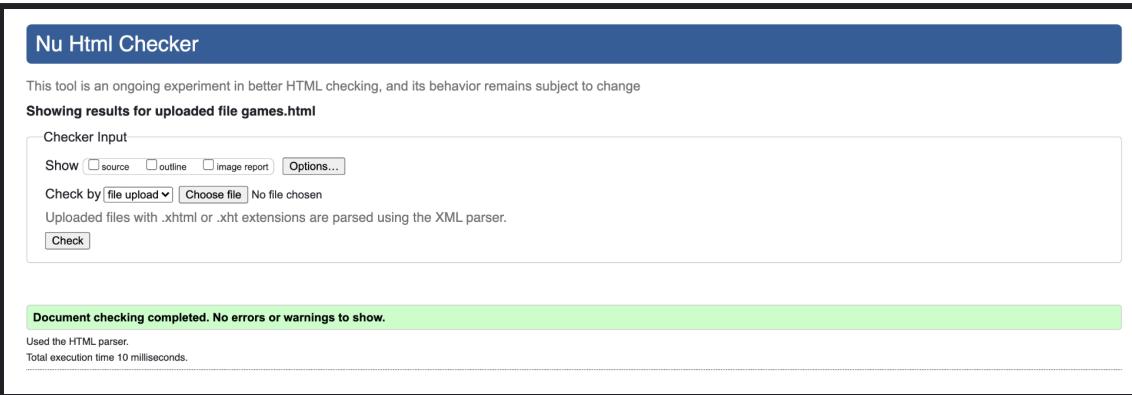


Figure 36: show the authentication file of output when called for games.html

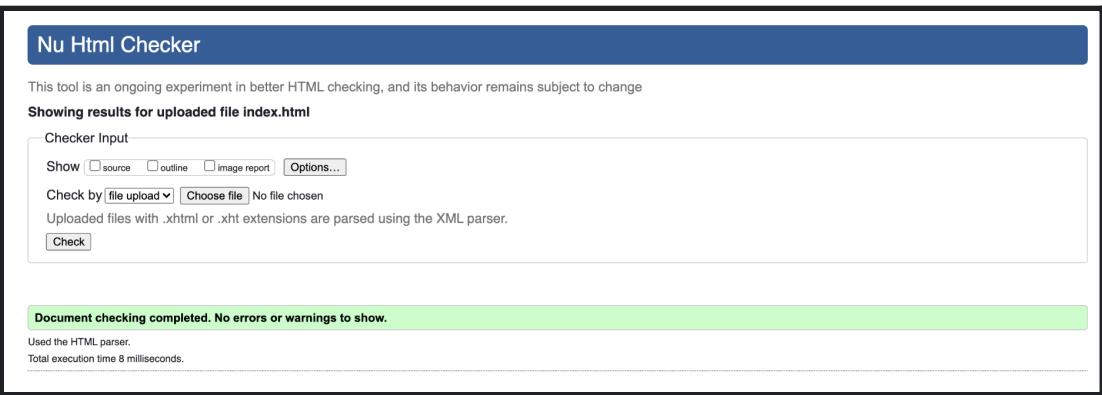


Figure 37: show the authentication file of output when called for index.html

```

bshet001@doc196:~/projectsGG$ node index.js
App listening on port 8000!
Connected to database
[Object: null prototype] {
  name: 'admin',
  email: 'admin@mail.com',
  password: 'admin123',
  passwordConfirm: 'admin123'
}
Error: ER_ACCESS_DENIED_ERROR: Access denied for user 'root'@'localhost' (using password: NO)
    at Handshake.Sequence._packetToError (/home/bshet001/projectsGG/node_modules/mysql/lib/protocol/sequences/Sequence.js:47:14)
    at Handshake.ErrorPacket (/home/bshet001/projectsGG/node_modules/mysql/lib/protocol/sequences/Handshake.js:123:18)
    at Protocol._parsePacket (/home/bshet001/projectsGG/node_modules/mysql/lib/protocol/Protocol.js:291:23)
    at Parser._parsePacket (/home/bshet001/projectsGG/node_modules/mysql/lib/protocol/Parser.js:433:10)
    at Parser.write (/home/bshet001/projectsGG/node_modules/mysql/lib/protocol/Parser.js:43:10)
    at Protocol.write (/home/bshet001/projectsGG/node_modules/mysql/lib/protocol/Protocol.js:38:16)
    at Socket.<anonymous> (/home/bshet001/projectsGG/node_modules/mysql/lib/Connection.js:88:28)
    at Socket.<anonymous> (/home/bshet001/projectsGG/node_modules/mysql/lib/Connection.js:526:10)
    at Socket.emit (events.js:315:20)
    at addChunk (_stream_readable.js:295:12)
    -----
    at Protocol._enqueue (/home/bshet001/projectsGG/node_modules/mysql/lib/protocol/Protocol.js:144:48)
    at Protocol.handshake (/home/bshet001/projectsGG/node_modules/mysql/lib/protocol/Protocol.js:51:23)
    at Connection.connect (/home/bshet001/projectsGG/node_modules/mysql/lib/Connection.js:116:18)
    at Connection._implyConnect (/home/bshet001/projectsGG/node_modules/mysql/lib/Connection.js:454:10)
    at Connection.query (/home/bshet001/projectsGG/node_modules/mysql/lib/Connection.js:196:8)
    at exports.register (/home/bshet001/projectsGG/control/auth.js:61:6)
    at Layer.handle [as handle_request] (/home/bshet001/projectsGG/node_modules/express/lib/router/layer.js:95:5)
    at next (/home/bshet001/projectsGG/node_modules/express/lib/router/route.js:137:13)
    at Route.dispatch (/home/bshet001/projectsGG/node_modules/express/lib/router/route.js:112:3)
    at Layer.handle [as handle_request] (/home/bshet001/projectsGG/node_modules/express/lib/router/layer.js:95:5) {
  code: 'ER_ACCESS_DENIED_ERROR',
  errno: 1045,
  sqlMessage: "Access denied for user 'root'@'localhost' (using password: NO)",
  sqlState: '28000',
  fatal: true
}

```

Figure 38: Error to accessing the SQL from the server.

In the process of building the login system, the database threw out that there were issues giving error messages that needed to be addressed in order to make it sensible in terms of appearing the query request when the user logs into the system. The result shown in the figure was an error that was disappointing, making the project harder to get in working condition. After editing the password and finding other options from online resources, it brings to my attention the possibility of error are due to “a user who doesn’t exist on the MySQL server tries to access the database”, “there is no privilege for the user” or “the username or password is wrong”. [12]

In *Figure 38*, the error message needed to be addressed after regression testing on the global server that ran new commands that were not responding to results due to MySQL being rooted with a password. Conducting multiple attempts of tests of each component of code that would expect changes to the result that was expected to work. However, the results were still the same from testing of the functions from the server host showing *Figure 38* error message that continued with the problem being unsolved from the server-side. [13]

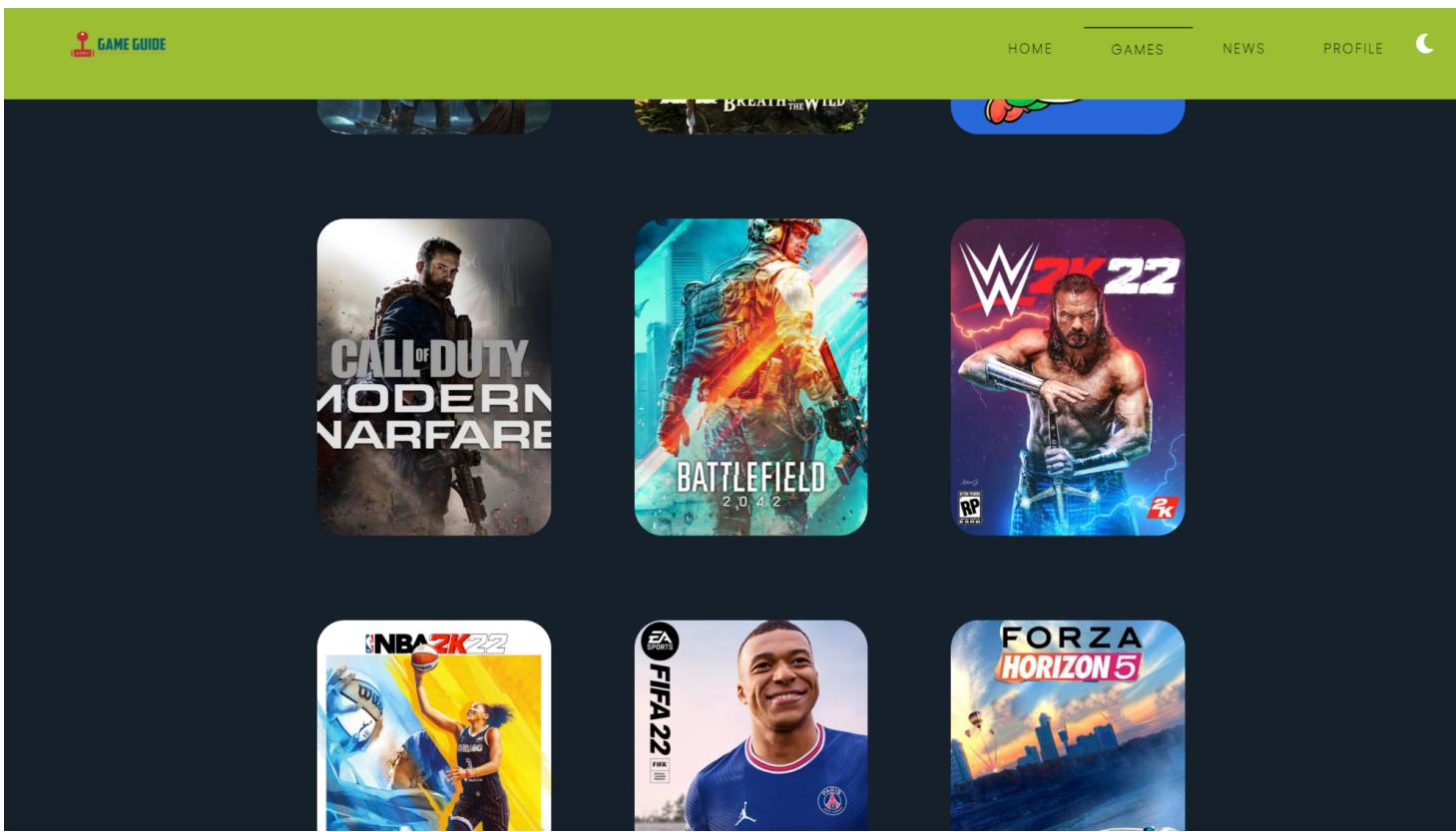


Figure 39: dark mode interface:

There were a few errors during testing for the implementation of dark mode. Everytime you refresh the screen, the dark mode disappears. This was an error we found was due to the localStorage function not being implemented in our JavaScript. Component testing (or module testing) was an important aspect as we could directly test features that we felt were unstable. Testing these components in isolation meant that accessing the root cause was doable.

---

# Analysis and Evaluation

During the process of developing our user guide we decided to examine the mind and life of gamers and tried to really understand why and how a gamer would use a game guide. Our research, interaction and experience has led us to where we are now with both pros and cons.

We thought about adding more features such as a search bar, a better performance login system that connects through the website that helps users in the future with the use of SQL. Also, creating a database of games and attaching information about them that can save articles or find a process to get more detailed, referring to other useful materials. So, this will be useful when there are alternative strategies that can be approached to develop the system.

We still have areas to improve on and correct our mistakes, however it is important to understand our history, where we used to be, how we improved, where we did so, and our thoughts and expectations on the future.

## Teamwork Evaluation

From just classmates who barely knew one another at the start of this project, we turned into a resilient team who were able to overcome most challenges we faced while working on this project. We started slow as we had to arrange the times of meetings and deadlines in a way that suited everyone in the group. We successfully managed to make a meeting time, which suited us all but this was made more difficult when our group expanded from three people to six. We already knew allocating a meeting time, which would take place on discord, where we could all attend would be hard and this was expected as we were all adults who were working and had other responsibilities to take care of.

As we mentioned before, we started with three of our current members, and in that period it was easier to arrange meeting times due to the low numbers and our personal life's responsibilities didn't clash with the availability of each member. However, because our numbers were low in the first few weeks of the project, each member had a significant amount of work to do before the next deadline and this was hard to manage as the expectations of each member were unrealistic.

Luckily, three more students joined us just several weeks after we started working on the project. We were expecting the newcomers to make it easier for us to complete the report as the tasks could be divided amongst us even more. It was easier to do the work and meet deadlines as we were able to allocate tasks based on what each person was confident in completing and because there was not as much work per person, it was easier to complete these individual tasks.

After the first two weeks in our group of 6, we realised that we were never capable of having all six members of the group attend the meetings. As a result of this we decided that we would hold meetings if the majority of us were able to attend them. If anyone wasn't able to take part in it, they would be informed about what was said among us, as one of us would take the role of explaining what we discussed in the meetings. We would also relay the tasks and objectives for the person who was unable to attend so they were still clear on what they needed to do. We were quite pleased with this solution, as it enabled us to not waste any more time when allocating meeting times and it allowed us to carry on our project in an efficient manner. None of us were given tasks that were too difficult for the other and if that was the case, we made sure that we took each other's burdens. The meetings on discord allowed us to express problems we faced as individuals and as a team when trying to complete a particular task. Furthermore we also had a Whatsapp group chat for communicating minor issues, which could be answered quickly by anyone. Whatsapp was mainly used to find out the availability of everyone so we could organise the time for the next meeting and bring up possible topics to discuss.

As our schedule for the midterm proposal was successful, we decided that mostly sticking with the same structure was the best way to continue. We agreed to continue with the frequent team meetings on discord where we would discuss the work completed and allocate tasks for the upcoming week for everyone in the group.

We started off the main project strongly allocating our first tasks in pairs as we knew this term would be much tougher to the previous one. We thought this would provide additional support and put less pressure on one person. This was one change we made to the midterm proposal.

We were able to finish our first tasks, which were not too long without many problems. However, after these first tasks were completed the team lacked complete communication for a few weeks due to jobs, family issues and deadlines from other modules. This period was definitely a complete misuse of time and the lack of communication meant we didn't progress as well as we would've liked at that stage.

We decided to have an urgent meeting to understand why there was miscommunication and how from that point we could maximise our time and effort both as a team and individuals to complete this project. This meeting did help the team to progress in a manner in which we were all satisfied with and helped us get to the eventual target of completing the project.

We had some complications when coding from a terminal was a challenge, as there are shortcuts that are different from usual in the user interface when coding from an IDE. Some team members were

unsure how to program on the terminal. But, this was resolved by learning from each other and explaining about the functionality and how to access and control the backend. Also, giving guidance to resources that can work on understanding the technical part of the project.

## Technical Evaluation

Our greatest challenge this term was implementing the database. The skills we had were limited, making this project less likely to be possible. However, we were interested in learning a new type of language that would be controlling over the data entries and useful for our careers that helps us develop something that requires database skills(MySQL). There were many challenges that had to be faced to gain knowledge and a simple understanding of relational databases concerned about migrating database applications from other types of database systems that are used for creating, reading, updating and deleting databases.[8]

The database needs to be built using a middleware that talks between other languages, so using JavaScript that connects the database (Fig. 23) has to be run through supporting the database. The issues caused a few pit stops to complete projects where connection between databases and scripts weren't processed with the right function call and learning from online resources. We were figuring out how to solve the issues as we found similar problems and thought about reuse of the code from github repo which would be helpful to solve some of the problems.[7] This could be better improved by having a simple path and runnable function that processes complex theory with limited amount of resources.

Furthermore, the disappointing part of running from the server-side was the ability to handle the files. When it comes to maintaining the files, it needs to be organised so it can be directed with correct syntax codes that read from the folders. The server terminal can be tricky to find the correct path and making it simple was naming them with different names and calling it with usable names which we have focused on making it possible.

Another challenge was making sure that our website was up and running, with a minimal amount of mistakes in our code. We wanted the website to work properly and look good. We had some issues when allocating the respective pages to each member, and some had some trouble implementing the requested features and polishing the code. That is natural, however, as we all will have a different skill set from each other, and giving a helping hand among us was only expected. We gave advice and sent links to Youtube videos and tutorials on Google that would most certainly help our members develop the skills and experience necessary for such a vigorous project.

When we came up with the idea of implementing a “dark mode” to our pages in one of our meetings, most of our members were in agreement. We believed that it would just be a bonus feature, but that it wasn’t necessary per se. However, we did some minor research to see for ourselves if it would be beneficial for our users, and to be honest, we were curious ourselves. We found out that as it may not necessarily be better for your eyes, it is “easier on the eyes than a stark, bright white screen”. As you can see, it is not bad for your eyes at all, and for a lot of people, it might actually be the better choice to surf the web in dark mode. However, the website also says “it can actually cause more vision problems than solutions”. This ultimately means that dark mode is not for everyone, and there also might be people that prefer light mode instead. With this in mind, we decided that it would be for the best to, instead of changing our website into dark mode entirely, to add a simple button instead. This would benefit both light and dark mode users, as they will be able to change the websites colours as they see fit and as they prefer.[4]

## Reflection and Improvements to make

As we were in our later stages for this project, we knew that there would be many things to reflect on for almost all aspects of the website. This allows us to be able to satisfy stakeholders if we continue to develop the guide in the future, and improve on what we are passionate about.

The news page was most definitely one of the things we wanted to improve on the most. In its current stage, we can see that it lacks what the games page has. Including interaction and constant news updates every few weeks would be something interesting to implement in the future, as it would make the guide feel more useful. Moreover, to satisfy our stakeholders, we are more than willing to conduct more questionnaires regarding the news page, and what they would want to see. Additionally, looking back on the news page there was room for more content to be added and features that would have made it easier for the user to read.

As previously mentioned in our second stage of prototyping and iterations, the decision to leave out the search bar was entirely a conscious one. We understood that during our proposal, this was something that would perhaps impact functionality and efficiency for the project in a positive light. However, with time to reflect we made it certainly clear that maybe with more game guides to come, this would most definitely be a feature that we would like to include. Perhaps the decision to leave it out was linked with the ways in which we communicated with one another. Splitting the groups into 3 teams was not the most ideal way in hindsight, as it created a disparity in terms of challenge and difficulty for certain individuals. Moreover, this would lead to us having to solely rely on specific individuals to carry out backend server side tasks, most definitely impacting practicality and

functionality for certain features. We believe rectifying these kinds of situations would create much better software for us in the future.

Acknowledge the fact that the hardware system had limited control and usability for administering the file to a certain level that will be able to run with the extensive amount of operation that it needs to be doing in order to get it functional. But, images that were unable to be added from the server-side as there was a file being unread to respond when the client-side request to open the webpage and logo which we designed was withdrawn by a layout box. Therefore, based upon finding ways to solve the problem we discussed, we had our arguments to find the path to solve it and tried to add an understanding and simplify method that will work on this part of implementation in future by adding from the server-side.

Furthermore, improvements have been considered to be built in future time to manage the SQL server section to develop the program into manageable and noticeable speed through the function of the method being put into the frontend development showing valuable contents for the user. The plan of working figure 38 error that could be to run on the server without restriction and have a regression testing on function to expect outcomes. This had led us to a major complication which we perceived to be the most challenging part for us. Since we decided to create a profile page through one of our team members' servers, the error shown in figure 38 was also evident in this development for the profiles page. This meant we were not able to display profiles page as accordingly as we would have liked. Figures 29, 30 and 31 were all pictures to show the actual running display for the profiles page. This is definitely one of our most concerning problems regarding the project, and if we were to continue working on this project, this would be the first thing we work on.

---

## Conclusion

This project was started so that we could learn how it would be if we were to come up with a new unheard of concept and give it our to accomplish and realise said concept. In our case, the concept would be a project that we've been developing as a guide system to exclusively target gamers with the intention of helping them enjoy and get through their favourite games in an efficient but fun manner.

It will be conveyed through a website and it will provide users with tips and advice through text and video popups for games the user is interested in playing.

When we used surveys and questionnaires to find out what gamers thought about our project, we discovered that several gamers complain about the lack of in-game help in some games where they get stuck in certain aspects, be it puzzles, places or/and missions. Because of these responses, we decided that going ahead with our planning of the project would be necessary, not only for us, as it would give us some more insight on why it's needed and how we can make it possible, but also to the huge amount of gamers that require a guide to help them. We decided to go for a website, and with it, the users will be able to choose whichever game they require help in and the website will provide them with implementation of video assistance and written text on screen while they are playing their game.

The surveys and constant testing with stakeholders helped us get an idea of what type of feature we should add to the website, and which would be most beneficial and which would be more of a detriment to the users. This helped us guarantee that what we are creating will be of good use to the countless gamers out there that are trying to get better or have fun with their favourite games. We managed to meet most of our deadlines that were set by ourselves, and fulfil targets and goals outlined in the proposal in time creating a minimum viable product.

It would be a lie if we were to tell you that producing this project was easy. We do understand that there were many aspects of this guide that changed in its later stages. This was a conscious decision made by all group members, moreover, it would mean that producing a quality guide would become more challenging. Throughout this project, we had learnt new skills, and improved on what we had previously known. Some members in the group had no experience when it came to databases, and it had shown during initial iterations and through testing. This is what created an exciting dynamic for us, as it enabled us to implement new things we had learnt with a project that we were passionate about. We are quite hopeful that it will aid our users and help them come together to face challenges in their games along with their fellow gamers among their diverse communities, just as we have done so with this project.

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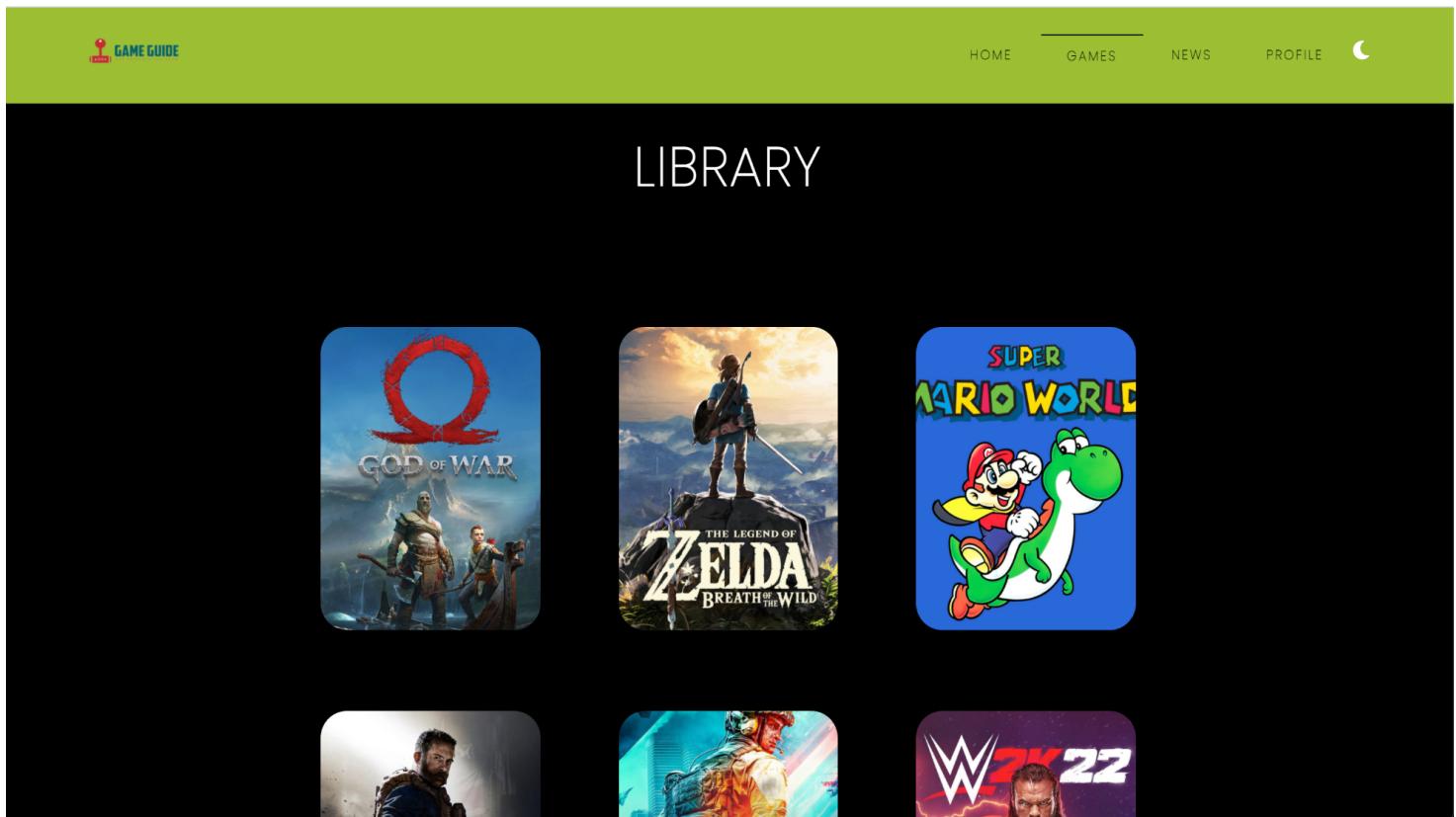
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# Appendix

Iterations of Dark modes that we went through:



# LIBRARY



