**Project Research Document**

**Project Title:** GameVault

**X Number:** X00191019

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**Section 1: Detailed Discussion**

Take the idea you have selected and develop it providing a detailed discussion on the system functionality and what you propose it should do. Who are the users?

**Section 2: Existing Applications**

In your research have you found anything close to this idea? List these in table form

and identify similarities and differences

**Section 3: Platform, Technologies and Libraries**

What platform, technologies and libraries are you planning to use?

**Section 4: The Risks**

What are the main risks to the project? (ie, are you depending on 1 library to provide

key functionality?)

**Section 1: Detailed Discussion**

For my 4th Year project, I have decided to take on the challenge of creating a website catered towards users who enjoy and partake in the hobby of video games. The idea revolves around a database of video games and key information about them, allowing users to use this database to search, favourite, and review video games they are playing or interesting in. The name of the website, and my project, is tentatively GameVault.

My idea was thought and developed around an idea that I believe I could personally benefit from in my daily life, and this is a driving factor as to why I want to succeed with this project. I feel there is use for this project and I am looking forward to diving into the working of it.

My website, GameVault, when visited will open to the home page where the user will be presented with a few choices. Firstly, there will be a navigation bar along the top of the screen used for quick traversal around the website. It will feature links to the home page, about us, FAQs, news, and have options to either login or sign up.

Below this, in the main body of the home page, there will be a search bar which will prompt and allow users to search our database of video games for the one they are searching for. Once the user enters the name of a video game, they can bring up this game’s information, including release date, platforms, PEGI rating, and more.

While on the video games information page, if the user is logged in, will have the option to leave a review on the game, which would include a star rating and brief description, while also having the option to add the game to a custom list saved to their profile. They will also be able to add the video game to their wish list. If the user upgrades to the premium version, acquired through a one-time purchase, they will have the option to add the game to their favourites on their profile, add friends and view their reviews, and be able to input daily video game play time information which would then be used to create graphical views of their gaming history using pie charts, bar charts, and more to give them an idea of their habits and show them an insight into their daily usage of gaming.

On the user’s profile page, for a standard free user, they will be able to view their lists and reviews and edit their profile to include a location and description about themselves. For the premium user’s, they will have the option to add a profile picture, add 5 games to their favourites shelf on their profile page, and view friends’ reviews. Also, on the premium user’s profile, will be their created graphs based on their inputted playtime which can be updated and changed at any time by the user to keep their tracking up to date.

Lastly, the website will have a dedicated page to video games news which will pull in the latest gaming news and headlines from around the world for users to browse through and keep up to date with their favourite hobby.

**Section 2: Existing Applications**

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| --- | --- |
| **Name** | **Platform** |
| LetterBoxd | Android / IOS |
| BackLoggd | Web |
| GG Video Game Tracker | Web |
| GameTrack | Web / IOS / Android |

From my research, I have found that there are a few websites and applications for mobile that exist which are similar in ways to my project idea, however, I believe I can and will add substance to make my project stand on its own feet with features I would like to have.

For example, LetterBoxd is a mobile application that allows users to search a database of movies and review them, list them, and views news relating to new movies. The feature they are missing is the ability to input your own information to generate graphs and view a statistical analysis of your time spent on the topic, which I will have on my website.

Another similar website, BackLoggd, contains many of the features I have spoken about including in my project, however I feel I can create a more user-friendly environment to improve the overall satisfaction of the user with extra features and design choices used to make it more welcoming to new users who aren’t as tech-savvy as others.

**Section 3: Platform, Technologies and Libraries**

After carefully evaluating my options for the creation and working of this project, I have narrowed down which technologies I will need to take advantage of to bring my idea to life. Firstly, the entire project will be created using the Django Python web framework. During my time and studies at TUD, I have come to be very familiar with Django Python and believe this is a sufficient, suitable framework to use due to this.

Since my project revolves around a database of video games, I will be using Amazon RDS and a MySQL database to store and provide the database of information for the video games that users will search for and read about.

My project will contain a lot of media, be it videos or images, so I will be using Amazon S3 Bucket to store this media for ease of access and ensure that it is readily available.

One of the main features of my website is that users can pay a one-time fee to upgrade their account from standard to premium to unlock all features, which will be handled by Stripe.

Lastly, the website will be hosted on either Google Firebase of Amazon Web Servies to ensure maximum speed and efficiency when using the website to provide users with the best possible experience when using my project.

**Section 4: The Risks**

During my research for this project, I ensured that for every idea I came up with there was also a pros and cons to go with it to ensure I chose the best option at each stage. Below are some of the most prevalent risks that I may face during the duration of my project.

**Data Integrity and API Reliability:**

If my project were to rely on an external API for fetching video game information, there is a risk that this API could be discontinued, change, or experience downtime which would directly affect the availability of the data and the usage of the website. This would mean users would be unable to search for their video games or could produce incorrect or outdated information.

**Scalability of the Database:**

With this project revolving around a database of video game information, the hope is that this database would continue to grow as the project develops. However, as the number of games in the database grows, the database may struggle to handle the growing load if it is not correctly optimised for the usage.

With poor database design, such as lack of indexing or normalization issues, you would be lead down a path resulting in inefficient queries. Increased traffic or data on the website could require more server resources which would incur additional costs or performance bottlenecks, and this would cause the website to become slow, crash, or require upgrades.

**Dependency on Third-Party Libraries:**

The project may depend heavily on one or more third-party libraries to include key functionality and features, such as APIs for video game data (RAWG API), database integration libraries, and Django packages (Whoosh).

If one or more of these libraries was to become unsupported, out-dated, or experience any downtime, it could completely half the usage of the website and render it unusable, which would prevent users from accessing and using my project.

**Security Vulnerabilities:**

Since my project is going to allow users to create an account, populate it with their data and play habits, I will need to ensure that the handling of user data is done correctly as this brings about security risks when dealing with personal information.

There are many vulnerabilities such as SQL injections if the database isn’t configured correctly to prevent against this, insecure API integrations, and common scripting attacks that could lead to the loss of private personal information. I will ensure to take the necessary steps to avoid this, but it is good to be aware of the risks and impacts as this is an important point to get right for this project to be trusted.