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Project: Phase 0

By

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Introduction & Overview

This digital game distribution system has similarities to Steam, where users may choose from an extensive range of games to buy, download, and play. Additionally, this platform offers something unique to customers because it will serve as the distributor for a small game developer or third-party game developer.

This platform is an application that was created especially for Windows. It is a digital licensing platform for online game purchases, which means games may be bought without the need for a CD or DVD. For the keeping of games' information, while playing the game, the information will be kept on the cloud, which means users don't have to have additional storage just to download and play. When the user closes the game, the application will provide the user with the choice to keep the game's data on their computer, delete it, or keep it on the cloud.

This application will show a list of all games that are available on the system for users. Moreover, users can decide on the genre of the game in which they are interested, such as action game, strategy game, puzzle game, or RPG game. For each game, the game creator has to prepare the information to upload into the system, like the way to play the game, the specifications of the computer, the prices, and the recommended ages for users. Before the game can be played in the system, it has to be considered by the administrator, who can manage and filter the game's genre. This application will present interesting and upcoming games when they are released. It will be supported for searching with the game's genre, the name of the creator, or a keyword of the game. One of the features in this application is the Wishlist. Users can add or remove games from their Wishlist as well as save interesting or desired games for later purchase. Users can give the game a rating after purchasing and playing; the rating ranges from 1 to 5 stars. Before buying a game that the user is interested in and desiring, the user account must have the user's personal data, including complete name, address, and credit card information for payment. Because this application only allows for credit card payment for game purchases, the user must link their credit card to their user account. The application includes a shopping cart function allowing users to buy all of the games in the shopping cart at once if they want to buy several games at once. Additionally, this application consists of an in-game marketplace where users can bring items to sell to other users. Users are free to set their own prices for their items.

The UX/UI design of the application has to be nice and attractive. Due to the system's native Windows, speed should be high, and the processing duration should be consistent from page to page. Additionally, it should take no longer than one second to change the page's user interface; everything must be immediate and instantaneous. The system should be able to handle up to 10,000 users concurrently and keep them all active nearly constantly, or 99.999% of the time. This application uses encryption to protect the data stored in the database or transmitted to the server when customers purchase the game.

Requirements & Constraints

Following tables are the requirements which are divided into requirements categories: functional requirements and non-functional requirements. The code of the requirements will be in the *"FRXX"* format and *"NRXX"* format where *"FR"* stands for functional requirements and *"NR"* stands for non-functional requirements while *"XX"* is the number of particular requirements. Similarly, for the constraints, *"CTXX"* format will be used where *"CT"* stands for constraints and *"XX"* is the number of particular constraints.

Functional Requirements

Code	Requirements	Importance
FR01	Payment can only be done using credit cards.	Must
FR02	Users are able to search for the game.	Must
FR03	System must provide a wishlist system for each user where users can modify their list at any time.	Must
FR04	Users are able to evaluate the game they have played on the scale of 1 to 5 stars.	Must
FR05	System is able to list all of the games that are available on the system to users.	Must
FR06	Users are able to choose the kind or genre of the game they would like to play.	Must
FR07	Each game in the system must provide the specification of the machine that the game can be played on.	Must
FR08	System is able to tell the price of the game.	Must
FR09	Administrator of the system can manage and organize the game list in the system.	Must
FR10	Game creators must be able to upload game executables, provide descriptions, and set prices for their games.	Must
FR11	Users must be able to create and manage their accounts.	Must
FR12	Users must have an option for downloading the game to their computer or store in the cloud.	Must
FR13	Game must have an in-game market to sell items in the game.	Must
FR14	Games must be available to purchase and download through the	Must

	system.	
FR15	The game must be a digital game.	Must
FR16	User data and credit card information must be encrypted for security	Must
FR17	Applications must have a shopping cart for multiple games in the cart and be paid at once	Must
FR18	The game must be age-restricted.	Must
FR19	User information must have a name, address and credit card.	Must
FR20	System should be able to announce the upcoming available games to users at some part of the user interface	Should

Non-Functional Requirements

Code	Requirements	Importance
NR01	The system must have 99.999% uptime guarantee.	Must
NR02	Have a nice looking user interface with good user experience design.	Must
NR03	Data in the database of the system must be encrypted.	Must
NR04	Ensure the security of the data.	Must
NR05	Data transfer between the system and users must be encrypted.	Must
NR06	System must be able to handle 10,000 active users at the same time.	Must
NR07	The application must be compatible with Windows-based PCs	Must
NR08	The response time of the system should be no longer than 1 second for all user interaction.	Should
NR09	Application should have good performance.	Must
NR10	The system is a native application of Windows operating system.	Must

Constraints

Code	Constraints	Importance

CT01	System is only available on Windows computers only.	Must

Identifying Actors

- Application Actor:

Features：

1. It needs to sell digital games, rather than DVDs or physical stuff.

2. The archive of games is saved in Cloud, so it doesn't have to download the archive while downloading games. Users also can choose archive save on PC or Cloud.

3. Only supports Windows.

4. List of all games, and categorize games.

5. Applications must have search engines which allow users to search the type of games or game creators' name or keyword of games.

6. Must have information about each game, as price and age limits.

7. It needs shopping carts and wish lists, shopping carts can allow users to purchase a game or several games together, and wish lists allow users to store games which they are interested in.

8. It shows new games as advertisements.

9. Need the interface to look very nice and attractive.

10. Have good performance, page transition can not be more than one second

11. Security of the software must protect the security of the database and the security of the users.

12. Must support 10,000 accounts at the same time

13. After playing the game, you need to rate the game.

- Administrators Actor:

Manage and design UI.

- Game Creators Actor:

Upload the game, including information such as gameplay, price and size.

- Users Actor:

When they play the game, there is some game equipment that they can trade in the virtual marketplace.

- Payments Actor:

Provide name, address, and bind credit card.

Bonus

Topic: Integration of Artificial Intelligence for Personalized Recommendations

Explanation: The system shall leverage artificial intelligence (AI) and machine learning algorithms to provide personalized games recommendations to users based on their game installed history, preferences, and user interactions. The AI-driven recommendation engine will continuously analyze user behavior and patterns to suggest games that align with their interests, enhancing the user's discovery and playing experience.

Benefits

1. Enhanced User Experience: AI-driven recommendations will provide users with relevant game suggestions tailored to their tastes, increasing their engagement with the platform.
2. Improved game discovery: The system's ability to understand user preferences will lead to the discovery of games that users may not have otherwise encountered.
3. Increased User Satisfaction: Personalized recommendations will lead to more satisfying game choices, increasing user loyalty and retention.

Integration Approach

1. Collect and Analyze User Data: The system will gather data on users' installing history, genres of interest, and engagement patterns.
2. Train AI Models: AI models will be trained using machine learning techniques on the collected data to identify user preferences and patterns.
3. Generate Recommendations: The AI recommendation engine will utilize the trained models to generate personalized game recommendations for each user.
4. Continuous Learning: The AI system will continuously learn from user interactions and adapt its recommendations over time.

By integrating cutting-edge AI technology, the project can provide users with personalized recommendations that enhance their game installed discovery and reading experience, contributing to the overall success of the platform.