**4-4 Journal: Software Application Requirements**

Southern New Hampshire University

CS-230 Operating Platforms

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**Client-Server Pattern**

The Client-Server Pattern is commonly used when a server, the service provider, and the client, the service requester, uses a system to host, deliver, and manage resources and requests from the client when using the network.

The Client-Server Patten satisfies the software requirements because the web-based game application requires a server that can run on multiple operating platforms. The server will act as a medium and, upon request, will send the following resources to the client. The Client-Server Pattern allows different platforms to share resources with all connected computers because all client requests are delivered through a network. The clients can communicate with the servers using a TCP/IP protocol suite that can establish and maintain connections until the execution is complete.

The benefits of a Client-Server platform are centralized with minimal maintenance, data can be delivered quickly to the client and offers data recovery. However, a disadvantage of using a Client-Server Pattern is that if the server is down, the client will lose all connection and cannot access any data stored within the server.

**Server Side with REST API**

REST API (representational state transfer) is a way to communicate from client to server. The REST API communicates by using HTTP requests from the client to perform functions such as creating and reading requests, updating data, and deleting data within the resource. When communicating, REST API uses languages such as JavaScript Object Notation (JSON), HTML, Python, and plain text to deliver the request to the client from the server. Besides using REST API, the server has access to all the functionalities within HTTP, such as cache and cookies, which allows the server to have data ready to use and makes it user-friendly when accessing the game.

**Client Side**

**Adding Users to the Database**

A way to add more users to the database is by upgrading the system's scalability. The scalability would increase the ability to handle more users and clients while improving data and other resources without affecting the user's experience. To increase the scale, developers must increase the RAM and CPU of the existing servers. As a result, the processing speed increases, making the gameplay run smoother and more enjoyable. Another option is also migrating from one server to multiple servers. By having multiple servers, the web tier and data tier can scale independently, increasing the reliability and availability of the game. For example, if one server is down due to maintenance, users can use other servers to continue to play the game.

**Features in the Game App**

Features that can be included in the game for a better experience would be adding sound, better graphics, and customer support. Sound effects in a video game enhance the user experience by triggering emotional responses. When adding sound to a game, designers create tension and evoke other emotions to help the user grasp the game's mechanics faster. Better graphics enrich the visual elements to make concepts and objects more attractive. When pictures are aesthetically appealing, users are more willing to communicate ideas of the information that contributes to the game's overall success. Not all video game users are tech-savvy; implementing customer support can increase customer satisfaction and helps the business grow. Customer support reinforces company values and brand that can generate referrals while retaining current users. Without including additional features such as sound, graphics, and customer support, users will become bored and quit playing the game.

**Hosting on a Fourth and Fifth Client**

Software, such as game engines, software libraries, scripting languages, and software development kits (SDKs), can provide a framework for cross-platform game developments to host the application onto a fourth and Fifth Client such as XBOX and PS4. These game software and tools allow developers to decide which version and targeted platforms will be created, offering limitless interaction opportunities between console, pc, and mobile. The benefit of cross-platform game development is that it makes it easier to maintain because it is on one codebase instead of separate codebases per platform. By changing the codebase, the modification deploys to all other platforms, saving the company time and money.