**Project 3**

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Amongst all the operating platforms people know of, there are five major platforms that most applications choose to operate on: Windows, Mac, Linux, iOS, and Android. These five major platforms are further grouped into two categories: computer platforms and mobile platforms. From a business and technical perspective, in order to ensure optimal environments are given to the Gaming Room application to expand Draw It or Lost It to other computing environments, Windows will be the top recommendation because of its maturity and stability.

The first Windows system, version 1.0, was introduced in 1985. As of today, 37 years since its first official release, Windows has grown from version 1.0 to Windows 11 and has gone through major changes with regards to its algorithmic logics as well as its graphic user interface (GUI). The Windows application programming interface (API) is the main operating and programming interface utilized to establish a stable server and platform. It is consisted of enormous functions including Base Services, Component Services, Networking and Web Services that make Windows system so powerful. All of these services and processes are controlled by the Windows Service Manager which ensures only user-specific services and applications are accessible for permitted users.

The major components of Windows’ storage management are Hard Disk Drive (HDD) and Solid State Drive (SSD). Both work by converting data bit code into byte datafiles and store in one of the two drives. Computers nowadays typically have large storage to allow more files to be saved onto the local drive. However, the speed of any data files being processed will be dependent on the hardware performance of the computer. Thus, for the Gaming Room application, one strategy to optimize storage usage is to offer users with different options for downloadable contents. Computers with larger storage capacity could download all high quality content, while computers with less capacity could just download necessary content to ensure any game could run smoothly. Another recommendation would be to promote cloud processing. Such strategy could be used in the beta version of the application and needs to be observed to analyze whether it will bring too much burden to the client server or not.

The main memory management by Windows is random access memory (RAM) and it is the soul of a computer to determine its processing speed. A computer with higher RAM will process all datafiles faster than one with lower RAM. The goal of the Gaming Room’s application design is to optimize RAM usage to make sure such application is executable on any computer. One strategy from the client side to optimize RAM usage is to ensure coding integrity—minimize redundant codes and infinite loops. Another strategy that could be considered is to utilize singleton coding method to minimize multiple games running at the same time and clean cache routinely. Some games currently on the market also utilize a strategy called “pseudo-3D” to offer users with a 3D visualization while using 2D techniques.

One recommendation for building the application is to use Java as the main programming language because it has a built-in Java Virtual Machine (JVM) that translates its coding language to machine code specific to the platform Java is installed on. JVM serves as a translator to ensure that all codes typed for the application could be processed on all platforms without compatibility problems. When it comes to networks, two separate conditions need to be considered: Internet and Intranet. For Internet, the connection will be fairly easy and straightforward for all operating platforms. Any mobile devices or computers can be connected to the Internet either through WiFi or a connected cable to ensure stability. When a device connects to Internet, all data will be transmitted to the server and the server will respond with a real-time response that is sent back to the device. For Intranet, it is comparably more stable than Internet because it is using a local server. When the application is processed on Intranet, no data will be transmitted to the central server, but everything will be processed locally instead. When an outage happens, Intranet can usually preserve current progress while Internet cannot.

Windows is a relatively open environment compared to Apple products, and this brings some security issues to its users. The primary protection Windows has is its built-in firewall that blocks generic hazards. For Internet users, firewall might be fragile and vulnerable because there could be multiple malwares attacking firewall simultaneously and firewall could fail to protect the computer at any given time. For Intranet users, firewall seems not to be very useful and sometimes needs to be disabled to enable some local Intranet features to operate. In both cases, the best security option is to enable a multi-factor authentication system that not only asks the user to log in with their own username and password but also asks the user to utilize other means to verify that they are actually the ones logging in.

References:

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