Module 6 Assignment

**What considerations and specific approaches would it take to ensure that memory is effectively managed in the software application, Draw It or Lose It?**

There are several factors to consider when determining memory management for the software application Draw It or Lose It when prioritizing user experience and optimizing performance. Draw It or Lose It is comprised of 200 high-definition image files that are approximately 8 megabytes in size, so consideration needs to be given to the images. Another aspect we need to consider is whether the game will be updated later with new images. We should also consider how many players are going to be in the game each round.

Regarding the images, we would need to choose the appropriate data structures to store the image data efficiently. By ensuring that the images are compressed and by using appropriate data structures, coupled with resource allocation, we can reduce the impact on users. This will allow us to use memory only when requested and then to release it when it is no longer required (Bashir, 2019). The best option to store these images would be with the use of STACK. By utilizing STACK, we can simplify memory allocation and deallocation processes by calling functions or variables when they are required, the deallocating them when they are no longer required (*Data Structure and Algorithms - Stack*, n.d.).

**What considerations and specific approaches would you take to determine how much storage is needed and how to manage storage for your client’s application, Draw It or Lose It?**

Regarding the storage requirements needed for Draw It or Lose It, we should consider whether we want to use cloud or local storage. Cloud storage has many benefits, such as Reduced liability, reduced operational costs, scalability, and the ability to ensure customers are receiving new features quicker than before (Bashir, 2019). Some downsides to cloud storage would be reduced overall control, cost unpredictability, and security concerns (Bashir, 2019). Local storage would be faster than requiring the user to interface with a cloud storage system but would be completely dependent on the hardware storage size. With all aspects considered, I would recommend the use of cloud storage management for Draw It or Lose It. The costs of this would need to be accounted for in the client’s budget, but it would be significantly cheaper than the cost of hiring a 24/7 server management team. Cloud storage would also allow the client to update and upgrade the game later, without the same concerns about server space that they would have if they maintained a local server network.

**What are the differences in how memory and storage are used in terms of the game application functionality?**

Memory is used for active data during application runtime, providing fast storage and optimizing performance (Bashir, 2019b). This is normally based on the application’s runtime requirements. Improper memory management can lead to a reduction in the game’s performance or even crashes. Storage holds long-term data that tends to be larger in capacity and is non-volatile (Bashir, 2019b). Storage is primarily used for data that doesn’t change regularly, such as the images that we will use in Draw It or Lose It. Storage has a small impact on game performance but can affect load times and overall gameplay experience.

References

Bashir, F. (2019). What is Serverless Architecture? What are its Pros and Cons? *freeCodeCamp.org*. https://www.freecodecamp.org/news/what-is-serverless-architecture-what-are-its-pros-and-cons/

Clancy, M. (2022). What’s the Diff: RAM vs. Storage. *Backblaze Blog | Cloud Storage & Cloud Backup*. https://www.backblaze.com/blog/whats-diff-ram-vs-storage/

*Data Structure and Algorithms - Stack*. (n.d.). https://www.tutorialspoint.com/data\_structures\_algorithms/stack\_algorithm.htm