**CS 230 Module Six Assignment: Memory and Storage Management**

**Memory Management**

To ensure efficient memory management in the game application Draw It or Lose It, developers must prioritize loading and rendering high-definition image assets rapidly. Given that each image is approximately 8MB and the game must render images at a fixed rate, strategies like memory caching and lazy loading are essential. Caching commonly used images in RAM will reduce disk and rendering delays. Additionally, using compressed in-memory image formats and optimizing image decoding routines can improve runtime responsiveness. Garbage collection tuning or manual memory management may also be necessary depending on the language and platform to prevent memory bloat during multi-round gameplay.

**Storage Management**

Storage management for Draw It or Lose It must account for more than 200 high-resolution images, requiring at least 1.6GB of space for image assets alone. The total storage needs will also include game logs, player data, team configurations, and scoring histories. An effective approach would involve using a structured directory system or database to organize these assets. For more scalability, storing image assets in cloud storage such as AWS S3 or Azure Blob can reduce server load and support content delivery networks. Backup strategies, storage redundancy, and regular clean-up scripts should also be implemented to manage space and maintain performance.

**Comparison Between Memory and Storage**

Memory and storage serve different purposes in the functionality of Draw It or Lose It. RAM is used for fast, temporary processing, example: rendering images quickly during gameplay. Efficient memory use ensures a smooth and responsive user experience. Storage, by contrast, involves long-term retention of assets such as image libraries, game configurations, and user data. While storage deals with capacity and organization of data at rest, memory deals with speed and data in motion. Poor memory handling leads to lag or crashes, while poor storage planning may cause slow load times or system bloat.