THE GAMING ROOM

Win, Lose, or Draw

CS 230 Project Software Design Template

Version 1.0

Table of Contents

<u>Document Revision History</u>

Version	Date	Author	Comments
1.0	11/19/2023	Briana Long	First revision to fill in brackets.

Instructions
Fill in all bracketed information on page one (the cover page), in the Document Revision History table, and below each header. Under each header, remove the bracketed prompt and write your own paragraph response covering the indicated information.

Executive Summary

The client, The Gaming Room wants to develop a web-based game that serves multiple platforms for their game, Draw It or Lose It. The game is inspired by the game television game show Win, Lose, Draw. Which involves teams guessing phrases and titles based on drawings.

Requirements

The game must be multiplayer with teams. Each game and team must have a unique name. The system check will make sure this requirement is met to prevent confusion. All identifiers will be active in one game instance in memory.

Design Constraints

The game requires a web-based environment for interactions between the client and servers. The system must validate team and game names to ensure no repeat names in one match. Memory must be managed to one instance of the game at a time. The game should have a cloud-based hosting to scale to the player base count. There should be an algorithm for renderings of drawings. The user interface should be responsive to all forms of input(touch, mouse, stylus) for any device. The interface should also be customizable to fit PC, mobile, or handheld devices.

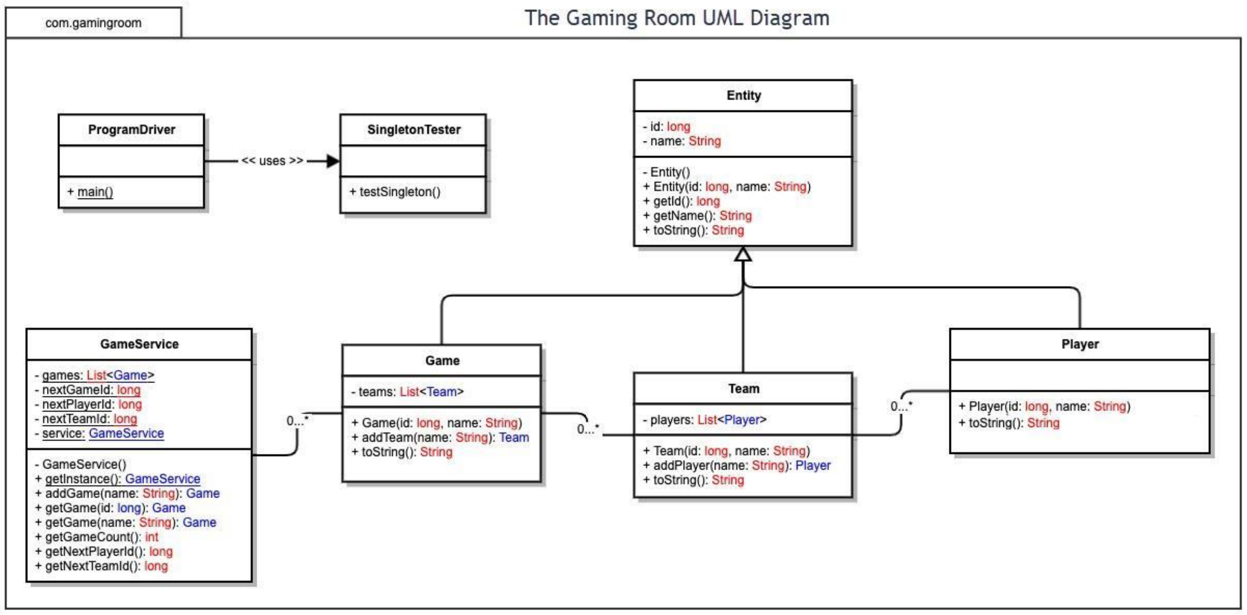
System Architecture View

Please note: There is nothing required here for these projects, but this section serves as a reminder that describing the system and subsystem architecture present in the application, including physical components or tiers, may be required for other projects. A logical topology of the communication and storage aspects is also necessary to understand the overall architecture and should be provided.

The app will be made into a web app for all platforms to access. The app will be web-based in order for multiple teams and players on each team to play.

Domain Model

The program driver is associated with the SingletonTester. The Entity class is associated with the Game, Team, and Player classes. The GameService class contains the attributes such as the game list and ID, as well as player and team ID, and GameService. It also contains the methods of the GameService, player count, and team and game IDs. The Game service class is associated with the Game class. This class is associated with the Team class. The team class is associated with the Player class.



__**Evaluation**__

Using your experience to evaluate the characteristics, advantages, and weaknesses of each operating platform (Linux, Mac, and Windows) as well as mobile devices, consider the requirements outlined below and articulate your findings for each. As you complete the table, keep in mind your client's requirements and look at the situation holistically, as it all has to work together.

In each cell, remove the bracketed prompt and write your own paragraph response covering the indicated information.

Development Requirement s	**Mac**	**Linux**	**Windows**	**Mobile Devices**
Server Side	Developer friendly and is good for small to medium-sized applications. There are limitations to scalability and tend to have a greater cost.	Cost-effective with scalability. Factors of hardware compatibility, user interface preferences, and software requirements should be considered.	Good choice for web-based applications, user user-friendly, and works well with all Microsoft products. Factors to be considered are licensing cost and resource consumption.	Portability and wide audience. Factors to consider are limited resources and security concerns.
Client Side	Development tools require specific expertise of developers with knowledge of Apple guidelines. Licensing fees are higher. Mac OS has a unique interface. Cross-application requires more work with other teams.	Devs must decide on what version to use based on compatibility and user interface. Devs must know a variety of languages and tools which can be more expensive. Requires more documentation than other OS.	Licensing costs for development tools must be factored in. Must be tested across various Windows versions. Devs need to know various Windows languages and tools. Must follow security practices.	Increased development costs for multiple mobile platforms. Devices vary in UI, size, resolution, and hardware. Devs need to know platform-specific languages and frameworks.
Development Tools	Languages: Swift IDE: Xcode, Visual Studio Code Version Control: GIT	Languages: C, C++, Python, Go, Rust IDE: VSC, Eclipse, IntelliJ IDEA Version control: Git	Languages: C#, C++, JavaScript IDE: Visual Studio, Eclipse Version Control: GIT	Languages: Swift, Java IDE: XCode, Android Studio Version Control: Git

Recommendations

Analyze the characteristics of and techniques specific to various systems architectures and make a recommendation to The Gaming Room. Specifically, address the following:

1. **Operating Platform**: Windows is an appropriate operating platform that will allow The Gaming Room to expand Draw It or Lose It to other computing environments.

2. **Operating Systems Architectures**: Windows is designed to support a wide range of hardware and user versions. Windows 10 Home is the best version to use as it is a widely used OS.

3. **Storage Management**: The best storage management would be a hybrid cloud storage system.

4. **Memory Management**: Heap management uses dynamic allocation to handle memory requests. Garbage collection reclaims memory no longer in use.

5. **Distributed Systems and Networks**: A game server would manage game sessions and interactions. A database server would hold all the games data such as profiles, history, and sessions. Data encryption would be necessary for secure web-based protocols. A system for monitoring will be crucial to track performance and troubleshoot when needed.

6. **Security**: Multi-factor authentication would create a secure login for user authentication. AN HTTPS is needed for secure communications for data encryption on a trusted website.