DRAW IT OR LOSE IT

CS 230 Project Software Design Template
Version 1.0

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Document Revision History

Version	Date	Author	Comments
1.0	08/03/34	Nazareth Diaz	Updated the Executive summary, Design Constraints and UML model diagram.

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 Gaming Room company would like to develop a web-based version of their current game application, Draw it or Lose it. Their game application currently runs as an app on the Android app store. The Gaming Room would like to make their game app accessible on the web and for any user platform. Game will have rules that must be followed and be a replica of the Android version that currently exists, but be made into a web based version. Staff will be hired to work on this game that can program in a portable language such as Java.

Requirements

< Please note: While this section is not being assessed, it will support your outline of the design constraints below. *In your summary, identify each of the client's business and technical requirements in a clear and concise manner.>*

Design Constraints

- Game will be web-based. Will have to develop game from Android application into a web based game. This can be accomplished by hiring staff that can program using web based applications.
- Each game will have the ability to have one or more teams involved in the game. For each game, there has to be at least one team involved. More can be included as well.
- Each team in a game must make sure to have two or more players per team. This constrain will be checked via the program application syntax.
- All team and game names must be unique. There will be a check mark to validate that any new name is unique to each game.
- Unique identifiers for each instance of a game will be created in the program to make sure only one instance of a game exists in memory at any given time.
- Web-based game application must work in all platforms. Game application must be programmed to suit a web browser in all formats. A portable programming language such as Java must be used.
- Game must adhere to all rules. Each round will be 30 seconds for each team. If current team does not win, then other teams will have a 15 second timer.

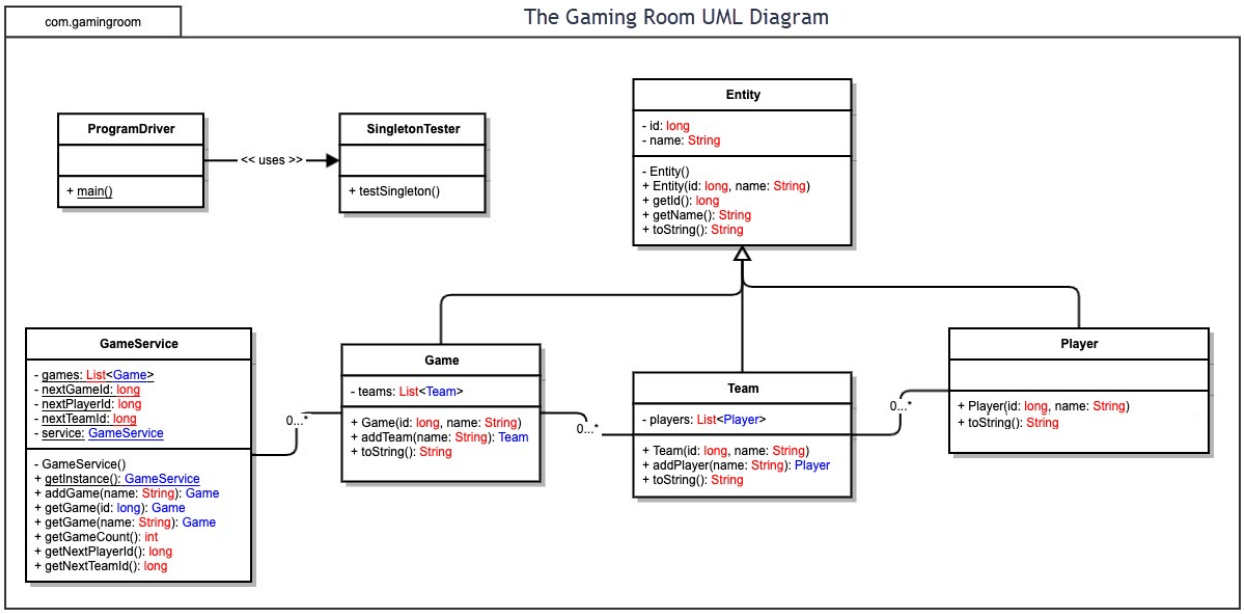
System Architecture View

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.

Domain Model

There is an "is-a" parent child relationship between the superclass Entity, and the subclasses Game, Team, and Player. Game, Team, and Player all inherit the attributes and methods from Entity. This logic follows because all of the subclasses need an id and name to be referenced, and therefore these attributes come from the Entity class.
GameService, Game, Team, and Player all have associations to each other. They all have cardinality of one to many. For each GameService, there can be multiple games. For each Game, there are multiple teams. For each team, there are multiple players.

ProgramDriver and SingletonTester have a direct association where ProgramDriver uses SingletonTester. The SingletonTester is a design patter class that is specifically used to make sure there is only one instance of a game in memory at a time. The SingleTester class is used in the ProgramDriver to make sure game is not repeated.



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 Requirements	Mac	Linux	Windows	Mobile Devices
Server Side	Apple controls hardware for Mac platforms so can be more reliable for developers. Mac has many built-in tools that can help ease development on the server side. .	Linux is open source software. Many changes can be easily made to Linux. Linux and cost effective and reliable as well.	Windows can be used on both Windows and Linux platforms offering more opportunities for developers. Windows offers high level of security features for developers.	Mobile device applications can be easier and intuitive to work with. Mobile devices offer more features like direct communication with client, developers can implement.
Client Side	Mac operating system will have enhanced security features for the server side. Greater security for user data. Mac OS applications will also work faster and more efficiently with other Mac devices.	Linux is an open source operating system and therefore user will have ability to change platform to their liking. Linux can work efficiently in many environments including Mac and Windows.	Windows is server user friendly. Windows can be both intuitive for users but also modifiable. Windows has ability of remote desktop.	Many users on the server side use mobile devices to view data and browse the internet. Mobile devices gives more access to platform since can be taken anywhere.
Development Tools	Xcode is the primary IDE used for Mac development. Multiple programming languages are supported by Mac. These include Swift , C#, and Python.	The command line terminal is the most recognized Linux tool used by developers. Linux is compatible with many IDE's. These include: eclipse, visual studio code, and PyCharm.	Windows is compatible with JavaScript, Go, Java, Python and SQL. The most compatible IDE's with Windows include IntelliJ, Visual Studio Code, Eclipse and NetBeans.	Development tools compatible with mobile devices include Android Studio, Unity, Xamarin and Flutter.

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 Server is the recommended operating platform for hosting the game, Draw it or Lose it. Windows is highly secure and efficient. It is a very popular platform and therefore most systems can host windows servers. Windows is a portable operating platform and it is very intuitive for both the client and user to use as well.

2. **Operating Systems Architectures**: With windows server, many applications, networks, and web services are all connected. The architecture of windows server is secure and flexible. The core of the Windows server architecture is that it supports enterprise-level management, data storage, applications, and communications. The windows server architecture lies in the kernel and this operating platform works alongside the kernel to perform operations.

3. **Storage Management**: Microsoft Windows Server can work with a variety of storage management systems. Some of these storage management systems include: File Server Resource Manager, Windows PowerShell, NTFS, Resilient File System and monitoring applications. The Windows NTFS is the most recommended storage management systems for the game, Draw it or lose it. NTFS includes features such as encryption and disk quotas.

4. **Memory Management**: The Microsoft Windows Server has recently made improvements to their cache manager. The Cache manager is now NUMA aware. This means the system is better at avoiding movement of data across certain boundaries.

5. **Distributed Systems and Networks**: Distributed Software systems are essentially all different computers that work together via a centralized computer network. All of these systems will connect through this centralized computer system. These computers will be able to send and receive information to and from each other, share data, information processing and files. The game, Draw it or Lose it, will be used through distributed systems and networks. This is how the users will connect to the game. The game will be able to send and receive links, actions, and file processing through these distributed systems and networks. Players connected to the game on a different operating platform will be able to connect to other players on different platforms as well through the use of distributed systems.

6. **Security**: There are many ways to protect user information on and between the various platforms. One way and the most secure is to make use of strong passwords. Requiring all users to use a strong password is the best way to provide user protection. Another way is to always have an updated software and antivirus software. If the client wants best use of the antivirus software, it must always be updated. Microsoft Windows server also provides encryption which is another way to provide security for user data.