

The Gaming Room

# **CS 230 Project Software Design Template**

Version 1.0

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## [Document Revision History](#_grjogdjh5fi8)

| Version | Date | Author | Comments |
| --- | --- | --- | --- |
| 1.0 | 01/23/2022 | Aaron Ciminelli | Described UML, provided evaluation, and gave recommendations. |
| 1.0 | 02/06/2022 | Aaron Ciminelli | Described, Servers, client considerations, and development tools. |
| 1.0 | 02/20/2022 | Aaron Ciminelli | Addressed, operating platforms, system architectures, storage management, memory management, Distributed Systems and Networks, and security. |

**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](#_sbfa50wo7nsh)

The Gaming room has a web-based game called “Draw it or lose it.”. The purpose of this game is to guess a phrase, title, or thing rendered from the application. The game will be four rounds, each constating of one minute. The application will fully render a picture in 30 seconds. If a team does not guess the puzzle before the time expires, an additional 15 seconds will be given to each team. The current game is currently only available on android. The Gaming Room requests CST to develop a program that will be playable across multiple platforms to boost profits and gain more players.

## [Design Constraints](#_2et92p0)

While adhering to the provided UML, the game will require multiple players and teams. Therefore, the player, team, and game names must be unique and game instance. In addition, the game must be able to run on multiple platforms for security purposes and develop a program accessible to multiple platforms. The program will be constrained to the JAVA language.

## [System Architecture View](#_ilbxbyevv6b6)

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](#_8h2ehzxfam4o)

The object-oriented programing principle used in this case is the inheritance principle.

This UML diagram is made up of 7 classes. The classes include Entity, GameService, Game, Team, Player, ProgramDriver, and SingletonTester. The entity class is the parent class of, GameService, Game, team, and player. These classes inherent properties from Entity such as id and Name. This makes Entity a superclass. GameService References, the Game, Team, and player. The Game classes references Team and player. This is important because this allows for the Aggregation principle to occur. Finally, the ProgramDriver and SingletonTester are associated with one another, where executions occur.

**"The Gaming Room UML diagram. The top of the diagram is labeled as com dot gamingroom. Test boxes are placed in two layers. The first layer has three text boxes and the second layer has four of them. In the first layer, the 'ProgramDriver' textbox points to 'SingletonTester' textbox. The 'ProgramDriver' textbox contains the text 'asterisk main round brackets.' The 'SingletonTester' textbox contains the text 'asterisk testSingleton round brackets.' The arrow between these two text boxes are labeled 'open two angle brackets uses close two angle brackets'. In the second layer, there are 'GameService', 'Game', 'Team', and 'Player' text boxes. The 'GameService' textbox has texts arranged in two layers. The first layer contains games colon List open angle bracket Game close angle bracket, nextGamesId colon long, nextPlayer Id colon long, nextTeamId colon long, and service colon GameService. The second layer contains GameService round brackets, getinstance round brackets colon GameService, addGame open parenthesis name colon String close parenthesis colon Game, getGame open parenthesis id colon long close open parenthesis colon Game, getGame open open parenthesis name colon String close open parenthesis colon Game, getGameCount round brackets colon int, getNextPlayerID round brackets colon long, and getNextTeamId round brackets colon long. The 'GameService' box is connected with the 'Game' textbox with a line labeled 'zero dot dt dot asterisk'.  The 'Game' textbox also contains text in two layers. The first layers contains the text teams colon List open angle bracket Team close angle bracket. The second layer has Game open round bracket id colon long comma name colon String close parenthesis, addTeam open parenthesis name colon String close parenthesis Team, toString round brackets colon String. The 'Game' textbox is connected with the 'Team' textbox with a line labeled 'zero dot dt dot asterisk'. The 'Team' textbox also contains text in two layers. The first layers contains the text players colon List open angle bracket Player close angle bracket. The second layer has Team open parenthesis id colon long comma name colon String close parenthesis, addPlayer open parenthesis name colon String close parenthesis colon Player, and toString round brackets colon String. The 'Team' textbox is connected with the 'Player' textbox with a line labeled 'zero dot dt dot asterisk'. It contains the text Player open parenthesis id colon long comma name colon String close parenthesis and toString round brackets colon String. The 'Game', the 'Team, and the 'Player' boxes point to the 'Entity' textbox in first layer. The 'Entity' textbox contains text in two layers. The first layer has the text id colon long and name colon String. The second layer has Entity round brackets, Entity open parenthesis id colon long comma name colon String close parenthesis, getId round brackets colon long, getName round brackets colon String, toString round brackets colon String.**

## [Evaluation](#_2o15spng8stw)

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** | Mac is common amongst more technologically advanced people. The server is more accessible and allows users to make changes. However, It is the least most popular for web hosting. | Linux is budget-friendly, and security is considered top-notch. Therefore, it is more prevalent in the web hosting community. However, it is not well-known or more challenging to learn.  Security also seems to be “more enhanced” and allows for more delicate or complex data to be secured. | Windows is the most popular for web hosting. It is fully functional and is the most commonly used operating system. However, security is a disadvantage. Because it is the most popular os, it is more likely to face challenges such as intrusions and viruses. Still, windows servers are more popular, and windows offer better client support than its competitors. | Mobile devices can be used anywhere and depending on the device, and specific programs may run better. It is most compatible, yet it can only run on mobile devices. |
| **Client Side** | Clients must be familiar with the OS. Software development takes more skills and can be more expensive. | Clients must also be very knowledgeable in the OS. Linux is open-sourced and not expensive. However, some applications have not yet been released. This can make developing software very difficult for even the most experienced user. | This OS is great for even the newest programmers. Windows offers a user-friendly interface. Many applications are available on all platforms, including web and mobile devices. Nevertheless, it is not as cost-effective because of the resource it requires. | Most used by clients. Allows for multiple specifications that are not restricted to only one type of device. Because it is the most used, it is more cost-effective and does not require much knowledge. |
| **Development Tools** | I’m not exactly sure what MAC is limited to, but HTML, CSS, Java, and Python are popular languages. In addition, Pycharm, Eclipse, Visual studio IDEs can be used. | C++ and C# are widely used but are not limited to other languages like python or Java. In addition, IDES like Visual Studio and Eclipse can be used. | Windows seems to be least restricted to IDEs and Languages HTML, C++, C#, Java, and python are some languages. In addition, Pycharm, Eclipse, Visual studio IDEs can be used. | Mobile devices are also least restrictive and support many languages like JAVA, C++, Python, and swift. IDES can include Pycharm, Eclipse, Visual Studio, PhoneGap, and appinvetor. |

## 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**: I recommend using windows for developing the program for The Gaming Room. It offers the most IDES and allows for the minimum experience. In addition, it is compatible across many platforms, which will be more cost-effective.
2. **Operating Systems Architectures**: Windows can run multiple programs and software simultaneously. Windows Architectures has two components known as user mode and kernel mode, which allows for this to happen
3. **Storage Management**: Managing and storing data is most effective on windows. It offers database storage management and allows for virtualized storage management, making industry-standard base protocols easier to implement. It is also more user-friendly.
4. **Memory Management**: Windows has a “memory compression store” that allows for unused data to be compressed and stored until needed.
5. **Distributed Systems and Networks**: The LAN network is recommended to allow for continuous communication across multiple Windows devices. It is reliable, more secure, and is more accessible to troubleshoot.
6. **Security**: Windows has built-in virus protection. It can also scan for security threats while multitasking. In addition, data encryption and protecting client information is most effective on Windows and is incomparable to other Operating Systems.