

Draw it or Lose it

# **CS 230 Project Software Design Template**

Version 1.0

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## [Document Revision History](#_grjogdjh5fi8)

| Version | Date | Author | Comments |
| --- | --- | --- | --- |
| 1.0 | 03/17/2023 | Austin Sacriste | Executive summary, design constraints and domain model sections have been completed. |
| 2.0 | 4/1/2023 | Austin Sacriste | Completed Evaluations for the major operating systems. |
| 3.0 | 4/10/2023 | Austin Sacriste | Completed the recommendations for the client. |

**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 is requesting a web-based version of the game Draw it or Lose it, a game that allows teams of players to view images from a library of stock images and use those images as clues to solve a puzzle.

## Requirements

* A game will have the ability to have one or more teams involved.
* Each team will have multiple players assigned to it.
* Game and team names must be unique to allow users to check whether a name is in use when choosing a team name.
* Only one instance of the game can exist in memory at any given time. This can be accomplished by creating unique identifiers for each instance of a game, team, or player*.*

## [Design Constraints](#_2et92p0)

* The game needs to be written in a web-based language (JavaScript or Python for example)
* Needs to allow multiple teams of multiple players.
* Needs to allow teams to create and register unique team names.
* Must allow only one instance of the game to exist at any given moment, by creating a unique game Id for each game, player and team.

## [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 entity class will allow the game, team, and player classes to inherit attributes and operations from within. With a zero to many association the gameservice, game, team and player classes can use as many instances of each other as needed.

**"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** | The Mac operating systems have access to the Mac OS X server, which is inexpensive ($20). It is also not as popular as it competitors | The Linux has an open server which provides a large amount of resources and technical capabilities. | The Windows server is a great and powerful server, but it comes with a high cost. It is the most commonly used server so its reliability is top notch as well. | A mobile device most likely will not be able to house a full server, they are to big and contain too much data for a mobile device to reliably operate. |
| **Client Side** | The cost would be a little on the higher side, Apple values their hardware highly and their price tag matches that value. Switching from Windows to Mac OS can be time consuming but shouldn’t be difficult. | The down side to Linux is the fact it is the least popular Operating System and therefore will require the longest and most difficult transition. The Linux security system is excellent and a great reason to use it. | The cost of the server and hardware can be a tough battle to overcome. Because windows is the most common system the time it would take to transition should be minimal. | Cost and time would be minimal with Mobile Devices, mostly everyone has one and is proficient in using them. |
| **Development Tools** | The Apple hardware is capable of operating any of the predominate development languages and IDEs (Python, Java, JavaScript…) | Linux is powerful and lightweight and allows for the use of many of the development tools commonly used, namely Eclipse and Atom (Used for Java and C++ respectively) | Windows has support for all the popular development languages and IDEs, such as, Eclipse, Visual Studio and Pycharm (Used for JavaScript, C++ and Python respectively) | A mobile device most likely will not be able to use and operate the common development tools. |

## 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 would recommend the Mac OS X. It will provide the company with access to professional grade editing software, digital art software and programing tools. The MAC systems also have access to the apple servers which are incredibly reliable and professional grade. Finally, the hardware for the operating system is extremely high grade and provides a pleasurable working environment.
2. **Operating Systems Architectures**: The Mac OS X is made of multiple layers, the core (Darwin), the graphics (Quartz, OpenGL, QuickTime), the applications (Classic, Carbon, Cocoa, Java) and finally the interface (Aqua).
3. **Storage Management**: Sync.com offers a secure and reliable cloud-based storage system at a very inexpensive price tag.
4. **Memory Management**: The game will store and manage memory using game engines. The game engines will also communicate with cloud storage to maintain a minimal amount of physical memory within the games programing.
5. **Distributed Systems and Networks**: Cross-platform gaming can be accomplished rather simply using the “Unity” game engine. With a game engine that is specifically designed to build cross-platform gaming the game is inherently ready for upgrades in the future as the game grows. A strong and reliable server is required to ensure that the cross-platform gaming does not bog down poorly equipped servers.
6. **Security**: Security is built into the Mac OS X system, as well as the additional security that is provided within the “Sync.com” cloud storage. If the client feels the need to spend the extra money for additional security “Norton Antivirus” can provide the additional peace of mind that the clients may be seeking.