

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 |
| --- | --- | --- | --- |
| 3.0 | 11/28/21 | David Obi | Changes were made to the executive summary, design constraints, and evaluation. |

**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)

Draw it or Lose it does not know how to set up the environment to create their game. Our job is to create this game as a web-based application and to evaluate the characteristics of various operating systems. Create a server to host the application as well.

## [Design Constraints](#_2et92p0)

1. Game requires 1 or more teams to be involved
2. Each team must have multiple players
3. Both game and team names must be unique to allow users to check whether the name is in use or not
4. One instance of a game can exists at a time
5. Game must run on multiple platforms
6. Server needs to hold thousands of players

## [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)

Team, Player, Game, and Entity all have a relationship, with Team and Player inheriting from Entity. Entity, Game, and Team each have common attributes id and name. This gives them the Super class Entity classification. In the following diagram, GameService has references of Game. Also Game has the reference of Team and Player has the reference of Team. When GameService is running there can be multiple games going on at once. Each game is home to multiple Teams and those Teams have multiple Players.

**"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** | Has a diverse terminal command to configure the server, access, or make changes. Cost similar to windows.  Mac is popular with web hosting  Advantages: Less prone to hackers and has multiple options for different web hosting requirements.  Disadvantage: Low popularity when it comes to web hosting. | Cost friendly, has a diverse terminal command to configure the server, access, or make changes. Minimum cost  Is the most preferred web host and is secured.  Advantages: Security Flaws are usually caught before they can be exploited. The most popular choice for web hosting services.  Disadvantages: There is a small batch of apps that can support the web hosting required needs. | Has the most software available at hand because it’s the most common IO. Cost similar to Mac  This is the pedigree of all IOs and its close platform.  Advantage: Has high resource requirements, comfortability, and a faster loading time.  Disadvantage: Poor tech support and is prone to viruses. | Specifications vary and can be better in certain devices.  Has the highest portability because it’s mobile and most people will have this device over the others listed.  Advantages: Cost efficient, endless reach, and great compatibility.  Disadvantage: Poor security and prone to hackers. |
| **Client Side** | Middle of the pack in expertise and time requirement. Cost isn’t too pricy in relation to Windows. | Maximum expertise and time requirement but has a low cost. | Low time and expertise required. Cost isn’t too pricy in relation to Mac. | Has a high flexibility when it comes to updating. Low cost but is more difficult to implement compared to the other devices. |
| **Development Tools** | Swift is the most common language used when on a Mac. Notepad++ is a tool that uses all languages on Mac. Languages used on this device are HTML, CSS, and JavaScript among a few. Java, Python, PHP and Ruby are also used as a front-end and general purpose language. | Linux is compliant with a few IDEs such as visual studios and eclipse and goes hand in hand along with tools like notepad++ that is easy to use. Languages used on this device are HTML, CSS, and JavaScript among a few. Java, Python, PHP and Ruby are also used as a front-end and general purpose language. | Less complicated to use compared to Linux but runs almost the same. Can use visual studios and eclipse as IDEs. Notepad++ is a common tool used for Windows as well. Languages used on this device are HTML, CSS, and JavaScript among a few. Java, Python, PHP and Ruby are also used as a front-end and general purpose language. | Countless apps can be created on mobile devices by using android and swift. Both languages and software are used on all three devices too. Languages used on this device are HTML, CSS, and JavaScript among a few. Java, Python, PHP and Ruby are also used as a front-end and general purpose language. |

## 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 the perfect platform to start with for the creation of Draw It or Lose It. Windows has a wide range of software available, low cost, and minimum expertise required to start a project. Also has the most IDEs available at hand.
2. **Operating Systems Architectures**: Windows services are used by countless Windows devices and they enable apps to show a Graphical User Interface (GUI) when accessing system resources and much more. The following applications also refer to graphics and multimedia, messaging, and web services as well. These features can be used with a server or user account.
3. **Storage Management**: Windows has a very expansive storage system and its devices have a wide variety of storage options as well. My computer for an example, has a maximum storage of 500 gigabytes but I could increase it at any time with an external hard drive. External hard drives can hold up to 1 terabyte (1000 gigabytes) of data or more.
4. **Memory Management**: Memory compressing is a recent Windows memory management technique that was introduced with the launch of Windows 10. It is designed to improve the responsiveness of the OS during heavy use. Pictures are also important when it comes to creating a database for games and Windows offers a great set of storage for picture folders.
5. **Distributed Systems and Networks**: Windows offers Develop 4 which is a cross platform game creation IDE. This IDE can be run on any device. When the game is complete you can simply just export the files to onto the web or on IOS and Android devices along with many more options that allow cross-play. This can help prevent problems like outages and low connectivity because a company can create servers that can support a large player database along with backup power for any outages.
6. **Security**: Windows devices come with a built-in security protection but offers plenty of malware and virus protection services like Norton that can protect your device from any kind of cyber-attack.