

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 | 01/26/2023 | Shona Robinson | Understanding of the game development and obstacles |

**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 wants to develop a web-based game that can run on multiple platforms. The game will be called “Draw It or Lose It” and is currently only available on android. The purpose of this game is multiple teams consisting of several people going four rounds at a minute each. When a picture is pulled from a library of images one team guesses till time runs out. If not, the remaining team will have an opportunity to answer with a 15- second time limit.

## Requirements

* Per game will have the ability to have one or more teams playing
* Each team has multiple players
* Game and team names must be unique
* Only one instance of the game can exist in memory at any given time.

## [Design Constraints](#_2et92p0)

The Gaming Room is currently on available on Android apps. iPhone iOS is not compatible.

## [System Architecture View](#_ilbxbyevv6b6)

The following above show the requirements needed to follow while writing the code and software. While this is only the game aspect, we still need to look at application development. The Gaming Room is only available in Android app only. Along with machines like Windows, Mac, and Linux to do this we will have to find a way to re-write the code in swift for (MAC OS).

## [Domain Model](#_8h2ehzxfam4o)

Entity creates a relationship between Game, Team, and Player class. This shows the classes all inherit information from Entity. Within the UML this is shown with inheritance. Therefore, each class will share common references such as: “name” and “id”. This makes Entity a superclass, when we look at their relationship, we see Team and Player is a “has a” type. While Game has a Team and GameService has Games, when we use UML, it is called aggregation (HAS-A). When a user “has a” it is an instance of one class and has a reference to an instance to another class. When looking at the diagram, we see GameService has a reference of Games, Games has a reference of Team, and Team has a reference of Player.

**"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** | Flexible terminal commands to configure the server, access, or make changes.  Characteristics It is popular in web hosting  Advantages It is upgradeable, it has various options for different web hosting requirements  Disadvantages It is less preferred for web hosting services | The same goes for mac plus more cost-friendly  Characteristics Secured, most preferred.  Advantages Security flaws are caught before they become an issue, it is the most preferred choice for web hosting services  Disadvantages It is more difficult to find applications to support the web hosting required needs. | More software available compared to other OS.  Characteristics It is dominant to the other platforms. Close platform  Advantages High resource requirements, less loading time, high comfortability  Disadvantages easy virus susceptibility, poor tech support | It's better if the server is immobile and can be tracked in a single place. Specifications are better in other devices.  Characteristics More popular, high portability.  Advantages Have a wider reach, better compatibility, cost-effective  Disadvantages It is highly selective to various smart mobile devices Poor security |
| **Client Side** | Moderate expertise and time required. Cost like windows. What is required of the application development process to ensure the application is compatible with all web browser platforms and mobile devices? | Maximum expertise and time required. Minimum cost. What is required of the application development process to ensure the application is compatible with all web browser platforms and mobile devices? | Minimum expertise and time required. Cost like mac. What is required of the application development process to ensure the application is compatible with all web browser platforms and mobile devices? | Provides flexibility to clients or even developers to see updates at any place. Slightly more difficult to implement than other devices. |
| **Development Tools** | When running languages on macs we can run swift the more popular option. While mixing in nice tools like notepad++. Though Macs can run all languages. Languages consist of but not limited to HTML/CSS/JavaScript while supporting libraries to support the frontend and general-purpose languages. These can be Java, Python, PHP, and Ruby. | Linux can work with visual studio, eclipse, along with notepad++ for a nice and easy-to-use tool. Along with many more languages and tools. Languages consist of but not limited to HTML/CSS/JavaScript while supporting libraries to support the frontend and general-purpose languages. These can be Java, Python, PHP, and Ruby. | Easier to use than Linux but can run the same as it. So visual studio, eclipse to name a few of the many languages. And with multiple tools notepad++ is a simple to use the tool. Languages consist of but not limited to HTML/CSS/JavaScript while supporting libraries to support the frontend and general-purpose languages. These can be Java, Python, PHP, and Ruby. | You can create countless apps using android and swift. Both languages and software can be run on all three machines. Languages consist of but not limited to HTML/CSS/JavaScript while supporting libraries to support the frontend and general-purpose languages. These can be Java, Python, PHP, and Ruby. |

## 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 Gaming Room begin with Windows devices because it has more compatible software available along with minimum expertise. Also, there is a low possibility to run into issues with IDE compatibility.
2. **Operating Systems Architectures**: Windows provides services used by all Windows-based applications that enable applications to show a Graphical User Interface (GUI) while accessing system resources and much more. These applications also refer to Graphics and Multimedia, messaging, and web services. These services can be used using a user account or a server specifically.
3. **Storage Management**: Windows 10 comes with a nice feature called storage sense. This allows you to scrutinize and manage files on your hard drive, along with how much space it takes up. Other features include being able to choose to save locations for apps making them easier to find and like other OS you can also use cloud-based systems to save data. The built-in storage system allows for easy file creation and placement for large projects, so they won’t get lost or carelessly deleted.
4. **Memory Management** While creating this game you will need to create a database with lots of pictures. The memory allocation allows for easy storage of pictures outside of the default picture folder. This allows you to keep your entire project together in a more secure area on your computer. This also includes when your IDE and opening files from it to create the game.
5. **Distributed Systems and Networks** Because each operating system is different I investigated ways to publish the game to run on all devices. I found Develop 4 which enables cross-platform game creation. It’s an IDE that can be run on any device. Once the game is created you can simply export the game file into the web, iOS, Android, and many more options that will allow cross-play. This will help with dependencies and to prevent other problems such as: outages or connectivity. The company will need to make sure their servers are strong enough to support large player volumes along with backup power for power outages.
6. **Security**: Windows comes with built-in security protection software. This system will scan for malware, viruses, and security threats. This will happen in real-time, and because of security threats the system updates automatically to keep the system and user information safe.