

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 | 11/13/2022 | Madelena Ngo | Executive Summary, Risks and Constructs |

**Instructions**

## [Executive Summary](#_sbfa50wo7nsh)

The Gaming Room has consulted us to help scale their current game, Draw It or Lose It, a web-based game, to run on multiple platforms. Draw It or Lose It currently only runs on Android devices and they have consulted us to help scale the game to multiple platforms. The game is similar to the 1980s television game, Win, Lose or Draw. The concept of the game is a team effort in guessing what is being drawn. In this web-based game, the application populates the images from a library of photos as clues to the puzzle. Each round of four is one minute in time, with 30 seconds to complete the drawing. If and when a team does not make the correct guess before time expires, the other remaining teams will have the chance to offer a guess in fifteen seconds.

## [Design Constraints](#_2et92p0)

A few noted design constraints which include:

* Multiple Scrum Teams to develop the game
* Unique characteristics for naming categories: ID, Team Name, Game Name, etc.
* Adaptability of users on multiple and different platforms

## [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 UML Diagram below shows the relationship between the Game, Team and Player, each inherited from Entity. Each class will then inherit “ID:” and “Name”. Within GameService, there are “games”; within Game, there are “teams”, but within Teams, there are “players” and within Player, there are player ID’s. This UML diagram shows the inheritance each step of the way within Draw It or Lose It.

**"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** | **Characteristics:** great at web hosting  **Advantages:**  Can adapt to various web hosts  **Weakness:** compatibility for web hosting services | **Characteristics:**  Secured and popular for most usages  **Advantages:**  Most preferred in web hosting for it’s security  Weaknesses:  Harder to find services and applications to support web hosting | **Characteristics:**  Most preferred for work use for its compatibility and reliability  **Advantages:**  Low latency, preferred for its faster compute  **Disadvantages:**  Prone to virus, have to purchase malware | **Characteristic:**  Popular for application-based gaming  **Advantages:**  Wider client adaptability percentage  **Disadvantages:**  Adaptability and changes needed dependent on mobile platform |
| **Client Side** | **Cost:** Low  **Time:** Medium  **Expertise:** Medium | **Cost:** Low  **Time:** High  **Expertise:** High | **Cost:** Low  **Time:** Low  **Expertise:** Low | **Cost:** High  **Time:** High  **Expertise:** High |
| **Development Tools** | NotePad  HTML  CSS  JavaScript  Etc. not vastly limited  Python  Java  Etc. not limited | Notepad  Visual Studio  Eclipse IDE  HTML  CSS  JavaScript  Etc. not limited  Python  Java  Etc. not limited | Visual Studio  Eclipse IDE  HTML  CSS  JavaScript  Etc. not limited  Java  Python  Etc. not limited | HTML  CSS  JavaScript  Java  Python  Etc. not limited  Java  Python  Etc. not limited |

## 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**: For this project, I would recommend using Windows as the first operating platform as it has less risks and higher rate of adaptability. Windows is the most universal and most well-known, this will offer a great deal of understanding and developing the project compared to beginning others beforehand. All types of IDE can be ran through using Windows, in comparison to the lesser productive IDE environment of Mac for example.
2. **Operating Systems Architectures**: Graphical user interface is very significant in Windows applications. The operating system can be both user or server based. Consider other successful games, most users choose Windows (PC) because of it’s compatibility and compute power. This gives us more surety of Window’s capability comparing the operating system to the current gaming market preferences.
3. **Storage Management**: Windows has amazing storage capacity, and storage capacity that is easy to use and navigate with. Allowing ease of manipulating in a hard-drive in Windows guarantees that the data stored will be easy to find, (almost) never lost and fast at compute.
4. **Memory Management**: Windows memory capability is also great as well. When creating this game, it is known that there will need to be memory storage for images in the game. The memory within Windows allows us to store the files correctly and securely.
5. **Distributed Systems and Networks**: A fast way of adapting the game to all platforms would be to use al already designed software that can create the game against all platforms. This will aid in the dependencies and the game will be executable to all platforms; thus, all of its players. This is a high advantage to scale adaptability and its new and existing user base. To combat against any risks, the game can also be deployed to the cloud such as AWS so when instances are ran, or when servers go down, AWS can ensure there no outage on the user or client’s side.
6. **Security**: Windows has great security and can immediately detect any malware and/or suspicious activity while running the game. Windows is well known for it’s security. Although this is on The Gaming Room’s side, the end-user has to ensure their own security. If The Gaming Room decides to deploy into the cloud, the client is responsible for their security and their client’s within the game.