

“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 | 09/17/21 | Cameron Rockwell | Filled out the template. |

**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 answered each opposing team member gets to answer till 15 seconds runs out.

## [Design Constraints](#_2et92p0)

* Needs one or more teams involved
* Each team has multiple people
* Game and Team names must be unique to allow users to check whether the name is in use or free
* Only one instance of the game can exist at any time.
* Must run on multiple platforms

These are 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 would like this to run on all devices. This means we already have it on android but need to work it into another mobile device. Along with machines like Windows, Linux, and Apple. To do this we will need to find a way to either re-write the code in swift for (Apple devices) or come up with a way to use existing code to be run on other devices by inheriting other languages. Like when we use multiple computer languages together to make stronger code.

## [Domain Model](#_8h2ehzxfam4o)

Entity creates a relationship between Game, Team, and Player class. This means they all inherit or get information from Entity. With UML we can show this with inheritance. So, each class will share common references like “name” and “id”. Making 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, we call it aggregation (HAS-A). When a user “has a” I mean it's an instance of one class and has a reference to an instance to another class. When we look at this diagram, we see GameService has a reference of Games, Games a reference of Tea, and Team 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)

| **Development Requirements** | **Mac** | **Linux** | **Windows** | **Mobile Devices** |
| --- | --- | --- | --- | --- |
| **Server Side** | Mac has a flexible terminal command to make changes to the server. It is a popular OS in web hosting and is upgradable. While it is popular, it is less preferred for web hosting services. | Linux is more cost friendly than other Os’ and is more secure than some of the other OS’s. However, it is more difficult to find applications to support the web hosting needs. | Windows has more software compared to other OS and is the most dominant to other platforms. Because it has the most software, Windows generally has less loading time, and high comfortability for users. The downside is it is targeted by viruses more and had notoriously bad tech support. | The advantage to using mobile devices is it has high mobility, more popularity, has a wider reach, cost-effective, and has better compatibility. The downside is having to limit the app to certain smartphones, poor security, and the specifications will not be as good as other platforms. |
| **Client Side** | Moderate expertise is required for the client, the cost is like Windows, menus can be confusing if not familiar with them. | Maximum expertise and time are required, minimum cost, not used be most consumers. | Minimum expertise and time required, cost like Mac, most popular and known platform, maximum comfortability. | Better flexibility for clients, slightly more difficult to implement than other platforms. |
| **Development Tools** | Tools like notepad++ are nice development tools, languages supported include but are not limited to Java, Python, PHP, and Ruby. | Linux can use visual studio, eclipse, notepad++ for a nice easy to use tool. Supporting libraries can support generally used languages like Java, Phytin, PHP, and Ruby. | Easier to use than Linux but runs similar. Can use visual studio, eclipse, notepad++ for a nice easy to use tool. Supporting libraries can support generally used languages like Java, Phytin, PHP, and Ruby. | Countless apps can be created using android and swift. Supporting libraries can support generally used languages like Java, Phytin, 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 starts on windows devices as it has more software available along with minimum expertise and cost to get projects going.
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. Due to the nature of the app, I would recommend the use of Solid-state drives for the app to run more smoothly. They are faster, use less power and are more cost-efficient than other storage options.
4. **Memory Management:** While creating this game you will need to create a database or library with lots of pictures. The memory allocation allows for easy storage of pictures outside of the default picture folder. Using best practices to ensure the memory is used efficiently will also improve memory management.
5. **Distributed Systems and Networks:**  Develop 4 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. Aside from this the company will have to make sure and test their servers to make sure they can accommodate all the users without performance issues.
6. **Security:** Windows comes with built-in security protection software. But due to the nature and frequency of viruses on windows it is recommended to find a different anti-virus software to help secure the clients computer.