

The Game Room

# **CS 230 Project Software Design Template**

Version 2.0

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## [Document Revision History](#_grjogdjh5fi8)

| Version | Date | Author | Comments |
| --- | --- | --- | --- |
| 2.0 | 02/21/2022 | Cheick Abou Traore | Project updated |

**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 function on multiple platforms such us IOS, windows, Linux based on their current game, Draw It or Lose It, which is currently available in an Android app only. The goal of this game is where teams can compete to guess what is being drawn and the game consist of four rounds of play at a minute each. Whenever an image is chosen from a library of images, one team guesses until time runs out. If no one answers, each opposing team member has 15 seconds to respond.

## [Design Constraints](#_2et92p0)

To create this game, we have some design constraints that I can find in the company requirements. The game needs: It has run on multiple platforms (IOS, windows, Linux), the game involved at least one team or more than team, every team have more than one player, Game and team names must be unique to allow users to check whether a name is in use when choosing a team name and only one instance of the game can exist at any time. After collected all these data that we needed to build the game application, now we have to know that the customers want the game to be able to run on all device. It said that the game already available on Android, now we have to find a way to make it work on other devices. There may be many different ways to do this but the one that I can think of right now is to try to connect multiple programming language like python and C++ and java to write solid code that can handle both devices including windows, apple, Linux.

## [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)

When I am looking at the diagram, I can see the relationship between Entity and team, game, player class. Entity being the parent and team, game, player being the children. Which mean that team, game, player derived from Entity, they getting information from the parent like name and id. Which mean there is inheritance here, they inherited from entity (OOP). Also, I can see team and player is a “has a” type. When I look at diagram the game has a team and the GameService has Games. The type “has a” is called aggregation. I can also see GameService has a reference of games, Games has a reference of team 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)

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.

| **Development Requirements** | **Mac** | **Linux** | **Windows** | **Mobile Devices** |
| --- | --- | --- | --- | --- |
| **Server Side** | Mc has easy access and server configuration. Easy to use graphical interface. Also, a flexible terminal command.  Characteristics  It is widely used in web hosting.  Advantages  It can be upgraded, and it has a variety of options for different web hosting needs.  Disadvantages  It is less commonly used for web hosting services. | Linux also has easy access and server configuration. Cost friendly by making change.  Linus is open source, secure, free and less support and not expensive.  Characteristics  Most preferred, safe.  Advantages  Because security flaws are detected before they cause a problem, it is the most popular choice for web hosting services.  Disadvantages  It is more difficult to find applications that meet the needs of web hosting. | With windows I think there is software available compared to IOS and Linux. Easy for user to use.  Windows is proprietary, more secure, not free it is payable, it is expensive and more support  Characteristics  It outperforms the other platforms.  Advantages of a close platform  High resource requirements, shorter loading time,  Disadvantages  Virus susceptibility is high, and technical support is inadequate. | It is preferable if the server is stationary and can be tracked from a single location.  The others devices have better specifications than the mobiles devices.  Characteristics  More successful, with greater portability.  Advantages  Have a greater reach, better compatibility, and lower costs  Disadvantages  It caters to a wide range of smart mobile devices.  Inadequate security |
| **Client Side** | The average amount of time is required by Mac users.  Users have an expensive option.  Expertise and time are required.  Precise and reliable skills are required to browse OS.  The Mac expensive for users, has a moderate amount of time and Skills regarding the users of OS is required  With mac we will use the Safari as browser | To use this operating system, you must have Linux data.  Expertise and time are both required to the fullest extent possible.  Linus users pay the bare minimum.  Linux, the cost is manageable, it is needing more than the others platform and expertise is required in bash  With Linux we will use the Firefox as browser | The cost is higher than that of Linux systems.  Users do not need to spend a lot of time learning how to support a Windows setup.  Minimal knowledge and time are required.  With windows the expenses are okay and it has less time requirement like the set up is easy. Windows is easy to implement so less expertise needed  With windows we will use the google chrome or Firefox as browser | Mobile platforms make it difficult to run applications designed for other platforms.  Allows clients and developers to view updates from any location.  To support mobile devices, users must devote a significant amount of time and expertise.  Implementation is slightly more difficult than with other devices.  Well in the mobile devices we cannot really tell the cost it is depends on the device some are more expensive than others. We need more time in mobile device than the other platform and it requires lot of expertise  With mobile devices we will use Android for chrome and iOS for safari as browser |
| **Development Tools** | The relevant programming languages and tools used to build this type of software include, but are not limited to, HTML, CSS, and JavaScript, as well as libraries to support the web application and languages.  IDEs we can use are python and PHP, and development tools on Mac systems are PyCharm, Eclipse, and Visual Studio. | As an IDE, Linux supports Visual Studio and Eclipse.  Along with many other languages and tools.  Java, Python, C and PHP are examples of programming languages that can be used to create this type of software. | It is easier to use than Linux and Mac, but it can perform the same functions.  So, the IDEs that can be used to develop this type of software are visual studio, eclipse and many more.  The programming languages that can be used to support the frontend and general-purpose languages are HTML/CSS/JavaScript, C++, python. | Using some mobile devices, such as Android, we can create many applications.  HTML, PHP, C++, and Python are examples of programming language IDEs.  Visual studio, PyCharm, and eclipse are examples of developer 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**:

In comparison to the other server operating systems, I would recommend using the Windows server operating system for the Gaming Room's "Draw it or Lose it" application because it produces the best results with more software availability and with the least amount of expertise and cost. We will never run out of ideas when working with IDE.

As mentioned, The Windows operating system is suggested for expanding the gaming room's "Draw it or Lose it" application. Utilizing Windows allows consumers to use very easily and access to a wide range of software packages for a rewarding experience. Windows is the best gaming operating system not only because it has the most games, but also because those games generally perform better than on Linux or macOS.

**2. Operating Systems Architectures**:

Windows offers services that are used by all Windows-based applications. These services allow applications to display a Graphical User Interface while accessing system resources and much more.

Graphics and multimedia, messaging, and web services are all examples of applications.

These services can be accessed through a user account or a server.

Windows includes a multitude of software packages that provide developers with a wide range of programming options. The use of Command Prompt power shell allows for quick and simple server configuration settings.

The Windows operating system also allows developers to work with a variety of programming languages.

**3. Storage Management**:

By allowing the application to be stored directly on the phone's main memory after downloading, the Windows server operating system allows for excellent memory management. This will allow for faster loading of the prose.

Furthermore, the Windows operating system will support cloud server storage, providing developers with the necessary storage space.

Windows storage management is very important. Its service provider can manage a wide variety of storage configurations, from single-disk desktops to external storage arrays. In memory management windows is really good for that. It has some cool features that will allow you to examine and transfer processes on your hard drive, as well as how much space they take up.

**4. Memory Management**:

Memory management options provided by Windows server operating system include virtual and physical address space by allowing two to four gigabytes of memory in addition to running applications efficiently.

We will need to create a database or library with a large number of images while developing this game.

The memory allocation makes it possible to store pictures outside of the default picture folder.

This allows you to keep your entire project in a more secure location on your computer.

This includes when you're using your IDE to create the game and opening files from it.

Memory management is a critical component of your Windows operating system.

It takes over the system and coordinates computer memory, ensuring that RAM usage remains constant.

**5. Distributed Systems and Networks**:

The distributed systems and networks feature of the Windows server operating system allow for simple communication between one another and different processors across many single workspaces.

Using networking support in distributed systems is an excellent way to apply and use distributed system software.

While there are some mutual issues such as routing and congestion glitches, these systems provide easy communication and direction to one another, these systems allow for easy communication and coordination.

However, some common issues with using distributed systems like individual faulty parts failed components, concurrent computations of components, which can result in slowing computer performance, and connection problems among individual users.

**6. Security**

Windows includes built-in security protection software. However, it is recommended that users use a different source to secure their data and information. However, when it comes to what is on the machine, Windows comes pre-installed with protection. This system checks for malware, viruses, and other security threats. This all happens in real time, and as threats evolve, the system automatically updates to keep the system and user data safe.

As far as security is concerned, there is a significant risk that, in the heat of the moment, data that you should keep to yourself will be transmitted. There is the possibility of data loss or unauthorized access to your account.

Windows operating systems provide clients with user account control settings that aid in the security of data entering and exiting the system. To secure those data and information it would be recommended to use another source like outside anti-virus. It also ensures that authorized operating platform changes are not made without the approval of administrative users. Windows includes anti-virus software that prevents corrupted or unwanted software from entering the system. We have Windows Defender installed.