Text

Description automatically generated with medium confidence

Draw It or Lose It!

# **CS 230 Project Software Design Template**

Version 1.0

## Table of Contents

[**CS 230 Project Software Design Template**](#_l6ti7uoag22u)1

[**Table of Contents**](#_30j0zll)2

[**Document Revision History**](#_grjogdjh5fi8)2

[**Executive Summary**](#_sbfa50wo7nsh)3

[**Design Constraints**](#_2et92p0)3

[**System Architecture View**](#_ilbxbyevv6b6)3

[**Domain Model**](#_8h2ehzxfam4o)3

[**Evaluation**](#_2o15spng8stw)3

[**Recommendations**](#_m8aleynsvzvc)5

## [Document Revision History](#_grjogdjh5fi8)

| Version | Date | Author | Comments |
| --- | --- | --- | --- |
| 1.0 | 04/04/21 | Neve Sopeland | Expanding game to multiple platforms and inform of different characteristics per platform. |

**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 software design problem we will be working on for CTS is 4 items. CTS would like the game to be able to contain two teams, have assigned names and can’t have a duplicate name, and lastly there can only be one game at a time. Since the staff at The Gaming Room does not know how to set up the environment, they will need help as well in streamlining the development. We will have a team of developer’s put the code together and set up the environment. Will build 4 different pages of code in order get the 4 qualifications needed. The client should be aware that with not only the developing but also helping with the setup, this could take a decent team. We need to know more info about the budget and some deadlines for the software.

## [Design Constraints](#_2et92p0)

There shouldn’t be to many issues with design constraints in this project. However, there is some issue when it comes to developing in a web-based environment. First, if for whatever reason you don’t have 4G & Wi-Fi internet access at all times your app is untouchable. We can’t fix, change, or work on anything unless your Wi-Fi is 100% secure. If it was on a server, we could work on it at any time. Another subject is security, the security of your web page wouldn’t be as good compared to a server. But there are ways to still make it good like SSL enforcement. It’s extremely likely it will operate at a slower speed then most local application. And the last thing is Browser Support, we don’t all use the same browser so we will have to make sure the app operates on every main browser out there.

## [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)

For this project we use a lot of object-oriented programming skills in this project. We do this to make the code simpler and clearer. The Program driver is our main part of this running the code. We use the Entity class as our main class that is a part of the Player, Team, and Game class. We have installed the qualification for each class for example, the Player class needs the player id and the player name in order to operate properly. We also have it that we can 2 teams, but they cannot have the same name. And also, it will only run one game at a time.

**Diagram

Description automatically generated**

## [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** | Mac in my opinion has many strengths as it is a very seamless platform. However as much as I personally like Mac it still isn’t the most common. Obviously when it comes to mobile devices IOS or Apple is very dominate in mobile devices. However, it is a great hosting platform for applications. | Linux, is a tried-and-true platform that has been around since the early 90’s. As it’s very reliable and works wonders with Android mobile devices, it isn’t a platform typically ran on PC. Only 1.84 percent of PCs sold connected to the internet run with Linux. | Windows is the leader in PC and has been for many years. It dominates the field presenting itself with about 1 billion PCs in the world. This number is 4 times what Mac is doing. In my professional opinion if you’re going to put your application on any platform, I think it should be Windows. Although it does have some characteristics that can be annoying, they still are dominating the field. | At this day and age, with everything being very mobile. This would be my top priority for the platform process. Roughly 52% of people play games on their computers. And about 90% of people play at least one game on their phone. Therefore, targeting both IOS and Android I think would be a good call. |
| **Client Side** | With certain languages, the development process can be fairly equal across the board. As for a language like Java, it works pretty well with each platform. Making an app with multiple capability’s Mac is top tier for this. I think the time and cost would be worth it for Mac | Linux makes set up for developers very easy since it’s been around for so long. However, anything that Linux does any other platform can do, and probably do it a little bit better as well. The time and cost for this to be built with Linux doesn’t seem to be worth it. | Windows is as good as IDEs get, with Visual Studio. Windows is equal with many, but it exceeds in other departments. Therefore, the cost and time to build for Windows would be the best options. | As I stated from the server side above, mobile devices are the way to go. The development on the mobile devices wouldn’t be extremely difficult and I don’t think the costs would be too bad. It’s worth it in every aspect, and especially for IOS. |
| **Development Tools** | For Mac the relevant languages would obviously be some front end and Java development. Mac’s Cocoa framework is very helpful for multimedia stuff and you get a ton of SDK. | Linux is going to fall under the same languages as stated in Mac. Its environment is basically next to nothing but easy to get basic language down. I would not recommend this just due to the advancements we’ve had with other platforms. | Windows is the king of development with visual studios. It’s very easy to use and very powerful. Going between something like Sublime text vs visual studios is night and day. | Developing for a mobile device, can be a little bit more difficult then developing for PCs. There would be more code used and you would probably at least need it on two different platforms. It would be a little more difficult but definitely worth it in the long run. |

## 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**: The operating platform I would recommend for the Game Draw It or Lost It is Windows. I think this will be the easiest way for the company to eventually grow and build off of. It’s fairly user friendly and most people have worked with windows. Windows as we discussed earlier is one of the bets for development. It would be much easier to add and make changes as needed. Also, for video game development it is known as one of the best for many years.
2. **Operating Systems Architectures**: The architectures of windows operating system have two main components. It has a user mode and a kernel mode which is very useful in this industry. User mode is just your traditional setup. Whereas Kernel mode in Windows NT has full access to the hardware and system recourses of the computer. Having this mode gives you access to execute and CPU instructions and reference any memory address.
3. **Storage Management**: Storage management with windows is very viable. Windows has a portion referred to “Disk Management” which is a system utility. This enables you to perform advanced storage tasks. This is a huge plus and helps the developers have the ability to put a lot of content into these games.
4. **Memory Management**: Memory management with any program is extremely important. We need this in order to keep our RAM usage steady while you’re using the PC. This means we need to focus on our memory management so that we hopefully avoid any crashing or failures. In order to work with Windows and help avoid these issues. We need to always be updating the software, clearing our Cache, and track our memory and keep an eye on the Clean Up Process.
5. **Distributed Systems and Networks**: Once our client I ready to branch out of just Windows, we will use visual to help us do this. First, we have to get a cross a platform compiler, like for example GCC. Your game needs to be functional and running on the individual devices of choice first. It’s best advised to keep the platform specific code in as few classes as possible. This should allow users to play together between Windows and whatever platform The Gaming Room is considering.
6. **Security**: The security for users and for the company is extremely important in this process. One important step that we will focus on is knowing at all times where the data is located and where it’s going. We need to accurately identify our data flow and find it’s vulnerable points to protect our users. I would want to implement some heavy encryption for the users to protect their data. With our Windows PCs that we will be using, they need to be constantly updated, have strong admin passwords, the use of Microsoft Defender would be good, encrypt our hard drive, and choose a cloud service that uses encryption as well.