

Draw It or Lose It!

# **CS 230 Project Software Design Template**

Version 3.0

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## [Document Revision History](#_grjogdjh5fi8)

| Version | Date | Author | Comments |
| --- | --- | --- | --- |
| 3.0 | 12/13/2020 | Craig Parker | This template outlines the recommended Operating System |

| **Development Requirements** | **Mac** | **Linux** | **Windows** | **Mobile Devices** |
| --- | --- | --- | --- | --- |
| **Server Side** | Offers flexible commands and server access. Simple to use GUI. Cloud servers are available for rent from Apple but would be expensive. Mac has a built in LDAP implementor and supports a few mapping templates. | Linux is minimalistic and will need infrastructure to be added. This may take time and require a high degree of expertise. Linux can be used to create servers. Linux can offer rentable cloud services and free services. The price range can vary from cheap, free, to expensive. Linux supports many LDAP server implementations, both commercial and opensource. OpenLDAP is a popular Linux LDAP implementation. | Windows has *Windows Deployment Services* to support the application. Is well known and commonly used. Windows also supports cloud servers, but they would be expensive to rent. Windows has built in LDAP support through the way it’s OS operates and allows access to the server. | Currently the most common and widely used platforms, but deployment onto mobile devices should not be affected. Most mobile devices use cloud servers, but the servers would have to be rented. LDAP protocols should be readily available, if not there are many applications which would support the protocols. |
| **Client Side** | Mac is as well-known as Windows. However, the OS may need a seasoned Mac developer. Macs generally cost more than PCs. | The OS is barebones and will need additional setup. Lots of time and expertise required for, but low cost. | Windows is the most common OS, in office settings, and minimal expertise will be needed to learn the OS. | These devices provide flexibility but can be difficult to utilize and develop for. They do provide remote access. |
| **Development Tools** | Supports the same tools and languages as Windows. | Linux is an environment that can facilitate most of the common programming languages and tools, given that the OS has had the required libraries added/downloaded. | C, C++, Ruby, Java, php, html and Python are a few of the many languages supported on windows.  The commercial tools available are widespread (Eclipse, Visual studio, GitHub, etc.…), as well as many independently developed tools. | These devices can support the common coding languages as well as traditional IDEs too. LDAP connections are readily supported by mobile devices. |

## 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**: Linux would be recommended due to its low cost and large amount of supporting software, most of which is opensource (free).
2. **Operating Systems Architectures**: The Linux architecture supports the access of files within memory. This enables developers to incorporate a variety of different languages, software, and programming methods.
3. **Storage Management**: Linux offers basic disk management options such as: partitioning, creating filesystems, mounting file systems, sharing file systems, monitoring free space within file systems, and backing-up/restoring file systems.
4. **Memory Management**: Linux uses kernel and user-space internal structures. The kernel accesses hardware; separated from the user’s control. The user space allows users to interact with files/filesystems. Linux has built-in APIs and unique commands for accessing those APIs.
5. **Distributed Systems and Networks**: To optimize the communication between devices, the developer should collect system wide TCP metrics (“good-output” in lay-terms), aggregated per-connection metrics, and analyzing RUM (real user monitoring) metrics to find areas for improvement. Symmetric Encryption can be used to move bulk-transfers such as photos.
6. **Security**: Linux is a secure system from the start. It deactivates open ports when not in use, provides up-to date software and kernel patches, logs and audits are readily available, and along with best server-side practices Linux can withstand most attacks. Symmetric Encryption not only allows for the quicker transfer of data, but a more secure transfer as well. LDAPs allow for anonymous authentication, name/password authentication, and un-authentication. Unauthenticated authentication is for logging only, users should not be granted access. Name/password authentication allows access based on the user’s credentials.