



Draw It or Lose It
CS 230 Project Software Design Template
Version 1.5

Table of Contents

CS 230 Project Software Design Template	1
Table of Contents	2
Document Revision History	2
Executive Summary	3
Requirements	3
Design Constraints	3
System Architecture View	3
Domain Model	3
Evaluation	4
Recommendations	8

Document Revision History

Version	Date	Author	Comments
1.0	05/20/23	Kyle Lund	Changes were made to the cover page, executive summary, design constraints, system architecture view, domain model, and recommendation.
1.5	6/4/23	Kyle Lund	Changes were made to the evaluation section.

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

The client Gaming Room wants to develop a web-based game called “Draw It or Lose It.” This game is currently only on android and the company wants the game to run on multiple platforms. The purpose of the game is for multiple teams, that consist of several people, to go four rounds that last a minute each and try to guess a puzzle as random pictures from a library begin to render. If the team that is guessing does not guess correctly within the time limit the other teams have 15 seconds to try to guess.

Requirements

The game must allow multiple users and teams to be involved. Each team will be required to have multiple users assigned to it. Only one instance of the game can exist in memory at any given time. Game and team names must be unique and must allow users to check if the team's name or game name is already in use.

Design Constraints

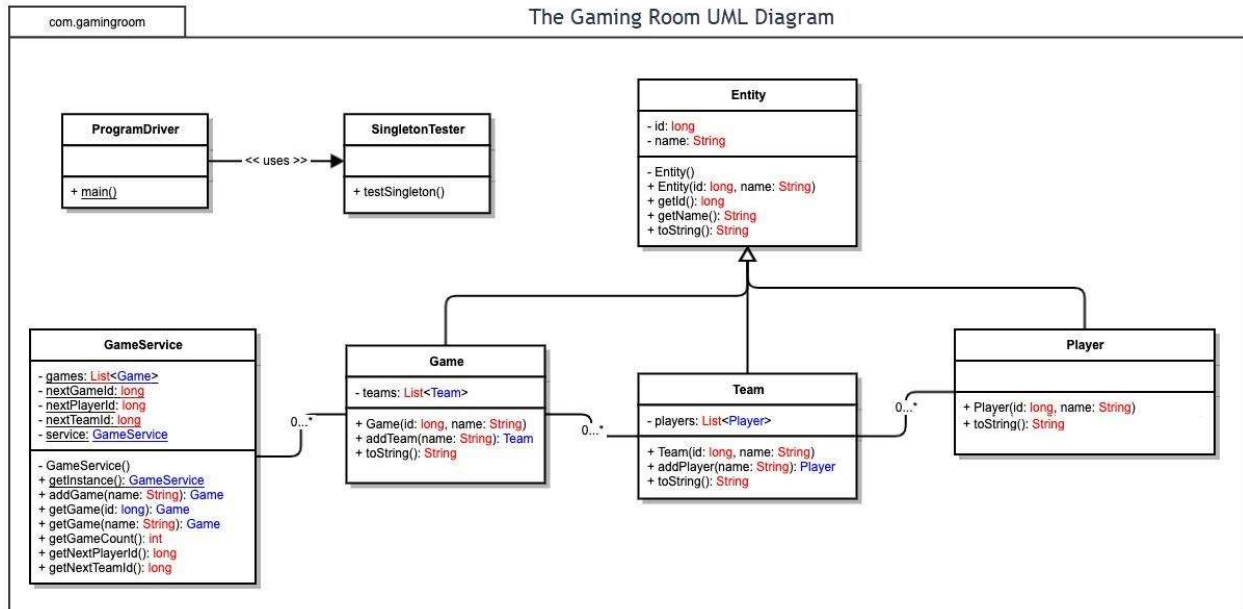
- Needs multiple teams
- Each team consists of multiple people
- Game and Team names must be unique and must allow users to check if a name is in use or is free, by use of singleton pattern when creating Games and Teams.
- Only one instance of a game can be running at a time
- Must run on multiple platforms
- The game must be written in a web-based language to fully function in any web-based environment.

System Architecture View

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

Entity creates a relationship between Game, Team, and Player class. These all inherit information from Entity such as “name” and “id” this makes Entity a superclass. When looking at the other classes we can see that the other classes have an instance of one class and a reference to an instance of another class. The diagram shows GamerService has a reference to Game, Game a reference to Team, and Team a reference of Player.



Evaluation

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
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Server Side	<p>Mac has easy accessibility and server configuration. Good built-in security. Easy to use GUI and terminal commands</p> <p>Advantages: Mac is upgradable and has options for web hosting requirements.</p> <p>Disadvantages: Not as preferred for web hosting.</p>	<p>Cost friendly. Challenging to navigate through the platform. It is difficult to find applications to support a web hosting requirement.</p> <p>Advantages: Security issues can be caught before they are an issue, and is a preferred choice for web hosting.</p> <p>Disadvantages: It can be difficult to find applications that support web hosting requirements and needs.</p>	<p>More software is available compared to other OS. High resource requirements and high comfort ability. More susceptible to viruses.</p> <p>Advantages: Very comfortable, high resources, and less loading times.</p> <p>Disadvantages: more easily susceptible to viruses.</p>	<p>A server should be in one place to be tracked. Mobile device specifications vary between users. High portability</p> <p>Advantages: Has a wider reach to users, better compatibility and cost.</p> <p>Disadvantages: Highly selective to mobile devices and low security.</p>
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Client Side	<p>It can be expensive for users. Moderate time and expertise are required.</p> <p>Advantages: Mac works seamlessly between other apple devices, fewer attacks on the OS, can read NTFS and FAT formatted drives.</p> <p>Disadvantages: Non-upgradable, Limited variety of Mac based computers, smaller Mac OS community compared to windows.</p>	<p>Maximum expertise and time are required. Minimum cost. Linux data is required to use the operating system.</p> <p>Advantages: Low cost to operate, designed to be secure, open source based operating system, Low system requirements.</p> <p>Disadvantages: Hard to adapt to for new users, low software compatibility, low hardware driver compatibility, and very low tech support.</p>	<p>More expensive than Linux. Minimum time and expertise are required. Easy to learn how to support a windows setup.</p> <p>Advantages: high compatibility with software and hardware, High programming support, large community support.</p> <p>Disadvantages: High level of attacks on the OS, can be expensive, High performance system requirements.</p>	<p>More difficult to implement when compared to other devices. Provides flexibility to see updates as the platform is mobile.</p> <p>Advantages: High mobility and productivity on the go.</p> <p>Disadvantages: Wide variety of smart phones with each having different limitations, Some devices have limited access to websites.</p>
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Development Tools	<p>Mac can run programs such as swift and notepad++. Macs can run all languages such as HTML, CSS, JavaScript. The front end can be supported with Java, Python, and Ruby.</p> <p>Advantages: Has a good list of applications to use.</p>	<p>Linux can Work with visual studio, Eclipse, and notepad++. The languages consist of HTML, CSS, and JavaScript. The front-end support can be handled with Java, Python, and Ruby.</p> <p>Advantages: Security issues can be discovered before the issues occur.</p> <p>Disadvantage: The list of applications to use can be hard to find, and the difficulty of use is higher compared to other OS.</p>	<p>Easier to use than Linux. Languages consist of HTML, CSS, JavaScript. Developer tools include Eclipse, command prompt, PyCharm, ETC</p> <p>Advantages: Has many different development tools available, and is easy to use.</p>	<p>Different apps can be created by using swift and android. The software can be run on different machines. The languages consist of HTML, CSS, and JavaScript. To support the front end can be Java, Python, and ruby.</p> <p>Advantage: Development on the go</p> <p>Disadvantage: Only certain smart devices will allow use of development applications.</p>
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Recommendations

Analyze the characteristics of techniques specific to various systems architectures and recommend to The Gaming Room. Specifically, address the following:

1. **Operating Platform:** I would recommend Gaming Room to start development on windows devices. It has more software available and requires minimum expertise and cost to start projects.
2. **Operating Systems Architectures:** Windows is developed by Microsoft and is a graphical operating system. It allows applications to show a graphical user interface while accessing system resources. It also has multimedia functions, messaging, and web services.
3. **Storage Management:** Windows 10 comes with a feature called storage sense. This allows you to manage your files and view how much storage each file takes up. It allows for easy file creation and the ability to choose where files and applications are stored and downloaded. Data and applications will not get lost so easily. It also features a cloud-based storage management called one drive.
4. **Memory Management:** Windows 10 storage allows for storage and management of Draw It or Lose It photos and players. It also allows you to keep all data and information together in one secure location.
5. **Distributed Systems and Networks:** Web-based games should be designed to handle distribution systems and networks to ensure fast and secure communication between the server and clients. A content delivery network, CDN, can be used to reduce load times, bandwidth costs, and increase content availability. This works by introducing intermediate servers between the users and the website server.
6. **Security:** Windows comes with built-in security protection software. This software scans for malware, viruses, and security threats in real time. As threats change so does the security software through system updates than be automatically installed or manually if preferred.