Draw It or Lose It

CS 230 Project Software Design Template

Version 1.0

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Document Revision History

Version	Date	Author	Comments
1.0	11/15/24	Lauren Jaime	Create a Game Board with one or more teams, allowing multiple players assigned to each team and game. Create unique game and team name identifiers for each instance of the game, with one instance in use at any time.
1.0	12/1/24	Lauren Jaime	Evaluation definition, System Architecture, View, and Evaluation Updates added.

Executive Summary

Creative Technology Solutions (CTS) will be creating a multi platform app based on Draw It or Lose It for Android. There are technical specifications to implement client requirements, such as unique identifiers and single-round draws per 30 seconds. This will be completed by software specialists, skilled in Java app processing.

Requirements

Creative Technology Solutions must:

- Create a game board
- Code an algorithm to assign unique tokens per: (Game, Team Name Identifier, and Player).
- Allow multiple players per team and multiple teams per game
- Define constraints to restrict game tokens to one minute per round and one instance of memory allocation

Design Constraints

The design is specifically defined as being a multiplayer game, with unique identifiers to present one game in allocated memory per match. There are 4 rounds of one-minute each per game, where an image is rendered within thirty seconds and the team has to guess what the image depicts. By chance if the team fails, the opposing team will have 15-seconds to guess what the image is. This game will have one to multiple players on a team, one to many teams in a match, and unique tokens for the team names and game id. This will require the use of a Singleton class to restrict multiple games during the match, and a separate class to loop through team and game names to provide single use case instances of the id.

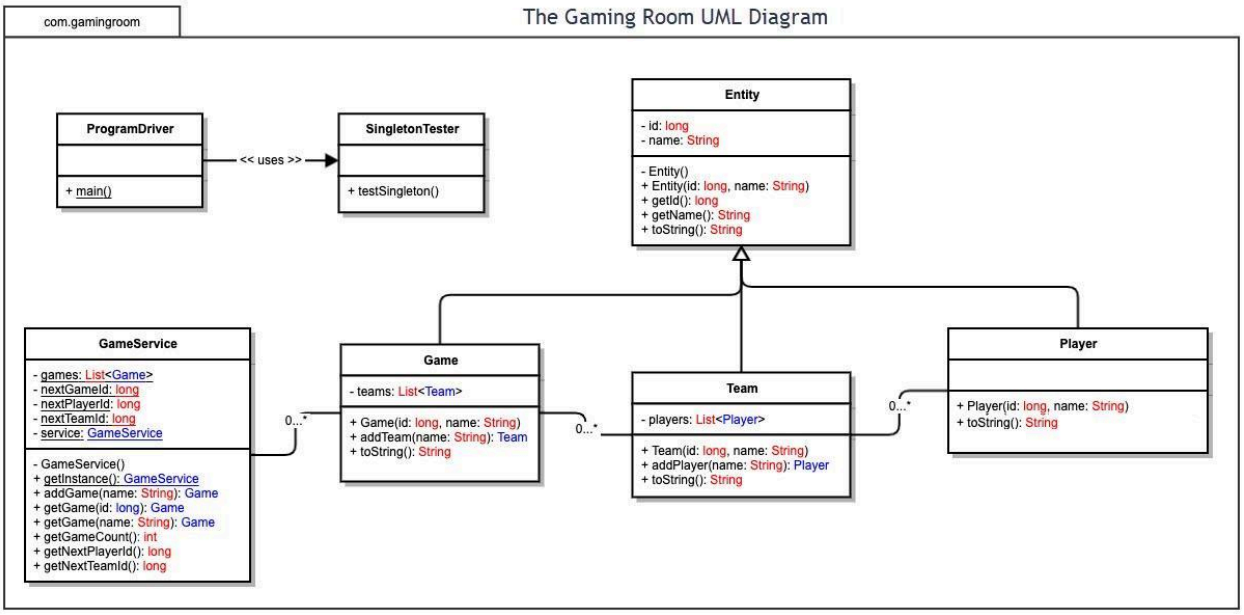
System Architecture View

The Gaming Room Application Software Modification Design will be built with Eclipse utilizing the Java language. Teams will designate project tasks according to priority and size, the scope of the project is determined during the initial project meeting and formal updates will be communicated in daily morning meetings. To discuss feedback and optimization strategies, the stakeholder will have an outline or project resource document to survey the responsiveness and importance to design processes at the daily meeting. Additional storage in the Eclipse IDE may be requested by any stakeholder with proper resource documents.

Domain Model

The GameService Class has an associative 0 to many relationship, that is the parent for Game, Team, and Player Classes. All associations are 0 to many because there may be zero, many, or none instances. They belong to the Entity Class because they are common attributes. The private objects are marked with the negative (-) symbol and positive (+) means that they are public objects or identifiers. The long, String,

and int values are collateral entities that relate to the type. The ProgramDriver will compile the program and use the SingletonTester Class to control the number of instances that GameService may run.



Evaluation

Development Requirements	Mac	Linux	Windows	Mobile Devices
Server Side	This program is in development stages for Mac. It will provide stability and user friendly gaming. Mac offers affordable storage solutions with real time network connectivity updates and licensing for a fee. Server based deployment is available with Mac.	This is a great OS to build applications because of simplicity. It may require extensive knowledge of Linux based programming. The benefits include core stabilization from root language commands, high performance platform capabilities and licensing for a fee. Server based deployment is available with Linux.	Windows is common for game development and therefore is easily updated and tested. It may have difficulty migrating to Mac without proper Knowledge of coding references. Cost optimization is platform based and is easily transferable to hundreds of different coding IDE's, providing low cost efficiency and developer's choice of software coding and licensing for a fee. Server based deployment is available with windows.	Draw It or Lose It is already played on Mobile Devices, it is user friendly but will be in development stages of integrating Mac Software. This makes storage and server communication available in existing IDE's with no cost addons and licensing for a fee. Server based deployment is available with mobile devices.

Client Side	Mac is popular internationally and has a variety of useful programming interfaces. It is a higher end price for purchase but is a trusted source for users. HTML is available for project integration with this Operating System.	Linux is not as popular as many other Operating Systems, there are experienced developers that have extensive knowledge of programming this language and could easily update software for its users, saving time and money for the general public because of its versatility. HTML is available for project integration with this Operating System.	Windows users are sometimes adept at programming and may be able to update and maintain their own Software periodically. This saves users time, money and efficiency when purchasing Windows products. HTML is available for project integration with this Operating System.	Mobile devices are owned by nearly every human on the planet. They are entertaining, affordable and easy to maintain. They are portable and easy to use for any age with little to no assembly required. HTML is available for project integration with this Operating System.
Development Tools	AWS and Azure are popular IDEs along with Microsoft support for developing Mac apps and Software. Swift, C, and C++ are powerful languages for this OS.(1)	C, C++, Python, and Java are among the most popular languages for Linux Programming. Some IDEs include Eclipse,VisualStudio Code and IntelliJ.	C++, C#, Java, Python, and JavaScript, with common IDEs being Visual Studio and Eclipse. There are 100's of IDEs that are capable of creating Windows software, making Windows a versatile OS.	Common IDEs are Android Studio for Android development and Xcode for iOS development. Java, Kotlin, and Swift may be used to program Mobile Devices and software.

Recommendations

1. **Operating Platform**: Amazon Azure
2. **Operating Systems Architectures**: "Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud, offering over 200 fully featured services from data centers globally. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies—are using AWS to lower costs, become more agile, and innovate faster." (1)
3. **Storage Management**: Amazon Elastic File System (EFS)
4. **Memory Management**: AWS Glue
5. **Distributed Systems and Networks**: AWS is comprehensive and versatile. There are many advantages to using AWS because of built in, cost efficient plug-ins and pay as you go services. It offers languages that are known between Software Operating Systems, such as Java and C, and could easily connect to any network once the project is final. With experienced tech developers, the game may also be programmed to use the least amount of network data as possible, and host a computer run game that does not rely on network connectivity.
6. **Security**: AWS is a globally trusted source that uses encryption when reading and storing data. The security advantages are affordable, innovative, and agile.

References

(1) AWS. *Cloud computing with AWS.* https://aws.amazon.com/what-is-aws