Trivia Game Platform

Fall 2024 – Intro Software Design Team Project

Problem Description

The goal of this project is to implement a feature-rich, multi-user trivia game platform, emphasizing interactive and competitive gameplay experiences in a networked environment. This year, the trivia game options include popular games such as

- Who Wants to Be a Millionaire
- Jeopardy
- Trivia Crack
- Etc...

If you'd like to pursue a different trivia game, email Prof. Casavant.

This platform will include an account management system with password protection, allowing players to maintain secure profiles and accumulate points or "in-game money" through gameplay. Players will be able to use their in-game earnings to purchase items in an **in-game store**. Your solution should be visually engaging, competitive, and provide an intuitive user experience. Impress the project evaluators by showcasing a wide range of software design features.

This problem statement is purposely open-ended. The primary focus of your efforts is to make a platform that is compelling for your classmates to utilize. You should impress the judges of this competitive coding competition by demonstrating use of a wide range of software design features in your application. You will be provided at least one api option for a source of trivia questions (OpenTDB.com), or you may find one on your own.

Minimum Specification (General)

1. Graphical User Interface (GUI) Client: Design a visually engaging GUI for players.
   a. Clients must connect to the server and be able to verify identity of user
   b. A client can register a new user or allow them to log in.
2. Networked Server Component: Implement a server to manage interactions between clients, maintaining smooth and consistent multiplayer sessions.
   a. The server must allow for at least eight distinct registered users, with unique identifiers
   b. Multiple simultaneous client-server interactions must be supported.
   c. The server component facilitates interactions between clients
   d. Multiple simultaneous games are not part of the minimum specification.
3. Multiplayer Capability: Support real-time, multi-user interactions within an instance of the trivia game, allowing players to compete in real time.
4. Account System with Password Protection: Implement an account system requiring unique identifiers for each user.
5. Real-Time Leaderboards: Display live rankings during gameplay to boost competition and engagement.
6. Scoring and Progress Tracking: Track user scores, providing leaderboards or rankings for added competition.

Minimum Specifications (Trivia Games)

1. Trivia Game Selection: Implement one of the listed trivia games (or an approved alternative). The games must provide engaging, varied rounds of questions, with an escalating challenge level.
2. Gameplay Persistence: Ensure that the server retains important game information, such as user scores, even if the client disconnects.
3. Player Progression and Rewards: Accumulate in-game currency through correct answers or game progression.
4. Game Configuration Options: Allow users to customize certain aspects of the gameplay (e.g., difficulty level, question categories).

Minimum Specifications (Multiplayer)

1. Real-Time Gameplay: Support synchronous multiplayer gameplay, allowing multiple players to answer questions and see results in real time.
2. Social Features: Include chat options or messaging features to enhance interaction during gameplay.

Code Online/Cheating

Since implementations of similar platforms can be found online, remember that anything you can find by Googling we can certainly find too. You are required to implement and understand all code. The course policies are **VERY** clear about our policies regarding cheating and using code found online **OR FROM GENERATIVE AI TOOLS**. **Just don't do it.** If you have questions or need clarification, don't hesitate to ask. **No use of Firebase / other mBaaS.**

Suggested Additional Features

To further enhance your project's competitiveness, consider implementing some of the following optional features:

1. Administrator Tools: Provide server and gameplay management tools for admins, allowing them to moderate games or manage user accounts. (Perhaps a server GUI.)
2. User Tiers: Offer different account levels (e.g., standard, premium) with varying perks.
3. Profile Customization: Allow users to upload or purchase (in the in-game store) avatars, set display names, and personalize their profiles.
4. Achievements and Badges: Reward players for specific accomplishments (e.g., consecutive correct answers, winning streaks).
5. In-Game Store: Provide an online store where users can spend in-game currency earned through gameplay.
6. Friend and Group Capabilities: Enable users to form groups or teams, allowing them to participate in trivia games collaboratively or competitively
7. Password storage and communications between peers can be encrypted for security.

Dream up new ideas of your own – it's a competition!