FINAL PROJECT PROPOSAL

Satya Bharathi Krishnakumar | Vaishnavi Chellappa
sk10049 | vc2495

Project Proposal:

Chesspresso: A Hybrid Chess Gaming Experience

Introduction:

Chesspresso is envisioned as an innovative and immersive platform catering to chess enthusiasts who desire a blend of conventional and unique chess experiences. The creation of this platform will leverage sophisticated Java technologies including Swing and Java AWT (Abstract Window Toolkit) for crafting the graphical user interface (GUI), Java Socket for establishing network connections, and JDBC for seamless integration with a MySQL database. Here, SQLite has also been integrated along with it. A thread-pool is also present that can also facilitate handling multiple users concurrently.

Project Scope:

The architecture of Chesspresso is structured around a client-server model. The server takes on the role of managing player interactions, orchestrating game sessions, and facilitating database communications. On the other end, the client is tasked with presenting the game interface, interpreting user inputs, and maintaining communication with the server. Utilizing a SQLite database, the platform is designed to store a comprehensive array of player data ranging from gameplay history to user accounts. With a commitment to user-friendliness, the GUI will be crafted using Swing and Java AWT, ensuring an intuitive and interactive gameplay experience. Furthermore, players will have the capability to engage in chess matches remotely, courtesy of the platform's networking features.

Features:

Account Management: Players will have the ability to create a personal account, log in to access their gaming history, and review their gameplay statistics.

Remote Gameplay: The server stands as the central hub, managing game sessions and ensuring the synchronization of game data between players competing from different locations.

Database Integration: Leveraging JDBC, the platform facilitates the storage and retrieval of player profiles, game statistics, tracks win-loss ratio and ELO rating of each user from a SQLite database.

Interactive GUI: The game board and chess pieces come to life through Swing and Java AWT, delivering a visually engaging gaming experience.

Data Security and Integrity: A strong emphasis is placed on safeguarding user data, ensuring secure authentication practices, and robust transaction management within the database.

Advanced Java Features:

Object-Oriented Programming: The codebase will be architecturally designed following object-oriented programming (OOP) principles, promoting modularity and code reusability.

GUI using Swing and Java AWT: The use of Swing and Java AWT ensures the creation of a responsive user interface, enhancing the overall gaming experience.

Network Communications via Java Socket: This feature is crucial for enabling seamless gameplay between remotely located players, with the server playing a pivotal role in managing these interactions.

JDBC and SQLite for Data Management: The platform relies on JDBC for interactions with the SQLite database, ensuring the persistent storage and retrieval of user-related and gameplay data.

Multithreading: Thread pool has been implemented to provide multiple instances of the game concurrently.

Transactional Integrity: Maintaining a consistent and reliable state within the database, especially during data manipulation operations.

Project Design:

The structure of Chesspresso adheres to a client-server model, combining Swing and Java AWT for the client-side interface, Java Socket for networking, and JDBC and SQLite for database interactions. The server is responsible for juggling player connections, overseeing game sessions, and managing database interactions, while the client focuses on rendering the game interface and processing user inputs. The SQLite database serves as the repository for user accounts, gameplay history, and statistics.

Timeline and Milestones:

Design Phase (Weeks 1-2): Engaging in the Design Process - Solidifying the game's rule set, conceptualizing the GUI, and establishing the database schema.

Development Phase (Weeks 3-4): Crafting the Platform - Implementing the GUI, developing network functionalities, and integrating the database.

Testing Phase (Week 5): Quality Assurance - Conducting thorough tests, rectifying any bugs, optimizing performance, and ensuring the consistency of data.

Documentation Phase (Week 6): Polishing and Documentation - Refining the user interface, compiling comprehensive documentation, and gearing up for the project's release.

Conclusion:

Chesspresso will provide a unique and comprehensive chess gaming experience. It will demonstrate advanced Java capabilities, offering a robust and interactive platform for chess enthusiasts. The project will also serve as an invaluable learning resource for understanding Swing and Java AWT, network programming, and database integration.