



CHAT'N,PLAY

Team Members

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PROJECT ACTION PLAN REVIEW
CHATNPLAY (Chat and Play)

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The Project

The purpose of ChatNPlay is to create a client-server software application that provides an engaging and interactive platform for members to communicate through chat and play the Rock, Paper, Scissors game. The project aims to facilitate social interactions, entertainment, and community-building among members within a localized environment.

Goals of the Project

1. **Enhanced Social Interaction** – The primary goal is to foster social interaction among members. By offering a platform for real-time chat and gaming, the project intends to create a space where individuals can connect, engage in conversations, and participate in enjoyable gaming experiences.
2. **Entertainment and Engagement** – The project seeks to provide entertainment through the Rock, Paper, Scissors game. By incorporating this classic game into the application, users can have fun, challenge each other, and pass the time engagingly and interactively.
3. **Community Building** – The application aims to build a sense of community among members. Through ongoing conversations, shared gaming experiences, and interactions, the project strives to establish a supportive and connected community that enhances members' sense of belonging.
4. **User Experience** – Creating a user-friendly and intuitive application is crucial. The project aims to deliver a seamless experience for members, allowing them to navigate between chat and gaming features effortlessly, ultimately leading to positive user experiences.
5. **Education and Skill Development** – The project may also have an educational aspect by encouraging strategic thinking and decision-making through the Rock, Paper, Scissors game. Players might refine their game-playing strategies and learn from their opponents, enhancing their cognitive abilities.
6. **User Retention and Engagement** – By offering a dual experience of chat and gaming, the project aims to keep users engaged and retained within the application for longer periods.

Project's Scope

1. **User Authentication and Profiles**
 - Users can register and log in with unique usernames and passwords.
 - Users can change their usernames, but no two users can have the same username.
 - User profiles store information such as username and password and game scores.
2. **Real-time Chat**
 - Users can send and receive text messages in real time.
 - Messages include the sender's username and current level.

- Users can engage in public group chat.
3. Moderation
 - The system designates moderators who can enforce server rules and manage member behaviour.
 - Moderators can kick users who violate rules from the server.
 4. Member States
 - Members can have different states, such as “playing” or “chatting”.
 - Only members with the “playing” state can participate in Rock, Paper, Scissors games.
 5. Rock, Paper, Scissors Game
 - Users can join game slots to play Rock, Paper, Scissors.
 - When two players are in a slot, a new game starts.
 - Users can play multiple rounds with the same opponent.
 - Users can leave the game whenever they want.
 6. Level Progression and Scoring
 - Users’ levels increase by playing games, chatting, and changing usernames.
 - Game scores are recorded and contribute to the user’s overall scores.
 - A scoreboard displays previous game results and scores.
 7. Useful Commands
 - The application includes various commands for users, such as “!about, !help, !whisper, !join, !exit, !scores, !level, and ! kick”.
 8. UI/UX Design
 - The application features an intuitive and user-friendly interface.
 - The design prioritizes easy navigation between chat and game sections.
 - User interactions and messages are displayed clearly.
 9. Data Storage
 - User profiles and game scores are stored in a database.

Project Usage Scenario

As the creator of the ChatNPlay project, several stakeholders stand to gain valuable benefits from this individual endeavour (O, 2020).

1. Creator's Perspective

- Benefit – For me, ChatNPlay is a tangible manifestation of technical skills, design acumen, and effective project management.
- Value – This fully functional project can be strategically added to the personal portfolio, impressing potential employers, collaborators, or clients with a practical demonstration of capabilities.

2. Project Advisors

- Benefit – Despite not being marketed, the project advisors can appreciate the project's innovative contribution to student engagement.
- Value – ChatNPlay introduces a novel approach to fostering community spirit, enhancing the campus experience, and facilitating peer interaction outside the classroom.

3. Other Students

- Benefit – Fellow students can explore an exclusive virtual space that combines leisurely conversations with enjoyable game sessions, creating a unique camaraderie.
- Value – ChatNPlay emerges as a dedicated hub for social interactions, enabling peers to bond over shared experiences and interests in a relaxed and engaging environment.

4. Development Experience

- Benefit–building ChatNPlay yields immersive firsthand experience in software development, encompassing coding intricacies, UI/UX design principles, and the intricacies of database management.
- Value – This invaluable learning experience profoundly enriches technical proficiencies, refines problem-solving capabilities, and imparts substantial insight into efficient project coordination.

5. Future Prospects

- Benefit –Completing ChatNPlay stands as a testament to my aptitude in conceptualizing, designing, and delivering a functional application.
- Value – the project's accomplishment solidifies credibility when exploring freelance projects, collaborative opportunities, or job roles within the dynamic field of software development.

6. Personal Achievement

- Benefit – realizing the project's evolution, surmounting challenges, and witnessing its functional outcome contribute to a profound sense of personal satisfaction.

- Value – the sense of pride, accomplishment, and intrinsic gratification derived from creating a valuable asset resonates with personal development and growth.

Project Architecture

Programming Language and Tools

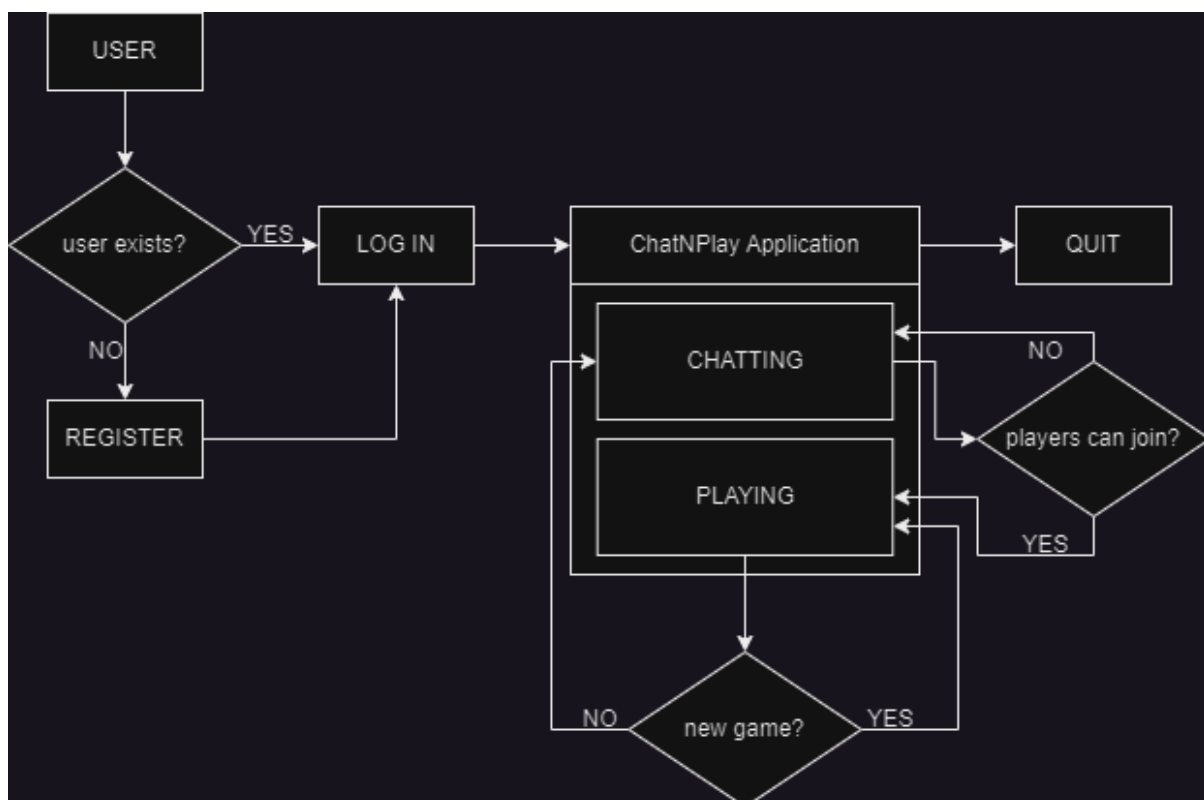
The ChatNPlay project was executed using the C# programming language – renowned for its object-oriented features and compatibility with Windows systems. C# provided the structural framework for the project's implementation.

C# socket programming played a pivotal role in establishing and maintaining communication channels between the server and clients. This facilitated real-time interaction within the application (Omukuba, 2022).

Windows Forms, integrated with Visual Studio, served as the graphical user interface toolkit. It enabled the creation of interactive windows and user-friendly interfaces.

For data storage, SQLite was adopted as a database management system (Julles, 2023). SQLite's serverless architecture allowed for efficient data management within the application.

User Interaction Represented



Testing Approach

A methodical testing approach was adhered to, ensuring the integrity and functionality of the project.

1. Unit Testing – Individual components such as user registration, login, chat, and game logic were tested independently to ensure their correctness (Hamilton, Unit Testing Tutorial – What is, Types & Test Example, 2023).
2. Integration Testing – These components were integrated and tested together to validate smooth interactions between them.
3. User Acceptance Testing – The application underwent testing based on user scenarios to identify any potential user experience issues (Hamilton, What is User Acceptance Testing (UAT)? Examples, 2023).
4. Error Handling Testing – The application's response to various errors was tested to ensure that it provided appropriate feedback and maintained stability.
5. Performance Testing – The application's performance and responsiveness were assessed under different scenarios to ensure it could handle user load.

Project's Management

Managing Time and Tasks

During my journey with the ChatNPlay project, I found effective ways to manage time and tasks to keep things running smoothly.

1. Dividing and Conquering – to handle the project's complexity, I broke it down into smaller, manageable parts. This allowed me to focus on one thing at a time and make steady progress.
2. Time Estimations – Drawing from my experience, I estimated how long each part would take. I considered factors like the complexity of coding, design intricacies, and testing requirements.
3. Tracking Progress – Regularly checking off completed tasks on my list helped me gauge my progress and stay motivated to meet my milestones.

Leveraging My Strengths

Utilizing my strengths and skills was key to ensuring efficient resource management.

1. Skills at Play – Being the sole developer, I relied on my programming expertise, UI/UX design knowledge, and game logic proficiency to handle different aspects of the project.
2. Technology Fit – I chose technologies that I was already familiar with, which allowed me to capitalize on my existing knowledge and avoid unnecessary learning curves.

One-person Team Management

As the sole contributor, I took on the responsibility of managing tasks and progress.

1. Prioritization – I sorted tasks based on their significance and complexity, ensuring that I tackled critical aspects first and maintained a steady pace.
2. Time Allocation – By setting aside specific time slots for various tasks, I could concentrate on one task without distractions, maximizing productivity.

Problem Solving and Adapting

Navigating challenges, risks, and changes required strategic approaches.

1. Tackling Issues – Whenever I encountered technical glitches or roadblocks, I diligently troubleshooted them, employing online resources, trial and error, and creative problem-solving.
2. Risk Preparedness – I anticipated potential risks, considering technical complexities or unforeseen obstacles. Developing contingency plans allowed me to manage these risks proactively.
3. Change Management – For any proposed changes, I assessed their potential impact on the timeline and resources. This careful evaluation ensured that changes were integrated smoothly.

Maintaining Motivation and Flexibility

Staying motivated and adaptable were critical to the project's success.

1. Intrinsic Drive – As a solo developer, my intrinsic motivation fueled my commitment to achieving project milestones. This drive kept me focused on the end goal.
2. Adaptation Skills – When faced with unexpected challenges or shifting requirements, I swiftly adjusted my strategies to ensure the project remained on course.

Individual Contribution

My contribution was instrumental in ensuring the successful completion of the report, encapsulating the essence of my ChatNPlay project.

1. Thorough Exploration – I embarked on a thorough exploration of every facet of the ChatNPlay project. This involved diving into research materials, gathering information, and understanding the nuance of the application.
2. Translating Complexity – converting technical intricacies into accessible language was a prime focus. I worked diligently to make sure that every technical detail was presented in a manner that anyone reading the report could grasp.
3. Logical Organization – I meticulously organized the report's structure. Each section received careful attention, and I ensured that there was a logical flow that guided the reader through the project's journey.
4. Crafting Coherence – The report's content underwent multiple revisions under my watchful eye. I painstakingly polished each sentence, ensuring that the report conveyed information coherently and engagingly.

Overcoming Individual Challenges

1. Taming Technical Complexity
 - Challenge – Tackling the intricate game logic for Rock, Paper, and Scissors posed a significant hurdle.
 - Solution – I embraced a step-by-step approach, systematically dissecting the logic into manageable portions. This way, I could navigate the complexities more effectively.
2. Time Management Dilemma
 - Challenge – Juggling project work alongside other commitments demanded a fine balance.
 - Solution – I employed a time-blocking technique. This entailed dedicating specific time slots exclusively to the project, minimizing distractions and optimizing productivity.
3. Resource Scarcity
 - Challenge – AS the sole team member, my perspective felt limited at times.
 - Solution – To broaden my outlook, I actively sought out online resources, engaged in relevant communities, and reached out to peers for insightful feedback.
4. Conquering Writer's Block
 - Challenge – The writing process occasionally encountered roadblocks.
 - Solution – I navigated these periods of creative stagnation by employing techniques like free writing, brainstorming, and taking short breaks. This approach helped restore my creative flow.

Conclusion

In the journey of creating the CHatNPlay project, I have ventured into the realm of software development, network communication, and user interaction. This endeavour has not only honed my technical skills but also provided a platform to design an application that merges communication and gaming seamlessly. The project stands as a testament to the possibilities that arise when innovative thinking meets technological expertise.

The ChatNPlay application showcases the potential of C# programming, socket communication, and user interface design. It reflects the culmination of countless hours of space to communicate, engage in games, and enhance their experiences through levels and interactions. The application achieves its purpose of delivering an immersive digital environment.

Future Directions of the Project

1. **Expanded Multiplayer Games**
Problem – the current limitation of two-player Rock, Paper, Scissors games restricts the number of participants and reduces the excitement for larger groups.
Potential Solution – Modify the game logic to support multiplayer sessions with more than two players at the same time. Implement features like game rooms, tournaments, or team-based matches to accommodate multiple players simultaneously.
2. **Real-time Score Display**
Problem – Players can't track their scores in real-time during gameplay, which diminishes competitiveness and involvement.
Potential Solution – Implement a dynamic scoring system that updates scores in real-time as players make choices. This real-time feedback would heighten the competitive spirit and engagement.
3. **Tier System and Badge Recognition**
Problem – The absence of a structured progression system and player recognition reduces long-term engagement and incentives.
Potential Solution – Introduce a tier system that categorizes players based on experience levels or achievements. Award badges or titles as players advance, fostering competition and a sense of accomplishment (Bitrián, Buil, & Catalán, 2021).
4. **User-friendly Game Controls**
Problem – Using text-based commands for actions can be less intuitive, especially for new users.
Potential Solution – Replace text commands with graphical buttons for actions like joining, leaving, and creating games. This visual approach streamlines user interactions and improves usability.

5. Group Chat Functionality

Problem – Lack of group chat features restricts private interactions among specific sets of users.

Potential Solution – Introduce group chat functionality to allow users to create and manage private chat groups. This promotes focused conversations and enhances user engagement within select circles.

6. Diverse Game Selection

Problem – Offering only one game limits the variety and choice available to users.

Potential Solution – Expand the application to support multiple games beyond Rock, Paper, and Scissors. Providing a diverse selection of games caters to different preferences and increases user engagement.

7. Enhanced User Profiles

Problem – Users lack control over editing their profile data and password management within the application.

Potential Solution – enable users to edit their profile information and reset passwords within the application. This self-service approach enhances user autonomy and reduces reliance on external support.

8. Graphical User Interface Improvements

Problem – relying on typed commands can be cumbersome, especially for users unfamiliar with the application.

Potential Solution – transform system commands into graphical buttons or links. This graphical user interface improvement simplifies navigation and makes the application more accessible.

9. Persistent User Levels

Problem – the application doesn't store user levels in the database, resulting in the loss of user levels every time they log out and log back in.

Potential Solution – Modify the database structure to include a field for storing user levels. Implement a mechanism that ensures user levels are saved in the database and retrieved upon login, ensuring that users' progress and achievements are retained over multiple sessions. This will enhance the sense of continuity and reward for users as they progress through the application.

10. Global Availability

Problem – The application's current LAN-based nature restricts its usage to specific geographical locations.

Potential Solution – Adapt and enhance the project for online use, eliminating geographical limitations. This transformation would enable users worldwide to connect and engage, fostering a global community.

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