

Project Documentation - CodePlay

Team Name: CodePlay

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Project Name: Kids Color Book

Project Approach:

Our project, *Kids Color Book*, is a fun and educational game made for children aged 5 to 10. The goal is to help kids learn how to mix colors while playing.

1. Collaborative Teamwork

- A team of students developers worked closely using agile principles, with frequent communication to coordinate tasks.
- Responsibilities were divided among design, coding, testing, and documentation to leverage each member's strengths.

2. User-Centered Design

- The design process prioritized usability for young children, focusing on simple controls, visual clarity, and fun audio-visual feedback.
- Bilingual support (English and German) was included to broaden accessibility and learning opportunities.
- Touch input is integrated to enhance interaction on tablets.

3. Iterative Development and Testing

- The development followed an iterative approach, with regular testing cycles to validate features and gameplay mechanics.
- Test cases covered key functional requirements such as color mixing logic, UI responsiveness, feedback mechanisms, and game flow.
- Manual testing was conducted on supported devices to ensure stability, correctness, and a child-friendly experience.

4. Technology Stack and Tools

- The game was developed using the Godot Engine with GDScript for scripting.
- Documentation was maintained using Microsoft Word and Google Docs.
- Testing was manually executed with four testers independently verifying test cases.

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5. Scope and Constraints

- The project focused on a simple but effective color mixing educational game, avoiding overly complex gameplay to maintain accessibility for the target age group.
- The application was optimized for low-end devices to maximize reach.
- The scope included core features: color mixing, score tracking, feedback, and bilingual UI.

6. Deployment and User Support

- The game was designed for desktop and tablet platforms.
- A user manual was prepared to guide players, parents, and teachers on installation gameplay.

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Lessons Learned:

Throughout the project lifecycle, we gained valuable insights and experience that will inform future work:

1. Importance of Clear Requirements and Test Cases

- Defining detailed test specifications and protocols early helped identify key functionalities and edge cases.
- Writing explicit test cases improved team alignment and facilitated smoother testing.

2. User Experience is Crucial for Educational Games

- Designing for young children requires careful consideration of UI simplicity, intuitive controls, and engaging feedback.
- The inclusion of bilingual support added complexity but significantly improved usability and educational value.

3. Manual Testing is Time-Consuming but Effective

- Manual testing by multiple testers was essential to capture nuanced feedback on animations, voice prompts, and responsiveness.
- Automated testing could be explored in the future for regression testing and to cover larger test scopes efficiently.

4. Collaboration and Communication

- Regular meetings and task tracking helped keep the project on schedule.
- Clear documentation facilitated onboarding of new team members and helped maintain project continuity.

5. Technology and Platform Constraints

- Working with Godot and GDScript was effective for rapid prototyping and deployment but required attention to platform-specific behaviors, especially for touch and haptic feedback.
- Testing on multiple devices is critical to ensure consistent performance.

6. Scope Management

- Focusing on a manageable feature set ensured quality delivery within the project timeline.
- We learned to prioritize core educational content over additional features that could complicate gameplay or delay release.