

Developer Manual for "BABA IS YOU"

Introduction

This document provides a comprehensive overview of the development and implementation of the "BABA IS YOU" project, focusing on the architecture, key components, improvements, and remaining tasks. The project leverages a structured approach to implement dynamic and customizable game rules, ensuring a robust and scalable application design.

Architecture Overview

The project is built following the Model-View-Controller (MVC) architecture to separate concerns effectively, enhancing maintainability and scalability. This architecture facilitates independent development, testing, and maintenance of different components within the project:

- **Model:** Manages the logic and data of the game, including game elements like cells, elements, and game rules.
- **View:** Responsible for the graphical output, rendering game elements on the screen based on the game state.
- **Controller:** Acts as an intermediary between the Model and the View, handling user input and updating the model and the view accordingly.

Rules Implementation

The game's rules are a central feature, allowing dynamic interactions and behaviors within the game environment. The `Rules` class manages the relationships and transformations based on player interactions, which define the gameplay mechanics:

- **Rules Class:** Manages and stores all the logic required to modify the game state based on the game rules.
- **Element Relationships:** Game elements like "BABA", "WALL", "ROCK" are associated with specific behaviors and properties, which can be dynamically altered during gameplay.

Level Management and Transmutation

Levels in the game are managed through the `Level` class, which contains the grid and the current state of the game level. The `Transmutation` class is responsible for applying transformations to elements based on the rules defined:

- **Level Class:** Handles the loading, updating, and displaying of levels.

- **Transmutation Class:** Applies rule-based transformations to game elements, such as turning "ROCK" into "BABA" or implementing complex interactions like "MELT" and "PUSH".

Game Launcher

The game launcher is implemented in the `Game` class, which initializes the game, loads levels, and manages the progression through different stages of the game:

- **Initialization:** Sets up the game environment, loads levels, and prepares the game for user interaction.
- **Game Flow Control:** Manages the transitions between different levels and handles the termination of the game once all levels are completed.

Enhancements and Bug Fixes Post-Beta

Significant improvements and bug fixes have been implemented since the beta release:

- **Cellule Class Bug Fix:** A critical bug in the `cellule` class that caused the game to crash has been resolved, ensuring stable gameplay.
- **Performance Improvements:** Optimizations have been made to enhance game performance and responsiveness.

Future Work

While substantial progress has been made, the following tasks remain to complete the project:

- **Custom Level Creation:** Development of a custom level designer to allow players to create and share their levels.
- **Unit Testing:** Comprehensive unit tests need to be implemented to ensure the reliability and stability of all game components.
- **Bug Fixing:** Ongoing efforts to identify and resolve any remaining issues in the game.

Conclusion

The "BABA IS YOU" project represents a significant endeavor to create a flexible and engaging puzzle game. The use of MVC architecture and the careful implementation of game mechanics have laid a solid foundation for future enhancements and community involvement. Continued development and refinement will focus on expanding the game's features, improving user experience, and ensuring a robust platform for creative gameplay.