

Extension justification

In the original Santorini game, the Player class focuses on controlling workers' movements and construction actions, while the Validator class is responsible for verifying the legality of these actions and checking if a player has achieved victory. To introduce god cards and allow for the integration of more god cards in the future, I adopted different strategy interfaces. For players who do not use god cards, we employ the defaultStrategy to validate their actions. For different god cards, we implemented the MoveStrategy, BuildStrategy, and WinStrategy interfaces accordingly. Depending on the specific characteristics of each god card, we implemented these strategy interfaces to modify the standard rules for movement, construction, or victory conditions associated with the god card. This approach offers several advantages. Firstly, it adheres to the open/closed principle, as new god card abilities can be added without altering the existing codebase—only new strategy implementations are required. Secondly, it enhances readability and maintainability, as the logic for each strategy is encapsulated within its respective class.

I once considered an alternative approach, which involved using a switch-case method in the Validator class to handle specific action validation logic for each god card. However, this approach would lead to the "instanceof" problem. The Validator would need to understand the specific abilities of each god card in order to correspond to different validation codes. Additionally, every time the game is expanded, we would need to modify the Validator code to add new validation logic, resulting in frequent code changes and decreased maintainability.

By adopting the strategy pattern, I ensured that each god card could implement its own abilities through interface implementation, while minimizing the impact on other code and facilitating the expansion of new god cards. This design choice aligns with the open/closed principle, the single responsibility principle, and enhances the game's adaptability to the expansion of new god cards.