Project OOP

OOP.20222.Team19

Mandarin capture square

Team 19

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Commit images

Mini-project description

-On the main screen:

+ Start: start the game. For convenient, you do not have to create different difficulties
+ Exit: exit the program. Be sure to ask users if they really want to quit the game
+ Help: Show guide for playing the game

-In the game:

+ Game board: The game board consists of 10 squares, divided into 2 rows, and 2 half- circles on the 2 ends of the board. Initially, each square has 5 small gems, and each half- circle has 1 big gem. Each small gem equals 1 point, and each big gem equals 5 points.
+ The game ends when there is no gem in both half-circles. The application must notify who is the winner and the score of each player.

USE CASE DIAGRAM

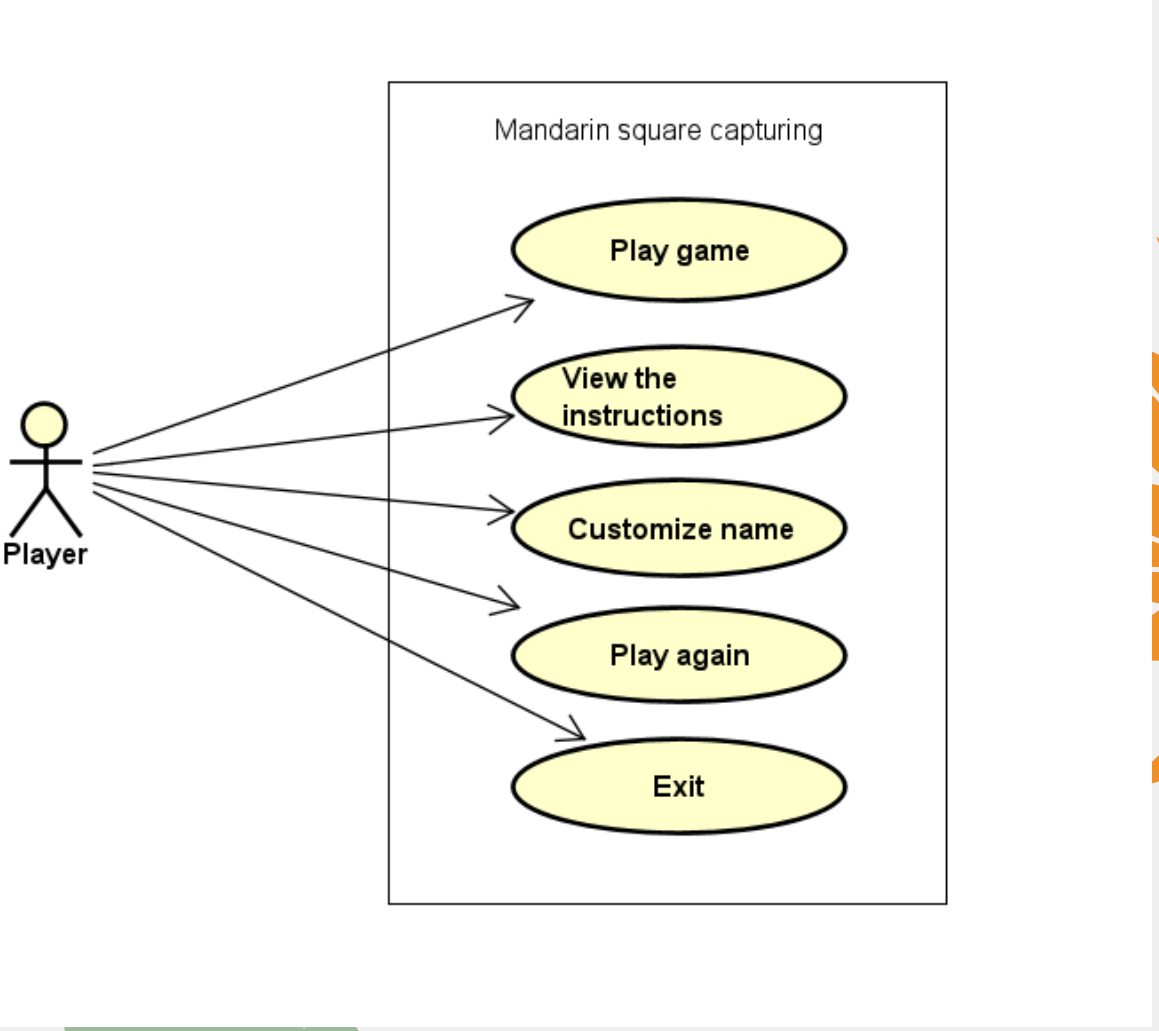
-Play game: When play choose to start the game (by clicking the Start button in the Intro Screen), the program displays a playing board, the player then plays the game following the rules stated in until the game is finished

Show instructions: Player can press Help to access the Help Menu from the Intro Screen to read about the instructions, the program should display a board showing rules of the game.

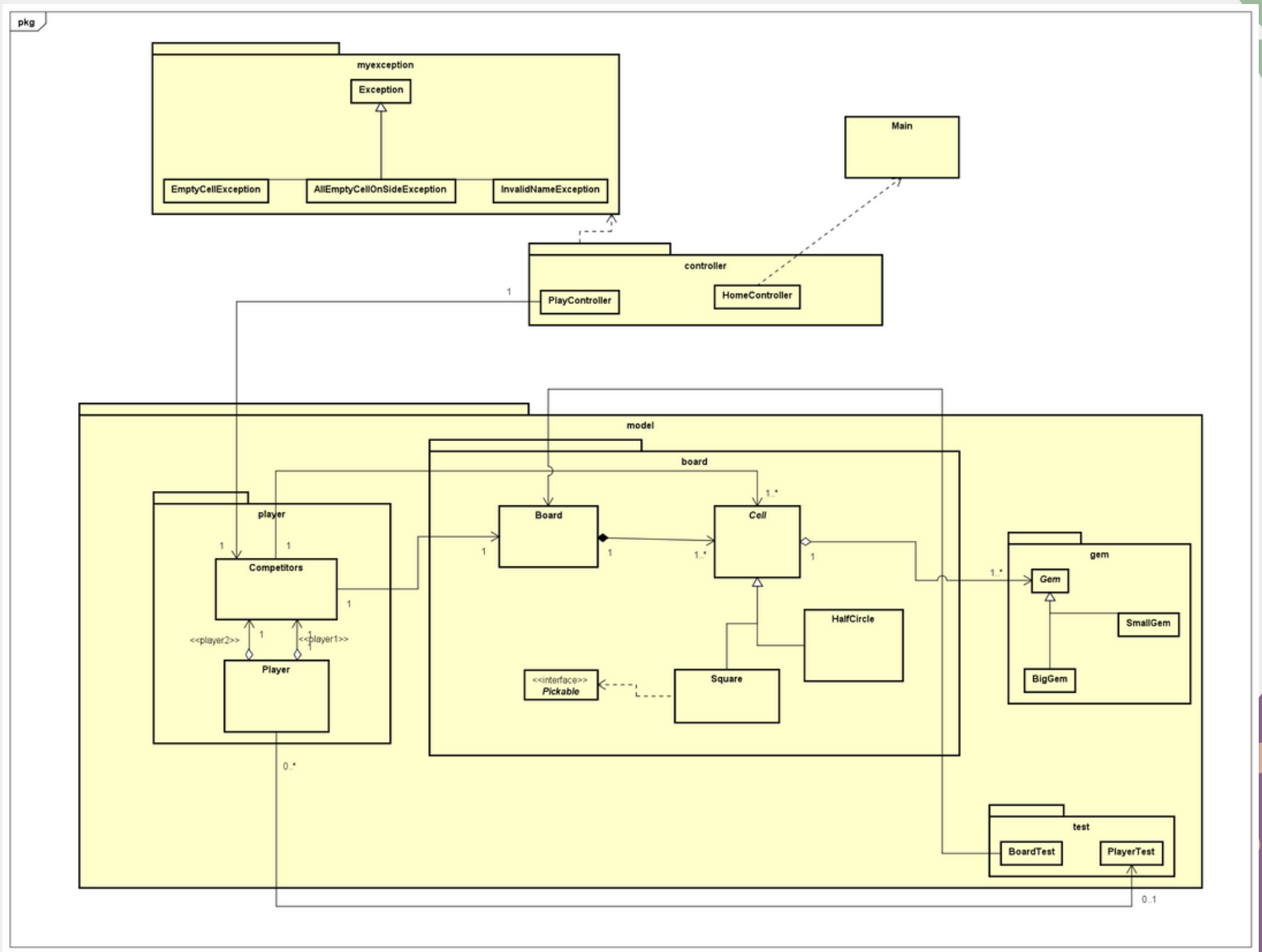
-Enter name: Ask player to enter their name.

-Play again : Ask player to comfirm whether they want to play again or not

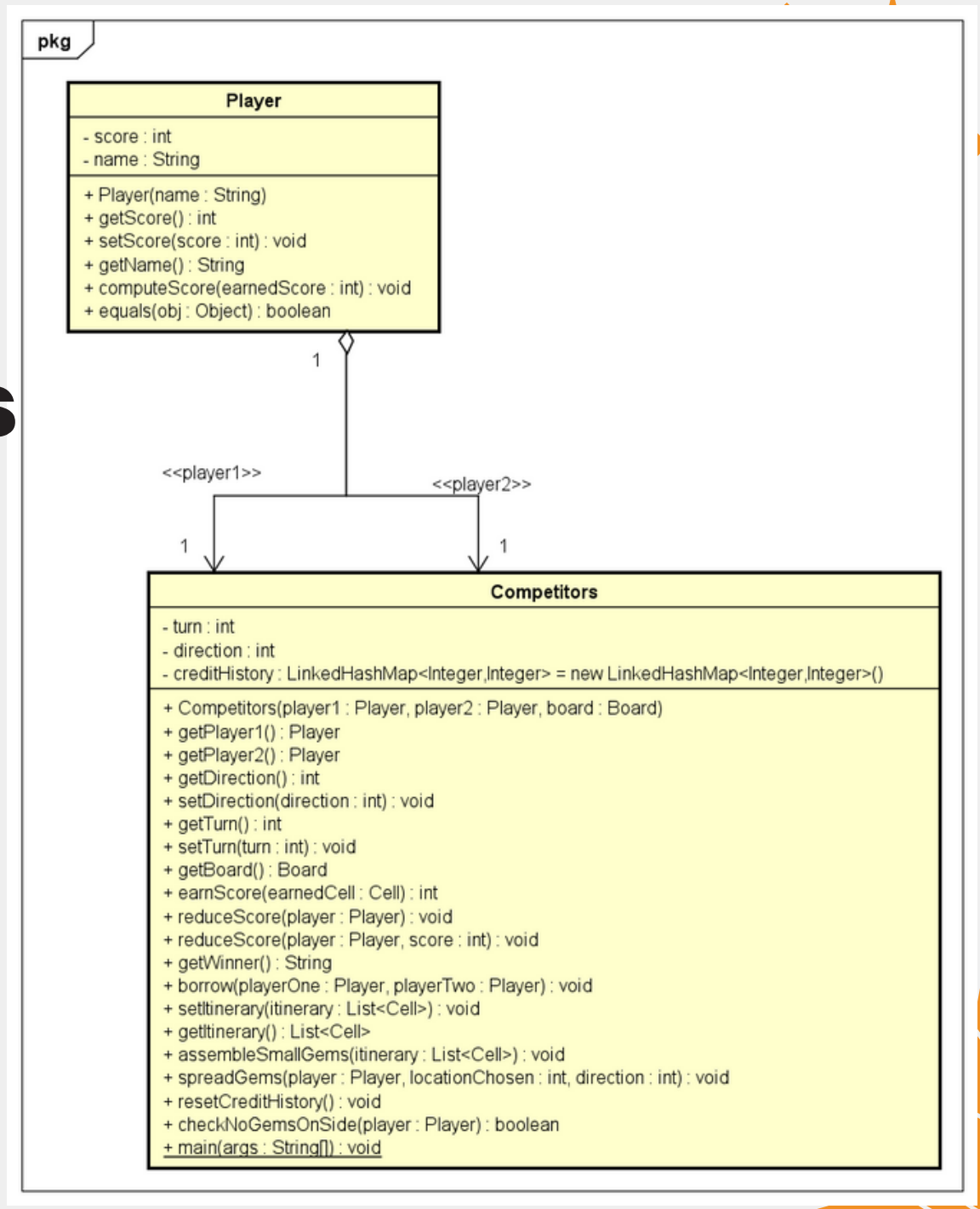
-Exit: Ask player to comfirm whether they want to exit or just misclick.



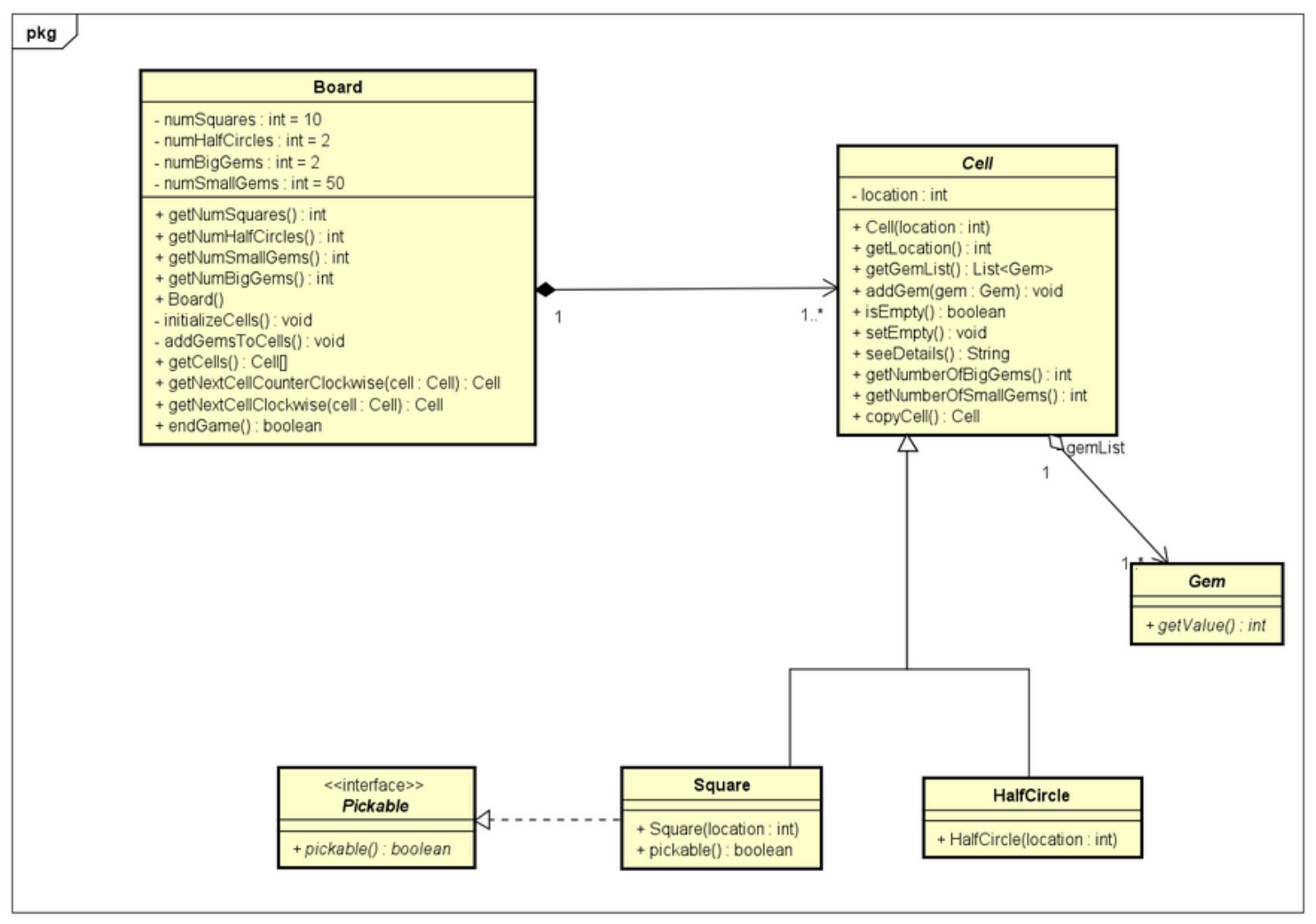
GENERAL CLASS DIAGRAM



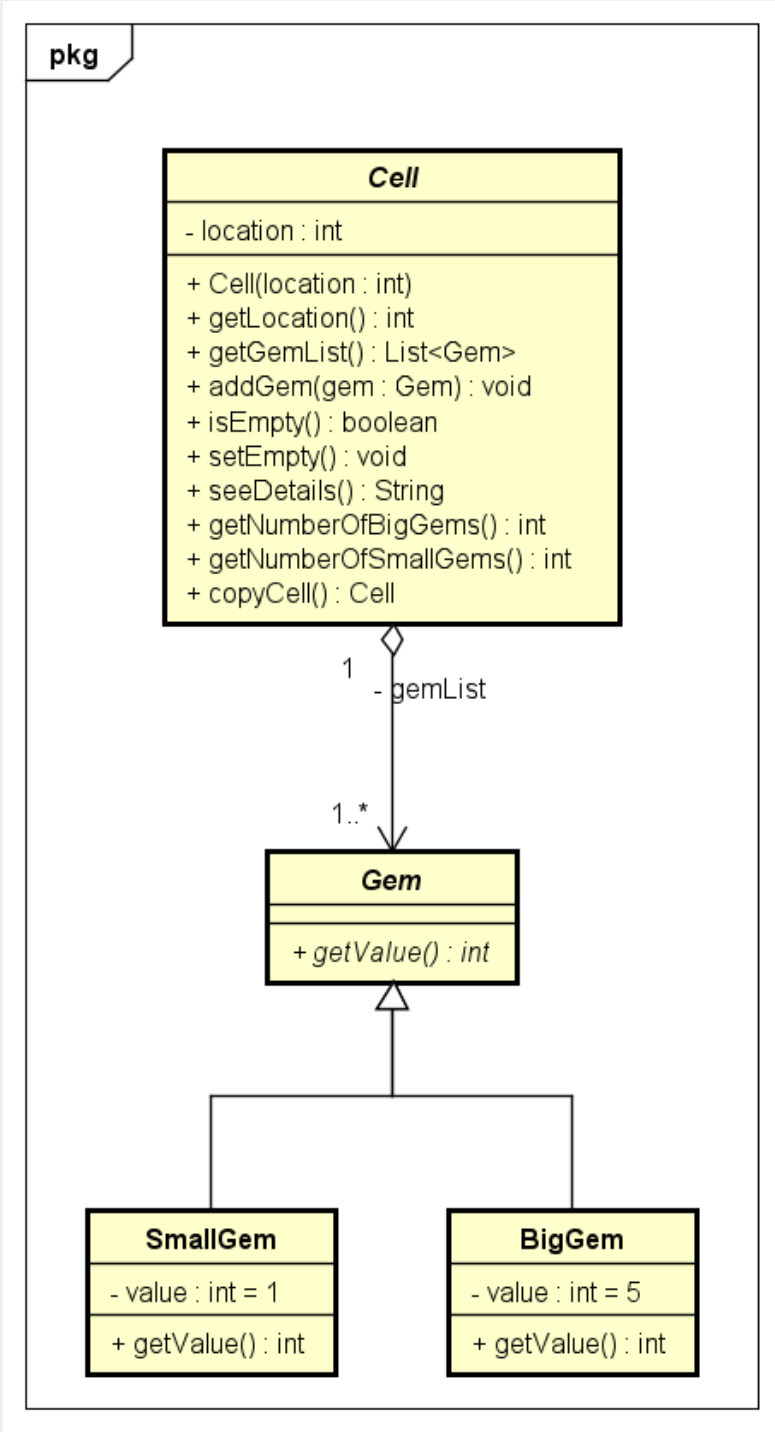
Detailed class diagram



Detailed class diagram



Detailed class diagram



Explanation of OOP techniques

Inheritance

·The classes SmallGem and BigGem inherit from the abstract class Gem.

·The classes Halfcircle and Square inherit from the classes Cell and Square, respectively.

Explanation of OOP techniques

Association

- The class Competitors is associated with the Board in a one-to-one relationship.
- Competitors are also associated with cells.
- The HomeController and PlayController classes are associated with the Competitors.

Explanation of OOP techniques

Aggregation

- Cells aggregate gems.
- Competitors class is aggregation of 2 player.

Composition

- Cells are composed to form the Board.

Explanation of OOP techniques

Dependency

- The Main class depends on the HomeController.
- The PlayController depends on Myexception, which includes exceptions such as InvalidNameException, EmptyCellException, and AllEmptyOnSideException.

Explanation of OOP techniques

Realization

- All square cells implement the Pickable interface.

Polymorphism

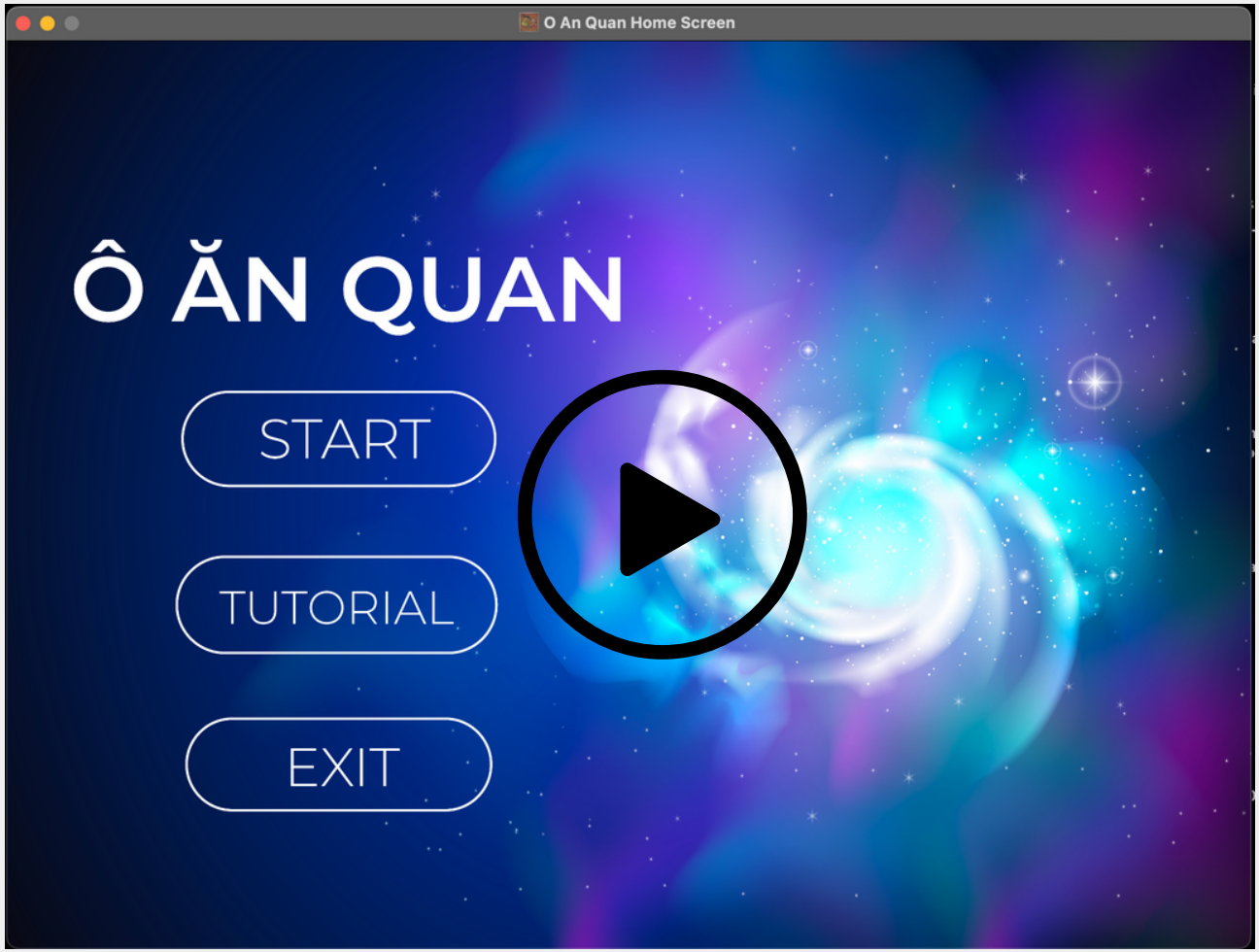
It can be utilized in both the bigGem and smallGem as objects of the Gem class, but with distinct values assigned to their attribute

Explanation of OOP techniques

Others

- Override
- Overloading
- Animation by timeline
- Exception
- Binding

DEMO VIDEO



link

Thank You !!