The design patterns I used were the following: Façade, Strategy, Memento, and Template Method.

- Façade: The SanatoriCLI class serves as a façade for the rest of the game. It serves as a simple interface with the function "run_game", and the complications of the actual game are hidden behind this interface.
- Strategy: I saw the Heuristic and Random players as having two strategies of calculating the move score. For the Heuristic player, its move scores are calculated from height score, center score, and distance score. For the Random player, its move scores are just randomly generated. For both types of players, they are looking for maximum move score, and it is only the "strategy" of score computation that is different for them.
- Memento: I used the Memento pattern to implement the undo/redo functionality. I used Memento objects to keep track of the states of the game, so that when the player performs undo or redo, we can return to the desired state by pulling up the corresponding Memento object.
- Template Method: The "play" method, implemented by the Player class, serves as a template method. It includes two parts: selectWorkerAndMove() and selectDirAndBuild(). These specific steps are implemented by the subclasses, so the "play" method in the parent class serves as a template.

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Santorini CLI
- santorini
+ run_game()

Santorini
- board   — mementoTracker
- whiteplayer
- blue_player
- turnNumber
- currPlayer
- enable-undo
- enable_score
+ PlayNewTurn()
- save()
- performUndo()
- performRedo()

MementoTracker
- mementos[]
- popped_mementos[]
+ saveState
+ undo
+ redo

Exceptions
- NotValidWorker
- NotYourWorker
- NotValidDirection
- CannotMove
- CannotBuild
- GameEnded

2
Player
- color
- board
- selectedWorker
+ getColor()
+ hasWon()
+ play()
- selectWorker()
- moveWorker()
- build()
- computeHeightScore()
- computeCenterScore()
- computeDistanceScore()

Board
+ board
+ workers
+ moveWorker
+ build
+ getHeightOfWorker
+ getDistanceOfWorker

Memento
- turnNumber
- currPlayer
- board
+ getTurnNumber
+ getCurrPlayer
+ getBoard

4
Worker
+ name
+ row
+ column
+ getDistanceFrom

HumanPlayer
- selectWorkerAndMove()
- selectDirAndBuild()

ComputerPlayer
- MoveScoreStrategy
- selectWorkerAndMove()
- selectDirAndBuild()

Strategy
+ computeMoveScore()

HeuristicStrategy
+ computeMoveScore()

RandomStrategy
+ computeMoveScore