

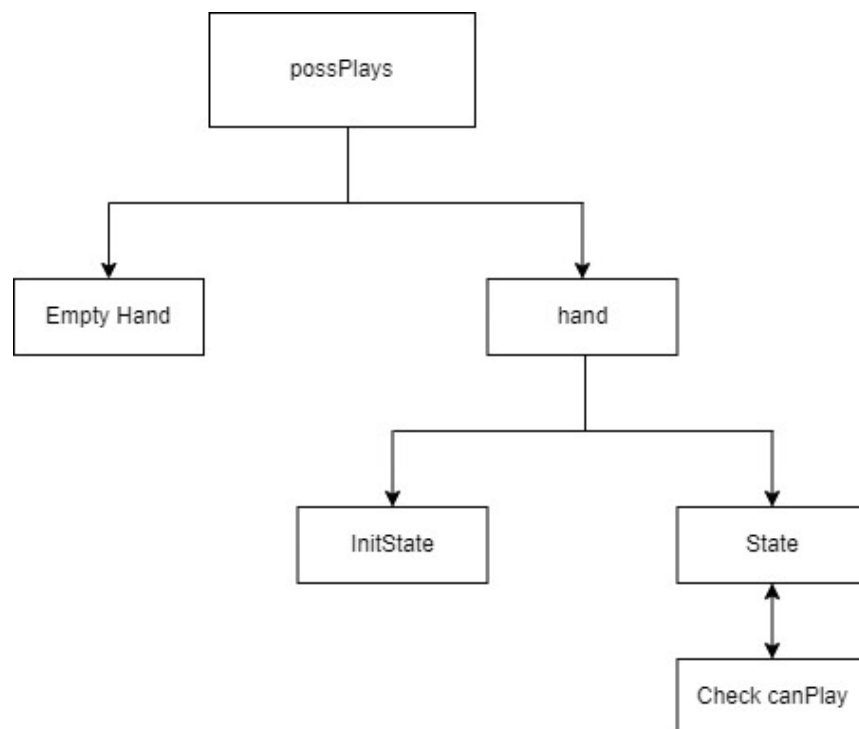
1. Introduction

Fives-and-threes dominos is a variation of the game of dominos where players score points on the sum of the open ends of the board being a multiple of 3 or 5. In DomsMatch.hs, there are 2 different players, 'simplePlayer' and 'smartPlayer'. While 'simplePlayer' is using straightforward approach, 'smartPlayer' is using three different strategies based on the game state.

2. Design

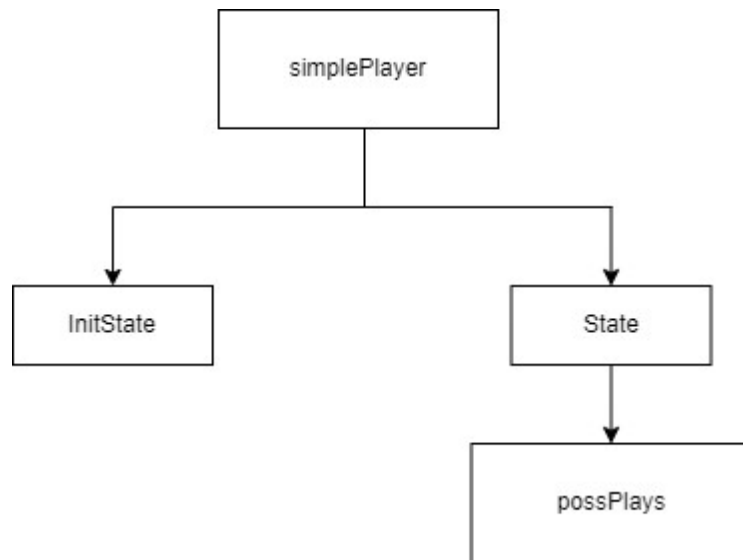
2.1. simplePlayer

1. Additional function used for simplePlayer - 'possPlays'
'possPlays' function returns all the Dominos which may be played at the left end and the right end



2. 'simplePlayer'

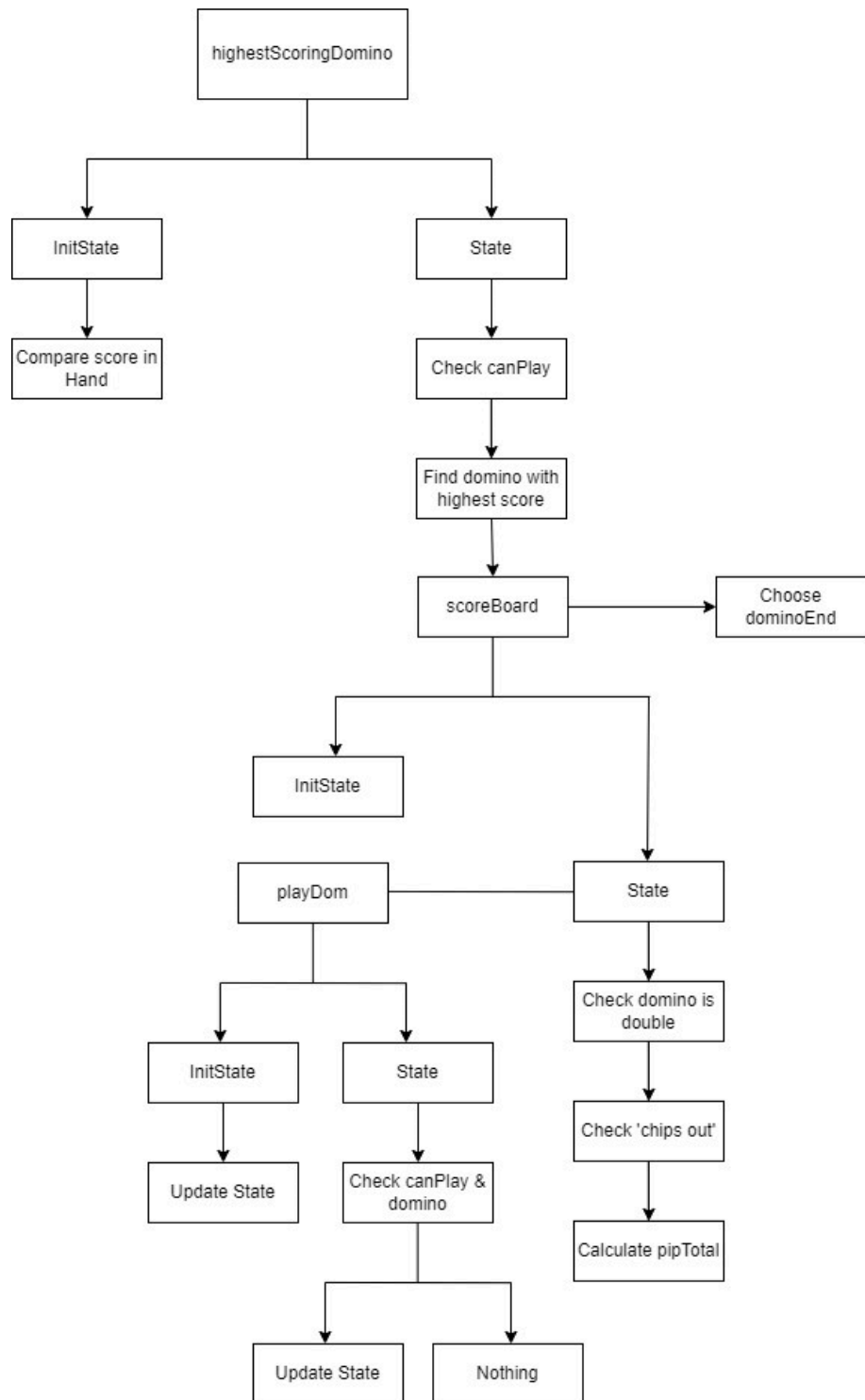
In the 'simplePlayer' function, the 'possPlays' function is used for checking the possibilities for playing dominos on the left end and right end of the board. If there are multiple options, then simplePlayer selects the first domino in the list in 'possPlays'



2.2. Strategies for smartPlayer

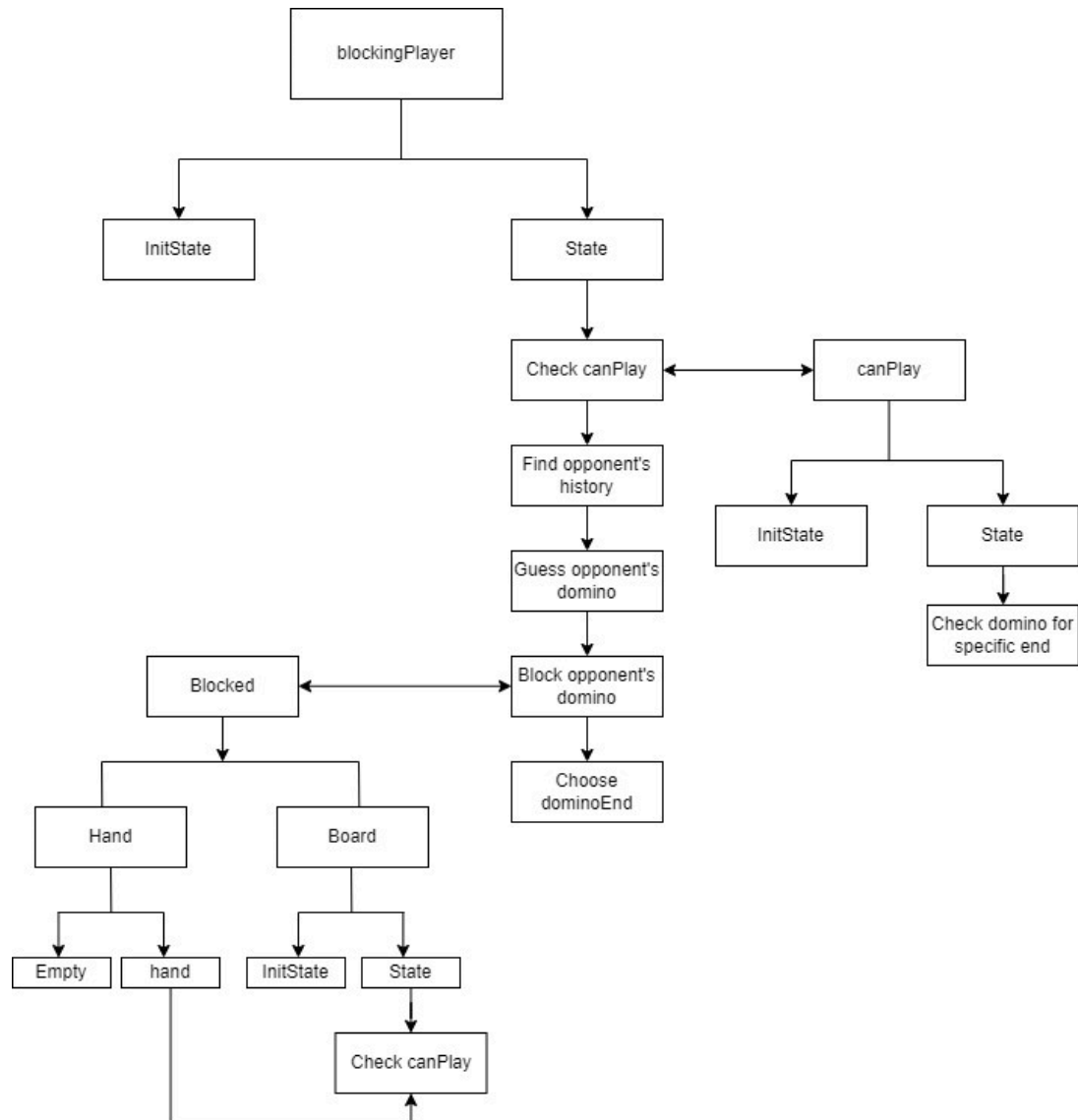
1. highestScoringDomino

This strategy plays the domino that will give the player the highest score. In this function, 'scoreBoard' function is used to compare the score of the dominoes in hand. 'playDom' function is used to play specific domino on either the left or right end.



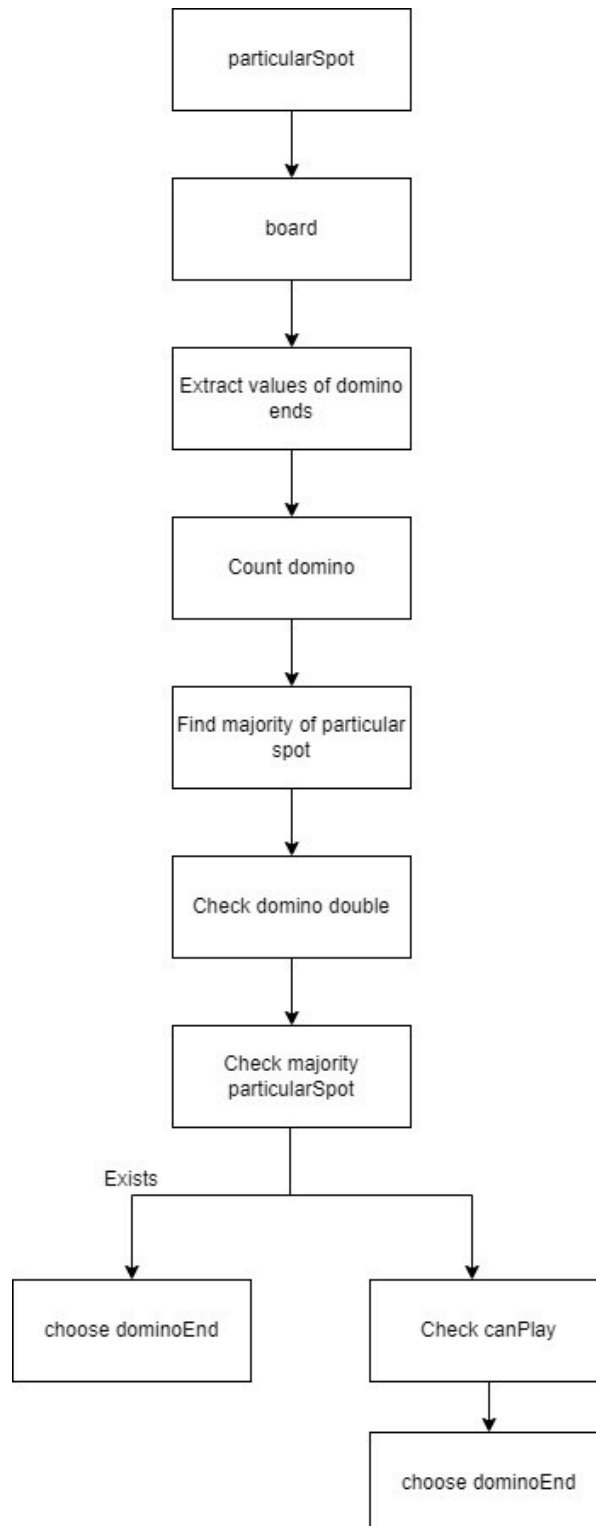
2. blockingPlayer

This strategy blocks the opponent from making a move. In this function, canPlay function is used to check if a domino can be placed on either end of the board. Also, this strategy used history to guess about the opponent's domino. Then, blockingPlayer strategy selects a domino from its hand that can block the guessed opponent's domino.



3. particularSpot

This strategy selects a domino that has the majority of particular spot value. Also, the player prioritises choosing a double domino if available. In this function, canPlay function is used to check if a domino can be placed, and scoreBoard and playDom functions are used to determine the dominoEnd by selecting the highest-scoring move when a domino can be played on both ends



2.3. smartPlayer

smartPlayer checks if (4,5) or (5,4) exists in the 'InitState'. If exists, then return ((4,5), L). If the player has a weak hand or the opponent is near the end, then the player will use the strategy 'blockingPlayer'. Also, if the player has a majority of a particular spot, the same number of at least 4, then play the strategy 'particularSpot'. Otherwise, the default strategy is to play the highest scoring domino using 'highestScoringDomino' strategy.

