

Report for domino game player design & implementation

Introduction

Firstly there is two player has been designed such that the **player1 always play the domino which scores highest score no matter what** and the **player2 has more advantages with what player1 already has.**

Player1

The function `playHighest` has been made that determine which domino scores highest and player1 will always play the game this way.

When two randomPlayer are competing each other with 1000 round, the results is:

```
*DomsMatch> domsMatch randomPlayer randomPlayer 1000 42  
(516,484)
```

The result of player1 playing the game with randomPlayer shows below:

```
*DomsMatch> domsMatch player1 randomPlayer 1000 42  
(973,27)
```

Conclusion for Player1: it's clear that player1 has beaten randomPlayer with the rule given.

Player2

Several function has been made to give player1 advantage in this game and it shows as below.

```
canWin: function determine if there is a domino can win this  
round and return a boolean value.  
canWinDomino: if canWin returns true, this function will play  
a domino which can win this round.
```

Result after enabling can win functions:

```
*DomsMatch> domsMatch player2 randomPlayer 1000 42  
(991,9)  
*DomsMatch> domsMatch player2 player1 1000 42  
(570,430)
```

```
opponentScore: function to check opponent's score.  
opponentHand: function to predict what opponent might have.
```

canReach59: function to determine if there is a domino can reach score of 59.
reach59Domino: return the domino which can reach score of 59.
guard: function that returns dominos which can prevent opponent from winning.

The tactic is if opponent's score is higher than 53 then try to play a domino which will reach myScore to 59 and prevent opponent from winning.

Result after enabling above functions:

```
*DomsMatch> domsMatch player2 randomPlayer 1000 42  
(993,7)  
*DomsMatch> domsMatch player2 player1 1000 42  
(604,396)
```

majorityDominos: function to return the kind of dominos which's number is greater than 3.

The tactic is if there is a kind of dominos which's number is greater than 3 then play it.

Result after enabling above functions:

Result after enabling above functions:

```
*DomsMatch> domsMatch player2 randomPlayer 1000 42  
(988,12)  
*DomsMatch> domsMatch player2 player1 1000 42  
(624,376)
```

dominoUnder61: function to return the the domino which will not bust to score of 61.

The tactic is if can't win the game nor block opponent then try to play a domino with highest score with not busting score of 61.

Result after enabling above functions:

```
*DomsMatch> domsMatch player2 randomPlayer 1000 42  
(988,12)  
*DomsMatch> domsMatch player2 player1 1000 42  
(626,374)
```

Final conclusion:

There is more chance to win if new function has been added to player2 with results showed above. So its safe to say player2 has a very good knowledge of this game.