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Challenge: Checkers Game Data Model Concept

In this project, there are four main classes. They are a main object, a board, a player and a piece.

The checkPiece consists:

```
pieceColor: int
x: int
y: int
isCaptured: boolean
isKing: Boolean
```

The pieceColor indicates the piece's color. The x and y indicate the piece's position. The isCaptured indicates whether the piece is captured. The isKing indicates whether the piece is king. The piece can move legal by checking whether the diagonally adjacent spaces around them are empty or there is a piece of the different color. After moving, the piece can check whether it is on the opponent's downside to mark itself as a king or not.

The Player consists:

```
playerName: string
playerColor: int
isComputer: Boolean
pieces: [checkPiece]
capturedPieces: [checkerPiece]
```

The playerName stores the player's name. The playerColor indicates the player's piece's color which can indicate the turn, the starting side of the player's piece and the direction the piece may move. The isComputer indicates whether the player is AI player. The pieces is a list of checkPiece type which stores the player's pieces. If the player has any pieces remaining on the board no longer, the game ends and the player

would be the loser. The capturedPieces is a list of checkPiece type which stores opponent's pieces that have been captured.

The main object consists:

blackPlayer: Player

redPlayer: Player

currentTurn: int

The blackPlayer and redPlayer are Play type. If the player is human, the main project can get and set the player's name. If the player is AI, the main project would set the player's name as "Computer". Though current turn number(integer), we can know whose turn it is (odd is black turn because 1st turn is black player).

The board consists:

x: int

y: int

spaceActive: boolean

spaceEmpty: boolean

piece: checkPiece

The board would be a 2-D array. The x and y are index of row and column. The spaceActive is a flag that indicate whether the space is usable. The sapceEmpty is a flag indicate whether the space is empty. The piece is a checkPiece type indicates the piece that on it.