A brief description of notable obstacles you overcame:

I had a difficult time scoring the user’s move and the move of the answer. My first implementation kept marking every position as MAYBE whenever there was a single MAYBE found. The problem was that I didn’t have a check for duplicate matches. So, when a move’s position’s color already had a matching color but not in the right spot, when there was a second position with the same color, both positions would get marked as MAYBE. To fix this, I had to include a second array that held bools of whether a position has already been matched up in order to prevent multiple move positions from encountering a single position more than once and marking that position as MAYBE.

Another issue occurred when implementing Mastermind’s endRound function. I originally couldn’t figure out how to end the round with a board object. However, I realized that there was a private member mBoard that was a board object, which used the supplied move and the score from the winning move. This allowed me to end the round using an object of class board.

I also encountered an issue where if I won the game in 4 moves, the program will tell me that I lost the game. This was because I originally had determineGameOutcome hold a variable with the current game outcome (GAMEWON,GAMELOST,GAMEOVER). However, I separated each conditional into two if statements and would return at the end of the determineGameOutcome function. What happened was that because I had the conditional for GAMEWON before GAMELOST, the variable that held the current game outcome would become marked as GAMEWON, then gets overridden to become marked as GAMELOST. To fix this, I had it return within the conditionals so that it wouldn’t continue onto the next if statement if it met that conditional.

Test Cases:

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| --- | --- | --- | --- |
| **Test Cases** | | **Handles Correctly?** | **Comments** |
| **Move** | **Answer** |
| YBOP | PPOO  \_\_RM | Yes | Multiple colors match only one color in answer |
| GBBB | BRRR  \_M\_\_ | Yes | Only one B in answer, but three Bs in move |
| ROYP | BBBB  \_\_\_\_ | Yes | Move has no matching colors |
| BRBR | RBRB  MMMM | Yes | All matching colors, but not in correct positions |
| RGOP | RGOP  RRRR | Yes | All matching colors and in correct position |
| RGOP | BBYY  \_\_\_\_ | Yes | No matching colors |
| RRG | RRGO | Yes | Move length below 4 |
| RROJ | RRGO | Yes | Invalid color entry for move |
| 12BR | RRGO | Yes | Numbers in move entry |
| rgBR | ROYP | Yes | Mix of lowercase and uppercase letters for move |
| OOOO  RRRR  BBBB  YYYY | PRGG | Yes | Not getting the answer right in 4 moves |
| RBGY  OPGR  OYGR  OGGR | OGGR |  | Getting the answer right in exactly 4 moves |
| PPOB | PPOB | Yes | Winning in less than 4 moves |
| PPPP | YRPP  \_\_RR | Yes | Pieces in the right position and have the right color match up first |