**Mastermind**

**Description:**

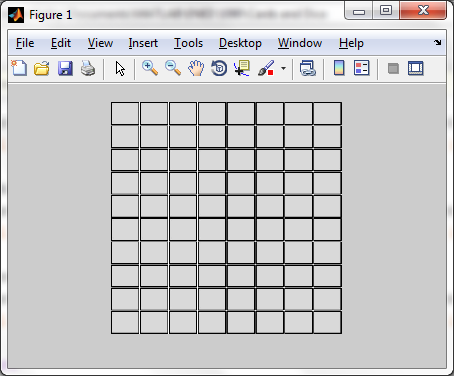
Write a program that will allow someone to play the game Mastermind. The program will randomly create a four color code (from a set of 8 colors) and prompt the user to guess the colors in the exact order. The program will give the user feedback about their guess. The program will tell the player if they win or lose (use up all ten guesses). Review the rules for Mastermind.

**Suggestion for Adding Graphics:**

Save the Mastermind.mat file to your current MATLAB folder (the folder in which you will write your game program. Try out the following commands in the command window to understand how they work. Then incorporate them into your game program.

load Mastermind % Loads Board (10x8 cell array), eight color blocks (red, green, blue, yellow, purple, pink, orange, turquoise), a white peg block and a black peg block.

imshow([Board{1,:};Board{2,:};Board{3,:};Board{4,:};Board{5,:};Board{6,:};Board{7,:};Board{8,:};Board{9,:};Board{10,:}]) % Show all 10 rows and 8 columns



Note: If you dock the figure by clicking on the arrow, it will stay on the screen the entire time for viewing.

Could also use:

figure('WindowStyle','docked')

Displaying Player Guesses and Feedback from Program:

* Suppose player guesses a color code of Red – Green – Blue – Orange
* Suppose the program determines that the player has one color in the right place, two correct colors in the wrong place, and one color wrong. Then they get one black peg and two white pegs. ***(Remember, position of pegs doesn’t indicate which colors are right)***

% Enter the colors in Row 10 – Columns 1-4

Board{1,1} = Red; Board{1,2}=Green; Board{1,3}=Blue; Board{1,4}=Orange;

% Enter the black peg and white pegs in Row 10 – Columns 5, 6, and 7

Board{1,5}=BlackPeg; Board{1,6}=WhitePeg; Board{1,7}=WhitePeg;

% Show the update Board (10 rows and 8 Columns)

imshow([Board{1,:};Board{2,:};Board{3,:};Board{4,:};Board{5,:};Board{6,:};Board{7,:};Board{8,:};Board{9,:};Board{10,:}])



* Suppose the Player’s next guess is: RED – PINK – YELLOW – GREEN.
* Suppose the program determines that now only one color is correct and none of the colors are in the right place (1 white peg).

% Enter the colors in Row 9 – Columns 1-4

Board{2,1} = Red; Board{2,2}=Pink; Board{2,3}=Yellow; Board{2,4}=Orange;

% Enter the white peg in Row 9 – Column 5

Board{2,5}=WhitePeg;

% Show all 10 rows and 8 columns of the updated game board

imshow([Board{1,:};Board{2,:};Board{3,:};Board{4,:};Board{5,:};Board{6,:};Board{7,:};Board{8,:};Board{9,:};Board{10,:}])



**Caution:** Counting the white pegs can be trick. Make sure you test your code!

Example: Suppose the code was [Blue Red Green Yellow}

A guess of [Blue Blue Pink Red] should produce 1 black peg (for Blue in Position 1) and 1 white peg (for Red in Position 4). The Blue in position 2 produces nothing because Blue was already accounted for with the black peg.

A guess of [Yellow Yellow Pink Green] would produce no black pegs and two white pegs (one for Yellow and one for green). Don’t double count the Yellows because there is only one Yellow in the code.