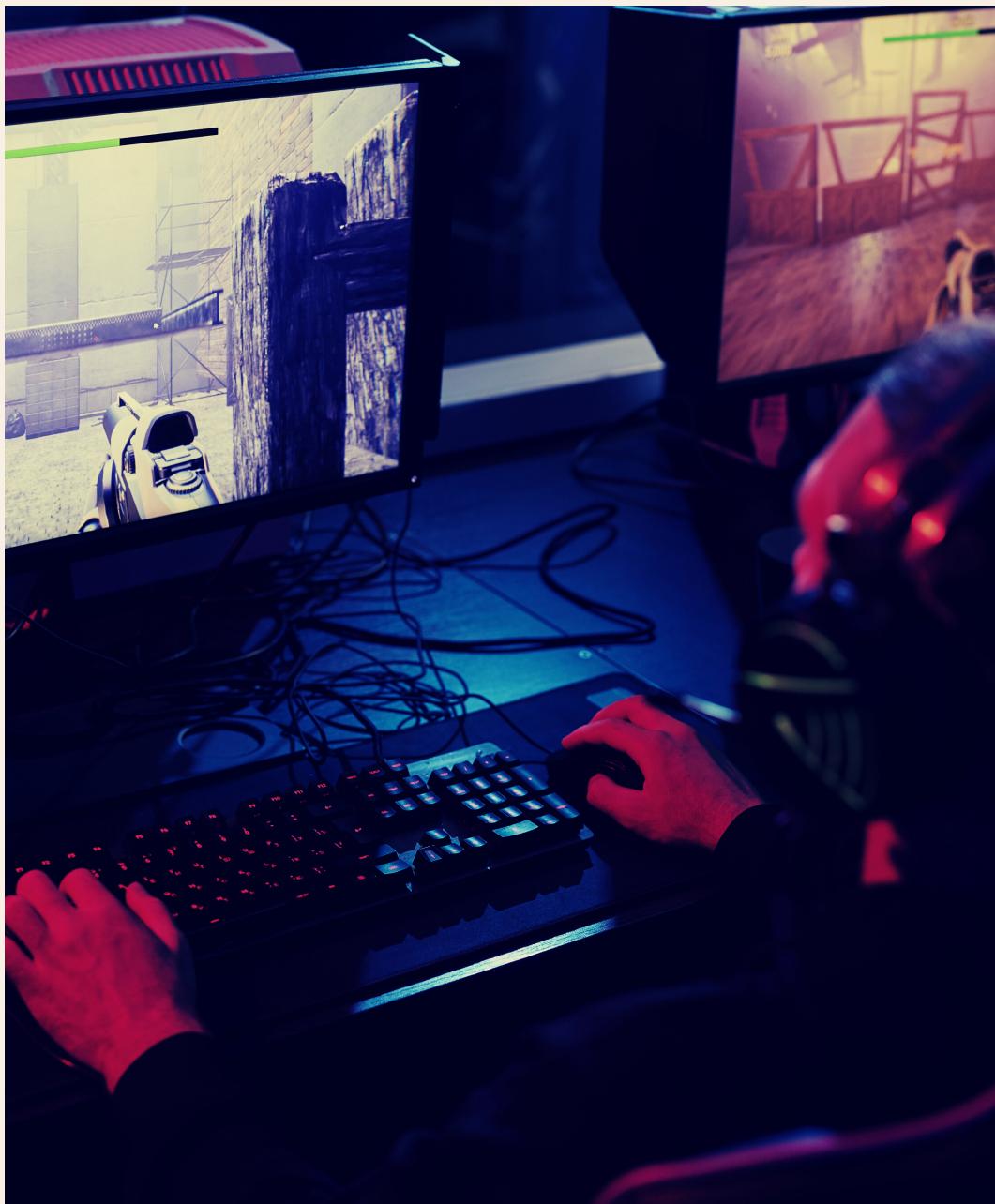


PYTHON
MASTERMIND



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What is the game?

Mastermind is a game that involves guessing a pattern of a generated sequence of colors. The codemaker gives feedback after every guess. For every incorrect guess, the codemaker will provide a set of clues so as to aid the player in guessing the correct sequence of colors. A player must use the clues to their advantage and guess correctly within a certain number of tries.

Setup

In Mastermind, there is a codemaker and a codebreaker. In this case, the codemaker will be the CPU while the codebreaker will be the user.

At the start of every game, the CPU will generate a pattern of length between the numbers 4, 6, and 8, either by random or by user input. This is how long the pattern would be.

Instead of colors, as in the traditional game, numbers ranging from 0-9 will be used instead. It is also important to note that the pattern itself can contain duplicates.

The user can then make a guess by typing in a sequence of numbers and, after each guess, the CPU will give a corresponding feedback.

Objective

As the codemaker, the CPU's job, of course, is to generate a random pattern sequence that would hopefully be too hard for you, the player to solve. Alternatively, your job as the codebreaker is to guess the correct pattern with as few guesses as possible.

All throughout the game, there are various features and mechanics added so as to aid you on your quest.



PYTHON MASTERMIND



First things first, when you start the game, you will be given an opening screen as well as a prompt asking you if you want to set the difficulty. Depending on your choice, you could either set the difficulty yourself (corresponding to the respective pattern lengths of 4, 6, and 8) or the CPU itself would do it randomly.

Afterwards, the codemaker will generate the pattern to be guessed based on the difficulty. It will show to the user the length of the pattern, the remaining number of guesses (starting off from 10 always) as well as a prompt where you could type your guess as well as information on the current number of guesses you are currently on.

Clues

In order for you to win, you need your guess of numbers to be exactly the same as the pattern. To help you with this, the CPU will give you a set of clues after every guess.

The clues are "color-coded" as Red (R) and White (W) and the CPU will inform you as to how many of each there are for that specific guess.

The RED count will increment once for each number in your guess that is a correct number AND in the correct position in the pattern.

Meanwhile, the WHITE count will increment once for each number in your guess that is a correct number BUT NOT in the correct position in the pattern.

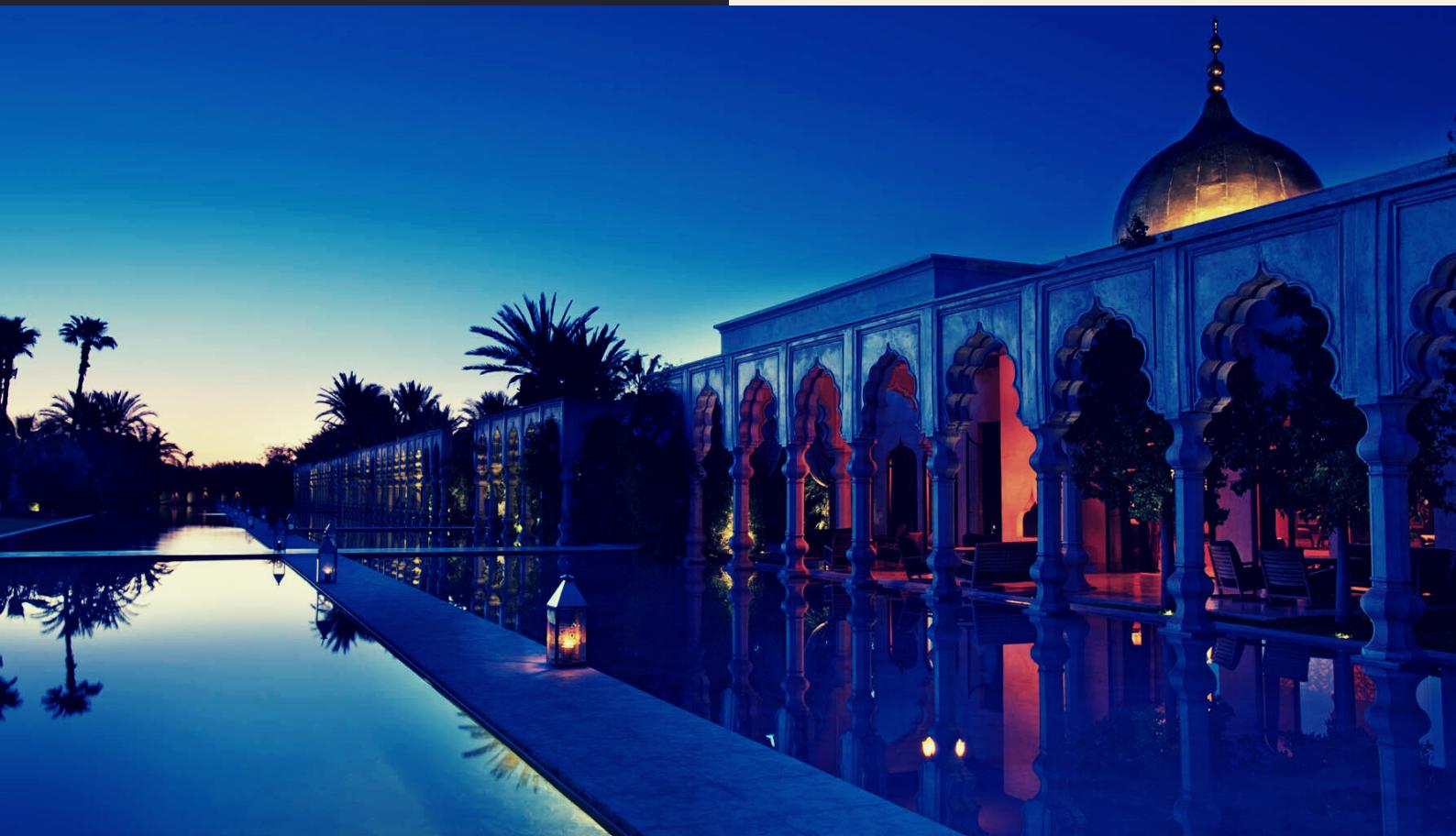
GAME PLAY

If the player inputs a guess that is shorter or longer than the length of the hidden code, the CPU gives a feedback of invalid input. When the player inputs a symbol not used as a code peg, the guess is also an invalid input. When the player correctly guesses the pattern, the player wins the game. If the player exceeds the guess limit of 10 tries, the player loses the game and the hidden code is revealed. The player may then opt to try again, or quit the program after each game.

For this version of Mastermind, there is an added feature called a LIFELINE:

While guessing, a player can ask for a lifeline. The player can only ask ONCE for the whole duration of the game. A player can have two types of lifeline:

- Lifeline#1: The player can ask the program to reveal a number in the generated code. As a consequence, the available number of guesses for player will be decreased by ONE.
- Lifeline#2: The player can ask the program to reveal a correct number in its correct position. As a consequence, the available number of guesses for player will be decreased by TWO.



GAME PLAY

The CPU will not allow the player to use a lifeline if it will exhaust the number of available guesses. To indicate the use of a lifeline, the player should type in 'Lifeline#1' and 'Lifeline#2', respectively.

Relating to the clues, it is important to note that if both the number and the position is wrong, then no additional clue is given. Use this piece of information, together with those given by the clues and lifelines, to secure your way to victory.

Additional things to note are the following:

- If you want to see the pattern already, just type 'Reveal'. This will end the game though but you can still retry anyways.
- Make sure that all of your inputs are accurate and exact. Even the letter case is important!
- You can't guess patterns that you have already guessed during that particular game.
- It is also not possible to get the same hint for both lifelines (thank goodness).
- There is a special surprise for you every time you manage to guess the pattern correctly. :)

