EECE 2560: Fundamentals of Engineering Algorithms
Department of Electrical and Computer Engineering

Project #1

Part b

In the second part of the project, complete the program that allows a user (codebreaker) to play Mastermind against the computer (codemaker).

1. Implement the class `response` which stores the response to a guess (number correct and number incorrect), and which includes:
   (a) a constructor,
   (b) functions to set and get the individual stored values within a response,
   (c) an overloaded operator == that compares responses and returns true if they are equa (global),
   (d) an overloaded operator << that prints a response (global).
2. Implement the class `mastermind` which handles the playing of the game, and which includes:
   (a) a `code` object as a data member,
   (b) two constructors to initialize the game: one constructor is passed values of n and m that were read from the keyboard, and the other constructor is passed no parameters and uses default values for $n = 5$ and $m = 10$,
   (c) a function that prints the secret code,
   (d) a function `humanGuess()` that reads a guess from the keyboard and returns a code object that represents the guess,
   (e) a function `getResponse()` that is passed two codes (a guess and the secret code), and returns a response,
   (f) a function `isSolved()` that is passed a response and returns true if the response indicates that the board has been solved.
   (g) a function `playGame()` that initializes a random code, prints it to the screen, and then iteratively gets a guess from the user and prints the response until either the codemaker or the codebreaker has won.
3. Implement a function `main()` which initializes a `mastermind` object and then calls `playGame()`. The version of the code you submit should print the secret code to the screen to help us test your code.