Object-Oriented Design
COMP 2000
Spring 2024

Lab 10

From Wikipedia:

> ***MasterMind*** is a code-breaking game for two players. The modern game with pegs was invented in 1970 by Mordecai Meirowitz, an Israeli postmaster and telecommunications expert. It resembles an earlier pencil and paper game called Bulls and Cows that may date back a century.

If you are unfamiliar with this game, spend a little time reading about it here:

- https://en.wikipedia.org/wiki/Mastermind_(board_game)
- https://www.web-games-online.com/mastermind/rules.php

You can also play the game at these web sites:

- https://www.webgamesonline.com/mastermind/index.php
- https://mastermind.jull.dev/

We will be spending the remainder of our labs this semester working on an object-oriented approach to developing a MasterMind game in Java. We will initially do our design using various UML notations and Word documents. Eventually we will translate our design into working Java with a Swing GUI.

Note: There are Java programs on the web that implement the MasterMind game. Other than providing an opportunity to play with the game to become more familiar with it, these programs do not offer any insight or help in this project, since the focus of our efforts is on the OOD and not on the code. Any attempts to pirate existing solutions from the internet will thus be a colossal waste of time.

Part I

During the course of the next few days I would like for you to do some preliminary thinking about the problem of implementing MasterMind. Mostly, this falls under Polya's step one of problem solving. Write down your ideas, make sketches, ask questions, play the game online, etc.

Start asking yourself questions about how we could model the various aspects of the game. Keep in mind that there is the issue of the user interface as well as the internal model of the puzzle. What options should we provide to the user in terms of play? Can you find other versions besides the two sites given above that have interesting features? Your initial thinking should also include Model-View-Controller, Class Diagrams, and other tools and ideas that we have covered this semester.

Deliverables for Part I: None, however you should have notes and written records of your work that will be an important input to Part II.