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CS 420

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**Homework 3**

Per the assignment requirements, we used ChatGPT to generate the code for Minesweeper. We used the following prompt to generate said code:

* **Generate the code for Minesweeper in Java. Go in-depth and be as granular as possible. The code provided should function like Minesweeper.**

As a result, ChatGPT provided the source code which can be found in the “Minesweeper.zip” compressed folder on GitHub. We found the code to be well-written and runnable. After analyzing the code, we determined that it already incorporates several design patterns we’ve learned about. These include:

* **Model-View-Controller**

*Separates “Board”, “Cell”, and “Minesweeper” into separate classes. Each class acts as a different component of the MVC design, which greatly enhances the reusability and consistency of the code.*

* Encapsulation

*ChatGPT uses private and public variables in tandem, leading to greater privacy between classes.*

* General object-oriented design

*ChatGPT uses Object-oriented design by creating and handling many variables as objects. This greatly improves the reusability and versatility of the code.*

Even with the above in place, we believe that implementing other design patterns could still serve to improve the code. We decided that implementing a “Factory Pattern” would be the best idea. This pattern defines an interface for creating an object, but allows its subclasses to CHOOSE which classes to instantiate. We believe that the inclusion of this design pattern could allow for the introduction of different difficulties to the game.