Group 29
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Assignment 3 - Part 1

Question 1

Factory Creational Design Pattern

The ideal Design Pattern is the Factory Pattern. The implementation of this pattern would rely on an interface (let's say Block) which the model could store. Each different block then can implement this interface (Metal, Wood). It might also eventually make use of the Decorator pattern if each Block needed to have different combinations of paint and material.

Question 2

Decorator Design Pattern

This scenario calls for the Decorator pattern. The robot would have an interface for each part of equipment (Weapon, Shield…). The interface would have a function effect that would let the Robot object know what behaviour the particular piece of equipment changes.

Question 3

Observer Design Pattern

The Observer pattern is the perfect match for this scenario. The model would keep track of Observers and have an addObserver method. The Screen would then subscribe to the model, which would notify the screen each time a number has been entered. This way the Keypad has no idea the Screen even exists, and the Model does not know either.

Question 4

Strategy Design Pattern

The Observer pattern will prove very useful in this case. There would be a Filter interface with a method boolean shouldAccept(). The client code would provide the conditions for when to accept or reject a file. Then all the found files would be checked against this rule the client provided. This way, we can easily provide any rule without the code even noticing anything has changed.