

OOP Exam

Proficiency Assessment Test – Architecture Documentation

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Object Oriented Programming in C++

**Q1: Implement Strategy Pattern to Encapsulate Behaviors of Tiles**

Initially, the design for the tile behaviors included duplication of code between the mimic tile, bomb tile and treasure tile. The mimic tile looked like a treasure tile but behaved like a bomb tile. After studying the strategy pattern, the architecture I came up with is the following:

Tile Interaction

Damage

Gold Collect

Tile Type

Treasure Tile

Bomb Tile

As see from the above figure, tile behaviors (interactions) have been encapsulated behind the *TileInteraction* class, each tile is composed of an interaction. Upon instantiation of the tile, it simply initializes the appropriate interaction **strategy**. Furthermore, the mimic tile is now a derived class of the bomb tile as they are identical In behavior but different in states.