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Exercise 2 Questions

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Assignment 1: Can you identify some limitations with the current class design? Does this design facilitate change?

A limitation of the current class design is how their behavior pertains to certain classes and is tightly coupled. Therefore, it would be harder to implement more behaviors. I think that it doesn't facilitate change since the current class design is not very flexible and requires changing the classes when new behaviors are added. It also cannot change at runtime.

Assignment 5: For each one of the three Object Oriented Design Principles, (inheritance, encapsulation, polymorphism) indicate briefly one instance of where it has been implemented in your application.

- Inheritance: It is implemented through the 'GameUnit' class which inherits 'Grunt' and 'Tank' classes.
- Encapsulation: The 'MoveBehavior' and 'AttackBehavior' interfaces are implemented because the moving and attacking classes are encapsulated in separate classes.
- Polymorphism: We can use different versions of an AttackBehavior or MoveBehavior by implementing the interface in classes like UseAxe or WalkBehavior. It is polymorphism because it delegates to the respective behaviors, which results in varying implementations.

Assignment 6: Can you name a disadvantage of implementing the Strategy pattern?

The Strategy pattern can get confusing when there are a lot of classes for relatively simple behaviors, like what we have here. A disadvantage of the pattern is it increases the number of classes because each behavior requires a separate class. As a result, the code could become more complex and later on, would be difficult to maintain. The different behaviors could make it harder to track, especially with varying combinations of them. Though, this makes the code more flexible due to the patterns.