

CS3610 Assignment 7

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Our case is a video game where the player can shoot bullets. Which can have various upgrades that the player acquires throughout the game. These upgrades must be acquired and applied dynamically at runtime. The upgrade logic must be decoupled from the bullet creation code so that new upgrades can be added in the future.

We can use the strategy pattern to decouple the bullet creation from the upgrade logic.

Our upgrade strategy will have an `apply_upgrade()` method which is implemented in the concrete strategies: `Damage_upgrade_strategy`, `Speed_upgrade_strategy`, and `pierce_damage_strategy`.

The player class will have an array of upgrades which are strategy objects that have been created at runtime.

When the player shoots a bullet it will loop through this array and apply each of the strategies.