

Assignment 3 Design Rationale: CL_AppliedSession10_Group1

Requirement 3 – dQw4w9WgXcQ

The goal of this requirement is to implement a new scrap the *AI Device* in our game ‘static factory’ while adhering closely to relevant design principles and best practices.

This scrap has been implemented by extending the abstract *Item* class as well as implementing the purchasable interface so that it is able to be purchased. These decisions utilise the existing architecture preventing repetition as well as following the Liskov substitution principle, allowing this scrap to perform as expected of its parent class in other scenarios predictably.

A supporting *AI Device Factory* class was also created so that multiple new copies of the scrap could be created when it is purchased. This decision continues the previous design choice to follow the single responsibility principle why compromising with a bit of repetition in having a class dedicated to making copies of the scrap.

This device is also required to “monologue” to the player and thus the supporting infrastructure must be developed for this as well. To achieve this, the interface *Monologuable* alongside the *MonologueAction* class which extends from the abstract *Action* class. This interface provides the details of the monologue to its respective action class which follows the single responsibility principle and allows future scraps to determine the details of their own monologue.

By extending from existing abstract classes as well as creating new interfaces for new data flows, the design of this requirement upholds the design principles of the game and continues its extensibility. In particular, the single responsibility principle and open-closed principle.

Overall this design provides a flexible, extensible implementation of the new scrap as well as the new monologue action. It carefully considers the requirements within the bounds of our design principles while also laying the groundwork for future enhancements or optimizations.