**Design Rationale for Requirement 4**

* Package ‘**magicalitems’,** abstract class ‘**MagicalItem’**, and inherited classes ‘**SuperMushroom’** and **‘PowerStar’** added. Alongside other relationships and modified classes.

**Justifications:**

* Magical items are similar to normal items but have different, special characteristics. This is why I thought it was necessary to inherit ‘MagicalItem’ from Item.
* Furthermore, inherited classes SuperMushroom and PowerStar are added because they are 2 of the magical items specified that have their own special, unique powers and effects.
* These are all maintained in their own package, ‘magicalitems’ because all of these classes are similar and this will allow us to easily manage and access the magical items.
* MagicalItem has a one-to-one association with CapabilitySet. This is made under the assumption that the effects such as ‘invincibility, instant kill and immunity’ fall under capabilities. If not, a package and abstract class called ‘Effect’ can be added with those effects specified inherited from it. But I am under the interpretation that such effects fall under capabilities and hence the association between MagicalItem and CapabilitySet. Much like Item being associated with CapabilitySet.
* Since this is the case, CapabilitySet will need to be modified slightly to accommodate for such effects granted by the magical items.
* The Display class and Magical Item ‘SuperMushroom’ have a dependency relationship as the Display is changed when the actor consumes a SuperMushroom.
* Similarly, Location and the Magical Item ‘PowerStar’ have a dependency relationship as whenever the actor walks on HighGround, the location will need to change it to dirt. The actor also does not need to jump to higher grounds which (due to assumption) the Location class can handle inside it.
* JumpActorAction also has a dependency relationship with SuperMushroom as every jump with the SuperMushroom has a 100% success rate. This can be toggled in the JumpActorAction class.
* As PowerStar grants the actor an ‘instant kill’ effect, a dependency has been added with the AttackAction class and the PowerStar class.