Starwars.entities.actors package

**For the UML diagram, all the classes in yellow are where changes are made and new classes are created.*

Class name: SWActor

Changes made:

We decided to introduce a new attribute into SWActor called ForceAbilityLevel which takes an integer of range 0-10 to fulfil part of the first project requirement (ForceAbility). (Similar to the hitpoint attribute.)

Class name: SWRobots

Responsibilities:

- This class represents "robots" – all non-people characters.
- We decided to create a new class for robots because in the future, there should not only be one droid, there would be many different types of droids with different characteristic and name. Thus, with this new class, we could initialize all those characteristic by inheriting the SWActor properties. The functionality of this class has a little similarity with SWLegend.

Class name: Droid

Resposibility:

- cannot use force --> force level = 0

- Owned by an actor. All droids have an Own affordance in which it can be owned by any SWActor. Once it is owned by an actor, it's Own affordance will be removed and replaced by Un-own affordance which means the droid can be disowned whenever the actor feels like disowning the droid. As long as the droid is owned by an actor, it's characteristics will be following the owner's characteristic (eg Team and movements)

- As long as it's hitpoint is more than 0, the droid will follow the owner:

  droid.schedule = owner.schedule- 1
  ** because the droid has to be one step behind of the owner.*
  ** this is part of the reason why there is no relationship between Droid and Scheduler class*
  **Another reason is because once the Droid is disowned/ when it's hitpoints becomes 0, the droid will be immobile. It will remain at the same point and wait for another owner or some other actor to heal it.*

- loses hitpoints when move in Badlands. There will be a method that checks the location of the droid and reduces it's hitpoints if it's at Badlands (class collaborator: SWLocation) There is dependency between Droid and SWLocation because the owner might be in Badlands but the droid is one step behind, thus the droid's hitpoints

will not be reduce. Thus, we should identify the location of the droid itself instead referring to the owner's location.

- Droids are given the Repair affordance hence they can be repaired when they are disassembled→only when they are immobile that they can be disassembled.

Class name: DroidParts

Responsibilities:

- DroidParts is an entity. The dependency between Droid and DroidParts is similar to the dependency between BenKenobi and the LightSaber. All droid will be carrying a few DroidParts, but all those parts will only be available to be taken if and only if the droid is immobile.
- More detailed explanation on this class is made in the starwars.entities package section.

Starwars.actions package

Class name: SWRobot

Responsibilities:

As explained in the starwars.entities.actor package section.

Class name: Drink

Responsibilities:

- An affordance for SWActor to drink from DRINKABLE entities.
- The reason there exist dependency between Drink class and Heal class is because right after SWActors drink any liquid (including droids can drink oilcan themselves to regain health/ heal) they would regain hitpoints or in another word they will heal. This dependency is similar to the dependency between “Dip” class and “Fill” class.
- This class make sure that the SWActor to be healed have not reach its maximum hitpoint and the entity with the HEALER capability has enough hitpoints before healing the target.

Class name: Heal

Responsibilities:

- Similar to Attack action, but instead of causing damage to another entity, this class heals entities by increasing their hitpoints.
- It will increase the hitpoints of the entity to be healed and blunts the DRINKABLE used for the heal (reduces the hitpoints of items used to heal -- with DRINKABLE capability.)
- make sure that the person to be healed do not have maximum hitpoint and the HEALER entity has enough hitpoints before healing the target.
- For droids to heal themselves, they would DRINK from the oilcan. For somebody else to use an oil can on the droid to heal the droid, they would immediately access this class instead of passing through the Drink class. However, despite having to heal from drinking or from being healed by someone else, both actions will reduce/deplete the entity used to heal. This is why both Drink class and Heal class has to implement Drinkable interface to reduce/deplete the level of the entity.

Starwars.actions package

Class name: Repair

Responsibilities:

- "revive" the SWRobot (eg. Droid) when the appropriate amount of DroidParts repaired has been reached.
  * Assuming that for a droid to be fully repaired and become "alive", it needs 5 droid parts before it is ready to be owned by other SWActor. This class checks the number of DroidParts that has already been "repaired" to the droid.
  * As the last piece of DroidParts is added to the Droid, the droid will be alive, however, it's hitpoints will not be full. It's hitpoint will start from 10. From there, the owner has to heal the droid using OilCan
  * A Droid has a Repair affordance doesn't mean the droid can repair itself, it means that it can be repaired.
- There exists dependency between Repair class and SWRobot class instead of SWActor class. This is because not all actors can be repaired, only robots can be repaired.
- We can only repair the robot if and only if the robot is disassembled and immobile. Thus, the dependency between Repair class and SWRobot class is needed as many information about the robot is needed. (conditions coding wise)

<<interface>> Drinkable

- Interface for SWEntities drinkable of water.
- All drinkable objects must have capability DRINKABLE.
- Contains a method which empties the SWEntities which previously is filled with water. This is similar to the <<interface>> Fillable, instead to having a fill () method in the interface, we would have an useUp () method. This method would exist in the SWEntities that had the DRINKABLE capabilities and would either reduce the amount of liquid in the entity (eg oil can) or empty out the liquid (eg canteen). → so instead of level = capacity, we would code something like level = 0 or level=level-amountUsed.

```
public interface Fillable {
    /**
     * Fill this SWEntity with water
     */
    void fill();
}
```

Starwars.actions package

Class name: Train

Responsibilities:

- An affordance for Luke(Player) to increase his force ability and to be trained by actors with TRAINER capabilities.
- This class is similar to Attack action, but instead of causing damage to another entity, this class increases Luke's force ability level. There is a dependency between Train class and Player class because for this assignment, only the Player(Luke) can be trained by BenKenobi. But in the future, the Player might be able to be trained by some other SWActors as long as they have the TRAINER capability. Thus, for this assignment, only BenKenobi has the TRAINER capability which is to train the Player(Luke).

Class name: MindControl

An affordance for SWActors to control the weak minded

Responsibilities:

- There will be a new method in the SWEntityInterface which is getForceAbilityLevel(). This is to check whether the mind control target can resist the action or not. If the target's ForceAbilityLevel is less than 4, then the program will proceed with allowing user to input the coordinates for which the target should be moved. Else if the target's ForceAbilityLevel is more than or equal 4, this method will return False and ask the user to choose another target with weaker ForceAbilityLevel.

*in another word, only SWActors with ForceAbilityLevel will have the MindControl affordance. An actor with MindControl affordance does not mean the actor can perform MindControl, it means that they can be mind-controlled

- Only SWActors with ForceAbilityLevel of 7 or above will be able to perform this mind-control action towards those with MindControl Affordance.

Class name: Own

SWAction that allows a SWActor to own a droid/robot.

Responsibilities:

- This class is similar to the Take class. The only difference is their target and the person who perform this action.
- This class has dependency with the SWRobot class and SWActor class. This is because this action can only be performed on robots/droids. In another context, only robots/droids can have the Own affordance. While the person who perform this action will be an actor (excluding SWRobots) because robots cannot own robots.
- As soon as the Own action is performed, this class will remove the Own affordance from the robot/droid and replace it with Un-own affordance which means the droid can be disowned whenever the actor feels like disowning the droid.

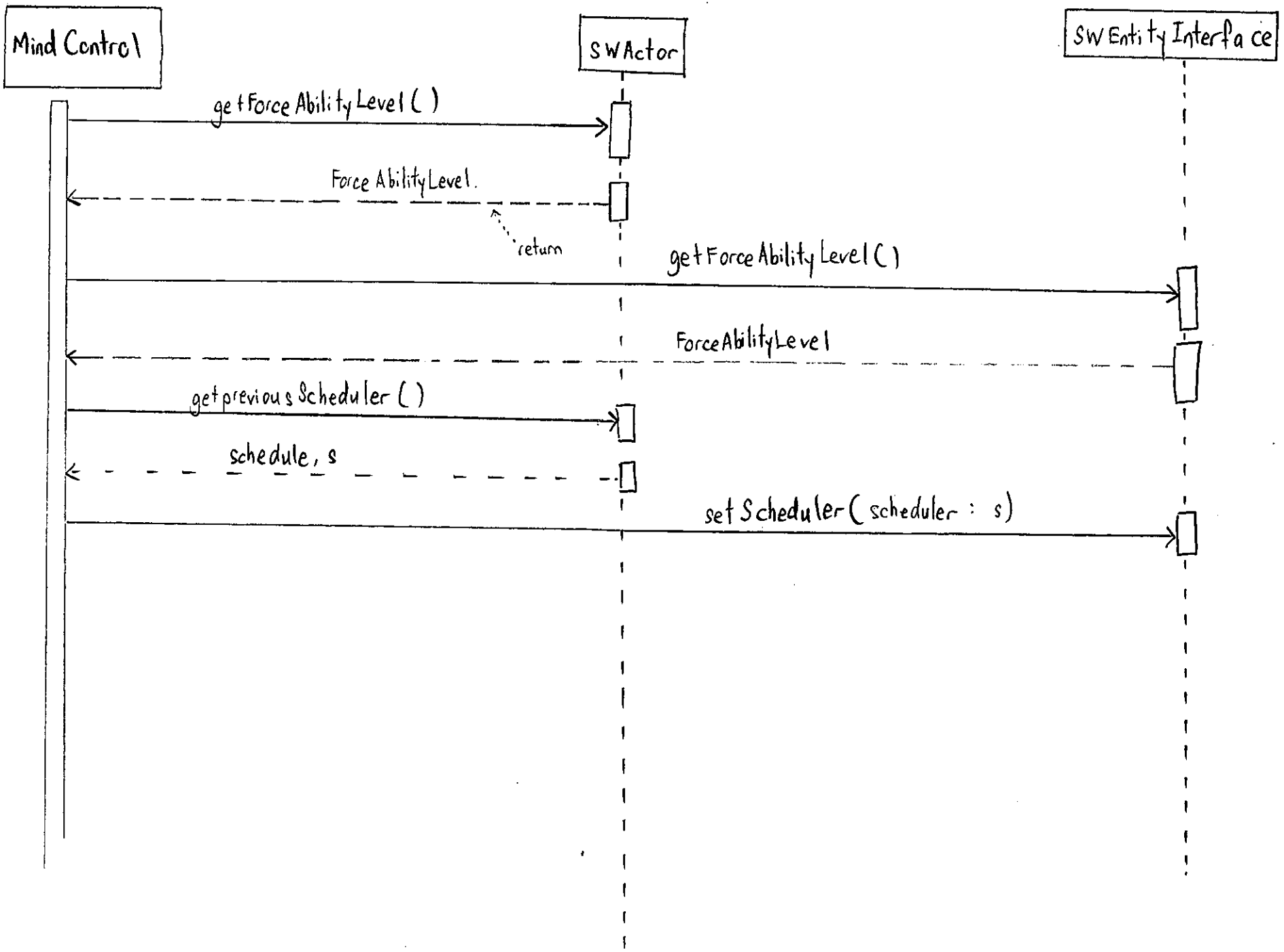
Starwars.actions package

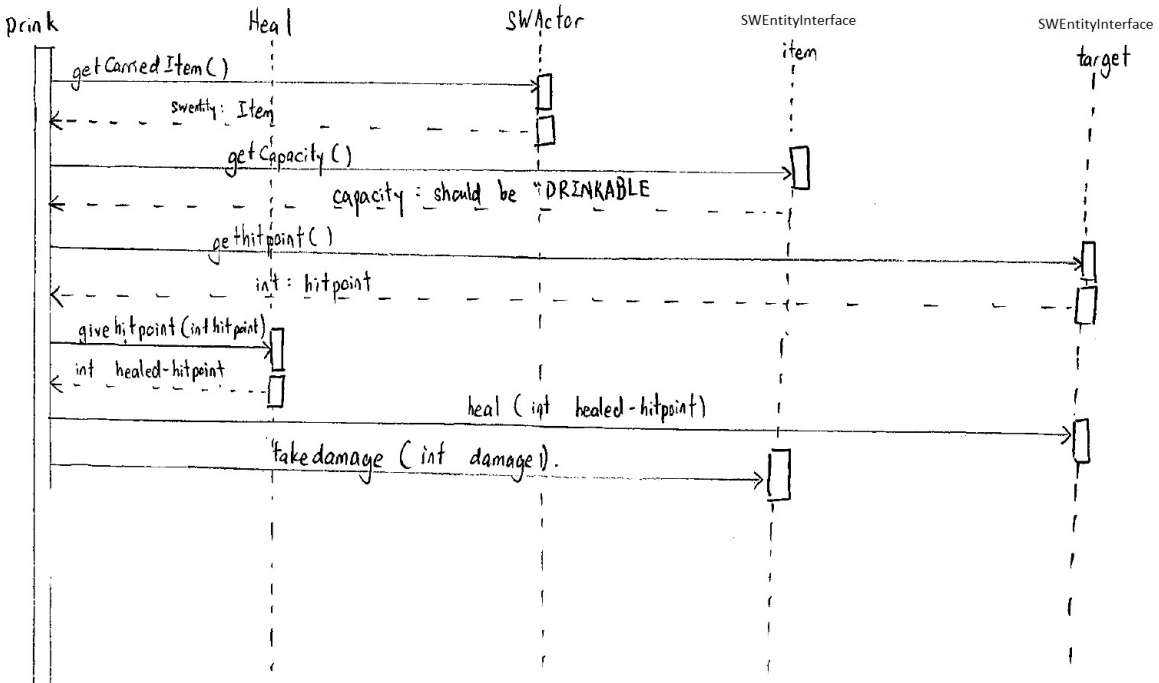
Class name: Un-own

SWAction that allows a SWActor to remove ownership of a droid/robot.

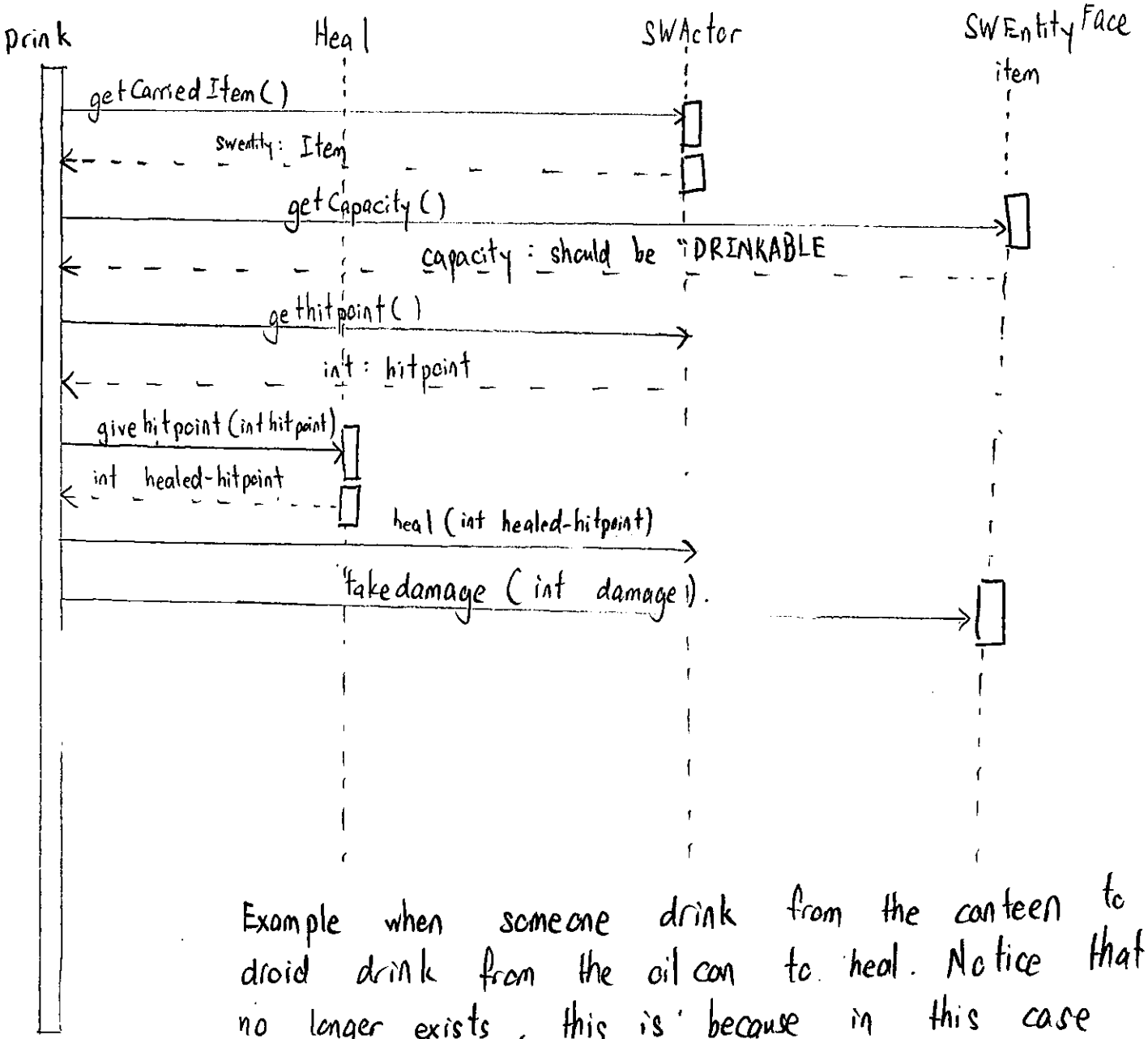
Responsibilities:

- This class is similar to the Leave class. The only difference is their target and the person who perform this action.
- This class has dependency with the SWRobot class and SWActor class. This is because this action can only be performed on robots/droids. In another context, only robots/droids can have the Un-own affordance. While the person who perform this action will be an actor (excluding SWRobots) because robots cannot Un-own robots. (Since robots cannot own robots in the first place.)
- As soon as the Un-own action is performed, this class will remove the Un-own affordance from the robot/droid and replace it with Own affordance which means the droid can now be owned by any other SWActors.


Mind Control
SWActor
SW Entity Interface
getForceAbilityLevel()
ForceAbilityLevel
return
getForceAbilityLevel()
ForceAbilityLevel
getpreviousScheduler()
schedule, s
setScheduler(scheduler : s)



Example when someone uses oil on droid, basically we could ask droid to drink the oil from oil can. Thus, this means that SWActor can also choose to heal other actor.



Example when someone drink from the canteen to heal themselve / when droid drink from the oil can to heal. Notice that the SWEntityInterface Target no longer exists, this is because in this case SWActor is the Target itself.

Starwars.entities package

Class name: LightSaber

Responsibilities:

- only people with ForceAbilityLevel of 7 or above can use this as a weapon.
- In the current code, anyone can wield LightSaber as a weapon, to apply the condition above, we would need to make some changes to the constructor of this class.
  - Create a new method which would check the actor's ForceAbiliyLevel after the actor take the LightSaber. If the ForceAbilityLevel is 7 or above, then in the constructor, we would add the Weapon capability to LightSaber, else do nothing.
  - This means that if the actor that picks up the LightSaber has a ForceLevelAbility of below 7, then the LightSaber will not have the Weapon capability.
- The dependency between LightSaber and SWActor is for us to get the Actor's ForceAbilityLevel.

Class name: DroidParts

Responsibilities:

- Like the Reservoir class, DroidParts does not have hitpoints. We are assuming that DroidParts entity is immortal.
- everyone can take a DroidParts entity but not everyone can use that DroidParts to repair an immobile DroidParts. Therefore, there is a relationship between the DroidPart class and the Take class. To allow people to take the DroidParts.
- has the MACHINE capability.

Class name: OilCan

Responsibilities:

-
- "revive" the SWRobot (eg. Droid) when the appropriate amount of DroidParts repaired has been reached.
  * Assuming that for a droid to be fully repaired and become "alive", ready to be owned by other SWActor, this class checks the number of DroidParts that has already been "repaired" to the droid.
  * As the last piece of DroidParts is added to the Droid, the droid will be alive, however, it's hitpoints will not be full. It's hitpoint will start from 10.

<<enum>> Capability

New capability added: “MACHINE”

Responsibilities:

- This MACHINE capability allows an entity to repair another entity which has the Repair Affordance
- Similar to LightSabre, everyone can pick a DroidPart up, but only people with the ability to repair can use this DroidPart entity and use it as a MACHINE to repair a droid.

New capability added: “HEALER”

Responsibilities:

- This HEALER capability allows an entity to heal another entity which has the heal affordance.
- Similar to the WEAPON capability (which allow an entity to Attack another entity which has the Attack Affordance) instead of causing damage on the other entity, heal affordance increases the entities hitpoints