

## **FIT2099 Assignment 3 Star War: Design Rationale**

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### **1. Jawa Sandcrawler**

For the Sandcrawler, first I create a SandcrawlerWorld extends from SWWorld. The SandcrawlerWorld has initializeWorld function for the Sandcrawler with smaller grid. I create a Door class extends from the SWEntity. Inside the initializeWorld function in the SandcrawlerWorld classes, I instantiate the Door class, to show that there is a exit in the small grid. I also create a Enter class and Exit class. Both of them extend from the SWAffordance. The Enter class is used by any actor with force ability to enter the Sandcrawler. I add the Enter affordance in the Sandcrawler class. The Exit class is used by the actor with force ability to exit the small grid and return back to the world. I add the Exit affordance in the Door class.

I create a Sandcrawler class which extends from SWActor. Sandcrawler class has SandcrawlerWorld. I have a collectDroid method in Sandcrawler class so that the Sandcrawler can collect the Droid which in the same location with it. The Sandcrawler will patrol like Ben Kenobi but only moves every second turn. To implement this, I have a move attribute. Each time the Sandcrawler moves, the move attribute will increase by one. If the move attribute %2 equals to zero, then the Sandcrawler will move. In SWActor, I create a method setSandcrawler and a private attribute Sandcrawler s to set the sandcrawler for the actor, so that when the actor going back from SandcrawlerWorld, it knows where the Sandcrawler is.

In the SWWorld, I have a SWGridController. This is used to change the grid in the controller when the player enter and exit the Sandcrawler. In SWGridController, I also create a new method changeWorld to change the grid of the grid controller.

### **2. Make Reservoirs Damageable**

To make the reservoirs damageable, if statements were created to check the value of hitpoints. If hitpoints dropped below 20, its description changed and symbol was set to "V". Likewise, when the hitpoints hit 0 or less, the descriptions were changed and symbol was set to "X".

### **3. Grenade**

Each grenade is made to start with 200 hitpoints and was placed at 4 locations in the world. A throw class was created to enable the grenade to be thrown. 20 hitpoints were reduced for any entity except the actor throwing the grenade who is in the same location as the thrown grenade. 10 entities were reduced for entities 1 step away and 5 for those 2 steps away from where the grenade was thrown.

## **FIT2099 Assignment 3 Star War: Responsibilities of Classes in UML**

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### **1. Jawa Sandcrawler**

In the UML, the Sandcrawler class is created under the package actors and extended from SWActor. The role for the Sandcrawler is to collect the Droid. The actor with force ability can enter the Sandcrawler when he/she is in the same location of the Sandcrawler. If the Sandcrawler finds a Droid in its location, the Droid is taken inside the Sandcrawler.

There is also a SandcrawlerWorld class which extended from SWWorld. The SandcrawlerWorld class is responsible for the world(grid) inside the Sandcrawler. It has a method called initializeWorld which will initialize the world to a smaller grid. All the Droids collected by the Sandcrawler will be in the small grid. The SWGridController is used to control the grid, get user decisions and draw the grid out. I present it here as I need to use it to change the grid when the actor with force ability entering or exiting the Sandcrawler. The SWGridController will use the SWGridTextInterface to show the grid. Also, the SWWorld is responsible for all the placing of items and actors in the world. I create a attribute uiController, method setController and getController to get the controller from Application and use it to change the grid.

The Door class in the UML is under package entities and extended from SWEntity. The role of the Door class is used by the actor with force ability to exit the small grid. There are two classes extended from SWAffordance in package actions: Enter class and Exit class. The responsibility of Enter class is used by the actor with force ability to decide whether to enter the Sandcrawler or not. Same to the Exit class, it is used by the actor with force ability to decide whether to exit the small grid in Sandcrawler or not.

### **2. Make Reservoirs Damageable**

The hitpoints were accessed for the reservoirs and deducted appropriately as explained in the Design Rationale.

### **3. Grenade**

A Throw class was created which extends from SWAffordance. This class can only be used when the item carried by the actor is a grenade. Then the location of the actor carrying the grenade is found using the getEntityManager method from SWAction and the coordinates that are both 1 step away and 2 steps away in all 8 directions are found and listed using the contents method in EntityManager class. Then the takeDamage method is used to deduct the hitpoints respectively for the entities

