Beating up the Zombie

New class added: **Limb**

Roles and responsibilities:

- It's an abstract class that inherits WeaponItem class that will have attribute and method that are shared by Arm and Leg.
- Has an attribute of type weapon to store the weapon if this weapon is upgraded
- Has a final static field of type int called damage that stores the damage of this weapon which is equal to 20, and it's declared final static because it's a class variable and should be a constant for its child classes which is Arm and Leg
- Has an abstract method called craftIntoWeapon() that return a new weapon (If it's an arm, player can craft it into a ZombieClub, if it's a leg, player can craft it into a ZombieMace)

New class added: **Arm**

Roles and responsibilities:

- A type of weapon that inherits Limb so it can be used by both zombie or the player
- Zombie should pick it up if zombie is stepping on it (has the same location as this Arm)
- Has an attribute of type Weapon called upgradedWeapon that stores the upgraded weapon Arm will become if it's crafted by the player, added notes, only player can craft this Arm into another weapon and zombie can only use this weapon as it is.
- It has a possibility to be dropped (or rather created since zombie doesn't store object of Arm type as an attribute) at the adjacent location around the zombie when the zombie is attacked by the player.
- Can be used by both zombie and the player as a weapon with damage of 20 as it inherits Limb class
- Represented by the symbol "A" when it's on the ground
- Has method craftWeapon() will return upgradedWeapon which is an object of type ZombieClub and it can only be called by the player when the player has an Arm in their inventory.

New class added: **Leg**

Roles and responsibilities:

- A type of weapon that inherits Limb so it can be used by both zombie or the player
- Zombie should pick it up if zombie is stepping on it (has the same location as this Leg)
- Has an attribute of type Weapon called upgradedWeapon that stores the upgraded weapon Leg will become if it's crafted by the player, similar to Arm, only the player can craft this Arm into another weapon and zombie can only use this weapon as it is.
- It has a possibility to be dropped (or rather created since zombie doesn't store object of Arm type as an attribute) at the adjacent location around the zombie when the zombie is attacked by the player.
- Can be used by both zombie and the player as a weapon with damage of 20 as it inherits Limb class
- Represented by the symbol "L" when it's on the ground
- Has method craftWeapon() will return upgradedWeapon which is an object of type ZombieMace and it can only be called by the player when the player has an Arm in their inventory.

Class modified: **AttackAction**

Roles and responsibility:

- This class is modified into an abstract class that provide a base code for all the attack actions in the game, which are AttackZombieAction class and AttackHumanAction class where they share some similar functionality such as the execution part when the target dies
- The execute method is modified into an abstract method since AttackZombieAction and AttackHumanAction has different execution.
- Has a new method called targetDied() that is responsible for the action when the target dies and this functionality is shared among AttackZombieAction and AttackHumanAction, therefore duplication of code can be reduced (DRY).

New class added: **AttackZombieAction**

Roles and responsibilities:

- Inherits AttackAction and it represents an action that can be carried out by the Player to attack the zombie at adjacent location of the player.

- Has attribute of type ZombieCapability to store the attackable team UNDEAD so it only allows this action to be acted on the Zombie.
- In the execute method, when the player uses a weapon or intrinsic weapon which is punch, both attacks has a 70% successful hit rate. If the player successfully land a hit on the zombie, the zombie has a 30% probability of losing a limb, and a 10% probability of losing 2 limbs (A limb can be either an arm or a leg and it's randomly chosen, so the zombie could potentially lose both arms or both legs after being hit).
- When a limb is knocked off, it will deduct the number of limbs knocked off from the zombie attribute arm or leg, then it will create a matching number of arm object or leg object at adjacent location to the zombie.
- If the zombie successfully drop a limb or limbs, it will get number of arm that is still attached to the zombie and determine if the zombie will drop the weapon it's holding or not (50% of dropping if number of arm == 1, 100% if number of arm == 0).

Class modified: **Zombie**

Roles and responsibilities:
- Has a field of type int called arm to store the number of arms that are still attached to the zombie.
- Has a field of type int called leg to store the number of legs that are still attached to the zombie.
- Both field arm and leg are initialised to 2 to represent all zombie will have 2 arms and 2 legs upon creation.
- Has loseArm(int armLost) method that deduct one arm from its arm attribute if and only if int arm > 0.
- Has loseLeg(int legLost) method that deduct one leg from its leg attribute if and only if int leg > 0.
- Has getArm() method that returns the number of arms that are still attached to the zombie.
- Has getLeg() method that returns the number of legs that are still attached to the zombie.

- Has dropWeapon() method that will drop the weapon it's currently holding, the weapon will be removed from the zombie's inventory and randomly dropped at the adjacent location around the zombie.
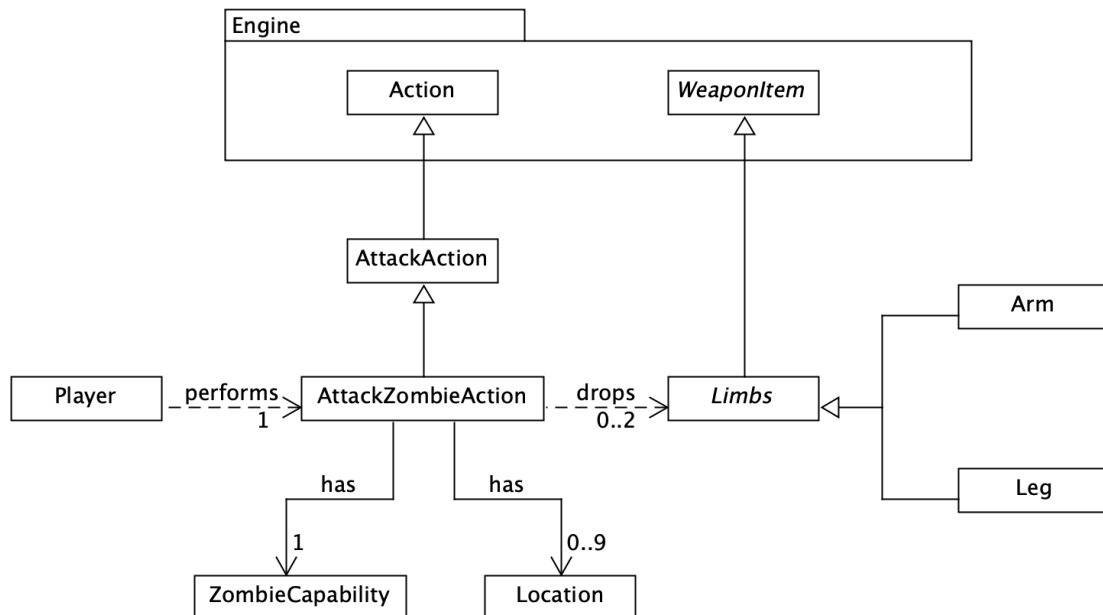
Crafting weapons

New class added: **CraftWeaponAction**

Roles and responsibilities:

- Extends Action class so it can be used as an action by the player
- In the execute() method, the player can craft the given weapon into better weapon by calling the craftWeapon() method in the Arm or Leg class (for now).
- Has menuDescription() method that returns a string Original weapon + "is crafted into " + New weapon.

Engine

Action

WeaponItem

CraftWeaponAction

Player

Limbs

Arm

Leg

ZombieClub

ZombieMace