

# Code Review

## Lab05: Code Reuse (review last lab)

File: Character.java, Line: 160

Can use `..."Speed (Base " + ...` instead of `..."Speed" + "(Base " + ...`.

```
/**
 * Displays the character's stats, including level, hp, maxHp, mana, maxMana, baseSpeed, speed, and maxSpeed.
 */
1 usage  ▲ Thanawat James Jaisert
public void showStats() {
    System.out.println("Level : " + level);
    System.out.println("Hp : " + hp + " / " + maxHp);
    System.out.println("Mana : " + mana + " / " + maxMana);
    System.out.println("Speed" + "(Base " + baseSpeed + ") : " + speed + " / " + maxSpeed );
}
```

File: Character.java, Line: 184 - 193

LevelUp method increase the stats amount should use named constants to avoid using magic number or using parameters to make it more flexible to any jobs.

```
/**
 * Levels up the character, increasing level, hp, maxHp, mana, maxMana, maxSpeed, and speed.
 */
1 usage  ▲ Thanawat James Jaisert
public void levelUp(){
    level++;
    maxHp += 10;
    hp += 10;
    maxMana += 5;
    mana += 5;
    maxSpeed += 1.5;
    speed += 1.5;
    System.out.println(name + " level Up!");
}
```

File: Character.java, Line: 200 - 226

equipAccessory and equipEquipment methods should have the case where the items are null.

```
/**
 * Equips the provided accessory to the character.
 *
 * @param accessory accessory to be equipped.
 */
4 usages  ▲ Thanawat James Jaisert
public void equipAccessory(Accessory accessory){
    if(accessory instanceof Amulet){
        amulet = (Amulet) accessory;
        System.out.println("Equipped Amulet : " + accessory.getName());
    }else if(accessory instanceof Ring){
        ring = (Ring) accessory;
        System.out.println("Equipped Ring : " + accessory.getName());
    }else if(accessory instanceof Earring){
        earring = (Earring) accessory;
        System.out.println("Equipped Earring : " + accessory.getName());
    }
}

/**
 * Equips the provided equipment to the character.
 *
 * @param equipment equipment to be equipped.
 */
8 usages  3 overrides  ▲ Thanawat James Jaisert
public void equipEquipment(Equipment equipment){
    if(equipment instanceof MainWeapon){
        mainHand = (MainWeapon) equipment;
        System.out.println("Equipped Main Weapon : " + equipment.getName());
    }else if(equipment instanceof SubWeapon){
        subHand = (SubWeapon) equipment;
        System.out.println("Equipped Sub Weapon : " + equipment.getName());
    }
}
```

File: Character.java, Line: 266, 310, 354

What do these magic numbers represent to?

Should declare a named constant with a clear name.

```
/**
 * Initializes a new WarriorCharacter with name and the initial base stats of a warrior job at level 1.
 *
 * @param name name of the warrior character.
 */
1 usage  Thanawat James Jaisert
WarriorCharacter(String name){
    super(name, level: 1, maxHp: 150, maxMana: 25, baseSpeed: 100);
}
```

```
/**
 * Initializes a new MageCharacter with name and the initial base stats of a mage job at level 1.
 *
 * @param name name of the mage character.
 */
1 usage  Thanawat James Jaisert
MageCharacter(String name) {
    super(name, level: 1, maxHp: 50, maxMana: 125, baseSpeed: 80);
}
```

```
/**
 * Initializes a new ArcherCharacter with name and the initial base stats of an archer job at level 1.
 *
 * @param name name of the archer character.
 */
no usages  Thanawat James Jaisert
ArcherCharacter(String name) {
    super(name, level: 1, maxHp: 100, maxMana: 75, baseSpeed: 150);
}
```

File: Equipment.java, Line: 41 – 103, 105 - 173

MainWeapon and SubWeapon class have the same attributes and methods should create a separate class for the common attributes and methods of both MainWeapon and SubWeapon.

File: Equipment.java, Line: 99 – 102, 169 - 173

Upgrade method increase the stat value in MainWeapon and SubWeapon class, should use named constants to avoid using magic number or make it to get parameters and override them for each weapon to make it easier to apply a specific stat increase per level for any equipment.

```
/**
 * Upgrades the main weapon by increasing its level and adjusting its main stat.
 */
1 usage  Thanawat James Jaisert
public void upgrade(){
    level++;
    statValue += 2.5;
}
```

For all

- good interface, classes, variables, and methods naming. This makes it easy to understand the purpose of the use.
- well-designed and well-structured, following OOP principles. This makes it easy to read and maintain.