

**OOP Project Part 2**

Our game has started to be noticed by the community and it looks promising. However, the game is still missing some basic features of a real RPG game. These are the following features that should be added to the next version:

1. The game is missing a core functionality of RPG games. There is no reward for defeating monsters. Your first task is to build a mechanism for the hero to earn gold coins for each fight that he/she wins. The amount of gold earned should be random based on the monster difficulty level. You can use the suggestions below or come up with your own reward system.

|  |  |  |  |
| --- | --- | --- | --- |
| **Gold Coins** | **Easy** | **Medium** | **Hard** |
| Minimum | 1 | 11 | 21 |
| Maximum | 10 | 20 | 30 |

1. We need to add a way for our hero to spend his/her hard earned gold coins to get some equipment. Your second task is to implement a Shop system to the game. The hero should be able to buy weapons and armors from the Shop. Weapons should have a Name, Strength and Price. Armors should have a Name, Defense and Price. Make sure the hero has enough gold coins to buy the item and that the item gets added to the hero’s bag. Don’t forget to populate the Shop with some initial items. You can use the list below or come up with your own items.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Weapon** | **Strength** | | **Price** | |
| Sword | 3 | | 10 | |
| Axe | 4 | | 12 | |
| Longsword | 7 | | 15 | |
| **Armor** | | **Defense** | | **Price** |
| Wooden Armor | | 10 | | 8 |
| Metal Armor | | 12 | | 14 |
| Golden Armor | | 15 | | 18 |

1. We’ve forgot about something. If the hero will be allowed to buy items then he/she should be able to equip it, agree? Your third task is to allow the hero to equip/un-equip items that he has bought in the shop. When an item has been equipped, its stats should be reflected in the “View Stats” screen. The screen should display the current hero strength/defense plus the item that is equipped. Example:

No item equipped:

Strength: 10

Defense: 10

Items equipped:

Strength: 10 (+3)

Defense: 10 (+10)

1. Your final task is to change the damage calculation for the fight. Currently there is no RNG factor and also we need to take into consideration when the hero has equipped armors/weapons. The following formulas should be used to calculate the base damage:

The damage that the hero does should be (HeroStrength + WeaponStrength\*) - MonsterDefense.

The damage that the hero takes should be MonsterStrength - (HeroDefense + ArmorDefense\*).

\*If the item is equipped.

After the base damage has been calculated, we should apply a damage reduction or increase of 50% maximum. Take examples below as reference:

BaseDamage = 2

MaximumDamage = 3 (+50%)

MinimumDamage = 1 (-50%)

FinalDamage: Number between 1 and 3.

BaseDamage = 5

MaximumDamage = 7.5 (+50%)

MinimumDamage = 2.5 (-50%)

FinalDamage: Number between 2 and 7

BaseDamage = 100

MaximumDamage = 150 (50%)

MinimumDamage = 50 (-50%)

FinalDamage: Number between 50 and 150

The final damage should always be an integer.

**Due date: 25/02/2019 8:45**