

Design Plan

Dungeon Dudes - OOP, Mod O Practical 2B

170D CLASS: 23-001



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1 Project Summary

Dungeon Dudes is a text based RPG based off medieval lore. The task for this project was to implement a single character or monster based off assignment and as a class, create a fully functioning game.

2 Bench Marks

Day 1

1. Read through manual and provided code to understand how program operates.
2. Start to build out Wizard class based off requirements in manual.
3. Work through main logic methods (take damage, attack, level_up)

Day 2

1. Complete Wizard Class: All special skills
2. Complete Item generator for Wizard

Day 3

1. Build unit tests for Wizard and Item Generator
2. Code meets all requirements (pycodestyle, mypy, complieall .)
3. Documentation

3 Requirements

1. Wizards Skills:

Skill	Level	Mana Cost	Description
Attack	1		Wizard attacks deal damage with a base of their <code>attack_power</code> . Wizard attacks deal damage of the type of their equipped weapon.
Magic Armor	1		<code>passive</code> : Wizards defensive modifier against all non-Physical damage is improved by their <code>Intelligence / 5</code> - rounded up. Wizards take 30% less damage from the first source of <code>Physical</code> damage each combat. Wizards take 15% less damage from <code>Physical</code> damage sources when over 50% mana. Wizard defense power mitigates <code>Ice</code> , <code>Fire</code> , and <code>Lightning</code> damage in addition to <code>Physical</code> damage.
Fireball	1	20	The Wizard launches a fireball at their enemy dealing <code>Fire</code> damage based on <code>Intelligence x 3</code> . The Wizard burns the enemy for additional damage based on their <code>Intelligence x1</code> the following round
Blink	2	30	The Wizard <code>Escapes</code> the Battle and returns to town
Blizzard	3	40	The Wizard summons a blizzard to the battlefield. The Wizard deals <code>Ice</code> damage based on their <code>Intelligence x1</code> to all enemies this round and for each round for the remainder of the battle.
Mana Regeneration	5		<code>passive</code> : The Wizard gains 15% of their Maximum Mana back at the end of each battle. Healing Potions now restore 15% of the Wizard's maximum mana, and an additional 15% maximum hit points, in addition to their other effects.
Lightning Bolt	8	50	The Wizard strikes their opponent with <code>Lightning</code> , dealing <code>Intelligence x5</code> based damage
Elemental Affinity	10		<code>passive</code> : Whenever the Wizard casts a spell which deals <code>Fire</code> , <code>Ice</code> , or <code>Lightning</code> damage, they gain a 25% damage bonus to the next <code>Fire</code> , <code>Ice</code> , or <code>Lightning</code> damage spell they cast this combat - if it deals a different type of damage.
Reflect Damage	13	30	For the remainder of the combat, whenever the Wizard is damaged, a % of the damage equal to the Wizard's level (rounded up) is stored. This stored damage is added to the Wizard's next damaging attack as <code>Lightning</code> damage.
Improved Passives	17		<code>passive</code> : 25% of Magic Armor's non-Physical damage modifier bonus now applies to <code>Physical</code> damage (rounded up), Mana Regeneration end of battle and healing potions effects now restore 25% of maximum mana.
Mana Burn	20	All (min 1)	Consume all your remaining mana to do <code>Fire</code> , <code>Ice</code> , and <code>Lightning</code> damage to an enemy, the base damage of each damage type is 50% of the consumed mana (rounded up)
Elemental Master	25		<code>Passive</code> : Wizard's deal +50% damage if they've dealt <code>Fire</code> , <code>Ice</code> , and <code>Lightning</code> damage this combat.
Damage/Variance	Elemental	<code>Fire</code> , <code>Ice</code> , <code>Lightning</code>	Wizards deal Elemental damage with their attacks. Their damage variance is $\text{base damage} * ((\text{current}/\text{maximum mana} / 2) - 0.15)$ (<code><-0.15 - 0.35</code>). Their equipment variance follows the same formula as Fighter variance.

2. Wizard Stat Growth:

Stat	Initial	Per Level	Description
Hit Points	60	12	Health Points
Strength	5	0	
Agility	10	2	Wizard <code>Agility</code> translates to <code>defense power</code> at 2 agility = 1 <code>defense power</code> . <code>Agility</code> also decreases the chance you'll be surprise attacked in battle.
Intelligence	17	2	Wizard <code>Intelligence</code> translates to <code>attack power</code> at 1 <code>Intelligence</code> = 1 <code>attack power</code> . Intelligence directly increases the damage of several Wizard spells.
Mana (Special)	50	20	Wizards use Mana to cast spells
Experience	0	$50x^2$	Wizards progress levels slower than average.

3. Wizard Equipment:

Slot	Types	Expected Stats
Weapon	Staff, Wand	Wizard weapons have attack power equal to approximately 25% of their level (rounded up). They have an Elemental damage type (Fire, Ice, Lightning), and they have modifier to that damage type of approximately equal to their level. They have a chance to have defense power or additional damage modifier strength of approximately half their level.
Armor	Robes	Wizard Robes have defense power equal to approximately their 0.5 times their level +5. They have defensive modifiers to 3 non-Physical damage types. They have a chance to have additional defense modifier or defense power. Armor defensive modifiers have approximately 30 + (Level *3) modification value across both stats.
Accessory	Arcane Orb	The Wizard Accessory are Arcane Orbs. Arcane Orbs have offensive modifiers to 1 Elemental damage type Fire, Ice, Lightning, equal to approximately their level + 20 and defensive modifiers to 3 damage types. Defensive modifiers have approximately 30+(Level *3) modification value across both stats. Arcane Orbs sometimes have additional bonuses to their offensive or defensive modifiers equal to approximately 25% of their level.

4 UML Graph

