

# Design Plan

Dungeon Dudes  
(Undead Class)

OOP 3-Day Project (Module O - 2B)  
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25 October 2023

## 1 Introduction

- 1.a Dungeon Dudes is a text based role-playing game (RPG) that is gaining in popularity among the residents of Pylandia. There is only one problem. The game only has one playable character and one monster class. The goal of this class project is to add depth to Dungeon Dudes by way of adding additional playable characters and monsters enabling Dungeon Dudes to develop into the exciting adventure that it was meant to be.
- 1.b My specific task is to create the undead sub-class of monsters. The undead sub-class consists of three sub-types: Zombie Horde, Vampire, and Banshee.

## 2 Environment

- 2.a Hardware: Class computer
- 2.b Software: Ubuntu 20.04.

## 3 Project Requirements / Goals

- 3.a The game structure and functionality is already provided.
- 3.b Create an undead class that inherits the monster class.
- 3.c Create zombie, undead, and banshee classes that inherit from the undead class.
- 3.d Seamlessly integrate the undead monster class into the existing game.
- 3.e Ensure all document, implement, and execute requirements from the rubric are met.

## 4 Undead Class

- 4.a Consist of zombie, vampire, and banshee types.
- 4.b All undead monster have the following properties.

Undead Skills		
Skill	Level	Description
Attack	1	Undead attacks deal <code>Physical</code> damage with a base of their <code>attack_power</code>
Holy Vulnerability	1	<code>passive:</code> Undead take 50% increased damage from <code>Holy</code> type damage.
Haunting Aura	1	<code>passive:</code> When Undead <code>Monsters</code> take their first <code>Action</code> of combat, the opponents <code>Physical</code> damage defensive modifier is reduced by 10 for the remainder of combat.
Resist Death	5	<code>passive:</code> The first time a damage event would kill an Undead <code>Monster</code> in combat, it reduces the Undead to 1 <code>Hit_Point</code> instead.
Damage/Variance	Physical, Physical/Ice, Ice/Poison	Undead deal <code>Physical</code> or <code>Ice</code> damage with their <code>Attacks</code> <code>Ice</code> or <code>Poison</code> damage with their special abilities. Undead damage variance varies widely. Randomly dealing between 1-175% of base damage.

## 5 Zombie Class

5.a Zombie hordes are a pack of zombie monsters. They are able to perform multiple attacks on their turn. They will take increased damage from abilities that damage ‘all enemies’.

Zombie Horde Skills			
Skill	Level	Description	
Horde Size	1	<b>passive:</b> Zombie Hordes have 6 members. All members of the Zombie Horde attack each turn with damage based on their <code>attack_power</code> . Zombie hordes take 600% damage from abilities that damage <b>all enemies</b> .	
Infection	1	<b>passive:</b> When Zombies in a Zombie Horde attack, they have a 30% chance for the Horde to gain a stack of infection. When Zombie Hordes gain 4 stacks of infection, their infection is reset to 0 and all <code>Attacks</code> deal +1 <code>Poison</code> damage for the remainder of the encounter (this effect stacks)	
Improved Infection	5, 15, 25, 35, 45	<b>passive:</b> At level 5, and everyone 10 levels after, Zombie Horde attacks have an additional 5% chance to grant a stack of infection.	
Increase Horde Size	8, 16, 24, 32, 40, 48	Every 8th level, 1 additional Zombie joins the Horde, giving the Horde + 20 <code>max_hit_points</code> , 1 additional attack each turn and making the Horde take an additional 100% of base damage from abilities which damage <b>all enemies</b> .	
Skill Selection	<code>take_turn</code>	<b>Zombie Hordes</b> always attack. Doing a number of melee attacks equal to the number of Zombies in the Horde.	

Zombie Horde Stat Growth			
Stat	Initial	Per Level	Description
Hit Points	85	20	Health Points
Strength	4	1	Zombies have <code>attack_power</code> equal to their <code>Strength</code>
Agility	8	3	Zombies have <code>defense_power</code> equal to their <code>agility</code>
Intelligence	0	0	Zombies have no Intelligence
Infection (Special)	4	0	Infection Stacks lead to additional poison damage on melee strikes. Zombie Hordes start each encounter with 0 Infection and a Maximum infection of 4.

## 6 Vampire Class

6.a Vampires over level 20 have a chance of becoming elder vampires thus increasing their abilities.

# Design Plan: Dungeon Dudes - Undead

Vampire

Vampires over level 20 have a chance to be Elder Vampires

Vampire Skills

Skill	Level	Description
Leeching Strikes	1	<code>passive:</code> Vampire's Heal for 10% of the base damage of all damaging abilities they do. This healing is calculated before any mitigation or armor is applied.
Icy Touch	1	<code>passive:</code> Attacks for <code>intelligence * 0.67</code> base <code>Ice</code> damage and lower <code>Physical</code> and <code>Ice</code> defensive modifiers for the opponent by 10 for the remainder of the encounter.
Summon Bat Companion	1	<code>Once per Combat:</code> Vampire Summons a Bat which attacks for 50% <code>attack_power</code> based <code>Physical</code> damage immediately and 33% <code>attack_power</code> based <code>Physical</code> damage every time the Vampire takes an action for the remainder of combat. Bat Companion damage does not trigger <code>Leeching Strikes</code>
Damage Modifiers	3	<code>passive:</code> Vampires are immune to <code>Ice</code> and <code>Poison</code> damage and take 25% additional damage from <code>Fire</code> .
Mist Form	5	<code>Once per Combat:</code> Vampire turns into Mist - reducing the damage of the next damage event the Vampire would receive to 0 and dealing <code>intelligence // 3</code> <code>Ice</code> damage to their opponent.
Summon Wolf Companion	10	<code>Once per Combat:</code> Vampire Summons a Wolf which attacks for 50% <code>attack_power</code> based on <code>Physical</code> damage immediately and 40% <code>attack_power</code> based <code>Physical</code> damage every time the Vampire takes an action for the remainder of combat. Wolf Companion damage does not trigger <code>Leeching Strikes</code>
Improved Mist Form	15	<code>Twice per Combat:</code> Mist Form can now be cast twice per combat. The first cast works normally, the second cast <code>Escapes</code> the battle.
Improved Animal Companions	20	<code>Once per Combat:</code> `Summoning a Wolf or Bat Companion in Combat summons the other Companion as well (neither skill can be used again this combat.) Both Companions now do 58% <code>attack_power</code> damage each turn.
Skill Selection	<code>take_turn</code>	Vampires are intelligent enemies. They will prioritize summoning their companions until both are present, and then will prefer <code>Icy Touch</code> . Vampires will use <code>Mist Form</code> to avoid damage when under 30% <code>hit_points</code> . Vampires will use <code>Mist Form</code> to <code>Escape</code> combat when under 10% <code>hit_points</code>

Vampire Stat Growth

Stat	Initial	Per Level	Description
Hit Points	75	15	Health Points
Strength	10	2	Vampires have <code>attack_power</code> equal to their <code>Strength</code>
Agility	15	3	Vampires have <code>defense_power</code> equal to their <code>agility</code>
Intelligence	16	4	Several Vampire abilities have damage which scales with <code>Intelligence</code>

Elder Vampire

Beginning at level 20, Vampires have a 2% chance per level (40% at level 20, 100% at level 50) to be an Elder Vampire.

Elder Vampires have 2 additional `max_hit_points`, and 1 additional `intelligence` per level as compared to regular Vampires. They have the following ability modifications:

Elder Vampires drop 50% additional Gold and are worth 60% additional Experience as compared to regular Vampires

Skill	Level	Description
Improved Leeching Strikes	20	<code>passive:</code> Elder Vampire's Heal for an additional 5% of the base damage of all damaging abilities they do. This healing is calculated before any mitigation or armor is applied.
Animal Companions	20	<code>passive:</code> Elder Vampires begin combat with a Bat Companion summoned already. They can summon an additional <code>Bat</code> and <code>Wolf</code> companion during combat the same way as other <code>Vampires</code>

## 7 Banshee Class

7.a Banshees are highly intelligent enemies that are incorporeal and thus have no strength.

Banshee

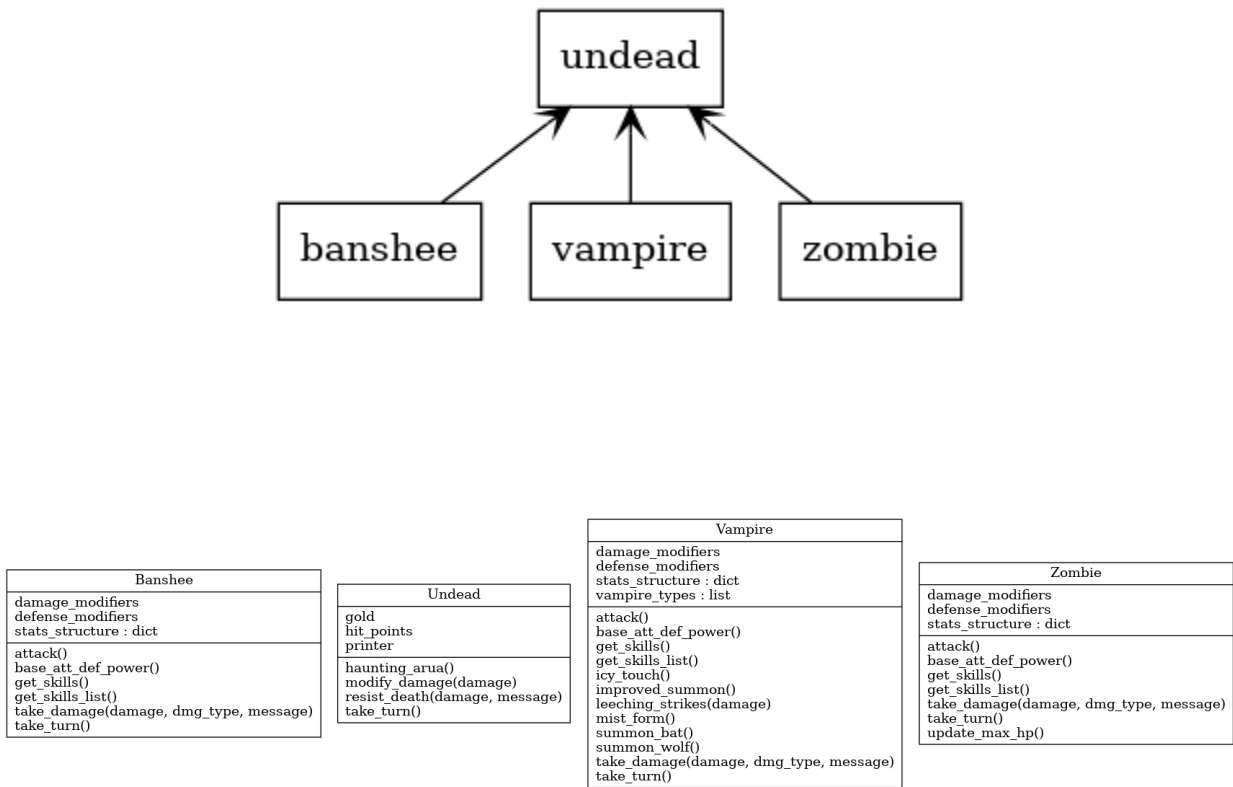
Banshee Skills

Skill	Level	Description
Attack	1	Banshee Attacks do <code>Ice</code> damage based on their <code>attack_power</code>
Incorporeal	1	<code>passive:</code> Banshees have a 10% chance to reduce any incoming <code>Physical</code> damage to 0. Banshees are immune to <code>Poison</code> damage.
Anti-Magic Shield	3	<code>Once per 5 incoming damage events:</code> Banshee summons an Anti-Magic Shield which reduces the damage of the next 3 <code>Ice</code> , <code>Lightning</code> , or <code>Fire</code> incoming damage sources to 0. Anti-Magic Shield cannot be cast again until the Banshee has processed 5 incoming damage events from the previous cast.
Chilling Aura	5	<code>passive:</code> Every action a Banshee takes lowers their opponents in-combat <code>Ice</code> defensive modifier by 4. Maximum 40.
Blizzard	10	<code>Once per Combat:</code> Banshee summons a Blizzard which deals 10% Intelligence based damage immediately and every time the Banshee takes an <code>Action</code> for the remainder of the encounter.
Improved Auras	15	<code>passive:</code> <code>Chilling Aura</code> now lowers opponent <code>Ice</code> defensive modifier by 5. Maximum 50. Incorporeal now has a 15% chance to avoid <code>Physical</code> damage.
Skill Selection	<code>take_turn</code>	Banshees are intelligent enemies. They will prioritize casting <code>Blizzard</code> early in combat. Banshees will prioritize casting <code>Anti-Magic Shield</code> as early as possible in combat (after summoning a blizzard), but will only recast <code>Anti-Magic Shield</code> if the opponent deals <code>Fire</code> , <code>Ice</code> , or <code>Lightning</code> damage. Once the opponent deals damage of one of these types, the Banshee will cast <code>Anti-Magic Shield</code> whenever possible for the remainder for the encounter.

Banshee Stat Growth

Stat	Initial	Per Level	Description
Hit Points	65	13	Health Points
Strength	0	0	Banshees are Incorporeal and don't have <code>Strength</code>
Agility	15	3	Banshees have <code>defense_power</code> equal to their <code>agility</code>
Intelligence	16	4	Banshee abilities have damage which scales with <code>Intelligence</code> , Banshees have <code>attack_power</code> equal to their <code>intelligence</code>

8 UML



9 Considerations

- 9.a Take the time to understand how the game works before diving in and writing code.
- 9.b Ensure all damage calculations are correct in order to maintain balance in the game.
- 9.c Document problems/bugs in the game or documentation to help improve the project for future classes.