Assumptions for Major Project

BattleStats

every creature in game has 3 battle stats - health, attack and base flat defence

Player

Hard Mode
- Health: 5
- Attack: 5
- Defense: 1

Peaceful/Standard Mode
- Health: 10
- Attack: 10
- Defense: 2

Spider
- Health: 5
- Attack: 5
- Defense: 0

Zombie
- Health: 10
- Attack: 2
- Defense: 0

Mercenary
- Health: 10
- Attack: 2
- Defense: 0
- Items required to bribe: treasure

Assassins
- Health: 10
- Attack: 4
- Defense: 0
- Items required to bribe: treasure + one_ring

Hydra
- Health: 20
- Attack: 2
- Defense: 0
- A 50% chance that the hydra will recover 15 health if the player didn't have anduril

Spawning
- 50% chance zombie toast spawner will spawn an hydra/zombie toast with armour
- Spiders are spawned at the start of the game, it may spawn 0-4 spiders at equal chance.
- A mercenary or assassin spawn every 20 ticks (starting from the 20th round), with 20% chance being an assassin. Given it spawns a mercenary, the mercenary have 30% chance to have an amour equipped.

Collectables
Battle Gears

Each battle gear has a durability, with some modifying effect
- Sword:
    - Durability: 5
    - Effect: + 2 attack
- Armour:
    - Durability: 5
    - Effect: * 2 defense
- Bow:
    - Durability: 5
    - Effect: * 2 attack
- Shield:
    - Durability: 5
    - Effect: * 4 defense
- Midnight armour:
    - Durability: 5
    - Effect: + 5 attack, + 5 defense
- Andruil:
    - Durability: 5
    - Effect: + 4 attack

Usables

Usables are collectables that can be clicked in frontend and used by calling use() method

- InvincibilityPotion:
    - HardMode:
        - NoEffect
    - Peaceful/Standard Mode:
        - Duration: 5
- InvisibilityPotion:
    - HardMode:
        - Duration: 3
    - Peaceful/Standard Mode:
        - Duration: 15
- HealthPotion:
    - HardMode:

- NoEffect
  - Peaceful/Standard Mode:
    - Recover to full health
- Bomb:
  - Radius: 2

Other Collectables
- Sceptre is used through interact()
- Sun Stone is removed if it is used as a building component
- Treasure takes higher priority than Sun Stone in bribing

Battling
- The Attack modifiers by Battle Gears are applied to the base attack, and before it is multiplied by the health of the attacker
- The Defense modifiers by Battle Gears are applied to the attack received after it is multiplied by the attacker's health, but before the modifier due to ally/enemy (divide by 10 for ally, divide by 5 for enemy), the damage the creature receives follows this formula

(already modified attack of attacker - base Defense of defender - flatDefenseIncrease due to Battle Gear) / multiplayDefenseIncrease due to Battle Gear

The damage received is either divided by 10 or by 5 depending whether it is an ally or enemy

- Collectible rewards picked up by the player can only be used after next tick()
- A One Ring will appear in 10% of the player's battles.
- Durability decreases in peaceful mode
- Collectible as rewards (like armour) were added at the end of battle, so the player can only use it next tick(), instead of the next enemy within the same battle
- Each enemy in battle faces all allies(including player) once, before the next enemy battles. (For each enemy, loop through all allies and battle)
- Attack modifier due to attacker health is the battling equation is the one before it receives any damage
- Battling with invincibility status does not cost any weapon durability
- Bow is just a modifier for attack damage, it won't reduce the durability twice

Static Entities
- Destroying zombie toast spawner cost durability of the weapon.
- Zombie toast spawn zombie check location available for spawning in a clockwise direction, starting from top cardinality