

List all Assumptions related to project implementation

Enemies:

- **Spawn:**
Assume slugs only spawns randomly on the path.
Assume zombies only spawn in the zombie pit when the character completes the whole cycle.
Assume vampires only spawn in the vampire castle when the character completes 5 cycles.
Assume Doggie spawns when the character completes 20 cycles
Assume ElanMusk spawns when the character completes 40 cycles
- **Health:**
Assume the slugs' health starts from 5.
Assume Doggies' health starts from 10
Assume zombies' health starts from 15.
Assume vampires' health starts from 25.
Assume ElanMuske's health starts from 75.
- **Attack Range:**
Assume the slugs' attack radius is 1 tile.
Assume the Doggies' attack radius is 1 tile
Assume the zombies' attack radius is 2 tiles.
Assume the vampires' attack radius is 3 tiles.
Assume ElanMuske's attack radius is 3 tiles.
- **Support Range:**
Assume the slugs' support radius is 1 tile.
Assume the Doggies' support radius is 1 tile.
Assume the zombies' support radius is 3 tiles.
Assume the vampires' support radius is 4 tiles.
Assume ElanMuske's support radius is 4 tiles.

Character:

Assume the character can be moved around on the path.
Assume the character's health always starts from 100.
Assume the character's lowest health value is 0.
Assume the character wins when he reaches the goal.
Assume the character experience always starts from 0.
Assume the character can gain at most 100000 experience.
Assume the character owns 0 gold at the first beginning.

Assume the character can own at most 10000 gold.

Assume the character borns with a sword.

Assume after the character uses health potion, the maximum health point can be 100.

Assume the character cannot hurt enemies without any attacking equipment(i.e. sword, staff, stake)

Equipment:

- Purchasing
 - Assume the number of equipment is at most 24.
 - Assume purchasing a sword needs 20 gold.
 - Assume purchasing a stake needs 15 gold.
 - Assume purchasing a staff requires 10 gold.
 - Assume purchasing an armour requires 20 gold.
 - Assume purchasing a shield requires 25 gold.
 - Assume purchasing a helmet requires 30 gold.
 - Assume purchasing a health potion requires 10 gold.
 - Assume purchasing can only happen if the character's inventory has spare space, otherwise, cancel the purchase.
- Selling
 - Assume selling a sword gains 15 gold.
 - Assume selling a stake gains 10 gold.
 - Assume selling a staff gains 5 gold.
 - Assume selling an armour gains 15 gold.
 - Assume selling a shield gains 20 gold.
 - Assume selling a helmet gains 25 gold.
 - Assume selling a health potion gains 5 gold.
- Rare Items:
 - Assume every time the character has 20% to win a rare item.
- Item Replacement
 - An equipped item can be replaced by a new item(i.e. helmet, weapon, armour or shield). The old item will disappear.
- Damages:

Sword does 5 damage to any enemy.

Stake does 8 damage to the vampire and does 4 damage to any other enemies.

Staff does 3 damage to any enemy and has 50% probability of inflicting a trance.

- Defensive Equipment:
Helmet decreases the enemies damage by 40%
Helmet decrease the character's attack by 20%
Helmet don't defend against the vampire's critical attack.
Shield defense the enemies' normal attack.
Shield cannot defend against the vampire's critical attack.
- Durability:
A staff will be wrecked after 3 attacks.
A sword will be wrecked after 3 attacks.
A stake will be wrecked after 4 attacks.
An Armour will be wrecked after 5 attacks.
A Shield will be wrecked 3 attacks.
A Helmet will be wrecked 3 attacks.
All wrecked equipment can only be the one equipped, not equipment in the inventory.
- Equipment drop and lost:
The player can drag and drop the equipment from the unequipped inventory into the equipped inventory.
As the unequipped inventory is full, the oldest equipment will be lost and the player will gain 20 gold and 5 experience.

Buildings:

- Assume a vampire castle card will spawn a vampire after the character completes 5 cycles, the castle will spawn near the path.
- Assume a zombie pit card will spawn a zombie after the character completes 1 cycle, the pit will spawn near the path.
- Assume the tower can be only placed on non-path tiles and attacks enemies in the radius.
- Assume the village can be only placed on path tiles and heal character when he passes by.
- Assume the barracks can be only placed on path tiles and join allied soldiers when the character passes by.
- Assume a trap can be only placed on path tiles and deals damage to enemy passes by.
- Assume a campfire can be only placed on non-path tiles and boost character's damage by 2 times.

- Assume the hero's castle will not produce any cards and the hero starts from the castle (always exists). When the character enters the castle, the player can choose to buy items from the castle.
- Durability
 - Assume the vampire castle will disappear after 2 circles.
 - Assume the Zombie pit will disappear after 2 circles.
 - Assume the Tower will disappear after 1 circle.
 - Assume the village will disappear after 1 circle.
 - Assume the barracks will disappear after 2 visits.
 - Assume the Trap will disappear after 2 circles.
 - Assume the campfire will disappear after 1 circle.

Battle:

- Experience
 - Assume the character gains 10 experience after killing a slug.
 - Assume the character gains 50 experience after killing a zombie.
 - Assume the character gains 100 experience after killing a vampire.
- Gold
 - Assume the character gains 5 gold after killing a slug.
 - Assume the character gains 25 gold after killing a zombie.
 - Assume the character gains 50 gold after killing a vampire.
 - Assume the character gains 50 gold when the character picks up from the ground.
- Building card
 - Assume the character can have at most 10 cards at the same time.
 - Assume character gains building card after killing enemies.
 - An enemy can only drop at most 1 card.
 - Assume the character has 15% to gain a vampire castle card.
 - Assume the character has 15% to gain a zombie pit card.
 - Assume the character has 20% to gain a tower card.
 - Assume the character has 10% to gain a village card.
 - Assume the character has 10% to gain a barracks card.
 - Assume the character has 10% to gain a trap card.
 - Assume the character has 20% to gain a campfire card.
- Health points
 - Assume the character loses 2 health points when attacked by slugs.
 - Assume the character loses 5 health points when attacked by zombies.

Assume the character loses 8 health points when attacked by vampires.
Assume the character loses 13 health points when attacked by vampire critical attacks.
The character has the probability of 70% receiving the vampire's critical attacks.
Assume soldiers will impose 3

- **Loot drop**

Assume an enemy can only drop 2 items at most and 1 item at least.
Assume a sword can be dropped from an enemy after battle with a probability of 15%.
Assume a stake can be dropped from an enemy after battle with a probability of 20%.
Assume a staff can be dropped from an enemy after battle with a probability of 10%.
Assume an armour can be dropped from an enemy after battle with a probability of 10%.
Assume a shield can be dropped from an enemy after battle with a probability of 15%.
Assume a helmet can be dropped from an enemy after battle with a probability of 10%.
Assume gold will be dropped from an enemy after battle.
Assume the equipment cards can be dropped from an enemy after battle with a probability of 40%.
Assume health potion can be dropped from an enemy after battle with a probability of 15%.
Assume the one ring can be dropped from an enemy after battle with a probability of 5%.

- **Priority:**

Assume character attacks first.
Assume the character attacks the nearest enemies.
After the soldiers attack after the character and before enemies.

- **Card loss:**

Assume the card will be lost as the card inventory is full and a new card needs to be added in. As the card is lost, the player will gain 50 gold, 20 experience, and random items.

Goal:

- Assume the character wins when he obtains 999 golds.
- Assume the character wins when he obtains 9999 experience.
- Assume the character wins when he completes 20 cycles.
- Assume the character loses when the health point is 0.

Music:

- Assume the game has music when the character enter the game
- The music only play once
- The music will end either the game is over or the song is over