

Night Flare



Game Design Document 1.22a

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Minimum Value Product

Night Flare is a 2D top-down, wave-based survival game whose goal for the player is to survive against as many waves of enemies as possible. As the player progresses into higher waves, enemies grow progressively stronger and spawn in larger numbers.

Inspired by Call of Duty: Zombies, Night Flare will incorporate foundational mechanics found in wave survival games, such as player and enemy movement and combat, an enemy waves system, and increasing wave difficulty. However, what separates our game from Call of Duty: Zombies is that our game has an end: after surviving a defined number of waves, with the player surviving the last wave, the player would have officially won the game.

We decided on incorporating an end-game for Night Flare because we want to give the player a defined beginning and end for our game; we decided not to treat our game as never-ending because that makes the game lose its meaning. By having a defined ending, the player will know what they are playing towards and it acts as a form of encouragement to continue playing until the game is finished.

Core Mechanics

Player movement

The player can move freely around in 360-degree directions.

- the player can move in infinitely many directions.
 - the player's direction is controlled by mouse-aim.
 - player movement key binds work in coordination with mouse-aiming (refer to Key Binding).
 - the player can run and walk.
 - walking is the player's default, movement that has a fixed speed.
 - the player controls walking by using the key binds for movement and the mouse-aim for direction (refer to Key Binding).
 - running is the player's limited, but optionally-faster movement that has a greater fixed speed.

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- the player controls running by using the key bind for running and the mouse-aim for direction (refer to Key Binding).
- running is limited; its use drains Adrenaline (refer to Player combat).

Player combat

The player can attack enemies, retaliate when attacked, and die should they run out of health.

- the player can attack enemies.
 - the player's main attack will be a ranged, projectile-based attack.
 - projectile factors to consider:
 - velocity
 - projectile size
 - spread (if any)
 - fire rate limit; the player can only fire after a timed-interval has passed in-between shots.
 - instantaneous; they require no animation nor charge time to fully activate.
 - the player must fire in the direction of the enemy to hit them.
 - any projectile that hits an enemy will damage that enemy by a fixed amount per pellet.
 - the player can attack by either repeatedly pressing or holding the attack key bind.
 - timed-intervals in-between the player's attacks remain the same for both cases.
- the player has health.
 - damage from enemies will inflict damage to total health.
 - regenerative; if the player has not taken health after a fixed amount of time, they will heal a fixed amount of health/ second up to $\frac{3}{4}$ of their total health pool.
 - if the player's health drops to 0, they die.
- the player has adrenaline
 - adrenaline allows for extra player movement.
 - drainable; running drains adrenaline by a fixed amount/ second.

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- rechargeable; when not used, adrenaline recharges by a fixed amount/second over time until fully restored.

Enemy combat

Enemies can attack the player, retaliate when attacked, and die should they run out of health.

- enemies can attack the player.
 - all enemies can use either melee- or ranged-forms.
 - melee-form enemies primarily use close-range attacks.
 - attack speed limit: enemies can only attack after a timed-interval has passed in-between attacks.
 - non-instantaneous; successful attacks must undergo full animations, and the last frame must hit the player.
 - enemies must attack in the direction and in-range of the player to hit them.
 - any successful strike on the player will damage them by a fixed amount.
 - ranged-form enemies primarily use projectile-based, mid- to long-ranged attacks.
 - projectile factors to consider:
 - velocity
 - projectile size
 - spread (if any)
 - fire rate limit; enemies can only fire after a timed-interval has passed in-between shots.
 - instantaneous; they require no animations nor charge time to fully activate.
 - enemies can only fire in the direction of the player and must face them before firing.
 - any projectile that hits the player will damage the player by a fixed amount per pellet.
 - enemies can “damage” the player by colliding with them.
 - if the player runs into an enemy, they will take damage by a fixed amount.
- enemies have health.
 - damage from the player will inflict damage to total health.

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- if an enemy's health drops to 0, they die.

Enemy movement

Enemies can move freely around in 360-degree directions

- enemies can move in infinite directions.
 - enemies always move in the direction of the player.
 - if the enemy is ranged-form, the enemy will only move up to a certain distance from the player to attack.
 - if the enemy is melee-form, the enemy will constantly try to close in on the player to attack.

Wave system

The player must survive wave after wave of progressively-difficult enemies and avoid dying at all costs.

- the player starts at Wave 1 whenever they start a round or restart their progress on a round.
- enemies grow stronger with every wave survived.
 - enemies gain the following stat boosts with each new wave:
 - damage increase
 - health increase
- when a wave ends, the player will be given an option to take a break or decline the break.
 - if they accept the break, they can rest for as long as they need to and can decide when they wish to return to the fight.
 - if this action-to-long rest scenario destroys a core part of our game's entertainment value, switch to the player given only 60 seconds for a break.
 - once the timer runs out, the player will be forced back into the arena and have 5 seconds to prepare for the next wave.
 - if they decline the break, the player will have 5 seconds to prepare for the next wave.
- if the player dies during a wave, they will lose that wave.
 - the wave counter does not reset upon death.

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- after death, the player can choose to try again at their current wave or return to the Main Menu screen (refer to Scenes).
- every wave that the player survives remains unlockable through the Wave Selection screen (refer to Scenes).
 - the player's wave progress is saved for the entirety of their game experience, even after completing the game.

The End-Game

Our game has an ending, and the player must work hard to reach it.

- the player must survive 5 waves to complete the game.
 - upon surviving Wave 5, the player would have officially and successfully completed the game.
 - after reaching the end-game, the player can return to either the Wave Selection or Main Menu screens (refer to Scenes below).

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Interface

We want Night Flare to be easily-accessible and navigable for our players by providing a simple user interface with well-defined controls and settings for the player to move around with ease. We also want to avoid frustrating our players with an overly-complex user interface that is difficult to read upon loading the game, that way upon running the game for the first time, they can figure out how the game works from the start and jump straight into the gameplay.

User interface that involves the locations of adjustable and interactable objects will be represented and illustrated through sketches, as that is easier to understand than writing it down on paper.

For this game document, **only the interactable options and controls** that the player can manipulate and/ or interact with for each game scene will be included.

Our game's interface must abide by these central rules:

- Game scenes must have an aspect ratio of 16:9, with a resolution of 1280 x 720 pixels.
- Player movement and direction is guided by the mouse cursor.
- Player health must be visible.
- Enemy health must be visible on every individual enemy unit.
 - the amount of health does not change how the health bar appears on each enemy.

Scenes

Main Menu

The Main Menu screen will be what first shows up to the player upon starting our game. This scene serves as a place for the player to stay for as long as they want, and allows them to start the game, adjust the game's settings, and exit out of the game.

- start game
 - starts the game.

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- transitions to the Wave Selection screen (refer to Scenes below).
- options
 - displays an options panel on the Main Menu scene.
 - adjustable controls:
 - music
 - controls the dB level of in-game music.
 - scroll-control
 - sound:
 - controls the dB level of in-game sound.
 - scroll-control
 - resolution
 - allows selection of different resolution aspect ratios
 - available resolutions:
 - 1024 x 576
 - 1152 x 648
 - 1280 x 720
 - 1366 x 768
 - 1600 x 900
 - drop-down select
 - fullscreen:
 - forces the player's game window, at any resolution, to fullscreen.
 - enable-disable
- credits
 - displays all the contributors to our game on the Main Menu scene.
- quit
 - exits out of the game.

Wave Selection

The Wave Selection scene is accessible for the player by clicking on the button to start the game. This scene allows the player to select which wave they wish to start on after unlocking them.

- wave #
 - transports the player to the Active Level scene on the wave whose number they chose.

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- unlocked only after the player has successfully completed and survived targeted wave.
- return
 - returns the player to the Main Menu scene.

Active Level

The Active Level scene is accessible for the player by selecting what wave they want to start on from the Wave Selection scene. This scene is where most of our game's core gameplay will take place.

The entire map for the scene is static and does not change in-time to the player's eyes. Where the player faces causes game actions to appear in the player's eyes, turning anything within their sight to dynamic; parts of the environment within the player's sight change and move compared to when the player looks away.

- health bar
 - shows the player's current health.
- stamina bar
 - shows the player's current stamina.

Key Binds

Controls	PC
Move Forward	W
Move Left	A
Move Backward	S
Move Right	D
Attack	Left Mouse-Click
Sprint	Shift
Pause Game	P / ESC

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