Nameless Defence Milestone Design

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Milestone 1
- Game has turrets
    - Turrets can be built in predefined positions on the player's line of defense (where the wall will be)
        - Clicking predefined positions of turret placements (represented by hammer/build icons) will cause a contextual menu to appear
            - Clicking any available turret icons in the contextual menu will build the specified turret
        - Turret placement UI (contextual menu) will contain a selectable ranged turret
            - Ranged turret is single target attacker (high damage, single target)
        - There are 5 predefined locations for placing/building turrets
    - Turrets attack enemies within their FOV and cause damage to recipients hit by their projectiles
    - Turrets have a gold price that is visibly shown in the turret placement UI menu
        - This gold price is not enforced for this milestone
- Game has enemies
    - Enemies have health and die when their health reaches 0
    - Enemies spawn at the top of the map and constantly travel downward to the bottom of the map
        - Enemy travel path is fixed as a straight line from top to bottom of map. This can be described as mindlessly moving, the same way enemies in bloons tower defense move.
        - There are 5 enemy spawn positions
        - Enemies spawn in positions that will not lead them to hit a turret. Throughout game development, the enemies will only ever attack walls and not turrets.
    - A single enemy variant/model exists
    - Enemies damage objects directly in front of them
    - Enemies do damage to the player's health bar if they get past the bottom of the map (below the player's line of defense)
- Game has a software versioning scheme
- Player's base has a health bar
    - Player's base's health bar decreases when enemies reach past the bottom of the map
    - A game over screen or menu appears when the player's health bar reaches 0
        - Player can restart the game using a button on the game over screen/menu

Milestone 2
- Game has a basic wall
    - The wall has health that is reduced when enemies attack it
        - Portions of the wall will be destroyed when that portion of the wall's health reaches 0
            - Wall portions that are destroyable will be reflected by the enemy path of travel
    - The wall covers the entire length of the map and represents the player's line of defense
    - Turrets are built/placed on the wall and are graphically shown to be on top of the wall
    - The wall is purchasable as a single unit (one purchase will buy the entire line of defense wall)
        - The wall will require gold to be purchased
- Turret enhancements onto milestone 1
    - Turret gold cost (for purchasing turret) will be enforced
- Implement gold earning

- Player can now earn coins from killing enemies (using turret)
- Gold amount is shown on UI
- Implement wave system
    - As the game progresses, waves increase and as the waves increase, the game gets more difficult
    - As waves increase, health increases, spawn rate increases, attack damage increases, and attack speed increases
    - Enemy variants spawn based on game wave
    - The active wave should be displayed on the UI

Milestone 3
- Implement upgradable ranged turret
    - Two upgradable options for the ranged turret
        - Option 1: Ranged turret w/ flame/fire projectiles causing the enemy to catch fire and perform DOT (damage over time) damage
            □ Faster attack speed, lower immediate damage, adds DOT to the projectile receiver (enemy)
        - Option 2: Ranged turret w/ explosive projectiles that causes high damage upon impact to the enemy
            □ Slower attack speed, higher immediate damage, no DOT to the projectile receiver (enemy)
    - Turret upgrade gold cost is enforced
- Player can repair damaged wall
    - Repair wall costs gold and gold cost is enforced
- Additional enemy variants exist
    - Enemy variants come with different attributes
    - Initial enemy variant (aside from first one) should have a ranged attack
    - Enemy variants should have new character models
    - Enemy variants spawn based on game wave
- Add melee turret
    - Melee turret is multi-target (AOE) attacker (low damage, multi target)

Milestone 4
- Implement upgradable wall
    - Wall upgrade heals wall
    - Wall upgrade allows for level 1 upgrade (wooden wall)
    - Wall upgrade is one purchase for entire wall (all wall portions)
    - Gold cost for upgrading wall is enforced
- Implement entity health bars
    - Walls have health bars
    - Enemies have health bars
    - Health bars decrease when damage is taken
    - Health bars increase when/if entity is healed
    - Health bars visually appear above respective entities
        - Health bars visually change when healed/damaged
- Upgradable melee turret
    - Two upgradable options for melee turret
        - Option 1: Melee turret w/ knockback that pushes/launches enemies back
        - Option 2: Melee turret w/ dual attack weapons (such as two circular saws) allowing faster attacks by the turret

Milestone 5
- Implement additional wall upgrades

- Level 2: Stone wall
- Level 3: Iron wall
- Level 4: Gold wall
- Implement additional turret upgrades
    - Additional ranged turret upgrades
        - Level 2, Option 1 (regardless of initial option selected) - Faster attack speed
        - Level 3, Option 1 (regardless of initial option selected) - Faster attack speed
        - Level 2, Option 2 (regardless of initial option selected) - Higher attack damage
        - Level 3, Option 2 (regardless of initial option selected) - Higher attack damage
    - Additional melee turret upgrades
        - Level 2, Option 1 (regardless of initial option selected) - Faster attack speed
        - Level 3, Option 1 (regardless of initial option selected) - Faster attack speed
        - Level 2, Option 2 (regardless of initial option selected) - Higher attack damage
        - Level 3, Option 2 (regardless of initial option selected) - Higher attack damage
- Implemented additional enemy variants
    - Enemy variant 1 should have faster attack and a new model
    - Enemy variant 2 should have ranged attack and perform DOTs poison damage
    - Enemy variants should have new character models
    - Enemy variants spawn based on game wave

Milestone 6
- Implement audio
    - Projectiles hitting targets should make a sound
    - Walls should emit a sound when damaged
    - Clicking a turret or wall upgrade menu should make a sound
    - Turrets should emit a sound when shooting
    - Building a turret should make a sound
    - A sound should be played when enemies die
    - A sounds should be played when the player's base's health is decreased
    - Upgrading a turret or wall should make a sound
- Implement a start menu screen
    - Appears upon starting the game
    - Allows players to start or exit the game
    - Update the gameover menu to allow the player to restart the game or return to main menu
- Implement powerups
    - Random enemies will provide the player powerups upon being killed
    - Enemies that contain these powerups will be specially colored or "shining"
    - Powerups include healing all buildings and increasing attack speed
    - Enemies containing powerups should have more health (harder to kill)

General Notes:
- We require the creation of a paint.net drawing for all UI components before implementing them
- The game map should be a fixed size (game does not expand or grow in terms of the map or playable area)
- Issues that rely on other issues being completed should be put as a subtask for the issue
- There are no repairable turrets, only repairable walls. Turrets cannot take damage, only the wall
- Upon merging branches, all commits should be squashed
- Enemies move from top of map to bottom of map in a straight line, attacking any walls that are in the way. If enemies get past bottom of player's base/bottom of map, the player's base takes damage & loses hearts.
- Utilize subbranches off of issue branches if needed to organize code