**Tower Targeting AI**

* For effects, if an enemy has been hit with an effect, the tower will target a new enemy that follows the guidelines below for standard targeting
* First enemy that enters the radius, the tower targets that enemy

*(Everything below is listed with 2 enemies, but all these cases are the same with multiple enemies)*

* If 2 enemies are in the radius with different health, target the enemy with the least amount of health
* If 2 enemies are in the towers radius with the same health
  + Target the enemy closest to the exit
  + If both enemies enter the same spot at the same time, randomly choose an enemy
  + If both enemies are the same distance apart and are both the furthest/closest to the exit, randomly choose an enemy
* Splash Damage should the area the enemy was in even if the target has been killed
* Piercing Projectiles should delete the image/animation once the falloff percentage has reached zero

**Effect Stacking**

* Tower with an effect will only target the same enemy if all enemies in the towers range have been hit with the effect (See Tower Targeting AI for specifics)
* If all enemies are under the effect and the tower is currently targeting another enemy based on the Tower Targeting AI specifics and an enemy loses the status of the effect or a new enemy enters the towers range circle. The tower should target that enemy then resume following the Tower Targeting AI specifics for the remaining enemies within range

**Slow effect**

* Slow Effect initial rules
  + Base Damage is applied when the projectile hits the enemy
* Slow added again
  + Speed Modifiers do NOT stack
  + Only the projectile with the higher level gets applied to the enemy, lower level towers will only apply the base damage
  + The duration will get reset every time the enemy gets hit by a tower of the same level
  + Example: The Knight already has the Slow Down effect from a Level 1 ice projectile (90% of original speed, 5 second duration), then after 2 seconds gets hit by another Level 1 ice projectile. The total effect is now 90% of original speed for 5 seconds
  + Example 2: The Ironfist already has the Slow Down effect from a Level 1 ice projectile (90% of original speed, 5 second duration), then after 4 seconds gets hit by a Level 2 ice projectile (70% of original speed, 20 second duration). The total effect is now 70% of original speed for 20 seconds
  + Example 3: The Blood Knight already has the Slow Down effect from a Level 3 ice projectile (30% of original speed, 50 second duration), then after 40 seconds gets hit by a Level 2 ice projectile (70% of original speed, 20 second duration). The total effect is now 30% of original speed for 10 seconds

**Poison effect**

* Poison projectile initial rules
  + Base Damage is applied when the projectile hits the enemy
  + Every full second, the effect damage is applied to the enemy until the duration ends
* Poison added again
  + Only the projectile with the higher level gets applied to the enemy, lower level towers will only apply the base damage
  + The duration will get reset every time the enemy gets hit by a tower of the same level
  + If enemy is hit between a damage tick (enemy get hit between seconds 1 & 2), effect will finish current schedule before resetting time.
  + Example: Dwarf is already poisoned with a Level 1 poison projectile (8 damage per second for 4 seconds), then after 2 seconds gets hit by another Level 1 poison projectile. The total effect is now 8 damage per second for 4 seconds
  + Example 2: Wizard is already poisoned with a Level 1 poison projectile (8 damage per second for 4 seconds), then after 3 seconds gets hit by a Level 2 poison projectile (14 damage per 6 seconds). The total effect is now 14 damage per second for 6 seconds
  + Example 3: Wizard is already poisoned with a Level 2 poison projectile (14 damage per second for 6 seconds), then after 3 seconds gets hit by a Level 1 poison projectile (8 damage per second for 4 seconds). The total effect is now 14 damage per second for 3 seconds

**Effect on Effect**

* All effects are on the enemy at the same time
  + Example: Mongor is currently poisoned with a Level 3 poison projectile(22 dmg per second for 9 seconds), then gets hit 2 seconds later by a Level 3 Ice Projectile (Slow Effect, 30% of original speed, 50 second duration). Mongor is now Poisoned and Slowed Down with a total effect of 22 dmg per second for 7 seconds, 30% of original speed for 50 seconds

\*\*Note: X equals the length in seconds set in the projectile tool

**Appendix***(This is for notes from research during the writing of this doc as well as features or information that has been removed)*

* Looking into various design docs, wiki’s, and game guides, all tower defense games that have a tower with a Slow Down type effect will have the tower do 1 of 2 things
  1. After the tower has applied the effect on all enemies within range, it will no longer target them until the effect has worn off or a new enemy enters the towers range
  2. After the tower has applied the effect on all enemies within range, it will target the first enemy in its targeting list again but the effect modifier will not stack
* If an enemy is already effected from a tower that is a higher level, and a projectile of a lower level tower hits said enemy, the effects of the higher projectile stay and the lower effects will get added based on the type of effect
  1. For Poison, the higher level poison damage will stay, and the duration will get reset
  2. For Slow Down, the higher level of percentage will stay, and the duration will get reset