# Programming

* Design classes in coggle
* Input manager
  + Design input & delegates for Windows
  + Design input & delegates for Android
* Process manager
  + This will keep track of class initialization and possibly of execution too
* Resource manager
  + Keep track of what assets are in ram, how they are used, of allocation and deallocation
  + An idea would be to make object loading on a separate thread.
* Create grid system
  + Hexagonal/octal grid
  + Needs to have the functionality of specifying what grids are available in a certain level
* Create base, machine gun turret & electric fence
  + Base
  + Machine gun
  + Electric fence
* Write A\* based navigation
  + Can use the previously implemented grid system for pathfinding.
  + It should give for a current enemy the position of the next grid to move towards.
* Create enemy types and an enemy from each type
  + Ground melee
  + Ground ranged
  + Flying with turret focus
  + Flying without turret focus
  + Write their attack patterns
* Lock-on system
  + Detect click/tap on enemy
  + Set priority to hit enemy
  + Deselect/change priority target on another click.
* Create commander
  + Targeting and shooting
  + Movement
* Create all turrets
  + Vulkan
  + Machine cannon
  + Railgun
  + Excavator
    - Extend grid system to have special places for excavator
  + Write all their attack patterns
* Commander turret powerup
  + Commander enters and exits turrets
  + Multiplier
* Combat money & turret build cost
  + Money
  + Turret combat shop UI
  + Turret placing
* Enemy waves
  + Ability to specify enemies to spawn in waves, how many there are, and order.
* Game stages
  + Game stage that will hold multiple waves, base reward money on complete, star ranking
* Wave manager that will control what enemies will be spawned
  + Wave instancing
  + Ability to skip waves & give money on skip based on remaining time
* Pause game
* Main menu
  + Just a simple interface atm
* Stage selection
  + Dynamically spawn UI based on existing game stages
  + Select and start selected stage
* Scene data retainer
  + Save needed data into it
* Save system
  + At certain points save game data
  + Look into cloud saving for android
  + Secure save file.
* Shop system
  + Game currency (different from the battle currency)
  + Upgrade multipliers for all turrets
  + Save bought upgrades
* Raid system
  + Make lobby searching
  + Make server/client connection
  + Modify existing functionality to be the desired functionality for multiplayer (if needed)
    - Create a boss character
  + Sync data between players
  + Sync game over/game won
  + Treat the special case in which a player closes the game while synced
  + Secure the connection
  + Create all raid bosses
* Polish

# Art

* Design
  + Turrets
    - Machine gun
    - Electric fence
    - Vulkan
    - Machine cannon
    - Railgun
    - Excavator
  + One map
  + Commander
  + One enemy from each type
  + UI
* Create 3D models & integrate them
  + Turrets
    - Machine gun
    - Electric fence
    - Vulkan
    - Machine cannon
    - Railgun
    - Excavator
  + One map
  + Commander
  + One enemy from each type
  + UI
* Create the rest of the enemies
* Create one boss
* Create the rest of the raid bosses.
* Create other maps.
* Add post-processing
* Add VFX to everything
* Polish everything: better textures, animations, models, create a synergy between all assets, if needed optimize geometry, UI animations.