# Programming

* Design classes in coggle
  + Design battle scene
  + Design permanent shop
  + Design scene selection
  + Design raid battles
* 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
* Create all game levels
* Polish
  + Change some of the turrets to make them more interesting (flamethrower, laser, etc.)
  + Change camera aspect

# Email plan

1. fac build v0.3
2. sistemul co-op
3. fac build v0.4
4. schimb o parte din turete sa fie mai interesante (ma gandesc sa adaug un flamethrower si poate un laser cu aoe)
5. implementez toti inamicii
6. creez toate nivelele de joc (ma gandesc sa aiba undeva la 30-50 nivele)
7. fac build v0.5
8. fac partea grafica pt turete, inamici, mapele de joc
9. inlocuiesc UI-ul cu unul mai frumos
10. fac build v0.6
11. in caz ca mai este timp, adaug o poveste jocului, ceea ce va presupune sa implementez un sistem de dialog
12. retusez jocul pe cat posibil
13. fac ultimul build cand totul mi se pare in regula
14. sa scriu docmentul in latex pentru licenta

# 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.