**Main CPT Requirements**

**What to Apply:**

* Java Swing
* Animation
* Combination of both mouse and keyboard
* File IO
* Talk over a network (Socket IO)
* Use arrays or other ‘advanced data structures’

**Software Requirements:**

* One 1280 x 720 window only
* Can’t resize frame (look at JavaDocs)
* All programs must have some sort of chat functionality
  + Chat area…
* One or more data files that contain the data for the objects of the game
  + Ex: Fighting Game: data files that represent each fighter (essential stats), lets us tweak to balance
  + Map CSV file
* Networking Specifics
  + All programs must have a networking protocol
    - Distinguish between gameplay data and chat data
    - We can use the comma split thing or separate methods
  + Add option to choose client or server-server shows your IP, the client asks to enter one to connect to
    - Or broadcast IP to all computers, only clients receive it?
* Java Swing
  + Menus, animations, text fields etc.
    - Ex: Menu is just buttons and Animated panel is main play screen
  + Need to be a mix of both
* **PROGRAM NEEDS TO BE SUBMITTED AND UPDATED ON GITHUB**
  + Update on a regular basis

**Planning Stage:**

* **Top-down tank shooter**
  + **Inspired from “Wii tanks”**
* Menu
  + Different tank choices
    - Data files for each
  + Different maps
    - Different terrain styles
* Tank
  + Tank turret
    - 2 layers drawn
    - They move in the same x,y cord
  + Hitbox
    - See this: <https://stackoverflow.com/questions/44647838/rotating-a-hitbox-and-detect-that-rotation-in-a-calculation>
      * We should be able to use an open-source, non-copyright library if we need to
  + Field of vision
    - How much you see can be a tank stat
    - A transparent circle that follows the client with fog surrounding it
  + Bullets
    - They have a certain speed
    - Limit fire rate
    - Can increase via powerups
  + Powerups → **Optional**:
    - Laser → faster, long beam
    - Minigun → more bullets per second
  + LandMines
    - Detonate or wait to be detonated

**UI In-Game:**

* + Chatting
    - A textbox in a corner
      * Use: IP NAME: <text>
  + Scoreboard
    - Also a display
    - Show kills etc.

**Objects**

* Map
  + fileIO
* Tank
  + Data file attributes
    - Field of vision
    - Special weapons
    - Insta-shot laser
  + Class
    - Basic tank parent
    - Special tank subclasses
* Main Menu
  + Client
    - Enter game, hosted by the server
  + Server
    - Create a server and host for clients
  + Help
    - Basic help screen
      * Controls
      * Powerup Classification

**Network**

* SERVER
  + Map
  + Bullet location
  + Takes in inputs from clients
    - keyboardInput,ifShot,MouseLocation,TextboxMsg
    - If textbox message is blank (just spacebars), don’t display/send to clients to display
  + Sends calculated outputs to client 60 times a second
  + Sends the stuff to draw to clients
* CLIENTS
  + Assign a number for the different IP’s which will declare who the variables are for
  + Send to server:
  + Movement input
  + Textbox messages
    - If user presses enter in the textbox, triggers boolean which inputs a string into the sent network data
  + ifShot = true
    - Aka if clicked
    - Boolean which is true when the mouse is clicked, otherwise false
  + MouseLocation
  + DATA SENT FORMAT
  + keyboardInput,ifShot,MouseLocation,TextboxMsg