**Game Idea and influence**

A retro game design, inspired by great retro games like space invaders 2D. Players will take control of the player character, who is confined in a player zone and must fend off hordes of enemy invaders, which can dodge behind walls and fire their weapons, while slowly advancing toward the player zone. Players lose once they lose all their health or when the player zone is breeched.

**Feature List and Tasks Required**

Must haves:

-Players movement: character able to move about

-Players shooting function: can be able to shoot toward the enemy

-Enemies AI: can spawn in waves and can move about and hide behind walls.

-Enemies shooting function: can be able to shoot at the player zone.

-Main menu, pause menu

-Random walls

-score display

-High score function

-Power ups

Good to haves:

-Difficulty level, enemies’ bullet speed increases

-Boss level: tank battle

**Estimation of Effort**

Small task: (each might take about 2 hours)

-Player movement: character able to move about Use of framework provided controls. Implement different attributes for character for each direction it faces.

-Player functions: how health is affected by enemy bullets, death when player zone is breeched.

- Difficulty level, enemies’ bullet speed increases: increases velocity of bullet.

-Boss level, tank battle: Create a tank out of ascii art

Medium tasks: (each might take up to 12 hours)

-Random walls: Spawn random walls per game, walls are random and are able to block player bullets.

-Score display: counts score and display the current score in-game.

-High score: Store the highest top 10 score into text file and display them when player wants to see.

-Power ups: randomly generate power ups around player zones at random intervals for 3 seconds. Increments health etc.

Large Task: (each might take up to 24 hours)

-Player, enemy and boss shooting function: able to shoot toward the enemy: Make use of vectors to implement up to a maximum of 2 bullets (prevents spamming), and animate them with collision detection against enemy units.

Enemy units can be able to shoot at the player zone: Make use of vectors to implement bullets being fired by enemy units at fixed intervals, and animate then with collision detection against player character. Same for boss.

--Enemies AI: spawn in waves and can move about and hide behind walls: Implement function to spawn waves of enemy units up till a limit. Implement AI for enemy units to enable them to detect nearby walls and dodge behind occasionally.

-Main menu, pause menu: Read from text files for aesthetic design, create function for displaying various selectable options: start game, display controls etc.

-Boss level, tank battle: health and AI.

**Allocation of Tasks**

Marcus: Main menu, pause menu, high score, score display, power ups, Boss level art

Yie Cher: Enemies AI, Boss health AI, difficulty level

Swee Seng: Player shooting function, enemy shooting function, player movement, boss level shooting function

Asaph: Random walls, Player functions.