

**GAME ALGORITHMS (TGD3351)**

**TRIMESTER 1 2020/2021**

**Milestone Report #2**

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| **Student ID:**  1171101517 | **Student Name:** Michelle Chai Mei Wei |
| **Student ID:**  1171100973 | **Student Name:**  Foo Fang Jee |

# Work Done

1. Boss

We implemented a simple Finite state machine (dodge bullet, normal attack, fast attack), where the boss will attack faster when low health, and the boss will try to dodge the player’s bullet.

1. All the enemies – enemy\_1, enemy\_2, boss

The line of sight algorithm for all enemies, except asteroid (since they do not fire bullets) are completed. It takes into account distance from enemy to player, the angle distance, and a Bresenham line check is performed to find any obstacles in between the enemy and player.

1. Missile
   1. Pathfinding algorithm (A\*)
2. Pattern movement

Implementation of a Catmull-spline curve is done, but the implementation of the curve to positions of the enemies still needs more work.

# Upcoming Task

## Coding

## Documentation

1. Draft report for milestone 2

# Problem Encountered

A\* Algorithm too slow

# Proposal Revision

1. **Powerup**

We plan to add some powerups such as changing the bullet pattern/invulnerability and such.

1. **Tutorial (pop up)**

The first level will be a super easy level, where we allow the player to learn the mechanics of our game, shoot (space bar), missile (z), move left, right, up, and down.

1. **Pause Scene**

We may also add a pause scene when the player presses the “Enter” key, where the player can choose to continue or quit the game.