**Spike:** 15
**Title:** Agent Marksmanship

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**Goals / deliverables:**

- Code
- Report

**Technologies, Tools, and Resources used:**

- Latest Version of the Visual Studio Code or the Python IDE
- GeeksforGeeks: https://www.geeksforgeeks.org/python-functions/?ref=shm
- W3schools: https://www.w3schools.com/python/python_classes.asp
- Computer/Laptop

**Tasks undertaken:**

- Download and install the latest version of the Python IDE or Visual Studio Code
- Download and install Git bash terminal
- Use the git bash terminal for configurating and running the code while the code is initialised in a folder
- The `attack` method calculates a steering force for an agent to pursue a target position. It determines the desired velocity towards the target position, adjusts it to the maximum speed, and subtracts the current velocity of the agent to generate the steering force.
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- `fire_weapon` method initiates a projectile firing action from the agent's weapon towards a specified direction. It invokes the weapon's `fire` method with the agent's position and the provided direction, appends the resulting projectile to the agent's list of projectiles, and returns the projectile for further handling if needed.
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- The `wander` method implements a steering behaviours where an agent moves in a random yet controlled manner. It calculates a random target position within a defined radius and distance, adjusting it based on the agent's current heading and side. The method returns a steering force directing the agent towards the calculated target position.
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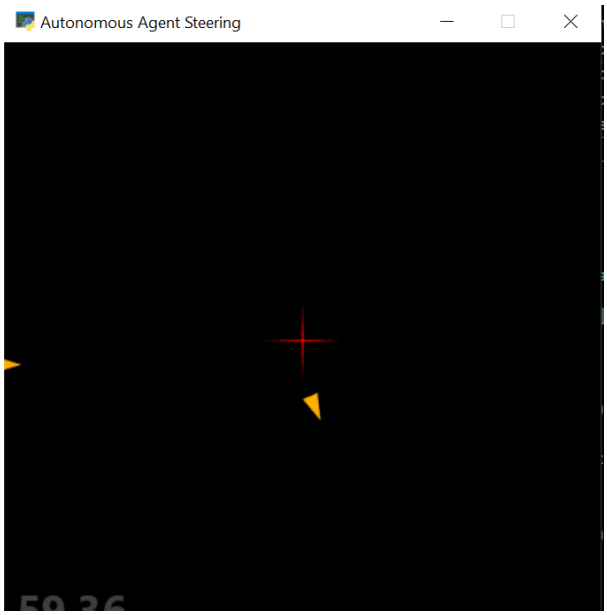
- `on_mouse_motion` and `on_mouse_press` methods handle mouse input events in a user interface. `on_mouse_motion` updates the agent's target position based on mouse movement, while `on_mouse_press` sets the agent's target position to the coordinates of

a mouse click. These methods are typically used in interactive applications to control agent behaviours based on user input.

**What we found out:**
The outcomes that occurred were most of the agents in the program were able to hide behind a circle and find the nearest one




**Open issues/risks:**
List out the issues and risks that you have been unable to resolve at the end of the spike. You may have uncovered a whole range of new risks as well.

- The bullets are not visible
- Nothing graphical was able to append
- No modes were able to append