Bi-Weekly Project Report (Group 2) - October 15, 2025

Rachel:

What has been done:

- Reviewed the repository structure of the repo that we are going to reference (from GitHub, mentioned in references) and ran the baseline Pac-Man agents to confirm the environment setup.
- Developed the initial implementation of the Q-learning agent and performed preliminary training tests - started development of the Agent class
- Resolved minor issues in the game state representation and validated environment functionality.

What will be done:

- Apply ε-greedy exploration for improved performance
- Begin applying the reward system and game logic into the environment.

Youssef:

What has been done:

- Set up the project environment and drafted how the GUI will look, and installed dependencies.
- Developed pseudocode for both BFS and DFS algorithms, and implemented a draft BFS-based Pac-Man agent capable of moving through basic mazes.

What will be done:

- Handle wall/boundary collisions (edge cases) and ensure accurate pathfinding of ghosts
- Begin implementing the A* (action space) search algorithm to improve the efficiency of pathfinding in the environment.

Shanya:

What has been done:

- Analyzed core game scripts from Github repo we are referencing to understand how the game state, agent states, and layout are represented.
- Initiated development of the Ghost class with consideration for movement patterns, power-up interactions, and behavioral goals.

What will be done:

- Set up the edge cases for all four ghosts based on the original Pac-Man layout.
- Develop different agent/ghost mode logic, including temporary speed reduction and random movement behavior.

Pallav:

What has been done:

- Improved the project documentation by updating the README and adding an easy-to-follow setup guide for running and testing the game.
- Started development of the initial structure for the main game controller to manage interactions between agents, ghosts, and the environment.

What will be done:

- Integrate classes developed by all members and test the end-to-end training and gameplay pipeline.
- Continue development of initial structure for main game controls