# Maze environment where the players competes against Multi-Agent AI NPCs in race to complete the objectives, while avoiding obstacles and monsters.

## Requirements for the system

1. Making a prototype of the game environment and development tools.

* Take the pac man game environment supplied by net logo and strip it down and rebuild it to facilitate our objectives.
* Implementation of a map maker to allow us to easily create more levels. Once again using pac man as a base implement new turtles environments and sliders.
* Making buttons to control your character and interact with the agents.

1. Implementation of A\* search algorithm to replace current basic path finding methods, to allow the AI to dynamically search for an objective within the Maze.

* Create pseudo code for the functionality of the algorithm.
* Remove existing methods/code that allows the AI to navigate.
* Implement algorithm and test.

1. Implementation of Capture the Flag objectives, includes new turtles with unique designs and the modifying of existing code base to facilitate the flag capturing operations.

* Create visualization of capture the flag components and interaction.
* Create required turtles and designs.
* Implement new methods and variables to facilitate functionality for players and AI.

1. Modify the A\* search algorithm to allow the AI players to actively participate and compete in the capture the flag objective.

* Create a flow chart illustrating the process by which the modified search algorithm will operate the AI for capture the flag objectives.
* Implement code modifications to existing algorithm and test.