Hide-and-Seek with a Learning Twist!

Dive into a world where hiders and seekers don't just play, they learn! Our game throws AI agents into a captivating hide-and-seek challenge, where they discover winning strategies through exploration and rewards. Let's unravel the secrets of their gameplay:

Seeker Strategies:

Area Coverage: Seekers get rewarded for venturing into new territory, ensuring they cover every nook and cranny of the arena.

Proximity to Hider: The closer they get to the hider, the more points they rack up, motivating them to follow the hider's trail.

Avoiding Wall Collisions: Bumping into walls isn't cool, so seekers learn to avoid these obstacles for a smooth hunt.

Successful Catch: The ultimate victory dance comes when the seeker successfully catches the hider, earning a hefty reward.

Hider Tactics:

Area Coverage: Hiders, too, benefit from exploring the arena, finding the perfect hiding spots that maximize their distance from the seeker.

Distance from Seeker: Keeping a safe distance from the seeker is crucial, earning them points for every step away from danger.

Wall Avoidance: Just like seekers, hiders learn to navigate around walls, avoiding collisions that could reveal their position.

Successful Hiding: The longer they stay hidden from the seeker's gaze, the higher their score climbs, encouraging them to become masters of disguise.

Learning the Ropes:

The magic behind their decision-making lies in the Q-learning algorithm. This powerful tool helps our agents analyze their surroundings and choose the best actions based on past experiences and potential rewards. They balance trying new tactics with sticking to successful ones, constantly refining their strategies as the game progresses.

Unleashing the Agents:

Our agents move freely, exploring the arena and rotating to gain a better perspective. During exploration, they experiment with random actions, ensuring their moves are valid and avoid those pesky walls. Each action and its resulting reward are diligently recorded in the Q-Table, which updates after every move, shaping their future decisions.

Ready to Play?

To witness the hide-and-seek showdown, simply follow these steps:

Open your terminal or command prompt.

Navigate to the project directory using the command: **cd ai_project**

Start the game with the command: **python run.py**

Get ready for a thrilling game of hide-and-seek, powered by learning and strategy!