

Jeux de la classe perturbé

Maksym Lytvynenko, Leonard Rivals, Léo Quenette

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Explication du problème

This project implements a reactive multi-agent system simulating the dynamic interactions between teachers and children in a classroom environment. The simulation models a rich scenario where children employ various strategies to move around the classroom while teachers work to maintain order by pursuing and capturing the children.

Présentation de l'implémentation

Active Children: 30

On Cooldown: 8

Active Teachers: 2

Current Candies: 1

Total Teleported Children: 8

Strategy Legend

- ★ Wall Hugger(Count: 4, Candies: 0)
- ⬡ Group Seeker(Count: 3, Candies: 0)
- + Candy Hoarder(Count: 3, Candies: 0)
- Safe Explorer(Count: 3, Candies: 0)
- Unpredictable(Count: 3, Candies: 0)

Explication graphique

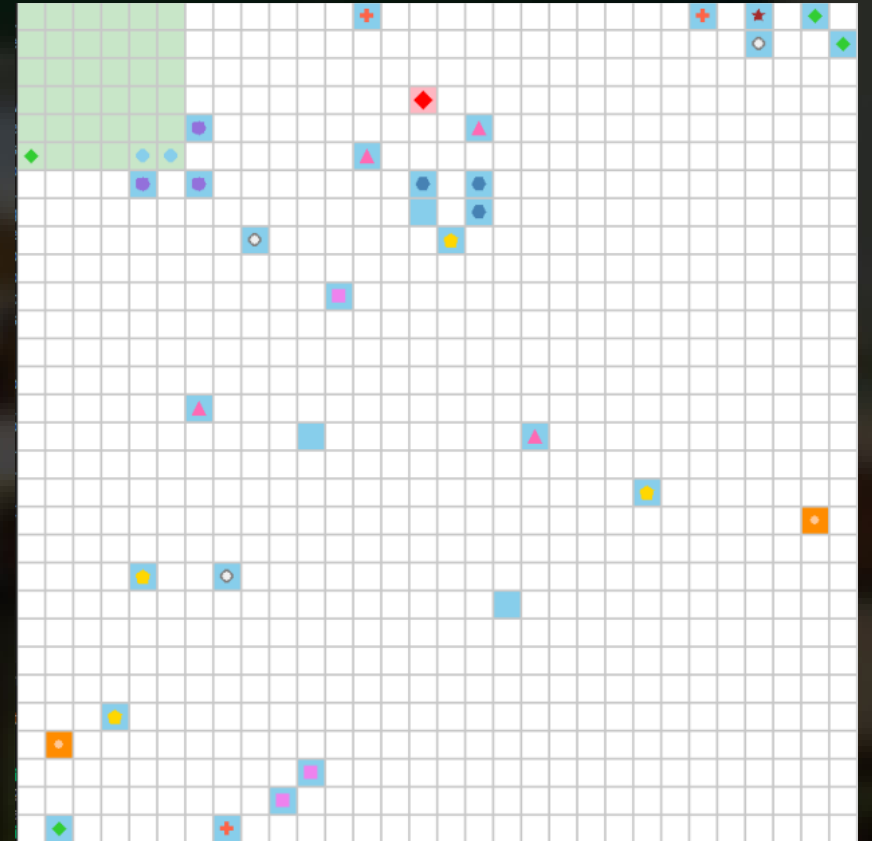
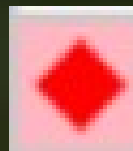
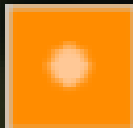
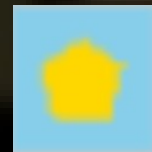
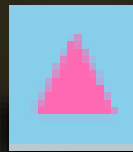
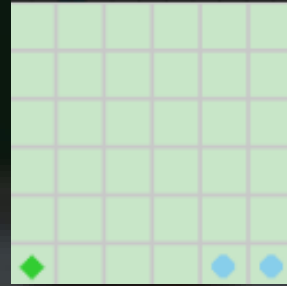
Zone verte de base des enfants

Zone en blanc correspondant à la classe

Différents types d'enfants avec un fond bleu

Maitresse fond orange

Bonbon avec un losange rouge



Spécificité

Les enfants et la maitresse se déplace en même temps.

La partie dure un temps donné.

Analyse du nombre de bonbon récupéré par chaque type d'enfant.

Statistique en temps réel.

Simulation Statistics

Total Children: 38

Active Children: 30

On Cooldown: 8

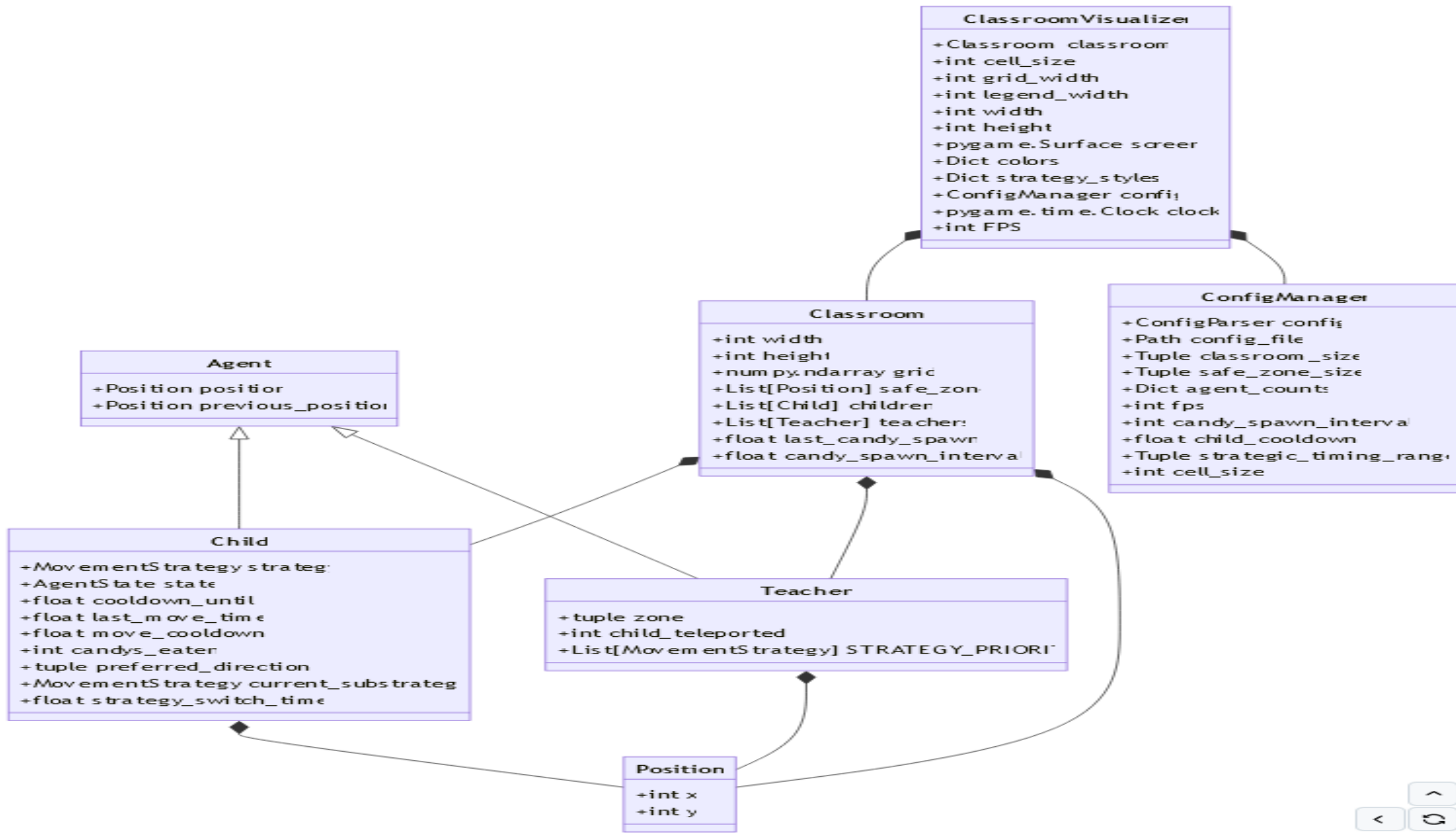
Active Teachers: 2

Current Candies: 1

Total Teleported Children: 8

Strategy Legend

- Random Walk(Count: 5, Candies: 0)
- ▲ Candy Seeker(Count: 4, Candies: 0)
- ◆ Avoidance(Count: 5, Candies: 0)
- Directional Bias(Count: 4, Candies: 0)
- ★ Strategic Timing(Count: 4, Candies: 0)
- ★ Wall Hugger(Count: 4, Candies: 0)
- Group Seeker(Count: 3, Candies: 0)
- ✚ Candy Hoarder(Count: 3, Candies: 0)
- Safe Explorer(Count: 3, Candies: 0)
- Unpredictable(Count: 3, Candies: 0)



Présentation des stratégies

Strategy Legend

- Random Walk(Count: 5, Candies: 0)
- ▲ Candy Seeker(Count: 4, Candies: 0)
- ◆ Avoidance(Count: 5, Candies: 0)
- Directional Bias(Count: 4, Candies: 0)
- ★ Strategic Timing(Count: 4, Candies: 0)
- ★ Wall Hugger(Count: 4, Candies: 0)
- Group Seeker(Count: 3, Candies: 0)
- ✚ Candy Hoarder(Count: 3, Candies: 0)
- Safe Explorer(Count: 3, Candies: 0)
- Unpredictable(Count: 3, Candies: 0)

Random Walk



Random Walk(Count: 5, Candies: 0)

The child chooses a random direction to move in each turn, leading to an unpredictable path through the classroom.

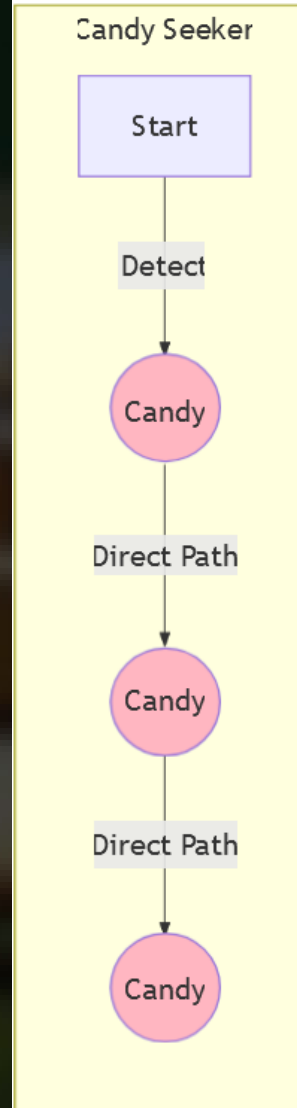


Candy Seeker



Candy Seeker(Count: 4, Candies: 0)

The child actively looks for the nearest candy and moves towards it, prioritizing candy collection over other considerations.

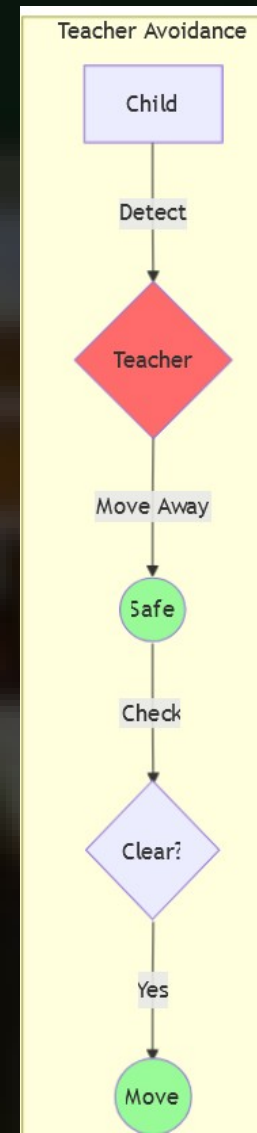


Avoidance



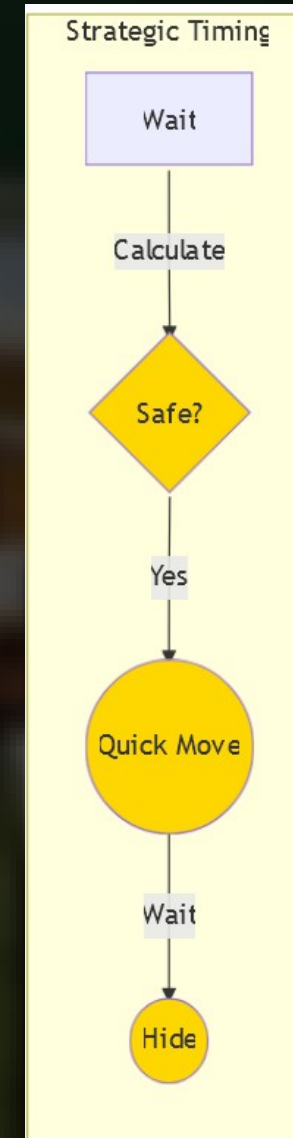
Avoidance(Count: 5, Candies: 0)

The child tries to maintain a safe distance from all teachers, moving in a way that minimizes the risk of capture.



Strategic Timing Strategic Timing(Count: 4, Candies: 0)

The child moves at carefully timed intervals, pausing and waiting at times, in an attempt to confuse teachers and avoid detection.

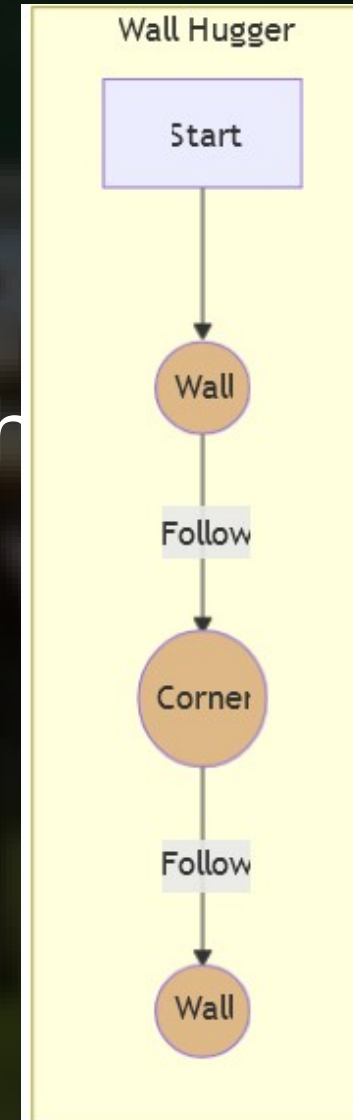


Wall Hugger



Wall Hugger(Count: 4, Candies: 0)

The child stays close to the classroom walls, moving along the perimeter to avoid being surrounded by teachers.

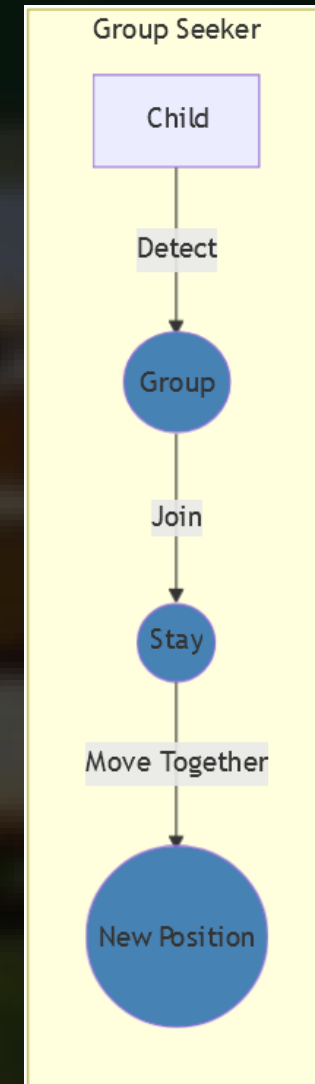


Group Seeker



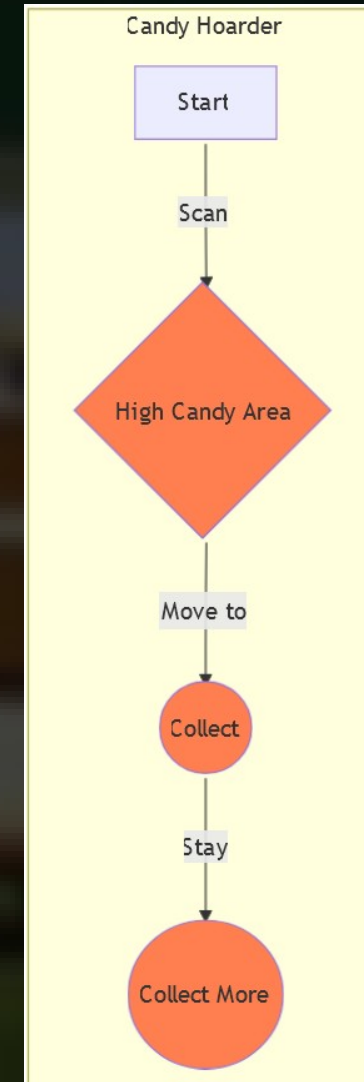
Group Seeker(Count: 3, Candies: 0)

The child tries to stay close to other children, forming protective groups to reduce the chances of being singled out by a teacher.



Candy Hoarder + Candy Hoarder(Count: 3, Candies: 0)

The child seeks out areas with a high density of candies and attempts to collect as many as possible in a short time.

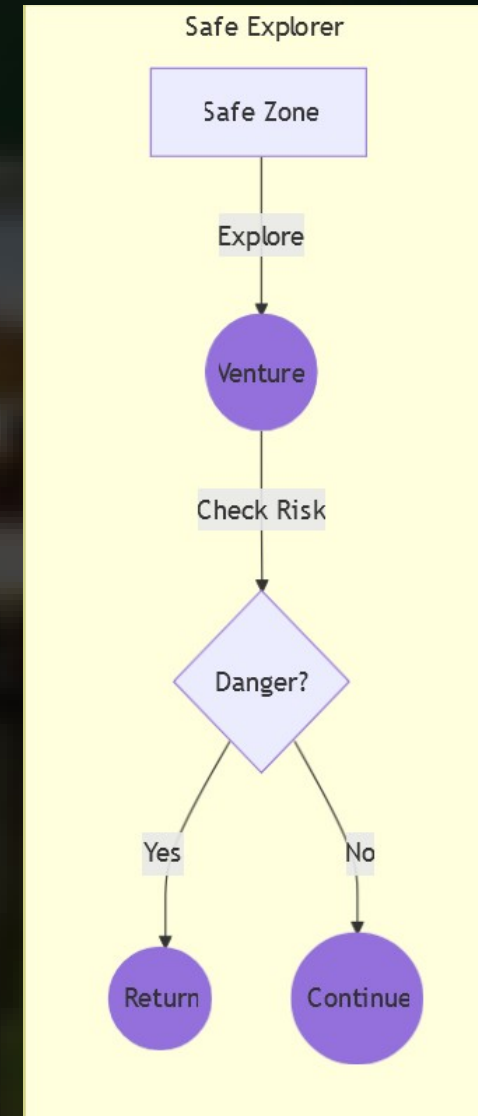


Safe Explorer



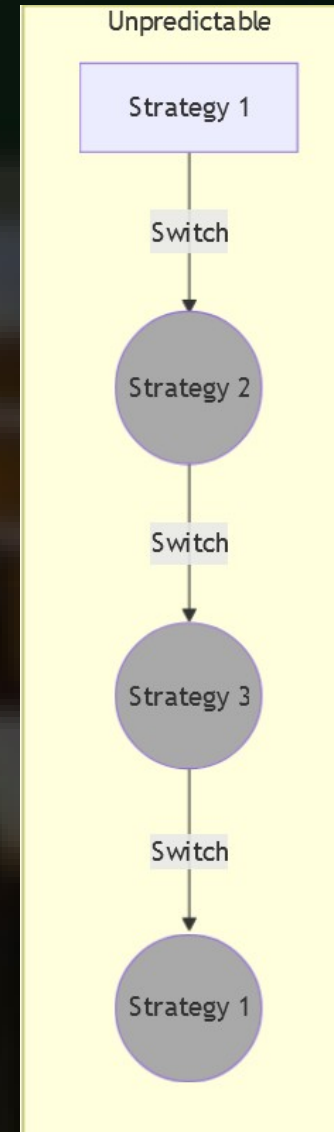
Safe Explorer(Count: 3, Candies: 0)

The child alternates between exploring the classroom and returning to the safety of the safe zone, trying to balance risk and reward.



Unpredictable Unpredictable(Count: 3, Candies: 0)

The child switches between the other strategies at random intervals, making its behavior hard to predict and counter.



Teacher strategy

Strategy Prioritization: Teachers analyze the strategies being used by the children in the classroom and prioritize pursuing the children employing the most disruptive strategies first. This allows them to focus on the biggest threats to classroom order.

Teacher strategy

Area Patrolling: Teachers are assigned specific zones within the classroom to patrol. They will focus their efforts on their assigned area, only leaving it to pursue high-priority targets identified by the strategy analysis.



Conclusion

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Merci pour votre
écoute

