Análisis de posibles matrices y resultados

Diferencia de rondas, usamos 100 para q las redes aprendan

Descripcion de los agentes usados para las simulaciones:

 **AlternatingAgent.java**:

* **AlternatingAgent** alternates its actions between cooperating and defecting in each round.

 **DAgent.java**:

* **DAgent** determinitic agent that always plays D.

 **HAgent.java**:

* **HAgent** determinitic agent that always plays H.

 **NN\_Agent.java**:

* **NN\_Agent** uses a neural network to decide its action based on the history of plays.

 **RandomAgent.java**:

* **RandomAgent** selects its actions randomly in each round.

 **RL\_Agent.java**:

* **RL\_Agent** uses reinforcement learning to optimize its strategy based on received rewards.

 **TFT.java**:

* **TFT (Tit for Tat)** cooperates in the first round and then mimics the opponent's previous action.

 **Original Matrix**: -1 10 0 5

 **Higher Penalty for Conflict (H, H)**: -5 8 2 6

 **Incentive for Cooperation (D, D)**: -2 10 1 7

 **Balanced Risk and Reward**: -3 9 2 6

 **High Reward for Dove Action**: -4 7 3 8

 **Conflict-Focused Matrix**: -10 10 0 5

 **Cooperation-Focused Matrix**: -2 7 2 9

 **Intermediate Matrix**: -3 6 1 7

**General Conclusions**

**Performance of Cooperative Agents (DAgent):**

* DAgents, which always cooperate, tend to perform well in matrices with clear incentives for cooperation and high rewards for Dove actions.
* However, their performance is generally surpassed by adaptive agents like NN\_Agent and RLAgent in matrices with high conflict penalties and original matrices.

**Performance of Adaptive Agents (NN\_Agent, RLAgent):**

* NN\_Agent and RLAgent consistently show good performance across all matrices, particularly excelling in environments with high conflict penalties and original matrices.
* This suggests that strategies that can learn and adapt to environmental conditions are more effective in a variety of scenarios.

**Performance of Imitative Strategy Agents (TFTAgent):**

* TFTAgents have inconsistent performance, excelling in matrices with clear cooperation incentives but struggling in matrices with high conflict penalties.
* This highlights that imitation-based strategies may not be the best in highly conflict-prone environments.

**Performance of Rigid Strategy Agents (HAgent):**

* HAgents consistently have lower performance in most matrices, especially in those with high conflict penalties.
* This suggests that rigid strategies that cannot adapt to the opponent's behavior tend to be less effective in most scenarios.

Gráfico

Descripción generada automáticamente