TIC-TAC-TOE

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AIMS

-Goal is to build an agent to play against the user in Tic-Tac-Toe

-The game is to be played between two people.

Objective of the Agents

The goal for each agent is to win the game by forming a horizontal, vertical, or diagonal line of all X OR all O in a grid in which each agent plays one after the other.

The second goal is to ensure that your adversary is unable to create an X OR O pattern since this is a zero-sum game.

Statement of Project objectives

We're creating four AI agents who will play the game as guests.

The user can choose which two agents will compete in a Tic-Tac-Toe tournament.

The logic of the game is Agent 1 wins against Agent 2 or Agent 2 wins against Agent 1or Tie between Agent 1 and Agent 2.

Algorithms used

Minimax algorithm using traditional approach.

Minimax algorithm using alpha-beta pruning approach.

Expectimax algorithm.

Q-learning - Reinforcement Learning Algorithm.

APPROACH

Code will be written with the help of Python language

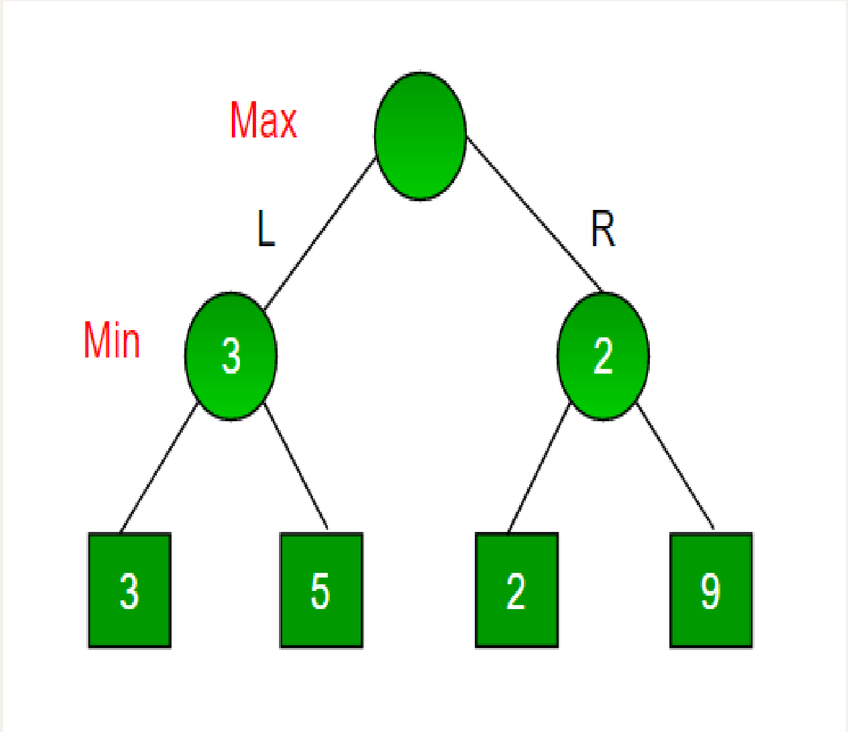
Deliverables:

1. Documentation report(README.md)
2. Link of GitHub Repository
3. Power Point presentation(PPT)
4. YouTube video
5. Program file(.py files)

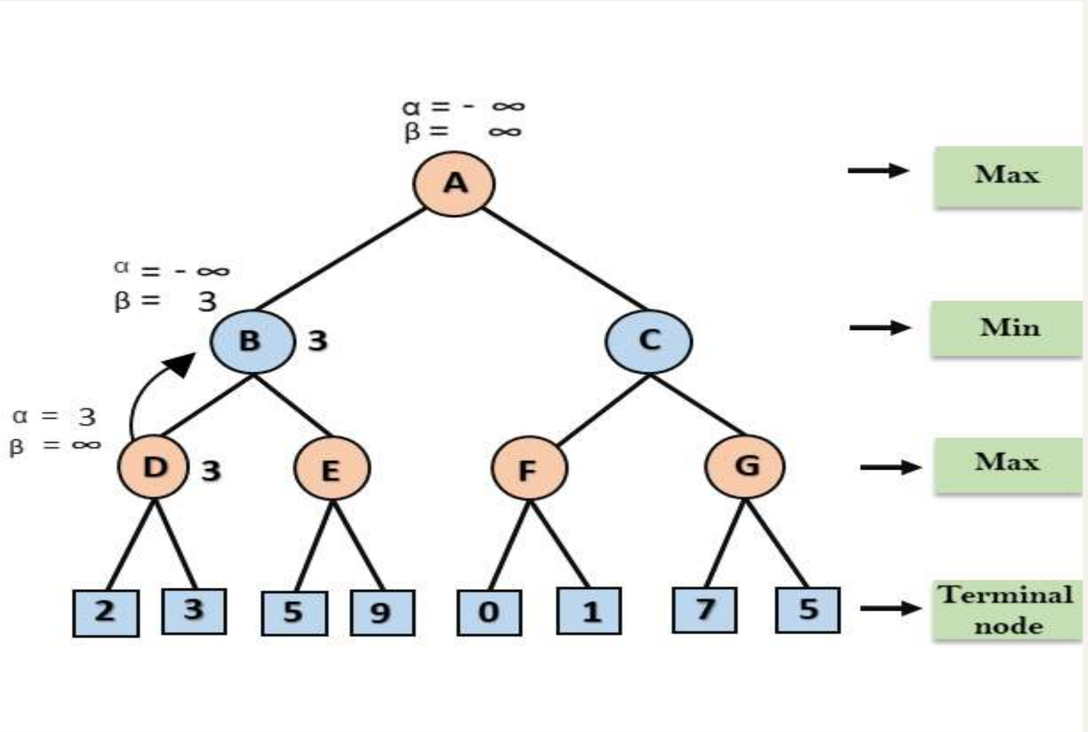
Evaluation Methodology

1. The success of the project is determined by the successful implementation of four AI algorithms.
2. Agents should be conditioned so that the game's performance is as accurate as if it were played by two human brains.
3. While making the next move, none of the agents can freeze or struggle.

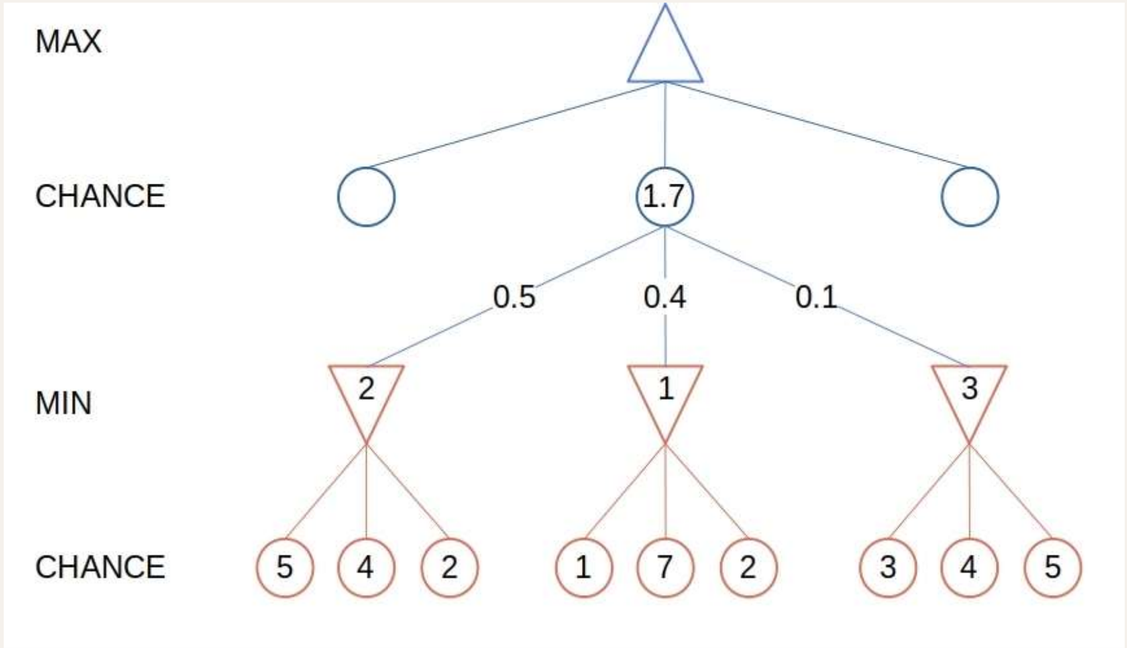
Minimax-graph



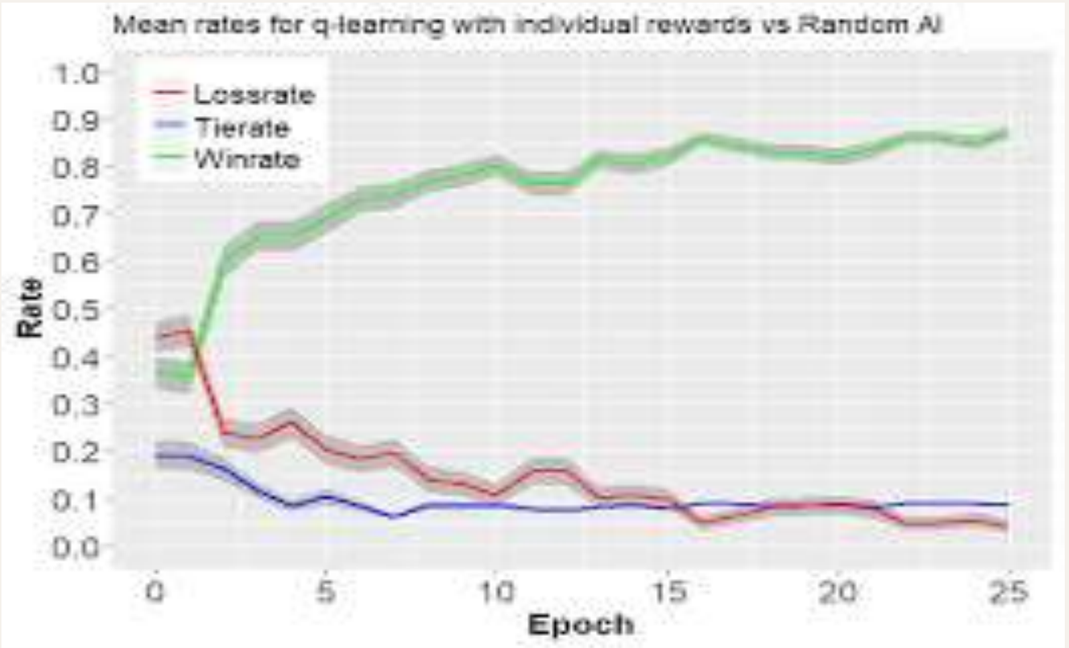
Minimax - Alpha-Beta graph



Expectimax - graph



Q-Learning - graph



Thank You!