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TIC-TAC-TOE

- TIC-TAC-TOE IS A CLASSIC BOARD GAME PLAYED ON A 3X3 GRID. TWO PLAYERS TAKE TURNS MARKING EMPTY CELLS, AIMING TO FORM A LINE OF THREE OF THEIR MARKS HORIZONTALLY, VERTICALLY, OR DIAGONALLY. THE PLAYER ACHIEVING THIS GOAL FIRST WINS, OR THE GAME ENDS IN A DRAW IF THE GRID FILLS UP.
- IMPLEMENTATION OF MULTIPLE TIC-TAC-TOE AGENTS USING BELOW ALGORITHMS
    1. MIN-MAX
    2. ALPHA-BETA PRUNING
    3. Q-LEARNING ALGORITHMS.

STATEMENT OF PROJECT OBJECTIVES

- DESIGNING 3 AI AGENTS
    1. MIN-MAX
    2. ALPHA-BETA PRUNING
    3. Q-LEARNING ALGORITHMS.
- THE MAIN AGENDA OF THE GAME IS TO AWARD A WINNING POINT TO THE PLAYER ACHIEVING THREE CONSECUTIVE SYMBOLS IN A ROW, COLUMN, OR DIAGONAL..
- CONDUCT MULTIPLE ROUNDS OF TIC TAC TOE GAMES TO IDENTIFY THE MOST EFFECTIVE ALGORITHM.

APPROACH

- TECHNIQUES USED:

1. MIN-MAX ALGORITHM: IMPLEMENT THIS ALGORITHM TO CREATE AN AGENT CAPABLE OF MAKING OPTIMAL MOVES.
2. ALPHA-BETA PRUNING: ENHANCE THE EFFICIENCY OF THE MIN-MAX ALGORITHM BY REDUCING UNNECESSARY SEARCH BRANCHES.
3. Q-LEARNING: EMPLOY Q-LEARNING TO TRAIN AN AGENT FOR PLAYING TIC TAC TOE.

- TOOLS USED: VS CODE

DELIVERABLES

- PROPOSAL PRESENTATION : EXPLANATION OF THE PROJECT, APPROACH, AND EVALUATION METHODOLOGY
- DETAILED PRESENTATION OUTLINING THE IMPLEMENTATION OF TIC TAC TOE USING MIN-MAX, ALPHA-BETA, AND REINFORCEMENT LEARNING AGENTS
- YOUTUBE VIDEO : DEMONSTRATING THE PROJECT AND EXECUTION OF THE CODE
- GITHUB REPOSITORY: DOCUMENTATION, FINAL WORKING CODE, REQUIRED RESOURCES, YOUTUBE VIDEO AND OTHER REFERENCE LINKS.

EVALUATION METHODOLOGY

- THE PROJECT'S EVALUATION HINGES ON THE SUCCESSFUL IMPLEMENTATION OF ALL AI AGENTS.
    1. MIN-MAX
    2. ALPHA-BETA PRUNING
    3. Q-LEARNING ALGORITHMS.
- MANUAL COMPARISON BETWEEN THE OUTPUT OF AI AGENTS