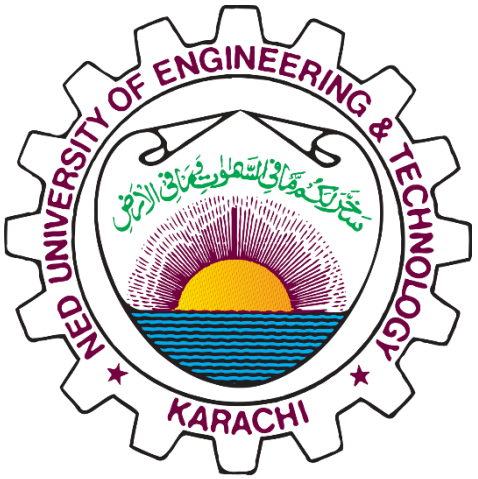
Department of Computer Science and Information Technology

Spring 2025 – TSCS

Artificial Intelligence & Expert System (CT-361)

ASSIGNMENT # 2



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Comparing the performance of the standard Minimax and the Alpha-Beta Pruning optimized Minimax.

When we compare the Minimax algorithm with Alpha-Beta Pruning it's clear that Alpha-Beta is a more efficient choice because Minimax looks at every possible move in the game which means it can take a lot of time especially when the game tree is large. It doesn’t skip anything, so it ends up doing unnecessary work.

Alpha-Beta Pruning however, optimizes the process by cutting out moves that don't affect the final decision. It's like taking a shortcut, we still get to the same place, but much faster. By avoiding unnecessary calculations, Alpha-Beta Pruning helps the computer make decisions more quickly without missing out on the best move.

In short, Alpha-Beta Pruning does the same job as Minimax, but way more efficiently. It saves time, speeds up the decision-making process, and still makes the best choice.