

WRITE UP

Objective:

Develop a smart 2048 AI agent using Expectimax and heuristics to maximize score and reach high-value tiles efficiently.

MinMax Agent:

Score: 6936			
8	512	8	4
2	16	64	32
256	8	128	16
2	4	32	4

Score: 11808			
2	4	64	2
32	16	128	8
8	256	1024	32
2	4	16	8

Score: 6612			
8	32	16	4
32	256	8	2
8	64	512	4
2	32	2	64

MyAgent(Version 1):

An enhanced version of the MinMax agent, this updated MyAgent uses Expectimax with a refined heuristic focusing on corner anchoring, empty tiles, snake order, and monotonic rows for better 2048 gameplay.

Heuristic improved: From just score to a detailed function considering empty tiles, corner anchoring, snake pattern, monotonicity, and tile disruption.

Move ordering added: Prioritizes moves ($D > L > U > R$) to help with tile positioning.

minPlayer changed: From minimization to expectimax, using weighted average of outcomes.

Score: 18164			
4	16	4	2
8	64	32	4
2	16	1024	2
4	8	2	1024

Score: 14252			
8	4	32	2
2	16	512	16
8	64	128	64
2	4	2	1024

Score: 12292			
2	16	8	2
8	128	16	4
4	256	128	32
2	8	32	1024

MinMax vs MyAgent (v1) Summary:

MyAgent improves MinMax by using Expectimax, adds smart move ordering , and a stronger heuristic focusing on empty tiles, corners, snake pattern, and monotonicity.

Result: Higher scores, better tile control, and more consistent 1024+ tiles.