MiniMax

# Java implementation

## The most important functions of MiniMax are listed below.

**ACTIONS**(s) : Returns all possible actions given state < s >.

**TERMINAL**(s) : Returns < true > if the game is over or < false > if the game is not over.

**RESULT**(s,a) : Returns the state after action < a > is taken in state < s >.

**UTILITY**(s) : Returns the winner of the game. The winner is decided based on the current state < s >.

**MAXIMUM**(array) : Returns the maximum element of the array < array >.

**MINIMUM**(array) : Returns the minimum element of the array < array >.

**MAX\_VALUE**(s) : Picks action a in ACTIONS(s) that produces the highest value of MIN\_VALUE(RESULT(s,a))

**MIN\_VALUE**(s) : Picks action a in ACTIONS(s) that produces the lowest value of MIN\_VALUE(RESULT(s,a))

function MAX\_VALUE(s):

if TERMINAL(s):

return UTILITY(s)

v = -oo // infinity value

for action in ACTIONS(s):

v = MAX(v, MIN\_VALUE(RESULT(s,a))

return v

function MIN\_VALUE(s):

if TERMINAL(s):

return UTILITY(s)

v = oo // infinity value

for action in ACTIONS(s):

v = MAX(v, MAX\_VALUE(RESULT(s,a))

return v

For a better explanation of the algorithm watch the following video :

https://www.youtube.com/watch?v=D5aJNFWsWew&list=PLnrZOBR0x7yq6\_p-DywsuH1R559NU2xLp&index=7