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FORMULATION OF GAMBLING

TIME HORIZON (T) = 40

STATE (X_t) = [0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200]

INPUTS ($U(X_t)$) = Depends on the state at time t
{0 [10] [10,20] [10,20,30] [10,20,30,40] [10,20,30,40,50] [10,20,30,40,50,60] [10,20,30,40,50,60,70] [10,20,30,40,50,60,70,80] [10,20,30,40,50,60,70,80,90] [10,20,30,40,50,60,70,80,90,100] [10,20,30,40,50,60,70,80,90] [10,20,30,40,50,60,70,80] [10,20,30,40,50,60,70] [10,20,30,40,50,60] [10,20,30,40,50] [10,20,30,40] [10,20,30] [10,20] [10] 0}

DYNAMICS = $X_{t.} + (U(X_t)* W)$
Where W = [1 -1]
'1' indicates winning the game
'-1' indicates losing the game

COST FUNCTIONS:

STAGE REWARD = $U(X_t)* W$

TERMINAL REWARD = 200