

```

if episode > 20000:
    alpha = 0.1
elif episode > 30000:
    alpha = 0.05

```

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L(earning) Agent will learn now using Q-Learning in the Public Civility Game.  
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Learning Process started. Will finish when Episode = 15000  
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-----  
Policy with the weights: [1.0, 0.31, 0.013]  
Expected value is: [7.0, 0.0, -3.375]  
-----

The Learnt Policy has the following Value for alpha = 0.2 is:  
[ 8.55080744 -9.64749714 -4.09623583]  
-----

The Learnt Policy has the following Value for alpha = 0.25 is:  
[ 4.797693 -1.07469317 -1.62989085]  
-----

The Learnt Policy has the following Value for alpha = 0.3 is:  
[ 7.02975442 -2.03605861 -1.96554131]  
-----

The Learnt Policy has the following Value for alpha = 0.35 is:  
[ 7.19568316 -2.3169749 -2.97896 ]  
-----

The Learnt Policy has the following Value for alpha = 0.39999999999999997 is:  
[ 7.02880337 -2.34438782 -1.02314588]  
-----

The Learnt Policy has the following Value for alpha = 0.44999999999999996 is:  
[ 7.08596396 -0.61400926 -3.75543229]  
-----

The Learnt Policy has the following Value for alpha = 0.49999999999999994 is:  
[ 7.13320281 -1.1450981 -4.89714736]  
-----

The Learnt Policy has the following Value for alpha = 0.5499999999999999 is:  
[ 6.99068491e+00 -1.30935624e-16 -2.42880400e+00]  
-----

The Learnt Policy has the following Value for alpha = 0.5999999999999999 is:  
[ 6.98945452e+00 -1.00723151e-12 -3.86508042e+00]  
-----

The Learnt Policy has the following Value for alpha = 0.6499999999999999 is:  
[ 6.99841524e+00 -3.99583826e-16 -5.28790223e+00]  
-----

The Learnt Policy has the following Value for alpha = 0.7 is:  
[ 6.99726842e+00 -3.85649988e-50 -3.23592751e+00]  
This alpha works!  
-----

The Learnt Policy has the following Value for alpha = 0.7499999999999998 is:  
[ 6.99510107e+00 -4.83570328e-03 -2.77400762e+00]  
-----

The Learnt Policy has the following Value for alpha = 0.7999999999999998 is:  
[ 6.97437283e+00 -2.17554122e-20 -3.24024253e+00]  
This alpha works!  
-----  
-----

Policy with the weights: [1.0, 0.372, 1.5]

Expected value is: [6.03125, 0.0, 0.0]

-----  
The Learnt Policy has the following Value for alpha = 0.2 is:

[ 4.8398849 -0.59103462 0. ]

-----  
The Learnt Policy has the following Value for alpha = 0.25 is:

[ 6.84027192e+00 -5.08580735e+00 -1.87077932e-11]

-----  
The Learnt Policy has the following Value for alpha = 0.3 is:

[ 5.12096370e+000 -1.12939293e+000 -5.54238094e-109]

-----  
The Learnt Policy has the following Value for alpha = 0.35 is:

[ 5.41789551e+00 -1.05228271e+00 -1.09145368e-90]

-----  
The Learnt Policy has the following Value for alpha = 0.39999999999999997 is:

[ 6.05825121e+00 -1.48976161e+00 -4.90921323e-23]

-----  
The Learnt Policy has the following Value for alpha = 0.44999999999999996 is:

[ 6.22034732e+00 -1.90739842e+00 -1.01205729e-50]

-----  
The Learnt Policy has the following Value for alpha = 0.49999999999999994 is:

[ 6.18905961e+00 -7.73438569e-01 -1.09507529e-19]

-----  
The Learnt Policy has the following Value for alpha = 0.5499999999999999 is:

[ 5.87258495e+00 -4.15383753e-04 -1.33541696e-11]

This alpha works!

-----  
The Learnt Policy has the following Value for alpha = 0.5999999999999999 is:

[ 5.27315978e+00 -1.13567120e-04 -2.74849165e-04]

-----  
The Learnt Policy has the following Value for alpha = 0.6499999999999999 is:

[ 6.13849087e+00 -6.10114701e-13 -8.37086603e-23]

This alpha works!

-----  
The Learnt Policy has the following Value for alpha = 0.7 is:

[ 6.13135679e+00 -1.98071333e-03 -6.51747406e-08]

This alpha works!

-----  
The Learnt Policy has the following Value for alpha = 0.7499999999999998 is:

[ 6.20436947e+00 -1.18059162e-02 -5.68867980e-18]

This alpha works!

-----  
The Learnt Policy has the following Value for alpha = 0.7999999999999998 is:

[ 5.88407286e+00 -1.43343663e-11 -1.49875038e-11]

This alpha works!

-----

-----  
Policy with the weights: [1.0, 0.09, 1e-09]

Expected value is: [10.0, -20.0, -4.0]

-----  
The Learnt Policy has the following Value for alpha = 0.2 is:

[ 9.79548228 -20.35685118 -4.56674485]

-----  
The Learnt Policy has the following Value for alpha = 0.25 is:

[ 10. -20.10995116 -4.47897897]

-----  
The Learnt Policy has the following Value for alpha = 0.3 is:

[ 8.72484813 -17.72274772 -4.7545603 ]

-----  
The Learnt Policy has the following Value for alpha = 0.35 is:  
[ 8.56307771 -10. -2.43753029]  
-----

The Learnt Policy has the following Value for alpha = 0.39999999999999997 is:  
[ 8.99999999 -13.31620926 -4.51159941]  
-----

The Learnt Policy has the following Value for alpha = 0.44999999999999996 is:  
[ 9.20925908 -20.76088992 -4.85143502]  
-----

The Learnt Policy has the following Value for alpha = 0.49999999999999994 is:  
[ 9.71313908 -20.3771305 -3.54939623]  
-----

The Learnt Policy has the following Value for alpha = 0.5499999999999999 is:  
[ 8.99951128 -15.03886477 -4.76691829]  
-----

The Learnt Policy has the following Value for alpha = 0.5999999999999999 is:  
[ 9. -10. -1.93123341]  
-----

The Learnt Policy has the following Value for alpha = 0.6499999999999999 is:  
[ 9. -10. -1.40215043]  
-----

The Learnt Policy has the following Value for alpha = 0.7 is:  
[ 9. -10. -2.01330562]  
-----

The Learnt Policy has the following Value for alpha = 0.7499999999999998 is:  
[ 9. -10. -1.42559213]  
-----

The Learnt Policy has the following Value for alpha = 0.7999999999999998 is:  
[ 9. -10. -1.37421034]  
-----

-----  
Policy with the weights: [1.0, 0.045, 0.233]  
Expected value is: [10.0, -30.0, -0.75]  
-----

The Learnt Policy has the following Value for alpha = 0.2 is:  
[ 9.62243345 -30. -0.71202434]  
This alpha works!  
-----

The Learnt Policy has the following Value for alpha = 0.25 is:  
[ 7.33937504 -16.39387756 -0.14998708]  
-----

The Learnt Policy has the following Value for alpha = 0.3 is:  
[ 8.4285092 -10.15954678 -0.44167342]  
-----

The Learnt Policy has the following Value for alpha = 0.35 is:  
[ 9.81075223 -26.21525938 -0.56742457]  
-----

The Learnt Policy has the following Value for alpha = 0.39999999999999997 is:  
[ 8.732098 -13.8990111 -0.55821804]  
-----

The Learnt Policy has the following Value for alpha = 0.44999999999999996 is:  
[ 9.81079324 -26.21586472 -0.56762027]  
-----

The Learnt Policy has the following Value for alpha = 0.49999999999999994 is:  
[ 9.03333211 -10.70368744 -0.67355463]  
-----

The Learnt Policy has the following Value for alpha = 0.5499999999999999 is:  
[ 9.00001312 -10.00026244 -0.80695753]  
-----

-----  
The Learnt Policy has the following Value for alpha = 0.5999999999999999 is:  
[ 9.98198642 -29.63973164 -0.97860773]  
-----

The Learnt Policy has the following Value for alpha = 0.6499999999999999 is:  
[ 10. -30. -0.6915249]  
This alpha works!  
-----

The Learnt Policy has the following Value for alpha = 0.7 is:  
[ 9.66386561 -23.27731222 -0.63152754]  
-----

The Learnt Policy has the following Value for alpha = 0.7499999999999998 is:  
[ 9.0000013 -10.00002853 -0.29181369]  
-----

The Learnt Policy has the following Value for alpha = 0.7999999999999998 is:  
[ 9.3276787 -16.55359815 -0.92250749]  
-----

-----  
Policy with the weights: [1.0, 0.372, 1.5]  
Expected value is: [6.03125, 0.0, 0.0]  
-----

The Learnt Policy has the following Value for alpha = 0.2 is:  
[ 5.18354379 -2.51812902 0. ]  
-----

The Learnt Policy has the following Value for alpha = 0.25 is:  
[ 5.09831335e+00 -1.28627253e+00 -1.97593272e-47]  
-----

The Learnt Policy has the following Value for alpha = 0.3 is:  
[ 5.45462049 -1.82384318 0. ]  
-----

The Learnt Policy has the following Value for alpha = 0.35 is:  
[ 5.59233661e+00 -1.09014985e+00 -6.72105311e-86]  
-----

The Learnt Policy has the following Value for alpha = 0.39999999999999997 is:  
[ 5.62125274e+00 -3.94420857e-01 -4.17598237e-08]  
-----

The Learnt Policy has the following Value for alpha = 0.44999999999999996 is:  
[ 5.71817066e+00 -1.11285854e+00 -6.50268140e-82]  
-----

The Learnt Policy has the following Value for alpha = 0.49999999999999994 is:  
[ 6.05696430e+00 -1.69184369e+00 -3.74244865e-40]  
-----

The Learnt Policy has the following Value for alpha = 0.5499999999999999 is:  
[ 5.75843119e+00 -9.35361069e-06 -3.14272943e-12]  
This alpha works!  
-----

The Learnt Policy has the following Value for alpha = 0.5999999999999999 is:  
[ 5.94464474e+00 -1.79331743e-01 -4.45230729e-20]  
This alpha works!  
-----

The Learnt Policy has the following Value for alpha = 0.6499999999999999 is:  
[ 5.75235270e+00 -8.29903114e-20 -1.96049885e-21]  
This alpha works!  
-----

The Learnt Policy has the following Value for alpha = 0.7 is:  
[ 5.82005624e+00 -3.03542205e-09 -1.76005813e-14]  
This alpha works!  
-----

The Learnt Policy has the following Value for alpha = 0.7499999999999998 is:

[ 6.02631446e+00 -1.70141183e-04 -1.42633315e-06]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.7999999999999998 is:

[ 6.32567823e+00 -1.43756885e-17 -2.32580495e-19]

This alpha works!

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Policy with the weights: [1.0, 0.005, 0.633]

Expected value is: [9.625, -30.0, 0.0]

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The Learnt Policy has the following Value for alpha = 0.2 is:

[ 9.50761395e+00 -3.00000000e+01 -1.95078529e-94]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.25 is:

[ 9.60164151e+00 -3.00000000e+01 -1.40785392e-57]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.3 is:

[ 9.72450373e+00 -3.00000000e+01 -6.41751121e-60]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.35 is:

[ 8.53753835e+00 -1.00712479e+01 -3.33383871e-13]

-----

The Learnt Policy has the following Value for alpha = 0.39999999999999997 is:

[ 8.73119293e+000 -1.53761413e+001 -7.78979683e-165]

-----

The Learnt Policy has the following Value for alpha = 0.44999999999999996 is:

[ 9.56911700e+00 -3.00000000e+01 -4.03714704e-30]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.49999999999999994 is:

[ 8.80128470e+00 -1.33397874e+01 -6.71239085e-43]

-----

The Learnt Policy has the following Value for alpha = 0.5499999999999999 is:

[ 9.63952301e+00 -3.00000000e+01 -3.57031001e-79]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.5999999999999999 is:

[ 9.30092711e+00 -2.99967715e+01 -8.86175978e-10]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.6499999999999999 is:

[ 9.75243086e+00 -3.00000000e+01 -2.33035623e-26]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.7 is:

[ 9.63645603e+00 -2.99999931e+01 -4.31753818e-37]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.7499999999999998 is:

[ 9.76881452e+00 -3.00000000e+01 -2.64563260e-96]

This alpha works!

-----

The Learnt Policy has the following Value for alpha = 0.7999999999999998 is:

[ 9.88847541e+00 -2.99999839e+01 -1.11317216e-52]

This alpha works!

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Finnished!!!

[[0.7, 0.8], [0.55, 0.65, 0.7, 0.75, 0.8], [], [0.2, 0.65], [0.55, 0.6, 0.65, 0.7, 0.75, 0.8], [0.2, 0.25, 0.3, 0.45, 0.55, 0.6, 0.65, 0.7, 0.75, 0.8]]