

## Exercise 2

### 1- update the value of the weight

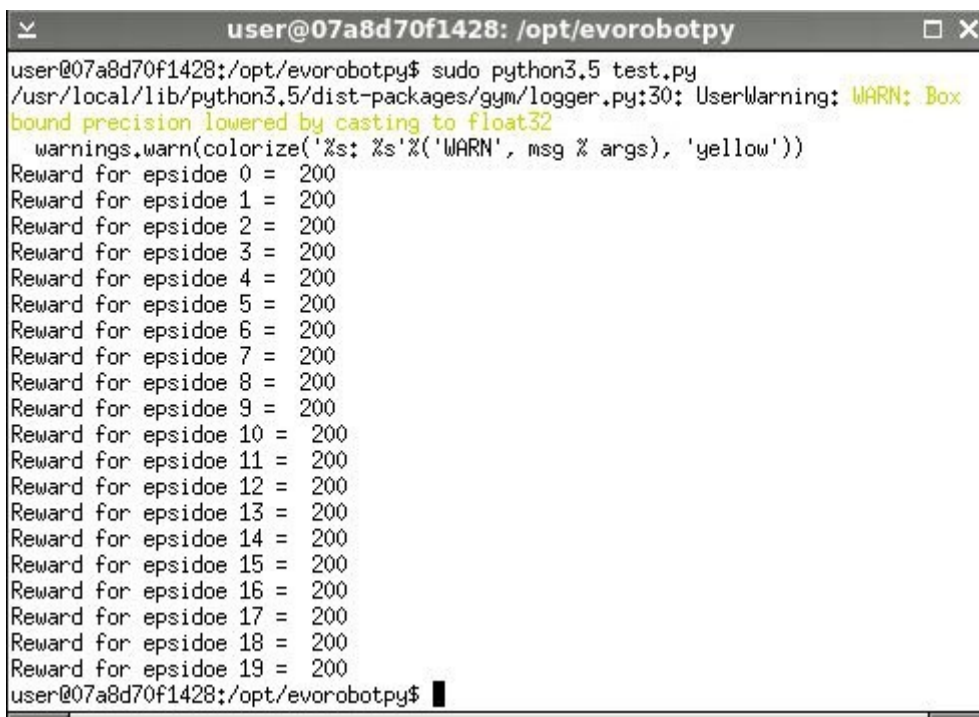
in this exercise , first I have initialize the weight randomly for 20 episode ,there are 37 parameter in one episode , 25 parameter for hidden layer and 12 parameter for output layer, for 20 episode I have randomly initialize the (20,37) matrices,and I have printed the value of the reward in assending order for next time I have replace the 10 best reward parameter with other 10 episode parameter ,which have small value for the reward ,

### 2-Training of the neural network

after updating parameter, I have train the neural network with 20 episode in 30 generation with 20 trial and after every 20 episode parameter are updated. When reward value for 20 episode become 200 , I have save the parameter,

### 3-Test of the neural network

I have used the updated parameter to see the stability of the Cartpol v\_0 , its giving stable result , file is save with **test\_cartpole.py**



```
user@07a8d70f1428: /opt/evorobotpy
user@07a8d70f1428:/opt/evorobotpy$ sudo python3.5 test.py
/usr/local/lib/python3.5/dist-packages/gym/logger.py:30: UserWarning: WARN: Box
bound precision lowered by casting to float32
warnings.warn(colorize('%s: %s'%( 'WARN', msg % args), 'yellow'))
Reward for epsidoe 0 = 200
Reward for epsidoe 1 = 200
Reward for epsidoe 2 = 200
Reward for epsidoe 3 = 200
Reward for epsidoe 4 = 200
Reward for epsidoe 5 = 200
Reward for epsidoe 6 = 200
Reward for epsidoe 7 = 200
Reward for epsidoe 8 = 200
Reward for epsidoe 9 = 200
Reward for epsidoe 10 = 200
Reward for epsidoe 11 = 200
Reward for epsidoe 12 = 200
Reward for epsidoe 13 = 200
Reward for epsidoe 14 = 200
Reward for epsidoe 15 = 200
Reward for epsidoe 16 = 200
Reward for epsidoe 17 = 200
Reward for epsidoe 18 = 200
Reward for epsidoe 19 = 200
user@07a8d70f1428:/opt/evorobotpy$
```

### 4-Conclusion

neural network is giving stable result and converge in my case , but its depend upon the initial value ,sometime it doesn't converge due to its initial vale ,