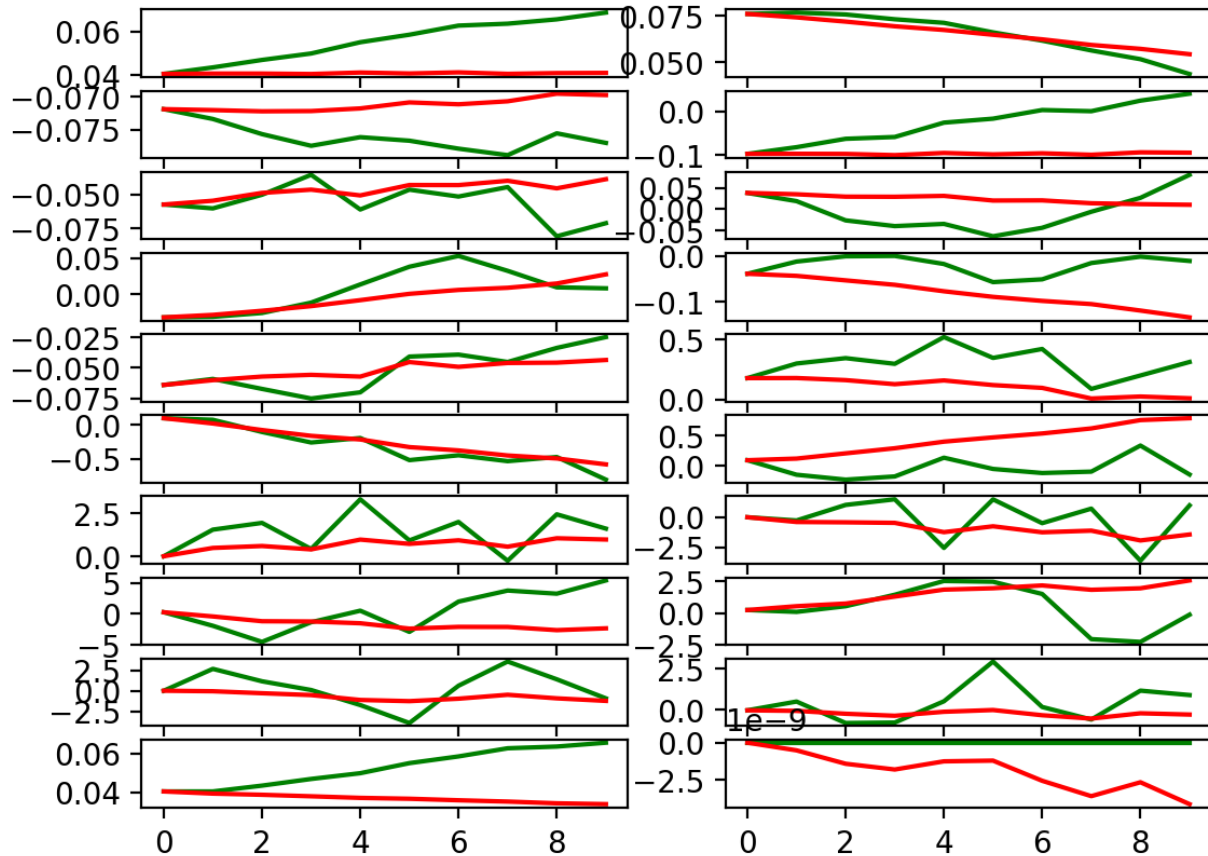


### Question 1:

It can be concluded from the three different experiments with different parameters that if we increase the value of num of agent train steps per iteration, num of hidden layers, and size of the hidden layers the mean prediction error decreases. "Num of agent train steps per iteration" lets the algorithm sample more data and train the agent more. The larger number and size of hidden layers are helpful for learning more complex systems.

MPE: 1.4446702

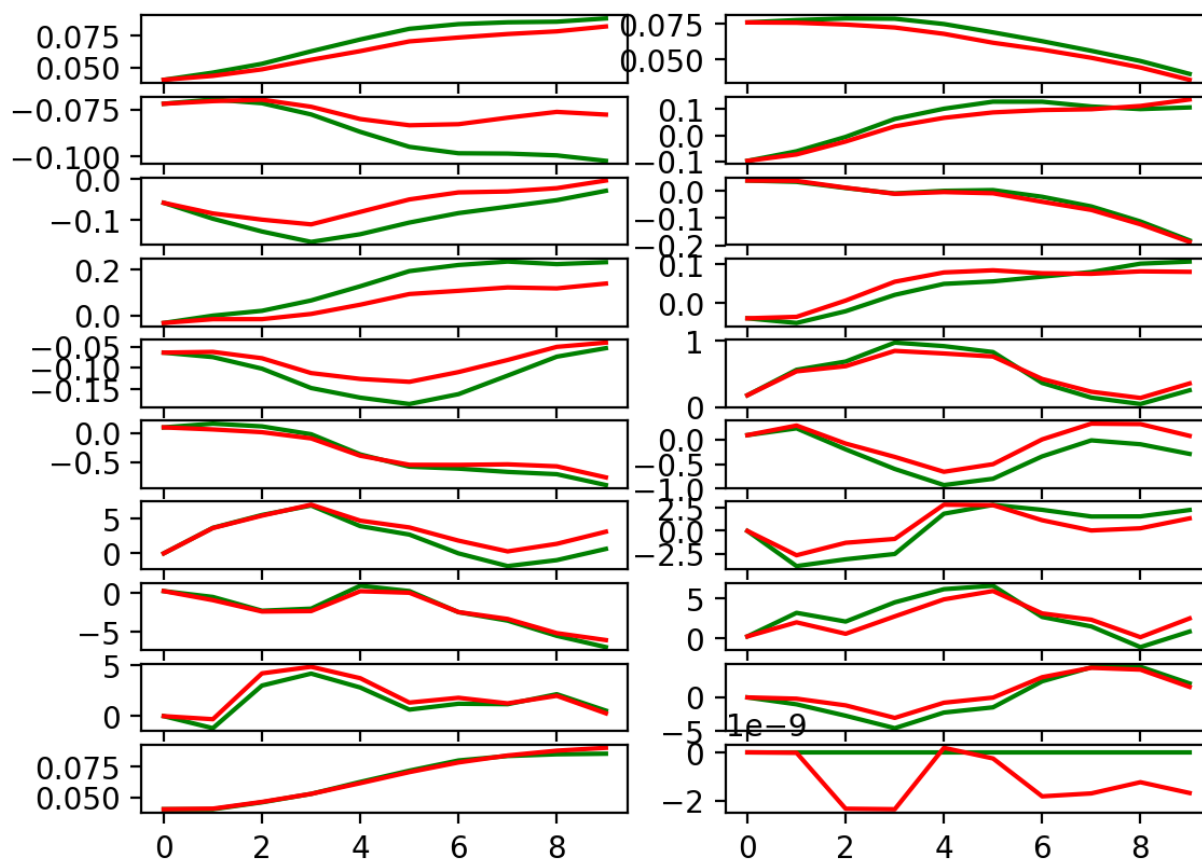


Num of agent train steps per iteration: 5

Num of hidden layers: 2

Size of hidden layers: 250

MPE: 0.3205432

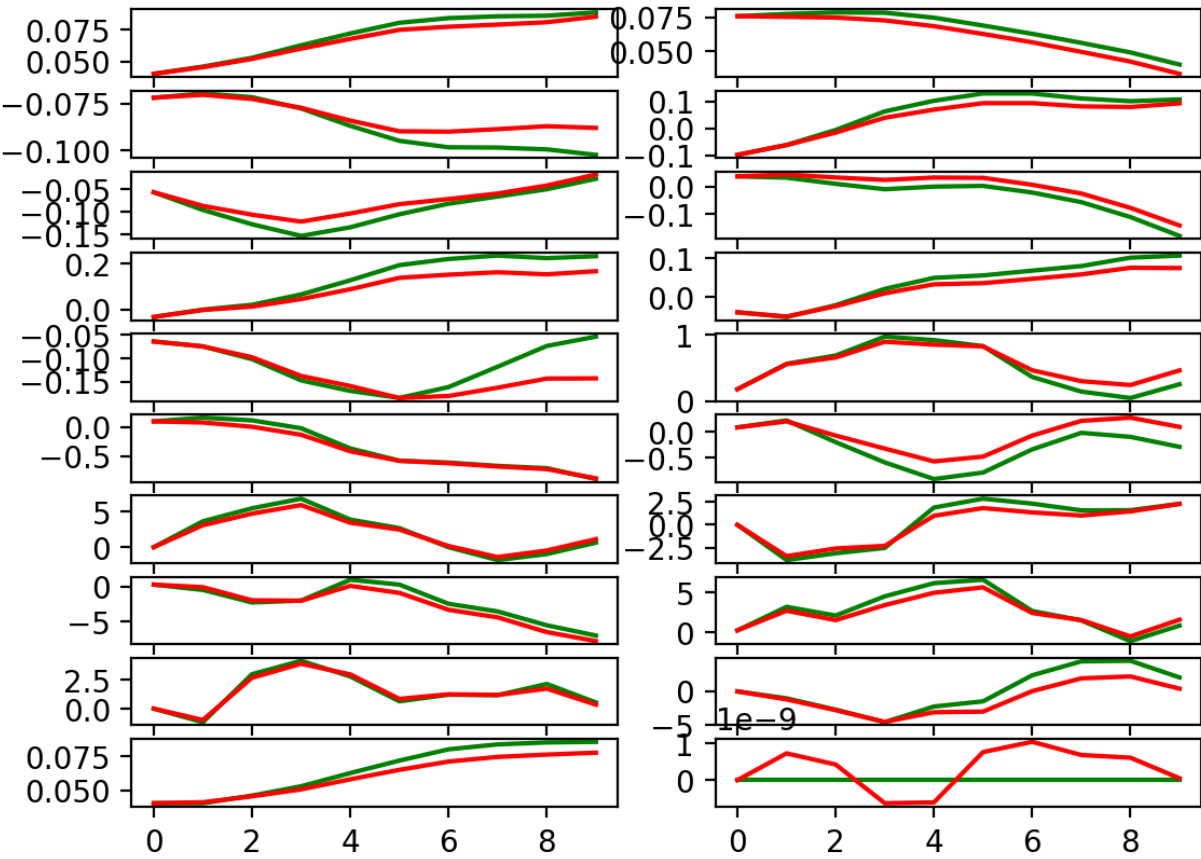


Num of agent train steps per iteration: 500

Num of hidden layers: 1

Size of hidden layers: 32

MPE: 0.19444765



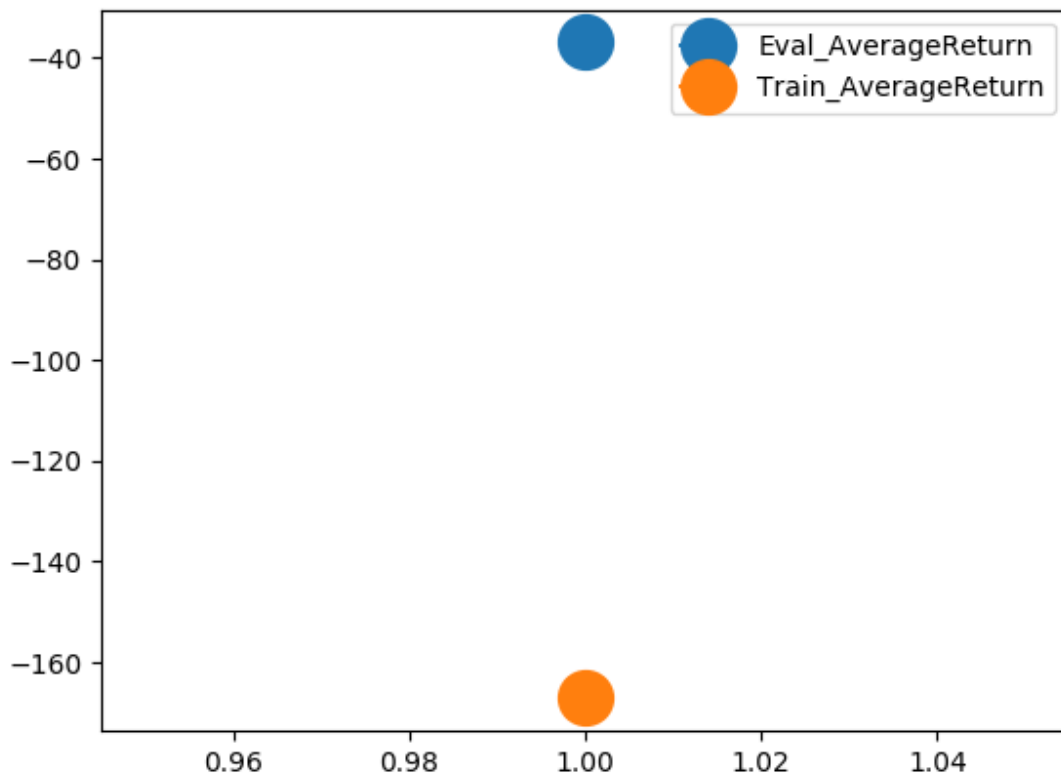
Num of agent train steps per iteration: 500

Num of hidden layers: 2

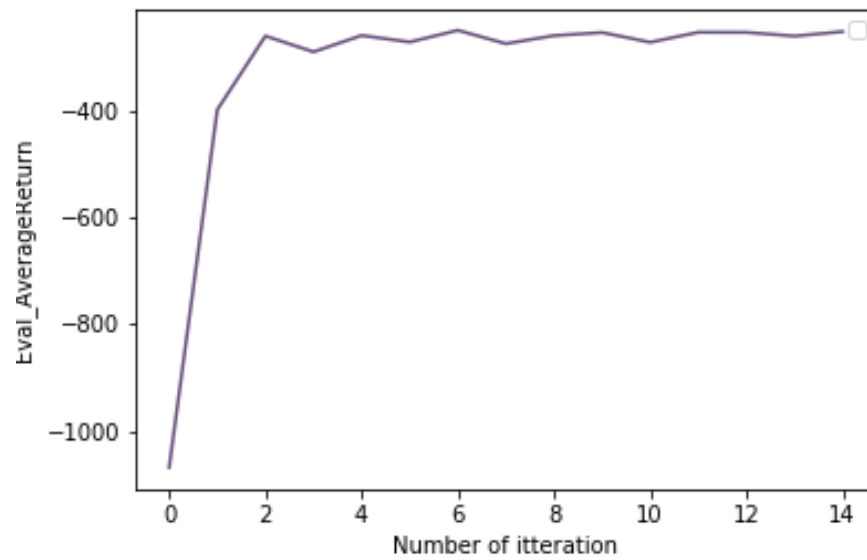
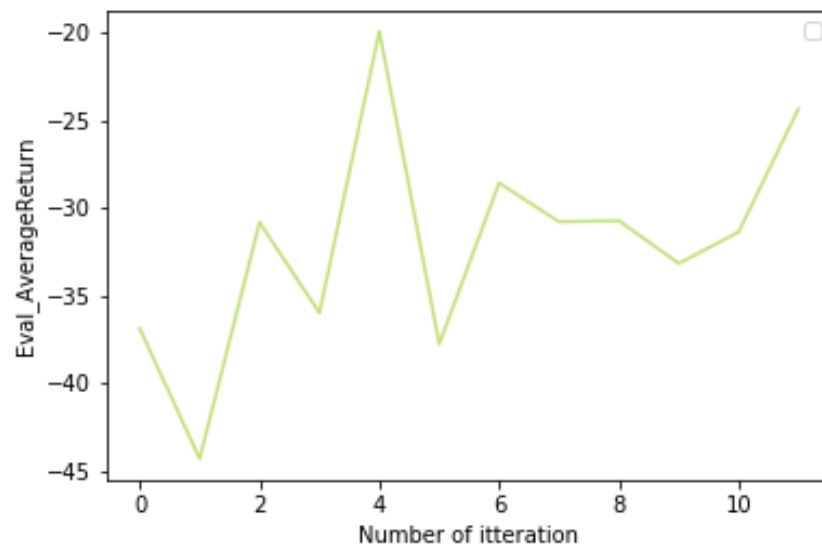
Size of hidden layers: 250

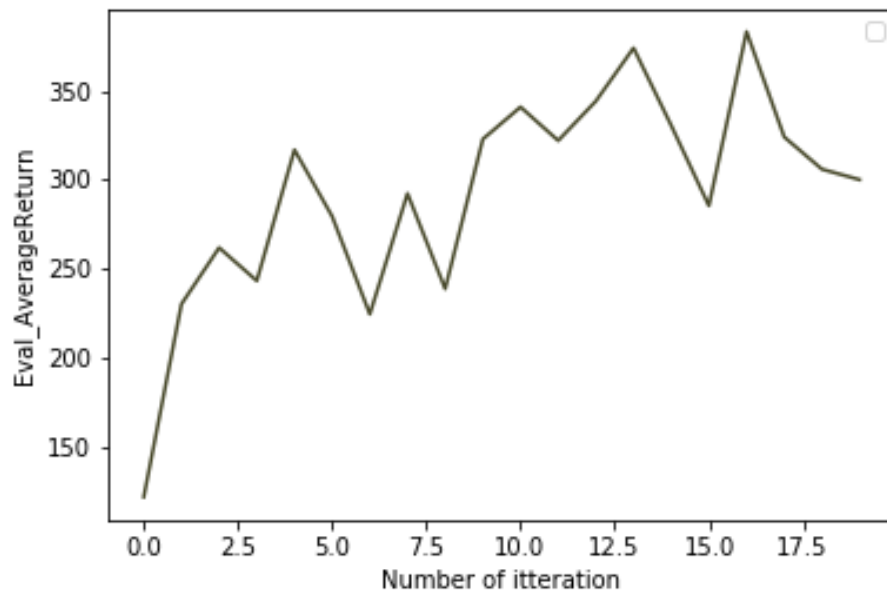
## Question 2:

```
Eval_AverageReturn : -36.869197845458984
Eval_StdReturn : 27.728918075561523
Eval_MaxReturn : -9.468137741088867
Eval_MinReturn : -90.27787017822266
Eval_AverageEpLen : 35.0
Train_AverageReturn : -167.09857177734375
Train_StdReturn : 33.23030471801758
Train_MaxReturn : -105.7049331665039
Train_MinReturn : -220.01486206054688
Train_AverageEpLen : 100.0
Train_EnvstepsSoFar : 5000
TimeSinceStart : 36.388617753982544
Training Loss : 0.3390160799026489
Initial_DataCollection_AverageReturn : -167.09857177734375
Done logging...
```

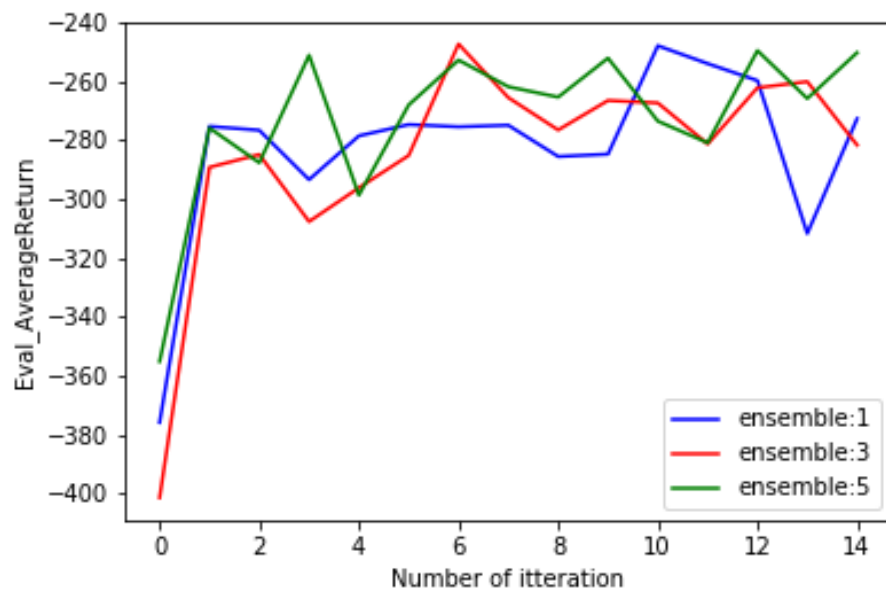


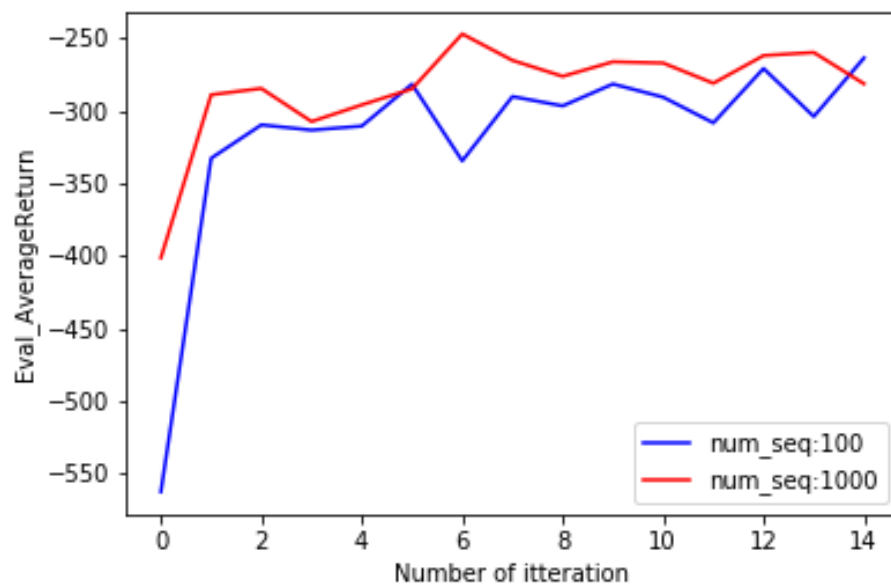
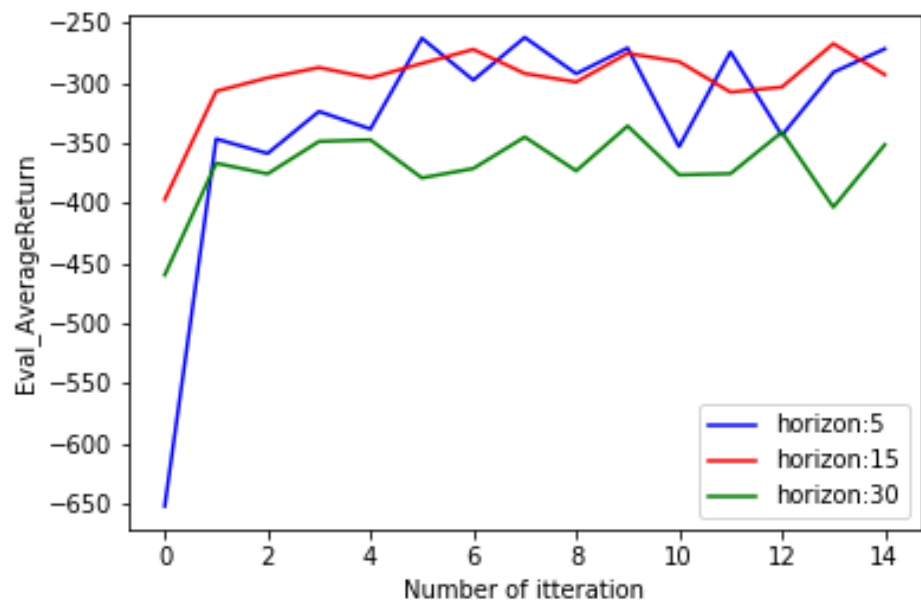
### Question 3:



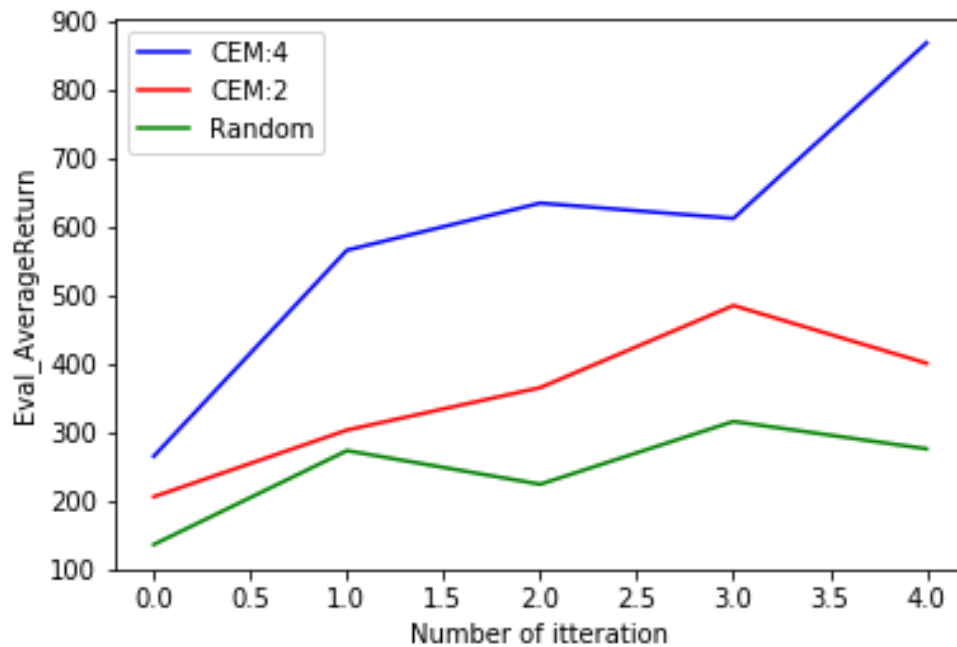


#### Question 4:





### Question 5:



In random shooting, we select actions uniformly random and evaluate the system performance based on those random actions. But in CEM, we try to select the actions with a higher return. The larger the number of CEM iterations we define, the better actions we select to evaluate the system performance