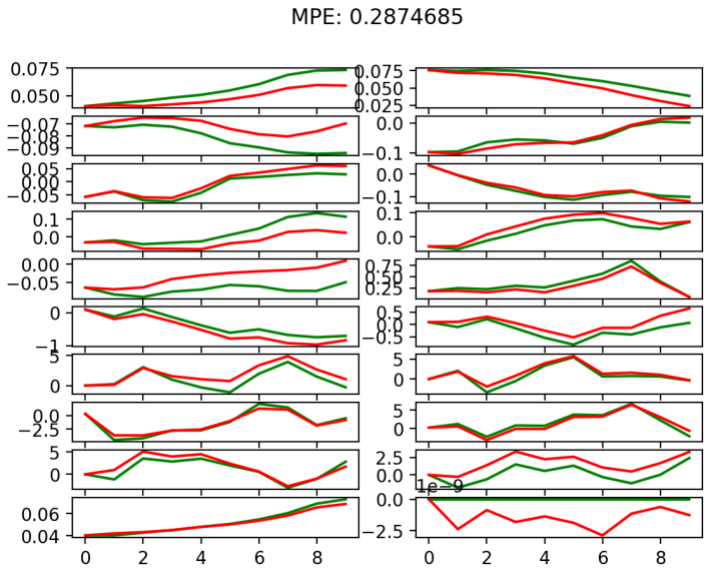
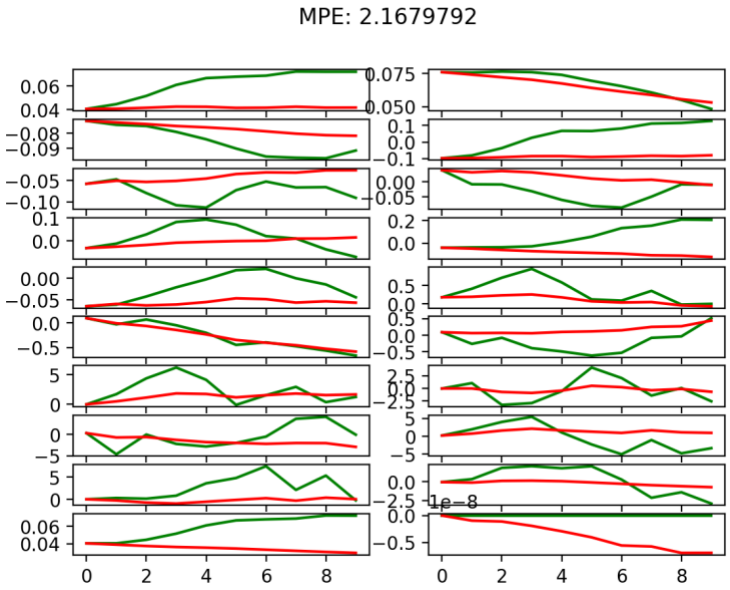
CS 285 HW 4

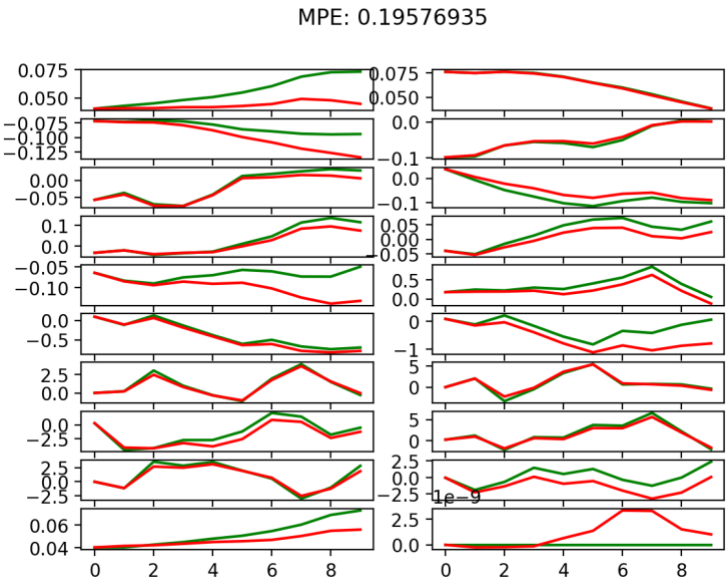
Q1



Caption: MPE for q1_cheetah_n500_arch1x32



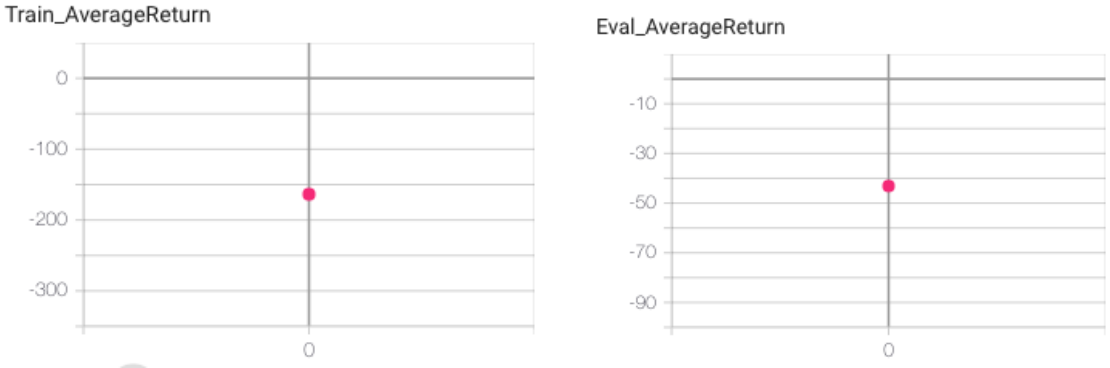
Caption: MPE for q1_cheetah_n5_arch2x250



Caption: MPE for q1_cheetah_n500_arch2x250

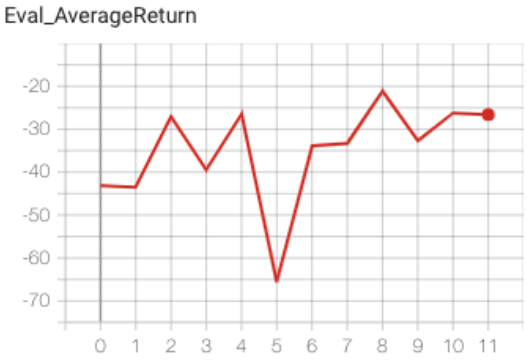
Comment: The last setup with 2-layer, 250-size MLPs as the dynamic models perform the best (although it is close to the first setup), since the mean MPE loss is slightly smaller than that of the first setup. The superior performance may be attributed to the greater expressiveness of the larger dynamic model, and the fact that there are a much greater number of agents trained per iteration as compared to the second setup.

Q2

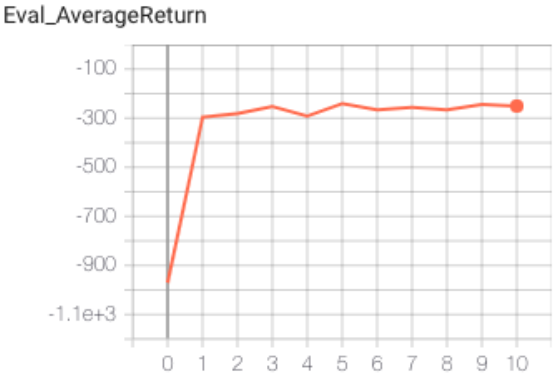


Caption: The training average return (about -164) and the evaluation average return (about -43) for q2. They are all within or better than the expectation.

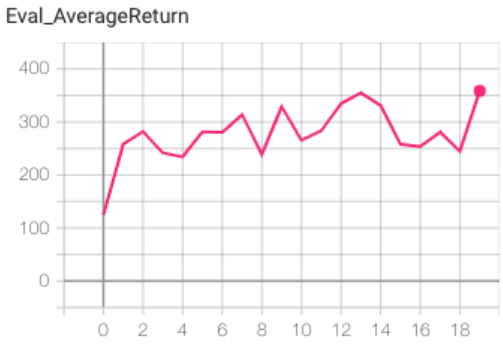
Q3



Caption: The evaluation return of the obstacle env for q3. The final evaluation average return is around -26, as expected.

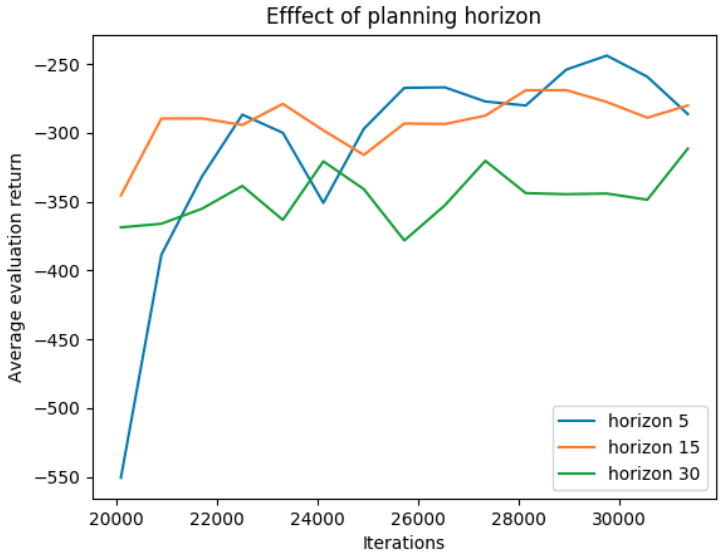


Caption: The evaluation return of the reach env for q3. The final evaluation average return is about -250, as expected.

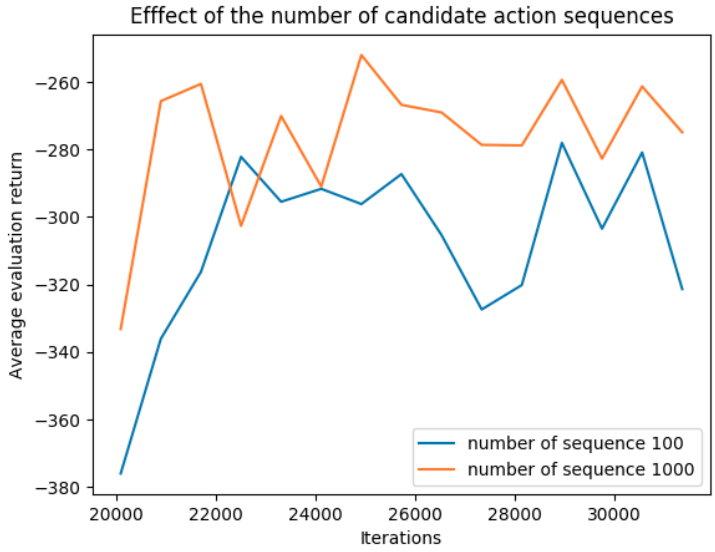


Caption: The evaluation return of the cheetah env for q3. The final evaluation average return is about 358, as expected.

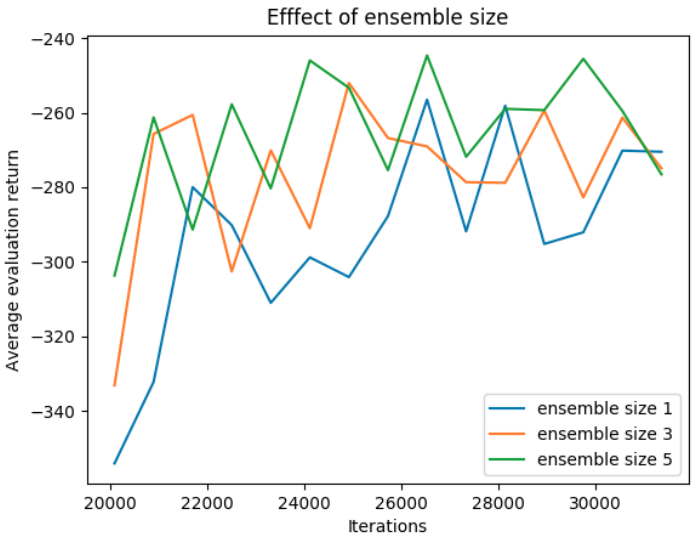
Q4



Caption: I observe from the above plot that a relatively short horizon for planning actions gives the best average evaluation return, although its initial evaluation return is poor.



Caption: I observe from the above plot that a larger number of random action candidate sequences gives a better performance. As can be seen, the yellow curve corresponding to 1000 number of sequence considered per action works better.



Caption: I observe from the above plot that a larger ensemble size for the dynamics model gives a better performance. As can be seen, the green curve corresponding to an ensemble size of 5 works the best among the three.