```
Last login: Thu Apr  2 00:30:48 on ttys000
Run-Mac:~ mac$ cd ~/.ssh
Run-Mac:.ssh mac$ ssh -i "Runzhe_Song_0110.pem" ubuntu@ec2-35-175-103-246.compute-1.amazonaws.com
The authenticity of host 'ec2-35-175-103-246.compute-1.amazonaws.com (35.175.103.246)' can't be established.
ECDSA key fingerprint is SHA256:0j1bzeDeu0CkIMW5oeU8XCCKBuuLUtsvxspuDieuUd0.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-35-175-103-246.compute-1.amazonaws.com,35.175.103.246' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1063-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Thu Apr  2 13:09:07 UTC 2020

  System load:  0.81               Processes:           386
  Usage of /:   57.1% of 15.45GB   Users logged in:     0
  Memory usage: 0%                 IP address for ens5: 172.31.77.47
  Swap usage:   0%

 * Kubernetes 1.18 GA is now available! See https://microk8s.io for docs or
   install it with:

     sudo snap install microk8s --channel=1.18 --classic

 * Multipass 1.1 adds proxy support for developers behind enterprise
   firewalls. Rapid prototyping for cloud operations just got easier.

     https://multipass.run/

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

53 packages can be updated.
0 updates are security updates.


Last login: Wed Apr  1 20:30:39 2020 from 107.13.161.147
ubuntu@ip-172-31-77-47:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
09:10, 04/02; num of cores:36

Basic setting:[T, rep_times, sd_O, sd_D, sd_R, sd_u_O, w_O, w_A, [M_in_R, mean_reversion, pois0, simple, u_O_u_D]] = [None, 36, 10, 10,
None, 0.3, 0.5, 1, [True, False, True, False, 10]]


--------------------------------------
[pattern_seed, day, sd_R] = [2, 7, 10]

max(u_O) =  197.9
O_threshold = 80
means of Order:

87.8 97.8 52.4 162.7 58.1

77.3 115.7 68.5 72.4 75.7

117.4 197.9 100.7 71.1 116.9

83.2 98.9 141.5 79.5 99.8

76.4 94.9 107.4 73.9 89.9

target policy:

1 1 0 1 0

0 1 0 0 0

1 1 1 0 1

1 1 1 0 1

0 1 1 0 1

number of reward locations:  15
O_threshold = 90
target policy:

0 1 0 1 0

0 1 0 0 0

1 1 1 0 1

0 1 1 0 1

0 1 1 0 0
```

```
number of reward locations:  12
O_threshold = 100
target policy:

0 0 0 1 0

0 1 0 0 0

1 1 1 0 1

0 0 1 0 0

0 0 1 0 0

number of reward locations:  8
O_threshold = 110
target policy:

0 0 0 1 0

0 1 0 0 0

1 1 0 0 1

0 0 1 0 0

0 0 0 0 0

number of reward locations:  6
0 -th region DONE!
1 -th region DONE!
2 -th region DONE!
3 -th region DONE!
4 -th region DONE!
5 -th region DONE!
6 -th region DONE!
7 -th region DONE!
8 -th region DONE!
9 -th region DONE!
10 -th region DONE!
11 -th region DONE!
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17 -th region DONE!
18 -th region DONE!
19 -th region DONE!
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21 -th region DONE!
22 -th region DONE!
23 -th region DONE!
24 -th region DONE!
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18 -th region DONE!
19 -th region DONE!
20 -th region DONE!
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22 -th region DONE!
23 -th region DONE!
24 -th region DONE!
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2 -th region DONE!
3 -th region DONE!
4 -th region DONE!
5 -th region DONE!
6 -th region DONE!
7 -th region DONE!
8 -th region DONE!
9 -th region DONE!
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10 -th region DONE!
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23 -th region DONE!
24 -th region DONE!
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23 -th region DONE!
24 -th region DONE!

---------------------------------------
Value of Behaviour policy:60.732
O_threshold = 80
MC for this TARGET:[70.884, 0.141]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[0.37, 0.22, -0.96]][[1.21, 30205.52, -10.15]]
std:[[0.67, 0.65, 0.39]][[0.39, 81102.9, 0.25]]
MSE:[[0.77, 0.69, 1.04]][[1.27, 86545.1, 10.15]]
MSE(-DR):[[0.0, -0.08, 0.27]][[0.5, 86544.33, 9.38]]
***
==============


O_threshold = 90
MC for this TARGET:[69.371, 0.133]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.12, -0.26, -1.03]][[-0.58, 10251.21, -8.64]]
std:[[0.74, 0.73, 0.47]][[0.36, 84750.31, 0.25]]
MSE:[[0.75, 0.77, 1.13]][[0.68, 85368.04, 8.64]]
MSE(-DR):[[0.0, 0.02, 0.38]][[-0.07, 85367.29, 7.89]]
==============


O_threshold = 100
MC for this TARGET:[68.94, 0.132]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.78, -2.9, -3.38]][[-4.85, -77843.94, -8.21]]
std:[[0.67, 0.68, 0.4]][[0.36, 240260.01, 0.25]]
MSE:[[2.86, 2.98, 3.4]][[4.86, 252556.04, 8.21]]
MSE(-DR):[[0.0, 0.12, 0.54]][[2.0, 252553.18, 5.35]]
***
==============


O_threshold = 110
MC for this TARGET:[70.484, 0.135]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-6.56, -6.64, -6.86]][[-8.85, -24358.88, -9.75]]
std:[[0.63, 0.64, 0.4]][[0.35, 175285.73, 0.25]]
MSE:[[6.59, 6.67, 6.87]][[8.86, 176970.17, 9.75]]
MSE(-DR):[[0.0, 0.08, 0.28]][[2.27, 176963.58, 3.16]]
***
==============


[[7.7000e-01 6.9000e-01 1.0400e+00 1.2700e+00 8.6545e+04 1.0150e+01]
 [7.5000e-01 7.7000e-01 1.1300e+00 6.8000e-01 8.5368e+04 8.6400e+00]
 [2.8600e+00 2.9800e+00 3.4000e+00 4.8600e+00 2.5256e+05 8.2100e+00]
```

```
 [6.5900e+00 6.6700e+00 6.8700e+00 8.8600e+00 1.7697e+05 9.7500e+00]]


time spent until now: 89.6 mins


---------------------------------------
[pattern_seed, day, sd_R] = [2, 10, 10]

max(u_O) =  197.9
O_threshold = 80
means of Order:

87.8 97.8 52.4 162.7 58.1

77.3 115.7 68.5 72.4 75.7

117.4 197.9 100.7 71.1 116.9

83.2 98.9 141.5 79.5 99.8

76.4 94.9 107.4 73.9 89.9

target policy:

1 1 0 1 0

0 1 0 0 0

1 1 1 0 1

1 1 1 0 1

0 1 1 0 1

number of reward locations:  15
O_threshold = 90
target policy:

0 1 0 1 0

0 1 0 0 0

1 1 1 0 1

0 1 1 0 1

0 1 1 0 0

number of reward locations:  12
O_threshold = 100
target policy:

0 0 0 1 0

0 1 0 0 0

1 1 1 0 1

0 0 1 0 0

0 0 1 0 0

number of reward locations:  8
O_threshold = 110
target policy:

0 0 0 1 0

0 1 0 0 0

1 1 0 0 1

0 0 1 0 0

0 0 0 0 0

number of reward locations:  6
0 -th region DONE!
1 -th region DONE!
```