Due: 2016-12-16

Final

Exercise 1d. Explain your results. How do you interpret the hyper-parameters? Is there a great penalty? Is there room for errors without penalty? Is there a relationship between C and  $\epsilon$ ? Any other thoughts?

(final.SVM.sinc.py)

Response. (See results on reference pages)

In the first run through of final. SVM. sinc. py we achieved an  $E_{out}$  training result of 0.999654 and a Testing

Set Score of 0.998651 suggesting good correlation and/or relation between the data being compared. When

looking at the specific hyper-parameters, more specifically from the best result we got

C 0.125, epsilon 0.0, gamma 2.0. Testing set CV score: 0.066389

we can break them down to more specific parts. C denotes the "Penalty Parameter" dictating how much

deviations from the target will be penalized. In this case we can see that C is relatively small; however, now

we must observe epsilon to see how much grace is given to deviations. Epsilon or  $\epsilon$  denotes the amount of

grace given to deviations. More formally "It specifies the epsilon-tube within which no penalty is associated

in the training loss function with points predicted within a distance epsilon from the actual value." In this

particular case, we see that  $\epsilon = 0$  meaning that every deviation from the actual value will be penalized.

Given that C is a relatively small penalty in this particular case this does not have a major effect. However

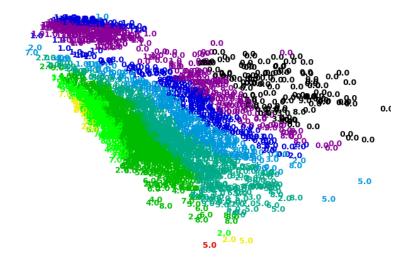
it is possible for C to be quite large and epsilon to be quite unforgiving at the same time, resulting a large

penalties for minor infractions. There seems to be a general pattern within the data set. As C increased in

size and gamma decreased, the over all CV Score improved.

Exercise 2b. Run the program in 2a and modify it if you need to, to find and report the best set of hyper-

parameters and the final validation score. Save the plot and interpret it, give your comments about it.



Response. Observing the different "clusters" or "classifications", for lack of a better term, we can see 9 different groups.

• Black: Comprised of 0, 8, and 3

• Purple: Comprised of 0, 8, and 1

• Blue: Comprised of 0, 8, 2, and 1

• Light Blue: Comprised of 0, 8, 3, 2, and 5

• Turquoise: Comprised of 0, 8, 3, 5, and 2

• Green: Comprised of 0, 8, 7, 6, 5, 4, 3, and 2

• Light Green: Comprised of 0, 9, 8, 7, and 4

• Yellow: Comprised of 0, 7, 5, and 2

• Red: Comprised of 5

This is hardly a scientific classification on my own part, given that a lot of the numbers are quite densely packed. In the case of such an experiment when the data is generated randomly there is no way to know the exact data being used against the Machine Learning Algorithm, unless it is logged. Since we did not log data we can only make assumptions based on our interpretation of the data generated. As previously stated, because we don't know the actual data, this assumption is acting on my own interpretation. It is reasonable to assume that the number of most occurrence within each set is the actual predicted number, while the minor deviations are misclassifications. In the case of the first group, hence forth shall be refered to by color, I believe the case is that the data is 0 while the rest (8 and 3) are misclassifications of 0. In the case of **Purple** 0 appears to be the most numerous while 1 and 8 are misclassifications. The rest of the data seem to follow a similar pattern, the reason for the lack of further explanation is that it is at this point

where the numbers are densely packed to the point where it becomes difficult to read. This trend continues until **Red** where we can see a distinct individual 5. Since this is the only case I would say that 5 is the actual number and there are no misclassifications.

Exercise 2c. Explain your results. How do you interpret the hyper-parameters? Is there a great penalty? Is there room for errors without penalty? Is there a relationship between C and  $\epsilon$ ? Any other thoughts? (final.SVM.dig.py)

Response. (See results on reference pages)

In the first run through of final SVM dig.py we achieved an  $E_{out}$  training result of 0.347283 and a Testing Set Score of 0.322890 indicating minimal correlation and/or relation between the data being compared. When looking at the specific hyper-parameters, specifically the best result of the data set

## C 4096.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.336943

we are able to decompose them into their individual parts. Given that the explanation of what each variable represents was stated please reference problem above (1d). There is a major difference the hyper-parameters between final.SVM.sinc and final.SVM.dig. Most noticeably the difference in C. C in this test case is extremely large, indicating major penalty for deviation from the actual value. This could possible have attributed to the lower Training and Testing Score. From what we know about SVM we can assume the a harsh C could be offset by an equally forgiving  $\epsilon$ . Looking at Epsilon we can see that  $\epsilon = 1.3$ , this means that the result allows for some deviation and is more forgiving when compared to final.SVM.sinc.py; however, it would seem that it is still not large enough to offset the staggering penalty that is enforced by C in the case significant deviation. Comparing all the results it would seem that there isn't as clear a relationship between C and  $\gamma$  as in the previous experiment. However analyzing all the "BEST!" show that as C and  $\gamma$  increase, so it would seem that C Score increases as well.

# final.SVM.sinc.results0.txt

## final.SVM.sinc.results1.txt

```
====== CV Score =======
C 0.03125, epsilon 0.0, gamma 3.0517578125e-05. Testing set CV score: -0.558361
C 0.03125, epsilon 0.0, gamma 0.00048828125. Testing set CV score: -0.543054
C 0.125, epsilon 0.0, gamma 2.0. Testing set CV score: -0.522815
C 0.5, epsilon 0.0, gamma 0.0001220703125. Testing set CV score: -0.519460
C 0.5, epsilon 0.0, gamma 2.0. Testing set CV score: -0.498454
C 8.0, epsilon 0.0, gamma 0.5. Testing set CV score: -0.229096
C 32.0, epsilon 0.0, gamma 0.5. Testing set CV score: -0.030411
C 128.0, epsilon 0.0, gamma 0.5. Testing set CV score: -0.001866
C 512.0, epsilon 0.0, gamma 0.5. Testing set CV score: -0.001832
*....*
optimization finished, #iter = 70479
obj = -5.411152, rho = -0.033465
nSV = 847, nBSV = 0
====== E out in Training =======
Training set score: 0.999999
======= Testing Set Score ========
Testing set score: 0.999981
```

### final.SVM.dig.results0.txt

====== CV Score ======= BEST! -> C 64.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.300746 BEST! -> C 64.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.310104 C 64.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.302810 BEST! -> C 64.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.323933 C 64.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.323445 C 64.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.304285 C 64.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.309371 C 64.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.319010 BEST! -> C 64.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.325050 C 64.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.324091 C 64.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.303406 C 64.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.314124 C 64.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.324296 BEST! -> C 64.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.327599 C 64.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.324234 C 64.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.307499 C 64.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.313521 C 64.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.322736 BEST! -> C 64.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.330599 C 64.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.317745 C 64.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.309450 C 64.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.317798 C 64.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.323247 C 64.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.321338 C 64.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.329219 C 64.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.311651

C 64.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.320332

C 64.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.328751 C 64.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.315675 C 64.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.320102 C 64.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.326585 C 64.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.331891 C 64.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.327456 C 64.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.317368 C 64.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.322450 C 64.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.327138 C 64.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.330352 C 64.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.327885 C 64.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.316498 C 64.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.321991 C 64.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.331192 C 64.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.330986 C 64.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.326065 C 64.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.319376 C 64.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.323540 C 64.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.329601 C 64.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.325391 C 64.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.322518 C 64.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.317126 C 64.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.324781 C 64.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.323656 C 64.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.331206 C 64.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.320978 C 64.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.319041 C 64.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.322254 C 64.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.330401 C 64.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.321672 C 64.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.320577 C 64.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.318381 C 64.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.323298

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C 64.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.325996
C 64.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.329667
C 64.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.317093
C 64.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.319283
C 64.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.319990
C 64.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.331780
C 64.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.328335
C 64.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.317321
C 64.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.319353
C 64.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.321825
BEST! -> C 64.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.332263
C 64.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.314076
C 64.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.311304
C 64.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.320234
C 64.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.323463
BEST! -> C 64.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.334010
C 64.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.317421
C 64.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.306075
C 64.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.316795
C 64.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.316946
C 64.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.333351
C 64.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.319737
C 64.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.305300
C 64.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.319702
C 64.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.321180
C 64.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.332548
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C 64.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.311954
C 64.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.302959

C 64.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.315884
C 64.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.319420
C 64.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.322500
C 64.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.306550
C 64.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.298543

C 64.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.315003

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C 64.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.321228
C 64.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.326893
C 64.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.298808
C 64.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.293084
C 64.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.314644
C 64.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.318039
C 64.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.324387
C 64.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.295985
C 64.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.280748
C 128.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.298828
C 128.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.313734
C 128.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.320302
C 128.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.322328
C 128.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.320113
C 128.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.303920
C 128.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.315255
C 128.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.320894
C 128.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.326339
C 128.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.311352
C 128.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.306981
C 128.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.317264
C 128.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.326490
C 128.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.316438
C 128.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.325011
C 128.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.297146
C 128.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.318547
C 128.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.324775
C 128.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.329595
C 128.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.329924
C 128.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.312483
C 128.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.320088
C 128.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.328965
C 128.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.329836
C 128.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.325239
C 128.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.314541
C 128.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.320579
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C 128.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.330164
C 128.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.328244
C 128.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.327664
C 128.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.316044
C 128.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.320570
C 128.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.331248
BEST! -> C 128.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.334839
C 128.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.330535
C 128.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.315948
C 128.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.322938
C 128.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.320277
C 128.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.333037
C 128.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.327897
C 128.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.316364
C 128.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.322731
C 128.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.329493
C 128.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.332462
C 128.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.325919
C 128.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.319891
C 128.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.323248
C 128.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.332156
C 128.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.329198
C 128.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.328211
C 128.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.320902
C 128.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.322535
C 128.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.330352
C 128.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.331198
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C 128.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.329545

C 128.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.320993

C 128.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.320887 C 128.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.321170

BEST! -> C 128.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.335387

C 128.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.321770

C 128.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.321831

C 128.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.319111 C 128.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.320415 C 128.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.316876 C 128.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.324959 C 128.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.334349 C 128.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.316938 C 128.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.317901 C 128.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.318815 C 128.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.326226 C 128.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.331180 C 128.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.326641 C 128.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.320063 C 128.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.320730 C 128.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.322931 C 128.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.333901 C 128.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.321471 C 128.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.304586 C 128.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.318742 C 128.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.323668 C 128.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.331162 C 128.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.315628 C 128.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.308260 C 128.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.317897 C 128.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.314792 C 128.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.332407 C 128.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.311058 C 128.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.298256 C 128.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.316509 C 128.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.320986 C 128.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.332363 C 128.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.307865 C 128.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.300449 C 128.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.315185

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C 128.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.321215
C 128.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.326553
C 128.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.300076
C 128.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.292981
C 128.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.314253
C 128.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.318004
C 128.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.323196
C 128.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.291284
C 128.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.280024
C 256.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.302960
C 256.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.317729
C 256.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.321957
C 256.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.327276
C 256.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.319668
C 256.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.303820
C 256.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.318871
C 256.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.325965
C 256.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.328455
C 256.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.321637
C 256.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.308223
C 256.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.316028
C 256.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.326137
C 256.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.325970
C 256.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.321891
C 256.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.310702
C 256.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.322540
C 256.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.328913
C 256.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.326603
C 256.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.322793
C 256.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.314282
C 256.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.321253
C 256.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.328879
C 256.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.326227
C 256.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.322662
C 256.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.312765
C 256.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.322491
```

```
C 256.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.331195
C 256.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.323721
C 256.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.325659
C 256.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.318326
C 256.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.325010
C 256.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.331533
C 256.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.330062
C 256.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.325883
C 256.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.316675
C 256.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.322032
C 256.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.331947
C 256.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.330833
C 256.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.326645
C 256.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.316423
C 256.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.322246
C 256.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.333427
C 256.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.332081
C 256.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.323115
C 256.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.319217
C 256.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.324068
C 256.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.326738
C 256.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.334556
C 256.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.323888
C 256.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.316508
C 256.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.324218
C 256.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.334046
C 256.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.330283
C 256.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.323025
C 256.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.318285
C 256.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.325782
C 256.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.331572
C 256.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.329331
C 256.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.319074
C 256.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.317238
C 256.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.323378
C 256.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.332686
```

```
C 256.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.330311
C 256.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.318164
C 256.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.320065
C 256.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.325980
C 256.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.331544
C 256.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.326601
C 256.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.322773
C 256.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.315548
C 256.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.326140
C 256.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.327050
C 256.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.314007
C 256.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.313251
C 256.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.318806
C 256.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.327178
C 256.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.328201
C 256.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.321282
C 256.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.317103
C 256.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.320611
C 256.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.326970
C 256.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.326085
C 256.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.316587
C 256.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.315762
C 256.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.319505
C 256.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.323558
C 256.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.317491
C 256.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.311324
C 256.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.305068
C 256.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.316236
C 256.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.325983
C 256.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.311827
C 256.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.306209
C 256.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.305679
C 256.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.315392
C 256.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.314372
C 256.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.320596
C 256.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.303095
```

```
C 256.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.295398
C 256.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.315427
C 256.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.314721
C 256.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.309650
C 256.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.294504
C 256.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.281223
C 512.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.305505
C 512.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.316111
C 512.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.325825
C 512.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.318737
C 512.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.316216
C 512.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.291150
C 512.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.318459
C 512.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.325094
C 512.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.323348
C 512.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.318775
C 512.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.311504
C 512.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.322796
C 512.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.325735
C 512.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.323150
C 512.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.310374
C 512.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.311156
C 512.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.319791
C 512.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.327282
C 512.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.327518
C 512.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.313223
C 512.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.304162
C 512.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.322692
C 512.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.330340
C 512.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.328389
C 512.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.323657
C 512.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.316008
C 512.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.324940
C 512.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.330716
C 512.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.332356
C 512.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.325547
```

```
C 512.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.318416
C 512.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.324947
C 512.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.323720
C 512.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.328169
C 512.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.325899
C 512.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.312859
C 512.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.324946
C 512.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.328800
C 512.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.328445
C 512.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.324301
C 512.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.320004
C 512.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.326040
C 512.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.331698
C 512.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.332106
C 512.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.324908
C 512.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.320172
C 512.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.323315
C 512.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.328459
C 512.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.328067
C 512.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.314844
C 512.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.318845
C 512.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.326565
C 512.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.325468
C 512.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.327691
C 512.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.323405
C 512.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.322607
C 512.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.325973
C 512.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.331024
C 512.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.329692
C 512.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.309904
C 512.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.321336
C 512.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.327981
C 512.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.328341
C 512.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.328314
C 512.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.315710
C 512.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.322776
```

```
C 512.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.321353
C 512.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.325306
C 512.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.326819
C 512.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.315448
C 512.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.322325
C 512.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.328906
C 512.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.323455
C 512.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.321902
C 512.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.311119
C 512.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.320807
C 512.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.329843
C 512.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.321493
C 512.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.314650
C 512.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.309273
C 512.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.319075
C 512.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.329945
C 512.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.320367
C 512.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.318892
C 512.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.308168
C 512.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.318173
C 512.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.329672
C 512.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.319715
C 512.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.315279
C 512.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.304940
C 512.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.318922
C 512.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.326645
C 512.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.311983
C 512.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.310482
C 512.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.295328
C 512.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.315278
C 512.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.326382
C 512.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.303578
C 512.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.305156
C 512.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.289062
C 512.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.314023
C 512.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.323465
```

```
C 512.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.300623
C 512.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.297939
C 512.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.283625
C 1024.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.307786
C 1024.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.319519
C 1024.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.322389
C 1024.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.304946
C 1024.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.303463
C 1024.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.312656
C 1024.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.319454
C 1024.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.320976
C 1024.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.321149
C 1024.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.318798
C 1024.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.315742
C 1024.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.321122
C 1024.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.324353
C 1024.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.312630
C 1024.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.324459
C 1024.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.303987
C 1024.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.320147
C 1024.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.330701
C 1024.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.323742
C 1024.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.320381
C 1024.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.307257
C 1024.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.322640
C 1024.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.328490
C 1024.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.326910
C 1024.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.323785
C 1024.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.319496
C 1024.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.324580
C 1024.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.328679
C 1024.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.327968
C 1024.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.324725
C 1024.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.321328
C 1024.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.318058
C 1024.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.329930
```

```
C 1024.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.329082
C 1024.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.316692
C 1024.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.321146
C 1024.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.324071
C 1024.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.332213
C 1024.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.330881
C 1024.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.324680
C 1024.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.322227
C 1024.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.329437
C 1024.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.329769
C 1024.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.330606
C 1024.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.322311
C 1024.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.322291
C 1024.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.324945
C 1024.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.325287
C 1024.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.334424
C 1024.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.325087
C 1024.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.319453
C 1024.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.326019
C 1024.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.332319
C 1024.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.327362
C 1024.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.320066
C 1024.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.324843
C 1024.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.323260
C 1024.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.331089
C 1024.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.330028
C 1024.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.319417
C 1024.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.322938
C 1024.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.328208
C 1024.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.329864
C 1024.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.328110
C 1024.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.317501
C 1024.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.323208
C 1024.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.328115
C 1024.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.330422
C 1024.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.325134
```

```
C 1024.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.315803
C 1024.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.324308
C 1024.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.330716
C 1024.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.327285
C 1024.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.327920
C 1024.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.312426
C 1024.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.320133
C 1024.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.331433
C 1024.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.312933
C 1024.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.318254
C 1024.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.307995
C 1024.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.321729
C 1024.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.330468
C 1024.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.322148
C 1024.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.317122
C 1024.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.305992
C 1024.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.320535
C 1024.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.330614
C 1024.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.320219
C 1024.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.312882
C 1024.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.299969
C 1024.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.318512
C 1024.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.323761
C 1024.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.312301
C 1024.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.305007
C 1024.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.294253
C 1024.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.319181
C 1024.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.331385
C 1024.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.305048
C 1024.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.297958
C 1024.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.286204
C 1024.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.315450
C 1024.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.325996
C 1024.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.301946
C 1024.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.297281
C 1024.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.279357
```

```
C 2048.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.312014
C 2048.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.317514
C 2048.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.319657
C 2048.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.321779
C 2048.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.315249
C 2048.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.314900
C 2048.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.317296
C 2048.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.322823
C 2048.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.319167
C 2048.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.315149
C 2048.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.317130
C 2048.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.321106
C 2048.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.323044
C 2048.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.321986
C 2048.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.320020
C 2048.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.318283
C 2048.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.325220
C 2048.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.325168
C 2048.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.313796
C 2048.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.320142
C 2048.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.320369
C 2048.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.321200
C 2048.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.326467
C 2048.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.326243
C 2048.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.323536
C 2048.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.319404
C 2048.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.319737
C 2048.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.328149
C 2048.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.331452
C 2048.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.324429
C 2048.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.320182
C 2048.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.322098
C 2048.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.333322
C 2048.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.328467
C 2048.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.324488
C 2048.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.323191
```

```
C 2048.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.329399
C 2048.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.324135
C 2048.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.330248
C 2048.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.326330
C 2048.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.322313
C 2048.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.328623
C 2048.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.333148
C 2048.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.330157
C 2048.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.323092
C 2048.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.323874
C 2048.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.328500
C 2048.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.332075
C 2048.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.329758
C 2048.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.321683
C 2048.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.322161
C 2048.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.329725
C 2048.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.333511
C 2048.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.334242
C 2048.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.322522
C 2048.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.322931
C 2048.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.330491
C 2048.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.333103
C 2048.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.333022
C 2048.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.321410
C 2048.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.326533
C 2048.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.331265
C 2048.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.323033
C 2048.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.327211
C 2048.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.317396
C 2048.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.319310
C 2048.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.331338
C 2048.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.328324
C 2048.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.325988
C 2048.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.317276
C 2048.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.324446
C 2048.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.334115
```

```
C 2048.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.328591
C 2048.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.328043
C 2048.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.317680
C 2048.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.323987
C 2048.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.334099
C 2048.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.328913
C 2048.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.318445
C 2048.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.305665
C 2048.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.323590
C 2048.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.335046
C 2048.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.326452
C 2048.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.309935
C 2048.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.303134
C 2048.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.324332
C 2048.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.333003
C 2048.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.318849
C 2048.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.311527
C 2048.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.299822
C 2048.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.320840
C 2048.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.332174
C 2048.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.315407
C 2048.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.306601
C 2048.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.297442
C 2048.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.322348
C 2048.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.328490
C 2048.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.309926
C 2048.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.302295
C 2048.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.285282
C 2048.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.318638
C 2048.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.322019
C 2048.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.308451
C 2048.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.296517
C 2048.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.275315
C 4096.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.316199
C 4096.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.319158
C 4096.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.319313
```

```
C 4096.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.303243
C 4096.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.313579
C 4096.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.317416
C 4096.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.320869
C 4096.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.320661
C 4096.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.321906
C 4096.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.321257
C 4096.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.319371
C 4096.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.324083
C 4096.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.320631
C 4096.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.319417
C 4096.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.320087
C 4096.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.320927
C 4096.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.318559
C 4096.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.323909
C 4096.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.321199
C 4096.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.319870
C 4096.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.322827
C 4096.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.319160
C 4096.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.324566
C 4096.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.325723
C 4096.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.322551
C 4096.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.322020
C 4096.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.321426
C 4096.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.327165
C 4096.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.327744
C 4096.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.313727
C 4096.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.323570
C 4096.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.327488
C 4096.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.320896
C 4096.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.332174
C 4096.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.323871
C 4096.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.324611
C 4096.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.326667
C 4096.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.329684
C 4096.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.328886
```

```
C 4096.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.326430
C 4096.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.319630
C 4096.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.331308
BEST! -> C 4096.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.336943
C 4096.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.329283
C 4096.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.323231
C 4096.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.326880
C 4096.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.332689
C 4096.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.333819
C 4096.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.328425
C 4096.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.322193
C 4096.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.325172
C 4096.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.325645
C 4096.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.334637
C 4096.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.327035
C 4096.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.321693
C 4096.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.320624
C 4096.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.335256
C 4096.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.336699
C 4096.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.331236
C 4096.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.315774
C 4096.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.326628
```

C 4096.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.334964 C 4096.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.333125 C 4096.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.325246 C 4096.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.312884

C 4096.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.323865 C 4096.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.334909 C 4096.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.331255 C 4096.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.319260 C 4096.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.311285

C 4096.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.320271 C 4096.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.330953 C 4096.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.328280 C 4096.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.318454

```
C 4096.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.317109
C 4096.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.328037
C 4096.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.329495
C 4096.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.328746
C 4096.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.318844
C 4096.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.305593
C 4096.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.318428
C 4096.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.329045
C 4096.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.327565
C 4096.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.313481
C 4096.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.304094
C 4096.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.324624
C 4096.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.327244
C 4096.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.323230
C 4096.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.308734
C 4096.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.298598
C 4096.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.315214
C 4096.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.318319
C 4096.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.323339
C 4096.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.301487
C 4096.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.290980
C 4096.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.323377
C 4096.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.306296
C 4096.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.310961
C 4096.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.299613
C 4096.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.288801
C 4096.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.319944
C 4096.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.303606
C 4096.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.306261
C 4096.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.290031
C 4096.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.276134
optimization finished, #iter = 604684
obj = -26731900.053213, rho = -68.674752
nSV = 3939, nBSV = 3926
====== Final BEST =======
C 4096.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.336943
```

====== E\_out in Training ========

Training set score: 0.347283

====== Testing Set Score =======

Testing set score: 0.322890

### final.SVM.dig.results1.txt

====== CV Score ======= BEST! -> C 64.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.301837 BEST! -> C 64.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.310911 C 64.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.302810 BEST! -> C 64.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.327782 C 64.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.323216 C 64.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.300949 C 64.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.310706 C 64.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.319355 C 64.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.323565 C 64.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.325429 C 64.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.303406 C 64.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.314514 C 64.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.325381 C 64.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.325346 C 64.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.326498 C 64.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.308880 C 64.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.315794 C 64.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.324703 C 64.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.327099 C 64.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.325355 C 64.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.310364 C 64.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.315513 C 64.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.323247 BEST! -> C 64.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.331408 C 64.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.326960 C 64.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.312646 C 64.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.316609 C 64.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.325436

BEST! -> C 64.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.332140

C 64.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.328751 C 64.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.308598 C 64.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.320368 C 64.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.323630 C 64.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.331891 C 64.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.320517 C 64.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.318372 C 64.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.322450 C 64.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.325995 BEST! -> C 64.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.334236 C 64.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.325801 C 64.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.316498 C 64.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.321532 C 64.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.328521 C 64.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.325442 C 64.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.325535 C 64.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.317407

C 64.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.321787 C 64.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.328451 C 64.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.330367 C 64.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.324486 C 64.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.319091 C 64.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.319732 C 64.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.323656 C 64.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.332154 C 64.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.324209 C 64.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.318067 C 64.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.323280 C 64.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.331998 C 64.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.330228 C 64.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.317230 C 64.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.319000 C 64.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.320946 C 64.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.332142

```
C 64.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.329667
C 64.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.318411
C 64.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.320824
C 64.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.321118
C 64.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.329473
C 64.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.324461
C 64.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.317468
C 64.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.318454
C 64.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.323784
C 64.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.331225
C 64.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.322853
C 64.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.311304
C 64.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.320234
C 64.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.324816
C 64.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.333640
C 64.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.319995
C 64.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.302096
C 64.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.311607
C 64.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.321662
C 64.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.330854
C 64.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.315836
C 64.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.305300
C 64.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.318297
C 64.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.322040
C 64.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.331649
C 64.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.310758
C 64.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.300720
C 64.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.317268
C 64.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.320555
C 64.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.330144
C 64.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.305705
C 64.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.298017
C 64.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.316991
C 64.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.319089
C 64.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.321991
C 64.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.298956
```

```
C 64.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.299317
C 64.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.311755
C 64.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.318039
C 64.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.322721
C 64.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.295985
C 64.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.283891
C 128.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.298932
C 128.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.314100
C 128.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.322325
C 128.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.322584
C 128.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.321442
C 128.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.300986
C 128.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.314981
C 128.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.308407
C 128.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.323239
C 128.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.321454
C 128.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.306981
C 128.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.316686
C 128.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.324789
C 128.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.316438
C 128.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.323125
C 128.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.307844
C 128.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.306316
C 128.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.325755
C 128.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.328719
C 128.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.317127
C 128.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.309019
C 128.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.321101
C 128.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.324079
C 128.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.321590
C 128.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.327472
C 128.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.314541
C 128.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.320579
C 128.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.330164
C 128.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.330610
C 128.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.330298
```

```
C 128.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.314641
C 128.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.319640
C 128.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.328849
BEST! -> C 128.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.334839
C 128.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.324499
C 128.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.315468
C 128.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.316691
C 128.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.327864
C 128.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.329116
C 128.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.326242
C 128.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.313869
C 128.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.321666
C 128.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.322855
C 128.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.328798
C 128.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.325335
C 128.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.320670
C 128.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.325768
C 128.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.332156
C 128.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.330828
C 128.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.323509
C 128.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.317487
C 128.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.323800
C 128.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.331454
C 128.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.330254
C 128.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.326347
C 128.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.316563
C 128.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.324245
C 128.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.333929
C 128.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.321915
C 128.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.319131
C 128.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.316848
C 128.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.325909
BEST! -> C 128.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.334921
```

C 128.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.328155

```
C 128.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.310490
C 128.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.316992
C 128.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.326223
C 128.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.331783
C 128.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.328403
C 128.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.316730
C 128.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.319585
C 128.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.324771
C 128.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.333741
C 128.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.320572
C 128.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.314482
C 128.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.318306
C 128.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.319181
C 128.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.333817
C 128.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.319291
C 128.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.310395
C 128.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.312796
C 128.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.317269
C 128.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.332338
C 128.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.316397
C 128.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.308260
C 128.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.317897
C 128.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.324256
C 128.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.332260
C 128.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.309267
C 128.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.304004
C 128.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.316494
C 128.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.321978
C 128.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.327491
C 128.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.306164
C 128.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.300554
C 128.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.315185
C 128.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.320308
C 128.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.320249
C 128.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.299493
C 128.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.292981
```

```
C 128.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.313594
C 128.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.318814
C 128.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.320128
C 128.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.291669
C 128.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.288696
C 256.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.303093
C 256.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.317729
C 256.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.321957
C 256.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.321887
C 256.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.323942
C 256.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.304223
C 256.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.318871
C 256.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.323779
C 256.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.325691
C 256.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.320672
C 256.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.306655
C 256.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.316028
C 256.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.326567
C 256.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.315251
C 256.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.326849
C 256.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.308196
C 256.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.320283
C 256.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.325575
C 256.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.328092
C 256.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.324012
C 256.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.312339
C 256.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.321724
C 256.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.328757
C 256.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.328761
C 256.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.326043
C 256.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.315528
C 256.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.314721
C 256.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.331195
C 256.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.330514
C 256.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.326572
C 256.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.316041
```

```
C 256.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.323463
C 256.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.330413
C 256.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.329057
C 256.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.317961
C 256.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.317611
C 256.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.325808
C 256.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.333010
C 256.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.329748
C 256.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.325145
C 256.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.315544
C 256.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.327351
C 256.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.329708
C 256.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.332633
C 256.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.324295
C 256.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.319189
C 256.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.327508
C 256.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.333074
C 256.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.329111
C 256.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.323413
C 256.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.318194
C 256.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.326928
C 256.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.333251
C 256.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.331586
C 256.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.323025
C 256.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.317175
C 256.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.323188
C 256.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.334808
C 256.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.329320
C 256.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.325489
C 256.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.319806
C 256.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.326187
C 256.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.331453
C 256.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.327052
C 256.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.318164
C 256.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.321767
C 256.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.327556
```

```
C 256.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.327337
C 256.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.325751
C 256.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.322773
C 256.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.319785
C 256.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.326140
BEST! -> C 256.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.335034
C 256.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.325519
C 256.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.319783
C 256.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.318191
C 256.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.319886
C 256.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.330541
C 256.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.318671
C 256.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.308982
C 256.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.316648
C 256.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.326263
C 256.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.326155
C 256.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.316403
C 256.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.308587
C 256.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.318465
C 256.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.325427
C 256.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.321726
C 256.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.316476
C 256.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.304470
C 256.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.316719
```

C 256.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.325827 C 256.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.315866 C 256.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.307806 C 256.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.300224

C 256.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.314097 C 256.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.321252 C 256.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.314478 C 256.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.300929 C 256.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.292067

C 256.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.312971 C 256.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.321562

```
C 256.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.309864
C 256.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.295616
C 256.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.295766
C 512.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.306247
C 512.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.318823
C 512.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.320185
C 512.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.325109
C 512.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.322523
C 512.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.309328
C 512.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.318459
C 512.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.325094
C 512.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.323661
C 512.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.316451
C 512.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.311504
C 512.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.320011
C 512.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.323853
C 512.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.324943
C 512.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.310374
C 512.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.314542
C 512.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.321556
C 512.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.326884
C 512.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.326094
C 512.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.322807
C 512.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.314684
C 512.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.321970
C 512.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.331722
C 512.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.324841
C 512.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.323657
C 512.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.316636
C 512.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.322109
C 512.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.328704
C 512.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.328418
C 512.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.322461
C 512.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.311117
C 512.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.326105
C 512.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.330408
```

```
C 512.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.330720
C 512.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.326658
C 512.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.316881
C 512.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.325432
C 512.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.324534
C 512.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.322916
C 512.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.326490
C 512.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.317947
C 512.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.326040
C 512.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.327105
C 512.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.331444
C 512.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.316056
C 512.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.322434
C 512.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.321404
C 512.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.331270
C 512.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.334856
C 512.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.324690
C 512.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.320956
C 512.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.325963
C 512.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.332054
C 512.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.331588
C 512.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.319828
C 512.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.320093
C 512.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.327574
C 512.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.327171
C 512.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.329747
C 512.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.319311
C 512.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.321336
C 512.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.329617
C 512.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.325674
C 512.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.331595
C 512.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.309921
C 512.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.317468
C 512.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.327862
C 512.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.324719
C 512.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.328066
```

```
C 512.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.313307
C 512.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.316322
C 512.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.327250
C 512.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.321164
C 512.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.316077
C 512.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.312471
C 512.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.321532
C 512.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.329137
C 512.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.317365
C 512.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.314650
C 512.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.308141
C 512.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.321268
C 512.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.328431
C 512.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.317793
C 512.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.322204
C 512.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.308168
C 512.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.318839
C 512.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.326940
C 512.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.307780
C 512.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.312481
C 512.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.302868
C 512.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.317112
C 512.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.326645
C 512.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.311983
C 512.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.310482
C 512.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.295089
C 512.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.315405
C 512.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.326751
C 512.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.308010
C 512.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.298333
C 512.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.289969
C 512.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.315634
C 512.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.324970
C 512.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.297409
C 512.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.291719
C 512.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.287420
```

```
C 1024.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.310874
C 1024.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.319519
C 1024.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.322389
C 1024.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.317802
C 1024.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.315061
C 1024.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.311202
C 1024.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.320564
C 1024.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.326738
C 1024.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.325395
C 1024.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.316708
C 1024.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.315024
C 1024.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.309928
C 1024.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.322343
C 1024.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.321418
C 1024.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.317594
C 1024.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.316748
C 1024.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.322936
C 1024.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.326253
C 1024.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.314851
C 1024.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.321772
C 1024.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.307257
C 1024.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.314879
C 1024.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.328490
C 1024.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.326910
C 1024.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.324073
C 1024.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.321094
C 1024.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.323480
C 1024.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.329990
C 1024.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.328273
C 1024.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.324631
C 1024.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.320296
C 1024.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.325955
C 1024.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.330059
C 1024.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.332678
C 1024.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.324335
C 1024.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.321146
```

```
C 1024.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.324741
C 1024.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.334652
C 1024.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.329078
C 1024.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.325823
C 1024.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.319406
C 1024.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.323490
C 1024.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.332851
C 1024.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.330606
C 1024.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.324712
C 1024.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.324485
C 1024.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.323883
C 1024.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.332312
C 1024.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.331657
C 1024.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.323613
C 1024.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.317542
C 1024.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.330478
C 1024.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.331770
C 1024.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.330903
C 1024.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.322097
C 1024.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.324843
C 1024.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.330630
C 1024.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.322952
C 1024.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.329670
C 1024.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.321631
C 1024.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.318606
C 1024.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.332022
C 1024.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.327261
C 1024.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.321458
C 1024.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.317427
C 1024.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.320602
C 1024.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.330409
C 1024.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.327687
C 1024.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.330209
C 1024.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.315741
C 1024.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.317436
C 1024.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.332008
```

```
C 1024.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.324721
C 1024.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.317368
C 1024.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.311116
C 1024.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.322552
C 1024.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.332110
C 1024.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.322960
C 1024.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.320217
C 1024.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.307995
C 1024.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.321729
C 1024.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.329222
C 1024.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.324314
C 1024.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.317038
C 1024.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.304978
C 1024.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.321993
C 1024.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.331691
C 1024.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.318970
C 1024.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.316003
C 1024.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.299969
C 1024.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.310220
C 1024.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.331345
C 1024.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.313484
C 1024.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.309434
C 1024.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.293171
C 1024.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.320718
C 1024.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.327205
C 1024.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.307014
C 1024.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.304040
C 1024.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.286204
C 1024.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.317280
C 1024.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.328037
C 1024.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.305489
C 1024.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.299475
C 1024.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.277748
C 2048.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.315592
C 2048.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.319150
C 2048.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.307841
```

```
C 2048.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.315791
C 2048.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.313753
C 2048.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.314463
C 2048.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.318135
C 2048.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.321062
C 2048.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.323479
C 2048.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.317937
C 2048.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.316249
C 2048.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.321958
C 2048.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.322847
C 2048.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.325353
C 2048.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.318378
C 2048.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.319682
C 2048.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.319447
C 2048.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.324993
C 2048.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.323764
C 2048.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.319353
C 2048.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.309437
C 2048.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.313969
C 2048.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.325490
C 2048.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.323212
C 2048.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.313431
C 2048.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.321220
C 2048.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.324556
C 2048.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.327994
C 2048.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.327688
C 2048.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.323924
C 2048.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.321105
C 2048.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.317251
C 2048.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.331106
C 2048.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.319113
C 2048.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.323313
C 2048.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.321169
C 2048.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.329399
C 2048.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.324135
C 2048.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.327508
```

```
C 2048.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.325667
C 2048.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.323051
C 2048.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.325838
C 2048.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.333306
C 2048.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.330916
C 2048.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.325357
C 2048.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.324119
C 2048.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.328500
BEST! -> C 2048.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.330207
C 2048.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.321683
C 2048.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.322161
C 2048.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.331730
```

```
C 2048.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.321683
C 2048.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.322161
C 2048.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.331730
C 2048.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.331428
C 2048.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.329603
C 2048.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.312975
C 2048.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.324305
C 2048.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.331780
C 2048.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.330260
C 2048.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.328377
C 2048.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.319374
C 2048.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.326533
C 2048.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.333024
C 2048.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.331282
C 2048.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.319773
C 2048.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.317613
C 2048.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.324974
C 2048.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.334083
C 2048.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.321122
C 2048.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.324755
C 2048.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.315075
C 2048.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.325466
C 2048.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.332135
C 2048.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.330870
C 2048.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.317248
```

```
C 2048.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.312391
C 2048.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.324143
C 2048.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.333903
C 2048.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.328709
C 2048.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.313847
C 2048.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.305665
C 2048.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.323620
C 2048.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.334353
C 2048.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.327242
C 2048.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.314628
C 2048.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.304350
C 2048.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.320631
C 2048.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.334884
C 2048.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.320873
C 2048.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.309984
C 2048.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.298888
C 2048.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.320503
C 2048.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.333026
C 2048.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.309736
C 2048.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.303329
C 2048.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.294505
C 2048.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.318768
C 2048.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.329632
C 2048.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.309926
C 2048.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.302295
C 2048.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.291529
C 2048.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.318190
C 2048.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.325579
C 2048.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.303646
C 2048.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.293759
C 2048.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.275315
C 4096.0, epsilon 0.5, gamma 0.015625. Testing set CV score: 0.316662
C 4096.0, epsilon 0.5, gamma 0.03125. Testing set CV score: 0.318505
C 4096.0, epsilon 0.5, gamma 0.0625. Testing set CV score: 0.307055
C 4096.0, epsilon 0.5, gamma 0.125. Testing set CV score: 0.314690
C 4096.0, epsilon 0.5, gamma 0.25. Testing set CV score: 0.320040
```

```
C 4096.0, epsilon 0.6, gamma 0.015625. Testing set CV score: 0.316841
C 4096.0, epsilon 0.6, gamma 0.03125. Testing set CV score: 0.319299
C 4096.0, epsilon 0.6, gamma 0.0625. Testing set CV score: 0.309431
C 4096.0, epsilon 0.6, gamma 0.125. Testing set CV score: 0.317991
C 4096.0, epsilon 0.6, gamma 0.25. Testing set CV score: 0.315692
C 4096.0, epsilon 0.7, gamma 0.015625. Testing set CV score: 0.316711
C 4096.0, epsilon 0.7, gamma 0.03125. Testing set CV score: 0.319751
C 4096.0, epsilon 0.7, gamma 0.0625. Testing set CV score: 0.326200
C 4096.0, epsilon 0.7, gamma 0.125. Testing set CV score: 0.320500
C 4096.0, epsilon 0.7, gamma 0.25. Testing set CV score: 0.317800
C 4096.0, epsilon 0.8, gamma 0.015625. Testing set CV score: 0.318388
C 4096.0, epsilon 0.8, gamma 0.03125. Testing set CV score: 0.324621
C 4096.0, epsilon 0.8, gamma 0.0625. Testing set CV score: 0.328106
C 4096.0, epsilon 0.8, gamma 0.125. Testing set CV score: 0.312434
C 4096.0, epsilon 0.8, gamma 0.25. Testing set CV score: 0.321758
C 4096.0, epsilon 0.9, gamma 0.015625. Testing set CV score: 0.311705
C 4096.0, epsilon 0.9, gamma 0.03125. Testing set CV score: 0.321563
C 4096.0, epsilon 0.9, gamma 0.0625. Testing set CV score: 0.316313
C 4096.0, epsilon 0.9, gamma 0.125. Testing set CV score: 0.324934
C 4096.0, epsilon 0.9, gamma 0.25. Testing set CV score: 0.320366
C 4096.0, epsilon 1.0, gamma 0.015625. Testing set CV score: 0.320876
C 4096.0, epsilon 1.0, gamma 0.03125. Testing set CV score: 0.319284
C 4096.0, epsilon 1.0, gamma 0.0625. Testing set CV score: 0.331216
C 4096.0, epsilon 1.0, gamma 0.125. Testing set CV score: 0.327744
C 4096.0, epsilon 1.0, gamma 0.25. Testing set CV score: 0.323986
C 4096.0, epsilon 1.1, gamma 0.015625. Testing set CV score: 0.323106
C 4096.0, epsilon 1.1, gamma 0.03125. Testing set CV score: 0.324597
C 4096.0, epsilon 1.1, gamma 0.0625. Testing set CV score: 0.331263
C 4096.0, epsilon 1.1, gamma 0.125. Testing set CV score: 0.327867
C 4096.0, epsilon 1.1, gamma 0.25. Testing set CV score: 0.323871
C 4096.0, epsilon 1.2, gamma 0.015625. Testing set CV score: 0.325264
C 4096.0, epsilon 1.2, gamma 0.03125. Testing set CV score: 0.329016
C 4096.0, epsilon 1.2, gamma 0.0625. Testing set CV score: 0.331467
C 4096.0, epsilon 1.2, gamma 0.125. Testing set CV score: 0.329192
C 4096.0, epsilon 1.2, gamma 0.25. Testing set CV score: 0.324445
C 4096.0, epsilon 1.3, gamma 0.015625. Testing set CV score: 0.324746
```

```
C 4096.0, epsilon 1.3, gamma 0.03125. Testing set CV score: 0.328404
C 4096.0, epsilon 1.3, gamma 0.0625. Testing set CV score: 0.333054
C 4096.0, epsilon 1.3, gamma 0.125. Testing set CV score: 0.326912
C 4096.0, epsilon 1.3, gamma 0.25. Testing set CV score: 0.322330
C 4096.0, epsilon 1.4, gamma 0.015625. Testing set CV score: 0.326880
C 4096.0, epsilon 1.4, gamma 0.03125. Testing set CV score: 0.332684
C 4096.0, epsilon 1.4, gamma 0.0625. Testing set CV score: 0.326154
C 4096.0, epsilon 1.4, gamma 0.125. Testing set CV score: 0.329840
C 4096.0, epsilon 1.4, gamma 0.25. Testing set CV score: 0.313596
C 4096.0, epsilon 1.5, gamma 0.015625. Testing set CV score: 0.327015
C 4096.0, epsilon 1.5, gamma 0.03125. Testing set CV score: 0.332209
BEST! -> C 4096.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.337199
C 4096.0, epsilon 1.5, gamma 0.125. Testing set CV score: 0.332093
C 4096.0, epsilon 1.5, gamma 0.25. Testing set CV score: 0.310998
C 4096.0, epsilon 1.6, gamma 0.015625. Testing set CV score: 0.327966
C 4096.0, epsilon 1.6, gamma 0.03125. Testing set CV score: 0.332944
C 4096.0, epsilon 1.6, gamma 0.0625. Testing set CV score: 0.333957
C 4096.0, epsilon 1.6, gamma 0.125. Testing set CV score: 0.324960
C 4096.0, epsilon 1.6, gamma 0.25. Testing set CV score: 0.309463
C 4096.0, epsilon 1.7, gamma 0.015625. Testing set CV score: 0.321865
C 4096.0, epsilon 1.7, gamma 0.03125. Testing set CV score: 0.333841
C 4096.0, epsilon 1.7, gamma 0.0625. Testing set CV score: 0.332373
C 4096.0, epsilon 1.7, gamma 0.125. Testing set CV score: 0.320710
C 4096.0, epsilon 1.7, gamma 0.25. Testing set CV score: 0.314014
C 4096.0, epsilon 1.8, gamma 0.015625. Testing set CV score: 0.323865
C 4096.0, epsilon 1.8, gamma 0.03125. Testing set CV score: 0.333357
C 4096.0, epsilon 1.8, gamma 0.0625. Testing set CV score: 0.334100
C 4096.0, epsilon 1.8, gamma 0.125. Testing set CV score: 0.320736
C 4096.0, epsilon 1.8, gamma 0.25. Testing set CV score: 0.311836
C 4096.0, epsilon 1.9, gamma 0.015625. Testing set CV score: 0.324098
```

C 4096.0, epsilon 1.9, gamma 0.03125. Testing set CV score: 0.330953 C 4096.0, epsilon 1.9, gamma 0.0625. Testing set CV score: 0.328280 C 4096.0, epsilon 1.9, gamma 0.125. Testing set CV score: 0.325647 C 4096.0, epsilon 1.9, gamma 0.25. Testing set CV score: 0.304696

C 4096.0, epsilon 2.0, gamma 0.015625. Testing set CV score: 0.328480

```
C 4096.0, epsilon 2.0, gamma 0.03125. Testing set CV score: 0.327605
C 4096.0, epsilon 2.0, gamma 0.0625. Testing set CV score: 0.330663
C 4096.0, epsilon 2.0, gamma 0.125. Testing set CV score: 0.310898
C 4096.0, epsilon 2.0, gamma 0.25. Testing set CV score: 0.307029
C 4096.0, epsilon 2.1, gamma 0.015625. Testing set CV score: 0.325797
C 4096.0, epsilon 2.1, gamma 0.03125. Testing set CV score: 0.329045
C 4096.0, epsilon 2.1, gamma 0.0625. Testing set CV score: 0.318067
C 4096.0, epsilon 2.1, gamma 0.125. Testing set CV score: 0.320567
C 4096.0, epsilon 2.1, gamma 0.25. Testing set CV score: 0.304094
C 4096.0, epsilon 2.2, gamma 0.015625. Testing set CV score: 0.325915
C 4096.0, epsilon 2.2, gamma 0.03125. Testing set CV score: 0.332270
C 4096.0, epsilon 2.2, gamma 0.0625. Testing set CV score: 0.322133
C 4096.0, epsilon 2.2, gamma 0.125. Testing set CV score: 0.309985
C 4096.0, epsilon 2.2, gamma 0.25. Testing set CV score: 0.295866
C 4096.0, epsilon 2.3, gamma 0.015625. Testing set CV score: 0.325161
C 4096.0, epsilon 2.3, gamma 0.03125. Testing set CV score: 0.322741
C 4096.0, epsilon 2.3, gamma 0.0625. Testing set CV score: 0.317927
C 4096.0, epsilon 2.3, gamma 0.125. Testing set CV score: 0.300998
C 4096.0, epsilon 2.3, gamma 0.25. Testing set CV score: 0.295527
C 4096.0, epsilon 2.4, gamma 0.015625. Testing set CV score: 0.322489
C 4096.0, epsilon 2.4, gamma 0.03125. Testing set CV score: 0.306296
C 4096.0, epsilon 2.4, gamma 0.0625. Testing set CV score: 0.307875
C 4096.0, epsilon 2.4, gamma 0.125. Testing set CV score: 0.299613
C 4096.0, epsilon 2.4, gamma 0.25. Testing set CV score: 0.290367
C 4096.0, epsilon 2.5, gamma 0.015625. Testing set CV score: 0.322708
C 4096.0, epsilon 2.5, gamma 0.03125. Testing set CV score: 0.305156
C 4096.0, epsilon 2.5, gamma 0.0625. Testing set CV score: 0.306261
C 4096.0, epsilon 2.5, gamma 0.125. Testing set CV score: 0.291277
C 4096.0, epsilon 2.5, gamma 0.25. Testing set CV score: 0.274304
optimization finished, #iter = 467878
obj = -23636280.263751, rho = -61.915382
nSV = 3654, nBSV = 3639
======= Final BEST ========
C 4096.0, epsilon 1.5, gamma 0.0625. Testing set CV score: 0.337199
======= E out in Training ========
Training set score: 0.347368
```

======= Testing Set Score ========

Testing set score: 0.323711