

```
Total 1138251 words
Pre_processing data done! Used time = 60.65563988685608 second(s)
Load theta? (y/n)
n
Input training mode (manual / auto) : auto
Please input number of epoch : (now : 0)
40
Please input learning rate for theta 0 : (now : 0)
70
Please input learning rate for theta 1 : (now : 0)
70
Please input learning rate for theta 2 : (now : 0)
70
Initial theta 0:
tensor([[0., 0., 0., ..., 0., 0., 0.],
        [0., 0., 0., ..., 0., 0., 0.],
        [0., 0., 0., ..., 0., 0., 0.]], requires_grad=True)
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epoch 0 for theta 0 (Used time = 364.7730052471161 second(s)) :
training loss = 1.1049160957336426
tensor([[ 1.7115e+01,  3.0985e+00,  2.2577e+00, ...,  8.8155e-03,
          9.5391e-03,  1.1217e-02],
        [-8.8068e+00, -1.5043e+00, -1.1149e+00, ..., -4.4077e-03,
          -4.7696e-03, -5.2630e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 19.497272491455078 second(s)) :
loss = 0.8321714401245117
item_cnt = 4328 | predict_cnt = 33 | true_predict_cnt = 33
precision_rate = 1.0 | recall_rate = 0.007624768946395564 | F1_measure = 0.015134143545058473
-----
epoch 1 for theta 0 (Used time = 125.42275428771973 second(s)) :
training loss = 0.8517626523971558
tensor([[ 1.6446e+01,  3.0747e+00,  2.2954e+00, ...,  1.0551e-02,
          1.2086e-02,  1.4160e-02],
        [-8.7204e+00, -1.4256e+00, -1.1018e+00, ..., -5.1572e-03,
          -5.8709e-03, -6.2382e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 22.436851263046265 second(s)) :
loss = 0.7914763689041138
item_cnt = 4328 | predict_cnt = 36 | true_predict_cnt = 36
precision_rate = 1.0 | recall_rate = 0.00831792975970425 | F1_measure = 0.016498625114573784
-----
epoch 2 for theta 0 (Used time = 121.56774663925171 second(s)) :
training loss = 0.8102952837944031
tensor([[ 1.5777e+01,  3.0511e+00,  2.3290e+00, ...,  1.2218e-02,
          1.4538e-02,  1.7048e-02],
        [-8.6339e+00, -1.3476e+00, -1.0878e+00, ..., -5.8707e-03,
          -6.9238e-03, -7.1841e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 22.19663667678833 second(s)) :
loss = 0.7513525485992432
item_cnt = 4328 | predict_cnt = 78 | true_predict_cnt = 63
precision_rate = 0.8076923076923077 | recall_rate = 0.01455637707948244 | F1_measure = 0.028597367226509306
-----
epoch 3 for theta 0 (Used time = 125.81282019615173 second(s)) :
training loss = 0.7693912386894226
tensor([[ 1.5108e+01,  3.0277e+00,  2.3591e+00, ...,  1.3825e-02,
          1.6906e-02,  1.9885e-02],
        [-8.5475e+00, -1.2703e+00, -1.0731e+00, ..., -6.5531e-03,
          -7.9342e-03, -8.1038e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 22.683914184570312 second(s)) :
loss = 0.7116860151290894
item_cnt = 4328 | predict_cnt = 110 | true_predict_cnt = 83
precision_rate = 0.7545454545454545 | recall_rate = 0.019177449168207024 | F1_measure = 0.03740423614240648
-----
epoch 4 for theta 0 (Used time = 131.95873069763184 second(s)) :
training loss = 0.7289557456970215
tensor([[ 1.4440e+01,  3.0049e+00,  2.3861e+00, ...,  1.5378e-02,
          1.9199e-02,  2.2677e-02],
        [-8.4611e+00, -1.1938e+00, -1.0577e+00, ..., -7.2083e-03,
          -8.9074e-03, -9.0000e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 22.356696367263794 second(s)) :
loss = 0.6724428534507751
item_cnt = 4328 | predict_cnt = 135 | true_predict_cnt = 96
precision_rate = 0.7111111111111111 | recall_rate = 0.022181146025878003 | F1_measure = 0.04302038987228322
-----
epoch 5 for theta 0 (Used time = 130.62267684936523 second(s)) :
training loss = 0.6889718174934387
tensor([[ 1.3771e+01,  2.9827e+00,  2.4106e+00, ...,  1.6883e-02,
          2.1423e-02,  2.5425e-02],
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[-8.3746e+00, -1.1182e+00, -1.0419e+00, ..., -7.8394e-03,
-9.8474e-03, -9.8751e-03],
[ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
 0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 22.593942165374756 second(s)) :
loss = 0.633507251739502
item_cnt = 4328 | predict_cnt = 157 | true_predict_cnt = 103
precision_rate = 0.6560509554140127 | recall_rate = 0.023798521256931607 | F1_measure = 0.04593088071348941
-----
epoch 6 for theta 0 (Used time = 134.60186576843262 second(s)) :
training loss = 0.6493445038795471
tensor([[ 1.3102e+01,  2.9613e+00,  2.4328e+00, ...,  1.8344e-02,
          2.3584e-02,  2.8135e-02],
        [-8.2882e+00, -1.0436e+00, -1.0256e+00, ..., -8.4492e-03,
          -1.0758e-02, -1.0731e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 23.56155562400818 second(s)) :
loss = 0.594869077205658
item_cnt = 4328 | predict_cnt = 200 | true_predict_cnt = 133
precision_rate = 0.665 | recall_rate = 0.030730129390018485 | F1_measure = 0.05874558303886925
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epoch 7 for theta 0 (Used time = 134.54987049102783 second(s)) :
training loss = 0.6100108027458191
tensor([[ 1.2433e+01,  2.9407e+00,  2.4530e+00, ...,  1.9766e-02,
          2.5690e-02,  3.0810e-02],
        [-8.2017e+00, -9.7002e-01, -1.0089e+00, ..., -9.0399e-03,
          -1.1641e-02, -1.1570e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 23.27218985557556 second(s)) :
loss = 0.556451141834259
item_cnt = 4328 | predict_cnt = 241 | true_predict_cnt = 137
precision_rate = 0.5684647302904564 | recall_rate = 0.0316543438077634 | F1_measure = 0.05996935872182096
-----
epoch 8 for theta 0 (Used time = 145.51611924171448 second(s)) :
training loss = 0.5709071755409241
tensor([[ 1.1765e+01,  2.9211e+00,  2.4715e+00, ...,  2.1151e-02,
          2.7743e-02,  3.3451e-02],
        [-8.1153e+00, -8.9755e-01, -9.9196e-01, ..., -9.6134e-03,
          -1.2501e-02, -1.2394e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 23.278585195541382 second(s)) :
loss = 0.518276572227478
item_cnt = 4328 | predict_cnt = 302 | true_predict_cnt = 189
precision_rate = 0.6258278145695364 | recall_rate = 0.04366913123844732 | F1_measure = 0.0816414686825054
-----
epoch 9 for theta 0 (Used time = 144.19462251663208 second(s)) :
training loss = 0.5320376753807068
tensor([[ 1.1096e+01,  2.9025e+00,  2.4884e+00, ...,  2.2503e-02,
          2.9748e-02,  3.6061e-02],
        [-8.0288e+00, -8.2624e-01, -9.7473e-01, ..., -1.0172e-02,
          -1.3339e-02, -1.3203e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 0 (Used time = 23.87149953842163 second(s)) :
loss = 0.4802726209163666
item_cnt = 4328 | predict_cnt = 312 | true_predict_cnt = 191
precision_rate = 0.6121794871794872 | recall_rate = 0.04413123844731978 | F1_measure = 0.08232758620689655
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epoch 10 for theta 0 (Used time = 151.58510208129883 second(s)) :
training loss = 0.4933696687221527
tensor([[10.4272,  2.8851,  2.5040, ...,  0.0238,  0.0317,  0.0386],
        [-7.9424, -0.7562, -0.9573, ..., -0.0107, -0.0142, -0.0140],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 23.890880346298218 second(s)) :
loss = 0.44245901703834534
item_cnt = 4328 | predict_cnt = 333 | true_predict_cnt = 198
precision_rate = 0.5945945945945946 | recall_rate = 0.045748613678373386 | F1_measure = 0.084960308946578
-----
epoch 11 for theta 0 (Used time = 187.78124475479126 second(s)) :
training loss = 0.45487359166145325
tensor([[ 9.7585,  2.8688,  2.5183, ...,  0.0251,  0.0336,  0.0412],
        [-7.8560, -0.6874, -0.9396, ..., -0.0112, -0.0150, -0.0148],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 22.14785599708557 second(s)) :
loss = 0.40485072135925293
item_cnt = 4328 | predict_cnt = 385 | true_predict_cnt = 241
precision_rate = 0.625974025974026 | recall_rate = 0.055683918669131235 | F1_measure = 0.10227031614682791
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epoch 12 for theta 0 (Used time = 211.2608983516693 second(s)) :
training loss = 0.4166220724582672
tensor([[ 9.0898,  2.8538,  2.5315, ...,  0.0264,  0.0355,  0.0437],
        [-7.7695, -0.6200, -0.9218, ..., -0.0118, -0.0157, -0.0156],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
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requires_grad=True)
Evaluation For theta 0 (Used time = 20.954569101333618 second(s)) :
loss = 0.3676309883594513
item_cnt = 4328 | predict_cnt = 402 | true_predict_cnt = 246
precision_rate = 0.6119402985074627 | recall_rate = 0.05683918669131238 | F1_measure = 0.1040169133192389
-----
epoch 13 for theta 0 (Used time = 192.56794047355652 second(s)) :
training loss = 0.37872639298439026
tensor([[ 8.4213,  2.8402,  2.5439, ...,  0.0276,  0.0374,  0.0462],
        [-7.6831, -0.5539, -0.9038, ..., -0.0123, -0.0165, -0.0163],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 21.753209829330444 second(s)) :
loss = 0.33109110593795776
item_cnt = 4328 | predict_cnt = 415 | true_predict_cnt = 251
precision_rate = 0.6048192771084338 | recall_rate = 0.05799445471349353 | F1_measure = 0.10584018553658023
-----
epoch 14 for theta 0 (Used time = 206.7162024974823 second(s)) :
training loss = 0.34147125482559204
tensor([[ 7.7532,  2.8283,  2.5559, ...,  0.0289,  0.0392,  0.0488],
        [-7.5966, -0.4893, -0.8858, ..., -0.0128, -0.0173, -0.0171],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 21.35453224182129 second(s)) :
loss = 0.2959759831428528
item_cnt = 4328 | predict_cnt = 430 | true_predict_cnt = 259
precision_rate = 0.6023255813953489 | recall_rate = 0.059842883548983365 | F1_measure = 0.10886927280369904
-----
epoch 15 for theta 0 (Used time = 205.2542598247528 second(s)) :
training loss = 0.3056705892086029
tensor([[ 7.0858,  2.8189,  2.5681, ...,  0.0301,  0.0410,  0.0513],
        [-7.5102, -0.4262, -0.8676, ..., -0.0133, -0.0180, -0.0178],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 19.809454441070557 second(s)) :
loss = 0.2640227675437927
item_cnt = 4328 | predict_cnt = 437 | true_predict_cnt = 260
precision_rate = 0.5949656750572082 | recall_rate = 0.06007393715341959 | F1_measure = 0.10912906610703044
-----
epoch 16 for theta 0 (Used time = 205.13401222229004 second(s)) :
training loss = 0.2729898989200592
tensor([[ 6.4195,  2.8136,  2.5820, ...,  0.0313,  0.0428,  0.0539],
        [-7.4237, -0.3647, -0.8494, ..., -0.0137, -0.0187, -0.0186],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.842148303985596 second(s)) :
loss = 0.23800350725650787
item_cnt = 4328 | predict_cnt = 443 | true_predict_cnt = 263
precision_rate = 0.5936794582392777 | recall_rate = 0.06076709796672828 | F1_measure = 0.11024942360092224
-----
epoch 17 for theta 0 (Used time = 204.07730722427368 second(s)) :
training loss = 0.24610090255737305
tensor([[ 5.7564,  2.8153,  2.5999, ...,  0.0326,  0.0446,  0.0566],
        [-7.3373, -0.3048, -0.8311, ..., -0.0142, -0.0194, -0.0193],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 19.761510610580444 second(s)) :
loss = 0.21961581707000732
item_cnt = 4328 | predict_cnt = 453 | true_predict_cnt = 270
precision_rate = 0.5960264900662252 | recall_rate = 0.062384473197781884 | F1_measure = 0.11294708220037648
-----
epoch 18 for theta 0 (Used time = 204.7776744365692 second(s)) :
training loss = 0.22690971195697784
tensor([[ 5.1001,  2.8256,  2.6228, ...,  0.0340,  0.0463,  0.0595],
        [-7.2508, -0.2469, -0.8130, ..., -0.0147, -0.0202, -0.0200],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 19.666361570358276 second(s)) :
loss = 0.20712655782699585
item_cnt = 4328 | predict_cnt = 451 | true_predict_cnt = 269
precision_rate = 0.5964523281596452 | recall_rate = 0.06215341959334566 | F1_measure = 0.11257585268884705
-----
epoch 19 for theta 0 (Used time = 196.41916942596436 second(s)) :
training loss = 0.21359343826770782
tensor([[ 4.4576,  2.8420,  2.6483, ...,  0.0353,  0.0481,  0.0624],
        [-7.1644, -0.1911, -0.7951, ..., -0.0152, -0.0209, -0.0208],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.4488742351532 second(s)) :
loss = 0.19723162055015564
item_cnt = 4328 | predict_cnt = 489 | true_predict_cnt = 308
precision_rate = 0.6298568507157464 | recall_rate = 0.0711645101663586 | F1_measure = 0.12788042350010378
-----
epoch 20 for theta 0 (Used time = 202.54197788238525 second(s)) :
training loss = 0.20304861664772034
tensor([[ 3.8382,  2.8596,  2.6731, ...,  0.0366,  0.0499,  0.0652],
        [-7.0780, -0.1373, -0.7773, ..., -0.0156, -0.0215, -0.0215],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
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requires_grad=True)
Evaluation For theta 0 (Used time = 20.354496717453003 second(s)) :
loss = 0.18859677016735077
item_cnt = 4328 | predict_cnt = 490 | true_predict_cnt = 308
precision_rate = 0.6285714285714286 | recall_rate = 0.0711645101663586 | F1_measure = 0.1278538812785388
-----
epoch 21 for theta 0 (Used time = 201.41165590286255 second(s)) :
training loss = 0.19389909505844116
tensor([[ 3.2588,  2.8768,  2.6963, ...,  0.0380,  0.0516,  0.0681],
        [-6.9915, -0.0853, -0.7597, ..., -0.0161, -0.0222, -0.0222],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.493884801864624 second(s)) :
loss = 0.18115653097629547
item_cnt = 4328 | predict_cnt = 482 | true_predict_cnt = 301
precision_rate = 0.6244813278008299 | recall_rate = 0.069547134935305 | F1_measure = 0.1251559251559252
-----
epoch 22 for theta 0 (Used time = 199.5896759033203 second(s)) :
training loss = 0.18589916825294495
tensor([[ 2.7454,  2.8932,  2.7179, ...,  0.0393,  0.0533,  0.0709],
        [-6.9051, -0.0351, -0.7422, ..., -0.0165, -0.0229, -0.0230],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 19.713520288467407 second(s)) :
loss = 0.17518995702266693
item_cnt = 4328 | predict_cnt = 482 | true_predict_cnt = 301
precision_rate = 0.6244813278008299 | recall_rate = 0.069547134935305 | F1_measure = 0.1251559251559252
-----
epoch 23 for theta 0 (Used time = 206.63329553604126 second(s)) :
training loss = 0.17905394732952118
tensor([[ 2.3273,  2.9088,  2.7379, ...,  0.0407,  0.0551,  0.0738],
        [-6.8188,  0.0134, -0.7248, ..., -0.0170, -0.0235, -0.0237],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.418057918548584 second(s)) :
loss = 0.1706358939409256
item_cnt = 4328 | predict_cnt = 482 | true_predict_cnt = 302
precision_rate = 0.6265560165975104 | recall_rate = 0.06977818853974121 | F1_measure = 0.12557172557172555
-----
epoch 24 for theta 0 (Used time = 209.12563920021057 second(s)) :
training loss = 0.17418378591537476
tensor([[ 2.0247,  2.9235,  2.7563, ...,  0.0421,  0.0568,  0.0767],
        [-6.7326,  0.0602, -0.7076, ..., -0.0174, -0.0242, -0.0244],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 19.560203313827515 second(s)) :
loss = 0.16739030182361603
item_cnt = 4328 | predict_cnt = 481 | true_predict_cnt = 303
precision_rate = 0.6299376299376299 | recall_rate = 0.07000924214417745 | F1_measure = 0.12601372426699936
-----
epoch 25 for theta 0 (Used time = 206.46233463287354 second(s)) :
training loss = 0.17046311497688293
tensor([[ 1.8313,  2.9372,  2.7732, ...,  0.0435,  0.0586,  0.0796],
        [-6.6464,  0.1054, -0.6905, ..., -0.0179, -0.0248, -0.0251],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 19.68534541130066 second(s)) :
loss = 0.1648588329553604
item_cnt = 4328 | predict_cnt = 479 | true_predict_cnt = 304
precision_rate = 0.6346555323590815 | recall_rate = 0.07024029574861368 | F1_measure = 0.1264822134387352
-----
epoch 26 for theta 0 (Used time = 206.7390739917755 second(s)) :
training loss = 0.16771450638771057
tensor([[ 1.7161,  2.9502,  2.7887, ...,  0.0450,  0.0604,  0.0826],
        [-6.5604,  0.1491, -0.6735, ..., -0.0183, -0.0255, -0.0259],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.541062355041504 second(s)) :
loss = 0.16275571286678314
item_cnt = 4328 | predict_cnt = 479 | true_predict_cnt = 305
precision_rate = 0.6367432150313153 | recall_rate = 0.07047134935304991 | F1_measure = 0.1268982733513626
-----
epoch 27 for theta 0 (Used time = 212.06511807441711 second(s)) :
training loss = 0.1654372364282608
tensor([[ 1.6483,  2.9626,  2.8030, ...,  0.0465,  0.0622,  0.0856],
        [-6.4745,  0.1912, -0.6566, ..., -0.0188, -0.0261, -0.0266],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.374716997146606 second(s)) :
loss = 0.16085051000118256
item_cnt = 4328 | predict_cnt = 479 | true_predict_cnt = 305
precision_rate = 0.6367432150313153 | recall_rate = 0.07047134935304991 | F1_measure = 0.1268982733513626
-----
epoch 28 for theta 0 (Used time = 216.04311227798462 second(s)) :
training loss = 0.163299098610878
tensor([[ 1.6053,  2.9747,  2.8163, ...,  0.0480,  0.0640,  0.0885],
        [-6.3886,  0.2319, -0.6398, ..., -0.0192, -0.0267, -0.0273],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
```

```
件 main
requires_grad=True)
Evaluation For theta 0 (Used time = 19.72718834877014 second(s)) :
loss = 0.15910203754901886
item_cnt = 4328 | predict_cnt = 480 | true_predict_cnt = 306
precision_rate = 0.6375 | recall_rate = 0.07070240295748614 | F1_measure = 0.12728785357737107
-----
epoch 29 for theta 0 (Used time = 217.81870532035828 second(s)) :
training loss = 0.16149388253688812
tensor([[ 1.5747,  2.9868,  2.8287, ...,  0.0495,  0.0657,  0.0914],
        [-6.3029,  0.2711, -0.6231, ..., -0.0197, -0.0273, -0.0280],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 19.932071685791016 second(s)) :
loss = 0.1574830561876297
item_cnt = 4328 | predict_cnt = 482 | true_predict_cnt = 307
precision_rate = 0.6369294605809128 | recall_rate = 0.07093345656192236 | F1_measure = 0.12765072765072763
-----
epoch 30 for theta 0 (Used time = 218.50685572624207 second(s)) :
training loss = 0.15990138053894043
tensor([[ 1.5507,  2.9987,  2.8404, ...,  0.0510,  0.0675,  0.0944],
        [-6.2172,  0.3090, -0.6066, ..., -0.0201, -0.0279, -0.0287],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.460935354232788 second(s)) :
loss = 0.15594594180583954
item_cnt = 4328 | predict_cnt = 480 | true_predict_cnt = 307
precision_rate = 0.6395833333333333 | recall_rate = 0.07093345656192236 | F1_measure = 0.12770382695507487
-----
epoch 31 for theta 0 (Used time = 215.98538422584534 second(s)) :
training loss = 0.15824879705905914
tensor([[ 1.5305,  3.0106,  2.8515, ...,  0.0525,  0.0692,  0.0973],
        [-6.1317,  0.3455, -0.5901, ..., -0.0205, -0.0285, -0.0295],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.680997610092163 second(s)) :
loss = 0.1544879525899887
item_cnt = 4328 | predict_cnt = 479 | true_predict_cnt = 307
precision_rate = 0.6409185803757829 | recall_rate = 0.07093345656192236 | F1_measure = 0.1277303931766174
-----
epoch 32 for theta 0 (Used time = 224.27277970314026 second(s)) :
training loss = 0.15676963329315186
tensor([[ 1.5128,  3.0225,  2.8620, ...,  0.0540,  0.0709,  0.1001],
        [-6.0463,  0.3809, -0.5737, ..., -0.0210, -0.0291, -0.0302],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.012635231018066 second(s)) :
loss = 0.15308740735054016
item_cnt = 4328 | predict_cnt = 494 | true_predict_cnt = 320
precision_rate = 0.6477732793522267 | recall_rate = 0.07393715341959335 | F1_measure = 0.13272501036914144
-----
epoch 33 for theta 0 (Used time = 232.20870399475098 second(s)) :
training loss = 0.15527810156345367
tensor([[ 1.4970,  3.0343,  2.8719, ...,  0.0554,  0.0726,  0.1030],
        [-5.9610,  0.4151, -0.5574, ..., -0.0214, -0.0297, -0.0309],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.90345525741577 second(s)) :
loss = 0.15174686908721924
item_cnt = 4328 | predict_cnt = 499 | true_predict_cnt = 326
precision_rate = 0.6533066132264529 | recall_rate = 0.07532347504621072 | F1_measure = 0.13507354464470686
-----
epoch 34 for theta 0 (Used time = 232.63390493392944 second(s)) :
training loss = 0.1538664996623993
tensor([[ 1.4826,  3.0461,  2.8814, ...,  0.0569,  0.0743,  0.1058],
        [-5.8758,  0.4483, -0.5411, ..., -0.0218, -0.0303, -0.0316],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.887067079544067 second(s)) :
loss = 0.1504855901002884
item_cnt = 4328 | predict_cnt = 500 | true_predict_cnt = 327
precision_rate = 0.654 | recall_rate = 0.07555452865064695 | F1_measure = 0.13545981772990887
-----
epoch 35 for theta 0 (Used time = 239.1487934589386 second(s)) :
training loss = 0.15245673060417175
tensor([[ 1.4695,  3.0579,  2.8904, ...,  0.0583,  0.0759,  0.1086],
        [-5.7907,  0.4806, -0.5249, ..., -0.0222, -0.0309, -0.0323],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.210252046585083 second(s)) :
loss = 0.1492459625005722
item_cnt = 4328 | predict_cnt = 497 | true_predict_cnt = 327
precision_rate = 0.6579476861167002 | recall_rate = 0.07555452865064695 | F1_measure = 0.1355440414507772
-----
epoch 36 for theta 0 (Used time = 236.61357402801514 second(s)) :
training loss = 0.15128491818904877
tensor([[ 1.4575,  3.0696,  2.8991, ...,  0.0597,  0.0776,  0.1114],
        [-5.7057,  0.5119, -0.5088, ..., -0.0226, -0.0314, -0.0329],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
```

```
requires_grad=True)
Evaluation For theta 0 (Used time = 20.933475255966187 second(s)) :
loss = 0.14805179834365845
item_cnt = 4328 | predict_cnt = 497 | true_predict_cnt = 328
precision_rate = 0.6599597585513078 | recall_rate = 0.07578558225508318 | F1_measure = 0.13595854922279793
-----
epoch 37 for theta 0 (Used time = 242.667001247406 second(s)) :
training loss = 0.15005221962928772
tensor([[ 1.4463,  3.0813,  2.9074, ...,  0.0611,  0.0792,  0.1142],
        [-5.6209,  0.5424, -0.4927, ..., -0.0231, -0.0320, -0.0336],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 21.00319004058838 second(s)) :
loss = 0.14691239595413208
item_cnt = 4328 | predict_cnt = 545 | true_predict_cnt = 377
precision_rate = 0.691743119266055 | recall_rate = 0.08710720887245842 | F1_measure = 0.15473014570080035
-----
epoch 38 for theta 0 (Used time = 253.01568579673767 second(s)) :
training loss = 0.1488570123910904
tensor([[ 1.4359,  3.0930,  2.9153, ...,  0.0626,  0.0808,  0.1170],
        [-5.5363,  0.5721, -0.4767, ..., -0.0235, -0.0325, -0.0343],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.259180068969727 second(s)) :
loss = 0.1458011418581009
item_cnt = 4328 | predict_cnt = 546 | true_predict_cnt = 379
precision_rate = 0.6941391941391941 | recall_rate = 0.08756931608133087 | F1_measure = 0.1555190808370948
-----
epoch 39 for theta 0 (Used time = 252.40401792526245 second(s)) :
training loss = 0.14765973389148712
tensor([[ 1.4262,  3.1046,  2.9230, ...,  0.0639,  0.0824,  0.1197],
        [-5.4518,  0.6009, -0.4607, ..., -0.0239, -0.0331, -0.0349],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 0 (Used time = 20.26075005531311 second(s)) :
loss = 0.14470097422599792
item_cnt = 4328 | predict_cnt = 551 | true_predict_cnt = 384
precision_rate = 0.6969147005444646 | recall_rate = 0.08872458410351201 | F1_measure = 0.15740930518548882
-----
Initial theta 1:
tensor([[0., 0., 0., ..., 0., 0., 0.],
        [0., 0., 0., ..., 0., 0., 0.],
        [0., 0., 0., ..., 0., 0., 0.]], requires_grad=True)
-----
epoch 0 for theta 1 (Used time = 223.01997303962708 second(s)) :
training loss = 1.1049160957336426
tensor([[ 1.7357e+01,  2.9885e+00,  2.2076e+00, ...,  8.8155e-03,
          9.4404e-03,  1.0921e-02],
        [-8.5475e+00, -1.3943e+00, -1.0648e+00, ..., -4.4077e-03,
          -4.6709e-03, -5.1643e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 21.02685523033142 second(s)) :
loss = 0.9838870763778687
item_cnt = 4650 | predict_cnt = 164 | true_predict_cnt = 163
precision_rate = 0.9939024390243902 | recall_rate = 0.03505376344086022 | F1_measure = 0.0677191524719568
-----
epoch 1 for theta 1 (Used time = 256.9460139274597 second(s)) :
training loss = 1.0432684421539307
tensor([[ 1.6931e+01,  2.8635e+00,  2.1992e+00, ...,  1.0564e-02,
          1.1905e-02,  1.3594e-02],
        [-8.2023e+00, -1.2082e+00, -1.0031e+00, ..., -5.1643e-03,
          -5.6859e-03, -6.0553e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.91663122177124 second(s)) :
loss = 0.9126135110855103
item_cnt = 4650 | predict_cnt = 228 | true_predict_cnt = 219
precision_rate = 0.9605263157894737 | recall_rate = 0.04709677419354839 | F1_measure = 0.08979089790897908
-----
epoch 2 for theta 1 (Used time = 257.0395154953003 second(s)) :
training loss = 0.9678381085395813
tensor([[ 1.6504e+01,  2.7484e+00,  2.1901e+00, ...,  1.2257e-02,
          1.4291e-02,  1.6236e-02],
        [-7.8571e+00, -1.0265e+00, -9.4198e-01, ..., -5.8918e-03,
          -6.6644e-03, -6.9316e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.291992664337158 second(s)) :
loss = 0.8419575095176697
item_cnt = 4650 | predict_cnt = 307 | true_predict_cnt = 293
precision_rate = 0.9543973941368078 | recall_rate = 0.06301075268817204 | F1_measure = 0.11821666330441798
-----
epoch 3 for theta 1 (Used time = 263.99219846725464 second(s)) :
training loss = 0.8929925560951233
tensor([[ 1.6077e+01,  2.6441e+00,  2.1805e+00, ...,  1.3901e-02,
          1.6607e-02,  1.8853e-02],
        [-7.5119e+00, -8.5006e-01, -8.8148e-01, ..., -6.5948e-03,
```

```
-7.6122e-03, -7.7968e-03],
[ 0.0000e+00, 0.0000e+00, 0.0000e+00, ..., 0.0000e+00,
 0.0000e+00, 0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.96471357345581 second(s)) :
loss = 0.7718303203582764
item_cnt = 4650 | predict_cnt = 349 | true_predict_cnt = 333
precision_rate = 0.9541547277936963 | recall_rate = 0.07161290322580645 | F1_measure = 0.13322664532906578
-----
epoch 4 for theta 1 (Used time = 266.45593070983887 second(s)) :
training loss = 0.818730890750885
tensor([[ 1.5651e+01,  2.5516e+00,  2.1708e+00, ...,  1.5504e-02,
          1.8859e-02,  2.1448e-02],
        [-7.1667e+00, -6.8028e-01, -8.2173e-01, ..., -7.2774e-03,
          -8.5339e-03, -8.6544e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.13733959197998 second(s)) :
loss = 0.7021850943565369
item_cnt = 4650 | predict_cnt = 363 | true_predict_cnt = 344
precision_rate = 0.9476584022038568 | recall_rate = 0.07397849462365591 | F1_measure = 0.13724316776381407
-----
epoch 5 for theta 1 (Used time = 270.27229952812195 second(s)) :
training loss = 0.744952380657196
tensor([[ 1.5224e+01,  2.4716e+00,  2.1611e+00, ...,  1.7069e-02,
          2.1055e-02,  2.4024e-02],
        [-6.8216e+00, -5.1842e-01, -7.6283e-01, ..., -7.9431e-03,
          -9.4332e-03, -9.5076e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.13689637184143 second(s)) :
loss = 0.6329640746116638
item_cnt = 4650 | predict_cnt = 382 | true_predict_cnt = 363
precision_rate = 0.9502617801047121 | recall_rate = 0.07806451612903226 | F1_measure = 0.14427662957074724
-----
epoch 6 for theta 1 (Used time = 276.1793043613434 second(s)) :
training loss = 0.6716471314430237
tensor([[ 1.4797e+01,  2.4046e+00,  2.1516e+00, ...,  1.8602e-02,
          2.3199e-02,  2.6584e-02],
        [-6.4764e+00, -3.6572e-01, -7.0487e-01, ..., -8.5949e-03,
          -1.0313e-02, -1.0359e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 21.00637912750244 second(s)) :
loss = 0.564107358455658
item_cnt = 4650 | predict_cnt = 402 | true_predict_cnt = 367
precision_rate = 0.9129353233830846 | recall_rate = 0.0789247311827957 | F1_measure = 0.14528899445764054
-----
epoch 7 for theta 1 (Used time = 273.5428395271301 second(s)) :
training loss = 0.5986154675483704
tensor([[ 1.4370e+01,  2.3506e+00,  2.1423e+00, ...,  2.0106e-02,
          2.5297e-02,  2.9131e-02],
        [-6.1312e+00, -2.2315e-01, -6.4794e-01, ..., -9.2353e-03,
          -1.1176e-02, -1.1211e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.99635076522827 second(s)) :
loss = 0.4956265687942505
item_cnt = 4650 | predict_cnt = 473 | true_predict_cnt = 398
precision_rate = 0.8414376321353065 | recall_rate = 0.08559139784946236 | F1_measure = 0.1553777083739996
-----
epoch 8 for theta 1 (Used time = 281.09283685684204 second(s)) :
training loss = 0.5260969400405884
tensor([[ 1.3944e+01,  2.3091e+00,  2.1335e+00, ...,  2.1584e-02,
          2.7351e-02,  3.1666e-02],
        [-5.7860e+00, -9.1261e-02, -5.9210e-01, ..., -9.8667e-03,
          -1.2025e-02, -1.2065e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.807994842529297 second(s)) :
loss = 0.42776790261268616
item_cnt = 4650 | predict_cnt = 566 | true_predict_cnt = 434
precision_rate = 0.7667844522968198 | recall_rate = 0.09333333333333334 | F1_measure = 0.16641104294478526
-----
epoch 9 for theta 1 (Used time = 284.505544424057 second(s)) :
training loss = 0.45412078499794006
tensor([[ 1.3517e+01,  2.2794e+00,  2.1253e+00, ...,  2.3042e-02,
          2.9367e-02,  3.4200e-02],
        [-5.4408e+00,  2.9624e-02, -5.3752e-01, ..., -1.0494e-02,
          -1.2861e-02, -1.2932e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.235473155975342 second(s)) :
loss = 0.3629510998725891
item_cnt = 4650 | predict_cnt = 611 | true_predict_cnt = 443
precision_rate = 0.7250409165302782 | recall_rate = 0.09526881720430108 | F1_measure = 0.16840904770956092
-----
epoch 10 for theta 1 (Used time = 289.1782042980194 second(s)) :
training loss = 0.38520434498786926
```

```
tensor([[ 1.3090e+01,  2.2635e+00,  2.1194e+00, ...,  2.4514e-02,
          3.1363e-02,  3.6820e-02],
        [-5.0956e+00,  1.3682e-01, -4.8573e-01, ..., -1.1149e-02,
          -1.3703e-02, -1.3896e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.755731105804443 second(s)) :
loss = 0.31726565957069397
item_cnt = 4650 | predict_cnt = 762 | true_predict_cnt = 570
precision_rate = 0.7480314960629921 | recall_rate = 0.12258064516129032 | F1_measure = 0.2106430155210643
-----
epoch 11 for theta 1 (Used time = 289.08888936042786 second(s)) :
training loss = 0.3353775441646576
tensor([[ 1.2664e+01,  2.2841e+00,  2.1273e+00, ...,  2.6185e-02,
          3.3433e-02,  4.0004e-02],
        [-4.7505e+00,  2.0672e-01, -4.4801e-01, ..., -1.2014e-02,
          -1.4640e-02, -1.5431e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 1 (Used time = 20.182803869247437 second(s)) :
loss = 0.28876596689224243
item_cnt = 4650 | predict_cnt = 724 | true_predict_cnt = 568
precision_rate = 0.7845303867403315 | recall_rate = 0.1221505376344086 | F1_measure = 0.21138816524004464
-----
epoch 12 for theta 1 (Used time = 287.0934295654297 second(s)) :
training loss = 0.3056890666484833
tensor([[12.2371,  2.3105,  2.1369, ...,  0.0279,  0.0355,  0.0432],
        [-4.4053,  0.2671, -0.4132, ..., -0.0129, -0.0156, -0.0170],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 20.30880117416382 second(s)) :
loss = 0.2615422010421753
item_cnt = 4650 | predict_cnt = 681 | true_predict_cnt = 569
precision_rate = 0.8355359765051396 | recall_rate = 0.12236559139784946 | F1_measure = 0.2134683924216845
-----
epoch 13 for theta 1 (Used time = 291.2219777107239 second(s)) :
training loss = 0.27754491567611694
tensor([[11.8104,  2.3352,  2.1450, ...,  0.0295,  0.0375,  0.0463],
        [-4.0601,  0.3250, -0.3784, ..., -0.0137, -0.0165, -0.0185],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 21.08031153678894 second(s)) :
loss = 0.24004201591014862
item_cnt = 4650 | predict_cnt = 843 | true_predict_cnt = 750
precision_rate = 0.8896797153024911 | recall_rate = 0.16129032258064516 | F1_measure = 0.27307482250136533
-----
epoch 14 for theta 1 (Used time = 292.2747960090637 second(s)) :
training loss = 0.25463223457336426
tensor([[11.3837,  2.3743,  2.1577, ...,  0.0311,  0.0394,  0.0495],
        [-3.7149,  0.3653, -0.3492, ..., -0.0146, -0.0174, -0.0201],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 21.080211400985718 second(s)) :
loss = 0.22834163904190063
item_cnt = 4650 | predict_cnt = 877 | true_predict_cnt = 816
precision_rate = 0.9304446978335233 | recall_rate = 0.17548387096774193 | F1_measure = 0.29527772751945
-----
epoch 15 for theta 1 (Used time = 290.32520961761475 second(s)) :
training loss = 0.24187295138835907
tensor([[10.9571,  2.4212,  2.1729, ...,  0.0326,  0.0413,  0.0524],
        [-3.3697,  0.3936, -0.3238, ..., -0.0154, -0.0183, -0.0215],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 20.32322072982788 second(s)) :
loss = 0.2216324806213379
item_cnt = 4650 | predict_cnt = 932 | true_predict_cnt = 887
precision_rate = 0.9517167381974249 | recall_rate = 0.19075268817204302 | F1_measure = 0.3178072375492655
-----
epoch 16 for theta 1 (Used time = 299.160742521286 second(s)) :
training loss = 0.23464569449424744
tensor([[10.5304,  2.4635,  2.1880, ...,  0.0341,  0.0432,  0.0553],
        [-3.0246,  0.4220, -0.2996, ..., -0.0162, -0.0191, -0.0228],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 21.777623414993286 second(s)) :
loss = 0.21515944600105286
item_cnt = 4650 | predict_cnt = 930 | true_predict_cnt = 893
precision_rate = 0.9602150537634409 | recall_rate = 0.19204301075268818 | F1_measure = 0.3200716845878136
-----
epoch 17 for theta 1 (Used time = 297.7249116897583 second(s)) :
training loss = 0.22763828933238983
tensor([[10.1037,  2.4988,  2.2022, ...,  0.0356,  0.0450,  0.0581],
        [-2.6794,  0.4536, -0.2756, ..., -0.0170, -0.0199, -0.0241],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 21.112700700759888 second(s)) :
loss = 0.208961620926857
item_cnt = 4650 | predict_cnt = 938 | true_predict_cnt = 904
```



precision\_rate = 0.9637526652452025 | recall\_rate = 0.19440860215053762 | F1\_measure = 0.3235504652827487  
-----  
epoch 18 for theta 1 (Used time = 301.6821069717407 second(s)) :  
training loss = 0.22076807916164398  
tensor([[ 9.6771, 2.5316, 2.2164, ..., 0.0370, 0.0468, 0.0609],  
 [-2.3342, 0.4845, -0.2528, ..., -0.0177, -0.0207, -0.0254],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.229990005493164 second(s)) :  
loss = 0.2028035819530487  
item\_cnt = 4650 | predict\_cnt = 943 | true\_predict\_cnt = 910  
precision\_rate = 0.9650053022269353 | recall\_rate = 0.1956989247311828 | F1\_measure = 0.32540675844806005  
-----  
epoch 19 for theta 1 (Used time = 292.71328353881836 second(s)) :  
training loss = 0.2140875905752182  
tensor([[ 9.2506, 2.5594, 2.2294, ..., 0.0385, 0.0485, 0.0636],  
 [-1.9890, 0.5173, -0.2299, ..., -0.0184, -0.0215, -0.0266],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.51803493499756 second(s)) :  
loss = 0.19695621728897095  
item\_cnt = 4650 | predict\_cnt = 947 | true\_predict\_cnt = 915  
precision\_rate = 0.9662090813093981 | recall\_rate = 0.1967741935483871 | F1\_measure = 0.3269608718956584  
-----  
epoch 20 for theta 1 (Used time = 296.6784152984619 second(s)) :  
training loss = 0.2076018750667572  
tensor([[ 8.8243, 2.5876, 2.2431, ..., 0.0399, 0.0502, 0.0663],  
 [-1.6439, 0.5473, -0.2085, ..., -0.0192, -0.0223, -0.0279],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 21.13895010948181 second(s)) :  
loss = 0.1910097450017929  
item\_cnt = 4650 | predict\_cnt = 959 | true\_predict\_cnt = 927  
precision\_rate = 0.9666319082377477 | recall\_rate = 0.1993548387096774 | F1\_measure = 0.33054020324478517  
-----  
epoch 21 for theta 1 (Used time = 297.225154876709 second(s)) :  
training loss = 0.20115981996059418  
tensor([[ 8.3980, 2.6106, 2.2550, ..., 0.0412, 0.0519, 0.0689],  
 [-1.2988, 0.5802, -0.1864, ..., -0.0199, -0.0230, -0.0291],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 21.145020008087158 second(s)) :  
loss = 0.18547211587429047  
item\_cnt = 4650 | predict\_cnt = 974 | true\_predict\_cnt = 942  
precision\_rate = 0.9671457905544147 | recall\_rate = 0.20258064516129032 | F1\_measure = 0.33499288762446655  
-----  
epoch 22 for theta 1 (Used time = 296.3489818572998 second(s)) :  
training loss = 0.19487176835536957  
tensor([[ 7.9721, 2.6368, 2.2685, ..., 0.0426, 0.0536, 0.0716],  
 [-0.9538, 0.6077, -0.1667, ..., -0.0206, -0.0238, -0.0303],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.403604745864868 second(s)) :  
loss = 0.17967060208320618  
item\_cnt = 4650 | predict\_cnt = 978 | true\_predict\_cnt = 946  
precision\_rate = 0.967280163599182 | recall\_rate = 0.20344086021505375 | F1\_measure = 0.3361762615493959  
-----  
epoch 23 for theta 1 (Used time = 296.52031922340393 second(s)) :  
training loss = 0.18875031173229218  
tensor([[ 7.5470, 2.6554, 2.2790, ..., 0.0439, 0.0552, 0.0741],  
 [-0.6092, 0.6408, -0.1449, ..., -0.0213, -0.0245, -0.0314],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 21.388298511505127 second(s)) :  
loss = 0.17448650300502777  
item\_cnt = 4650 | predict\_cnt = 988 | true\_predict\_cnt = 957  
precision\_rate = 0.9686234817813765 | recall\_rate = 0.20580645161290323 | F1\_measure = 0.3394820858460447  
-----  
epoch 24 for theta 1 (Used time = 298.52988719940186 second(s)) :  
training loss = 0.18265849351882935  
tensor([[ 7.1234, 2.6820, 2.2930, ..., 0.0452, 0.0568, 0.0767],  
 [-0.2657, 0.6643, -0.1272, ..., -0.0220, -0.0252, -0.0326],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 21.324002981185913 second(s)) :  
loss = 0.16874785721302032  
item\_cnt = 4650 | predict\_cnt = 992 | true\_predict\_cnt = 963  
precision\_rate = 0.9707661290322581 | recall\_rate = 0.20709677419354838 | F1\_measure = 0.34136830911024457  
-----  
epoch 25 for theta 1 (Used time = 294.657124042511 second(s)) :  
training loss = 0.1768033355474472  
tensor([[ 6.7026, 2.6955, 2.3016, ..., 0.0465, 0.0583, 0.0792],  
 [ 0.0756, 0.6990, -0.1050, ..., -0.0227, -0.0259, -0.0337],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.43553328514099 second(s)) :  
loss = 0.16414520144462585  
item\_cnt = 4650 | predict\_cnt = 1021 | true\_predict\_cnt = 990

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precision\_rate = 0.9696376101860921 | recall\_rate = 0.2129032258064516 | F1\_measure = 0.3491447716452125  
-----  
epoch 26 for theta 1 (Used time = 300.0376510620117 second(s)) :  
training loss = 0.17103832960128784  
tensor([[ 6.2877, 2.7252, 2.3170, ..., 0.0478, 0.0599, 0.0818],  
 [ 0.4118, 0.7163, -0.0902, ..., -0.0234, -0.0267, -0.0349],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 21.245877504348755 second(s)) :  
loss = 0.15851053595542908  
item\_cnt = 4650 | predict\_cnt = 1011 | true\_predict\_cnt = 982  
precision\_rate = 0.9713155291790306 | recall\_rate = 0.21118279569892473 | F1\_measure = 0.34693517046458217  
-----  
epoch 27 for theta 1 (Used time = 293.87690591812134 second(s)) :  
training loss = 0.16561268270015717  
tensor([[ 5.8817, 2.7309, 2.3225, ..., 0.0490, 0.0614, 0.0842],  
 [ 0.7404, 0.7556, -0.0664, ..., -0.0240, -0.0273, -0.0360],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 21.09035348892212 second(s)) :  
loss = 0.1550067961215973  
item\_cnt = 4650 | predict\_cnt = 1061 | true\_predict\_cnt = 1030  
precision\_rate = 0.9707822808671065 | recall\_rate = 0.221505376344086 | F1\_measure = 0.36070740675888635  
-----  
epoch 28 for theta 1 (Used time = 297.60433292388916 second(s)) :  
training loss = 0.16054700314998627  
tensor([[ 5.4979, 2.7684, 2.3412, ..., 0.0503, 0.0630, 0.0868],  
 [ 1.0490, 0.7624, -0.0561, ..., -0.0247, -0.0281, -0.0372],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.482267141342163 second(s)) :  
loss = 0.1499984711408615  
item\_cnt = 4650 | predict\_cnt = 1037 | true\_predict\_cnt = 1013  
precision\_rate = 0.9768563162970106 | recall\_rate = 0.21784946236559138 | F1\_measure = 0.356251098997714  
-----  
epoch 29 for theta 1 (Used time = 291.5109395980835 second(s)) :  
training loss = 0.15653449296951294  
tensor([[ 5.1327, 2.7613, 2.3416, ..., 0.0515, 0.0644, 0.0891],  
 [ 1.3421, 0.8116, -0.0285, ..., -0.0253, -0.0287, -0.0382],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.323127269744873 second(s)) :  
loss = 0.1486101597547531  
item\_cnt = 4650 | predict\_cnt = 1131 | true\_predict\_cnt = 1100  
precision\_rate = 0.9725906277630415 | recall\_rate = 0.23655913978494625 | F1\_measure = 0.38055699705933227  
-----  
epoch 30 for theta 1 (Used time = 298.85743951797485 second(s)) :  
training loss = 0.1528913974761963  
tensor([[ 4.8420, 2.8129, 2.3662, ..., 0.0529, 0.0660, 0.0918],  
 [ 1.5652, 0.8020, -0.0251, ..., -0.0261, -0.0295, -0.0396],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 21.200206518173218 second(s)) :  
loss = 0.14578044414520264  
item\_cnt = 4650 | predict\_cnt = 1088 | true\_predict\_cnt = 1065  
precision\_rate = 0.9788602941176471 | recall\_rate = 0.22903225806451613 | F1\_measure = 0.3712094806552806  
-----  
epoch 31 for theta 1 (Used time = 295.39949321746826 second(s)) :  
training loss = 0.1522091180086136  
tensor([[ 4.5549, 2.7870, 2.3589, ..., 0.0540, 0.0674, 0.0940],  
 [ 1.7887, 0.8672, 0.0087, ..., -0.0267, -0.0301, -0.0405],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.917799949645996 second(s)) :  
loss = 0.1460394710302353  
item\_cnt = 4650 | predict\_cnt = 1167 | true\_predict\_cnt = 1135  
precision\_rate = 0.9725792630676949 | recall\_rate = 0.24408602150537634 | F1\_measure = 0.3902355165893072  
-----  
epoch 32 for theta 1 (Used time = 288.2771112918854 second(s)) :  
training loss = 0.149068221449852  
tensor([[ 4.4703, 2.8538, 2.3896, ..., 0.0555, 0.0690, 0.0968],  
 [ 1.8148, 0.8404, 0.0050, ..., -0.0276, -0.0309, -0.0420],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.198365926742554 second(s)) :  
loss = 0.14749671518802643  
item\_cnt = 4650 | predict\_cnt = 1056 | true\_predict\_cnt = 1033  
precision\_rate = 0.978219696969697 | recall\_rate = 0.2221505376344086 | F1\_measure = 0.36207500876270593  
-----  
epoch 33 for theta 1 (Used time = 289.28565216064453 second(s)) :  
training loss = 0.1543414443731308  
tensor([[ 4.2467, 2.8107, 2.3750, ..., 0.0566, 0.0705, 0.0989],  
 [ 1.9813, 0.9203, 0.0448, ..., -0.0282, -0.0315, -0.0428],  
 [ 0.0000, 0.0000, 0.0000, ..., 0.0000, 0.0000, 0.0000]],  
 requires\_grad=True)  
Evaluation For theta 1 (Used time = 20.262081384658813 second(s)) :  
loss = 0.1432151049375534  
item\_cnt = 4650 | predict\_cnt = 1191 | true\_predict\_cnt = 1159

```
precision_rate = 0.9731318219983207 | recall_rate = 0.24924731182795698 | F1_measure = 0.39684985447697313
-----
epoch 34 for theta 1 (Used time = 287.6500611305237 second(s)) :
training loss = 0.14596222341060638
tensor([[ 4.3334,  2.8747,  2.4037, ...,  0.0581,  0.0721,  0.1018],
        [ 1.8432,  0.8947,  0.0422, ..., -0.0291, -0.0324, -0.0444],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 21.028045177459717 second(s)) :
loss = 0.14540155231952667
item_cnt = 4650 | predict_cnt = 1066 | true_predict_cnt = 1043
precision_rate = 0.9784240150093808 | recall_rate = 0.2243010752688172 | F1_measure = 0.3649405178446466
-----
epoch 35 for theta 1 (Used time = 293.85169219970703 second(s)) :
training loss = 0.15221112966537476
tensor([[ 4.1341,  2.8307,  2.3882, ...,  0.0592,  0.0735,  0.1038],
        [ 1.9880,  0.9737,  0.0820, ..., -0.0297, -0.0330, -0.0452],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 21.018476724624634 second(s)) :
loss = 0.14094491302967072
item_cnt = 4650 | predict_cnt = 1233 | true_predict_cnt = 1201
precision_rate = 0.9740470397404704 | recall_rate = 0.25827956989247314 | F1_measure = 0.4082950875403705
-----
epoch 36 for theta 1 (Used time = 288.3887643814087 second(s)) :
training loss = 0.1436367779970169
tensor([[ 4.2678,  2.8961,  2.4166, ...,  0.0607,  0.0751,  0.1067],
        [ 1.8052,  0.9451,  0.0788, ..., -0.0306, -0.0338, -0.0467],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 20.223992824554443 second(s)) :
loss = 0.14320053160190582
item_cnt = 4650 | predict_cnt = 1085 | true_predict_cnt = 1062
precision_rate = 0.9788018433179724 | recall_rate = 0.22838709677419355 | F1_measure = 0.37035745422842203
-----
epoch 37 for theta 1 (Used time = 294.0907247066498 second(s)) :
training loss = 0.1499411016702652
tensor([[ 4.0707,  2.8519,  2.4008, ...,  0.0618,  0.0764,  0.1087],
        [ 1.9489,  1.0229,  0.1183, ..., -0.0312, -0.0345, -0.0475],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 20.370829820632935 second(s)) :
loss = 0.13882696628570557
item_cnt = 4650 | predict_cnt = 1256 | true_predict_cnt = 1221
precision_rate = 0.9721337579617835 | recall_rate = 0.2625806451612903 | F1_measure = 0.4134778191669488
-----
epoch 38 for theta 1 (Used time = 296.73738503456116 second(s)) :
training loss = 0.14165465533733368
tensor([[ 4.2135,  2.9199,  2.4299, ...,  0.0633,  0.0780,  0.1115],
        [ 1.7583,  0.9902,  0.1136, ..., -0.0321, -0.0353, -0.0490],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 21.621768712997437 second(s)) :
loss = 0.1413259655237198
item_cnt = 4650 | predict_cnt = 1111 | true_predict_cnt = 1088
precision_rate = 0.9792979297929792 | recall_rate = 0.2339784946236559 | F1_measure = 0.3777122027425794
-----
epoch 39 for theta 1 (Used time = 299.7072534561157 second(s)) :
training loss = 0.14810191094875336
tensor([[ 4.0148,  2.8747,  2.4135, ...,  0.0644,  0.0794,  0.1134],
        [ 1.9046,  1.0675,  0.1528, ..., -0.0327, -0.0359, -0.0498],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 1 (Used time = 20.308228731155396 second(s)) :
loss = 0.1368301957845688
item_cnt = 4650 | predict_cnt = 1271 | true_predict_cnt = 1235
precision_rate = 0.971675845790716 | recall_rate = 0.26559139784946234 | F1_measure = 0.41715926363789896
-----
Initial theta 2:
tensor([[0., 0., 0., ..., 0., 0., 0.],
        [0., 0., 0., ..., 0., 0., 0.],
        [0., 0., 0., ..., 0., 0., 0.]], requires_grad=True)
-----
epoch 0 for theta 2 (Used time = 263.1355881690979 second(s)) :
training loss = 1.1049160957336426
tensor([[ 1.7147e+01,  3.0889e+00,  2.2523e+00, ...,  8.8155e-03,
          9.4404e-03,  1.1907e-02],
        [-8.6424e+00, -1.4960e+00, -1.1096e+00, ..., -4.4077e-03,
          -4.7696e-03, -5.9537e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 20.24991726875305 second(s)) :
loss = 1.9937938451766968
item_cnt = 9578 | predict_cnt = 63 | true_predict_cnt = 62
precision_rate = 0.9841269841269841 | recall_rate = 0.006473167675923992 | F1_measure = 0.012861736334405145
-----
epoch 1 for theta 2 (Used time = 296.3045518398285 second(s)) :
training loss = 1.082513451576233
```

```
tensor([[ 1.6510e+01,  3.0563e+00,  2.2850e+00, ...,  1.0556e-02,
          1.1888e-02,  1.5545e-02],
        [-8.3922e+00, -1.4092e+00, -1.0913e+00, ..., -5.1606e-03,
          -5.8706e-03, -7.6216e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 20.906550645828247 second(s)) :
loss = 1.8522430658340454
item_cnt = 9578 | predict_cnt = 101 | true_predict_cnt = 99
precision_rate = 0.9801980198019802 | recall_rate = 0.01033618709542702 | F1_measure = 0.020456658745738196
-----
epoch 2 for theta 2 (Used time = 291.2046608924866 second(s)) :
training loss = 1.008689045906067
tensor([[ 1.5873e+01,  3.0244e+00,  2.3139e+00, ...,  1.2233e-02,
          1.4241e-02,  1.9130e-02],
        [-8.1421e+00, -1.3233e+00, -1.0723e+00, ..., -5.8805e-03,
          -6.9225e-03, -9.2619e-03],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 20.93340277671814 second(s)) :
loss = 1.71126389503479
item_cnt = 9578 | predict_cnt = 136 | true_predict_cnt = 123
precision_rate = 0.9044117647058824 | recall_rate = 0.012841929421591146 | F1_measure = 0.0253242742433601
-----
epoch 3 for theta 2 (Used time = 295.8662736415863 second(s)) :
training loss = 0.9355368614196777
tensor([[ 1.5237e+01,  2.9934e+00,  2.3396e+00, ...,  1.3854e-02,
          1.6509e-02,  2.2665e-02],
        [-7.8919e+00, -1.2383e+00, -1.0525e+00, ..., -6.5717e-03,
          -7.9313e-03, -1.0878e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 20.264116764068604 second(s)) :
loss = 1.5709606409072876
item_cnt = 9578 | predict_cnt = 181 | true_predict_cnt = 133
precision_rate = 0.7348066298342542 | recall_rate = 0.013885988724159533 | F1_measure = 0.027256891074905216
-----
epoch 4 for theta 2 (Used time = 292.2658293247223 second(s)) :
training loss = 0.8628622889518738
tensor([[ 1.4600e+01,  2.9634e+00,  2.3625e+00, ...,  1.5423e-02,
          1.8700e-02,  2.6156e-02],
        [-7.6418e+00, -1.1544e+00, -1.0323e+00, ..., -7.2379e-03,
          -8.9019e-03, -1.2472e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 21.167773008346558 second(s)) :
loss = 1.4312065839767456
item_cnt = 9578 | predict_cnt = 188 | true_predict_cnt = 138
precision_rate = 0.7340425531914894 | recall_rate = 0.014408018375443725 | F1_measure = 0.028261314765513003
-----
epoch 5 for theta 2 (Used time = 293.5999915599823 second(s)) :
training loss = 0.790688157081604
tensor([[ 1.3963e+01,  2.9347e+00,  2.3831e+00, ...,  1.6948e-02,
          2.0821e-02,  2.9606e-02],
        [-7.3916e+00, -1.0716e+00, -1.0117e+00, ..., -7.8820e-03,
          -9.8384e-03, -1.4047e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 20.92138695716858 second(s)) :
loss = 1.291730284690857
item_cnt = 9578 | predict_cnt = 204 | true_predict_cnt = 147
precision_rate = 0.7205882352941176 | recall_rate = 0.015347671747755273 | F1_measure = 0.03005520343488039
-----
epoch 6 for theta 2 (Used time = 293.5148894786835 second(s)) :
training loss = 0.7187448143959045
tensor([[ 1.3326e+01,  2.9074e+00,  2.4015e+00, ...,  1.8431e-02,
          2.2879e-02,  3.3016e-02],
        [-7.1414e+00, -9.8999e-01, -9.9063e-01, ..., -8.5066e-03,
          -1.0744e-02, -1.5605e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 20.18248963356018 second(s)) :
loss = 1.152714729309082
item_cnt = 9578 | predict_cnt = 214 | true_predict_cnt = 152
precision_rate = 0.7102803738317757 | recall_rate = 0.015869701399039465 | F1_measure = 0.03104575163398693
-----
epoch 7 for theta 2 (Used time = 298.3059468269348 second(s)) :
training loss = 0.6472169160842896
tensor([[ 1.2689e+01,  2.8814e+00,  2.4182e+00, ...,  1.9876e-02,
          2.4879e-02,  3.6392e-02],
        [-6.8913e+00, -9.0974e-01, -9.6930e-01, ..., -9.1139e-03,
          -1.1623e-02, -1.7147e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 20.122110605239868 second(s)) :
loss = 1.014095425605774
item_cnt = 9578 | predict_cnt = 220 | true_predict_cnt = 155
precision_rate = 0.7045454545454546 | recall_rate = 0.01618291918980998 | F1_measure = 0.031639110022453565
```

```
-----
epoch 8 for theta 2 (Used time = 297.78438091278076 second(s)) :
training loss = 0.5759887099266052
tensor([[ 1.2053e+01,  2.8569e+00,  2.4333e+00, ...,  2.1288e-02,
          2.6826e-02,  3.9734e-02],
        [-6.6411e+00, -8.3088e-01, -9.4772e-01, ..., -9.7058e-03,
          -1.2476e-02, -1.8674e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 21.02645492553711 second(s)) :
loss = 0.8760846257209778
item_cnt = 9578 | predict_cnt = 555 | true_predict_cnt = 182
precision_rate = 0.3279279279279279 | recall_rate = 0.019001879306744622 | F1_measure = 0.0359222342840225
-----
epoch 9 for theta 2 (Used time = 303.43738317489624 second(s)) :
training loss = 0.5051579475402832
tensor([[ 1.1416e+01,  2.8342e+00,  2.4471e+00, ...,  2.2671e-02,
          2.8726e-02,  4.3051e-02],
        [-6.3910e+00, -7.5351e-01, -9.2593e-01, ..., -1.0284e-02,
          -1.3307e-02, -2.0189e-02],
        [ 0.0000e+00,  0.0000e+00,  0.0000e+00, ...,  0.0000e+00,
          0.0000e+00,  0.0000e+00]], requires_grad=True)
Evaluation For theta 2 (Used time = 22.921048164367676 second(s)) :
loss = 0.73949134349823
item_cnt = 9578 | predict_cnt = 566 | true_predict_cnt = 187
precision_rate = 0.3303886925795053 | recall_rate = 0.019523908958028816 | F1_measure = 0.03686908517350158
-----
epoch 10 for theta 2 (Used time = 306.80926299095154 second(s)) :
training loss = 0.4353378415107727
tensor([[10.7792,  2.8136,  2.4602, ...,  0.0240,  0.0306,  0.0464],
        [-6.1408, -0.6777, -0.9040, ..., -0.0109, -0.0141, -0.0217],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.152766704559326 second(s)) :
loss = 0.6078583002090454
item_cnt = 9578 | predict_cnt = 611 | true_predict_cnt = 194
precision_rate = 0.31751227495908346 | recall_rate = 0.020254750469826686 | F1_measure = 0.03808028265776819
-----
epoch 11 for theta 2 (Used time = 291.8253712654114 second(s)) :
training loss = 0.36889785528182983
tensor([[10.1424,  2.7968,  2.4746, ...,  0.0254,  0.0324,  0.0497],
        [-5.8906, -0.6038, -0.8821, ..., -0.0114, -0.0149, -0.0232],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 21.062062740325928 second(s)) :
loss = 0.49266868829727173
item_cnt = 9578 | predict_cnt = 650 | true_predict_cnt = 194
precision_rate = 0.29846153846153844 | recall_rate = 0.020254750469826686 | F1_measure = 0.037935080172076655
-----
epoch 12 for theta 2 (Used time = 293.1317648887634 second(s)) :
training loss = 0.31340861320495605
tensor([[ 9.5056,  2.7890,  2.4952, ...,  0.0269,  0.0343,  0.0534],
        [-5.6405, -0.5332, -0.8611, ..., -0.0120, -0.0157, -0.0248],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 21.63539171218872 second(s)) :
loss = 0.4155893623828888
item_cnt = 9578 | predict_cnt = 818 | true_predict_cnt = 340
precision_rate = 0.4156479217603912 | recall_rate = 0.03549801628732512 | F1_measure = 0.0654097729896114
-----
epoch 13 for theta 2 (Used time = 302.4152512550354 second(s)) :
training loss = 0.2789630889892578
tensor([[ 8.8690,  2.7954,  2.5250, ...,  0.0285,  0.0362,  0.0573],
        [-5.3903, -0.4699, -0.8433, ..., -0.0126, -0.0165, -0.0265],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.197948694229126 second(s)) :
loss = 0.38519003987312317
item_cnt = 9578 | predict_cnt = 1004 | true_predict_cnt = 578
precision_rate = 0.5756972111553785 | recall_rate = 0.060346627688452704 | F1_measure = 0.10924210924210924
-----
epoch 14 for theta 2 (Used time = 301.77155900001526 second(s)) :
training loss = 0.2634795904159546
tensor([[ 8.2326,  2.8080,  2.5543, ...,  0.0300,  0.0380,  0.0612],
        [-5.1402, -0.4156, -0.8282, ..., -0.0133, -0.0173, -0.0282],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.49867534637451 second(s)) :
loss = 0.37526506185531616
item_cnt = 9578 | predict_cnt = 968 | true_predict_cnt = 551
precision_rate = 0.5692148760330579 | recall_rate = 0.05752766757151806 | F1_measure = 0.10449459510714962
-----
epoch 15 for theta 2 (Used time = 306.39133071899414 second(s)) :
training loss = 0.25308722257614136
tensor([[ 7.5967,  2.8159,  2.5783, ...,  0.0315,  0.0397,  0.0649],
        [-4.8900, -0.3603, -0.8117, ..., -0.0139, -0.0181, -0.0298],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
```

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Evaluation For theta 2 (Used time = 21.06574583053589 second(s)) :
loss = 0.3572251498699188
item_cnt = 9578 | predict_cnt = 698 | true_predict_cnt = 586
precision_rate = 0.839541547277937 | recall_rate = 0.061181875130507414 | F1_measure = 0.11405216037368625
-----
epoch 16 for theta 2 (Used time = 303.5605745315552 second(s)) :
training loss = 0.24296227097511292
tensor([[ 6.9618,  2.8276,  2.6028, ...,  0.0329,  0.0415,  0.0686],
        [-4.6399, -0.3093, -0.7961, ..., -0.0145, -0.0188, -0.0315],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.83167004585266 second(s)) :
loss = 0.3456835150718689
item_cnt = 9578 | predict_cnt = 689 | true_predict_cnt = 577
precision_rate = 0.8374455732946299 | recall_rate = 0.060242221758195866 | F1_measure = 0.11239894808610111
-----
epoch 17 for theta 2 (Used time = 302.100919008255 second(s)) :
training loss = 0.23326295614242554
tensor([[ 6.3283,  2.8360,  2.6238, ...,  0.0343,  0.0432,  0.0722],
        [-4.3897, -0.2578, -0.7795, ..., -0.0150, -0.0195, -0.0330],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.25697135925293 second(s)) :
loss = 0.3287960886955261
item_cnt = 9578 | predict_cnt = 731 | true_predict_cnt = 621
precision_rate = 0.8495212038303693 | recall_rate = 0.06483608268949677 | F1_measure = 0.12047725288582792
-----
epoch 18 for theta 2 (Used time = 301.52215600013733 second(s)) :
training loss = 0.22374510765075684
tensor([[ 5.6981,  2.8477,  2.6451, ...,  0.0357,  0.0448,  0.0757],
        [-4.1395, -0.2100, -0.7636, ..., -0.0156, -0.0202, -0.0346],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.082282066345215 second(s)) :
loss = 0.3167326748371124
item_cnt = 9578 | predict_cnt = 728 | true_predict_cnt = 618
precision_rate = 0.8489010989010989 | recall_rate = 0.06452286489872625 | F1_measure = 0.11993013778381524
-----
epoch 19 for theta 2 (Used time = 298.7614526748657 second(s)) :
training loss = 0.21453431248664856
tensor([[ 5.0731,  2.8568,  2.6637, ...,  0.0371,  0.0465,  0.0792],
        [-3.8894, -0.1619, -0.7468, ..., -0.0162, -0.0209, -0.0362],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.656728982925415 second(s)) :
loss = 0.3007878065109253
item_cnt = 9578 | predict_cnt = 745 | true_predict_cnt = 635
precision_rate = 0.8523489932885906 | recall_rate = 0.06629776571309251 | F1_measure = 0.12302625205851013
-----
epoch 20 for theta 2 (Used time = 302.71363282203674 second(s)) :
training loss = 0.20559121668338776
tensor([[ 4.4587,  2.8688,  2.6825, ...,  0.0385,  0.0481,  0.0827],
        [-3.6395, -0.1172, -0.7306, ..., -0.0167, -0.0216, -0.0377],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.89189124107361 second(s)) :
loss = 0.2887999415397644
item_cnt = 9578 | predict_cnt = 753 | true_predict_cnt = 643
precision_rate = 0.8539176626826029 | recall_rate = 0.0671330131551472 | F1_measure = 0.12447972122737391
-----
epoch 21 for theta 2 (Used time = 300.9640955924988 second(s)) :
training loss = 0.19697129726409912
tensor([[ 3.8628,  2.8786,  2.6992, ...,  0.0398,  0.0496,  0.0862],
        [-3.3902, -0.0722, -0.7137, ..., -0.0173, -0.0223, -0.0392],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.00467276573181 second(s)) :
loss = 0.2742420434951782
item_cnt = 9578 | predict_cnt = 916 | true_predict_cnt = 795
precision_rate = 0.8679039301310044 | recall_rate = 0.08300271455418667 | F1_measure = 0.15151515151515152
-----
epoch 22 for theta 2 (Used time = 308.1765365600586 second(s)) :
training loss = 0.18891368806362152
tensor([[ 3.3002,  2.8909,  2.7159, ...,  0.0412,  0.0512,  0.0896],
        [-3.1424, -0.0304, -0.6973, ..., -0.0178, -0.0229, -0.0407],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.89906072616577 second(s)) :
loss = 0.2636153995990753
item_cnt = 9578 | predict_cnt = 915 | true_predict_cnt = 794
precision_rate = 0.8677595628415301 | recall_rate = 0.08289830862392984 | F1_measure = 0.15133898789669303
-----
epoch 23 for theta 2 (Used time = 313.65722584724426 second(s)) :
training loss = 0.1815769076347351
tensor([[ 2.7923,  2.9012,  2.7309, ...,  0.0425,  0.0528,  0.0930],
        [-2.8977,  0.0117, -0.6803, ..., -0.0183, -0.0236, -0.0421],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
```

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Evaluation For theta 2 (Used time = 20.975953817367554 second(s)) :
loss = 0.2518986165523529
item_cnt = 9578 | predict_cnt = 935 | true_predict_cnt = 814
precision_rate = 0.8705882352941177 | recall_rate = 0.08498642722906662 | F1_measure = 0.15485589270427091
-----
epoch 24 for theta 2 (Used time = 343.3553419113159 second(s)) :
training loss = 0.17528145015239716
tensor([[ 2.3697,  2.9134,  2.7457, ...,  0.0439,  0.0543,  0.0965],
        [-2.6592,  0.0510, -0.6638, ..., -0.0188, -0.0242, -0.0436],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.95366096496582 second(s)) :
loss = 0.2446509450674057
item_cnt = 9578 | predict_cnt = 937 | true_predict_cnt = 816
precision_rate = 0.8708644610458911 | recall_rate = 0.0851952390895803 | F1_measure = 0.155206847360913
-----
epoch 25 for theta 2 (Used time = 338.9923894405365 second(s)) :
training loss = 0.17021271586418152
tensor([[ 2.0532,  2.9237,  2.7589, ...,  0.0453,  0.0559,  0.0999],
        [-2.4306,  0.0906, -0.6466, ..., -0.0194, -0.0248, -0.0450],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.34737467765808 second(s)) :
loss = 0.23735523223876953
item_cnt = 9578 | predict_cnt = 1239 | true_predict_cnt = 1118
precision_rate = 0.9023405972558515 | recall_rate = 0.11672583002714554 | F1_measure = 0.2067116575760377
-----
epoch 26 for theta 2 (Used time = 350.508686542511 second(s)) :
training loss = 0.1664031594991684
tensor([[ 1.8535,  2.9354,  2.7718, ...,  0.0468,  0.0575,  0.1034],
        [-2.2175,  0.1279, -0.6298, ..., -0.0199, -0.0255, -0.0464],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 21.43864631652832 second(s)) :
loss = 0.2338179349899292
item_cnt = 9578 | predict_cnt = 1237 | true_predict_cnt = 1118
precision_rate = 0.9037995149555376 | recall_rate = 0.11672583002714554 | F1_measure = 0.20674988441978734
-----
epoch 27 for theta 2 (Used time = 351.72479009628296 second(s)) :
training loss = 0.16345246136188507
tensor([[ 1.7410,  2.9451,  2.7832, ...,  0.0484,  0.0592,  0.1069],
        [-2.0210,  0.1654, -0.6126, ..., -0.0204, -0.0261, -0.0478],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 22.14093255996704 second(s)) :
loss = 0.22951145470142365
item_cnt = 9578 | predict_cnt = 1271 | true_predict_cnt = 1152
precision_rate = 0.9063729346970889 | recall_rate = 0.12027563165587805 | F1_measure = 0.21236980366854089
-----
epoch 28 for theta 2 (Used time = 358.4322826862335 second(s)) :
training loss = 0.16084077954292297
tensor([[ 1.6941,  2.9561,  2.7943, ...,  0.0499,  0.0608,  0.1104],
        [-1.8441,  0.2007, -0.5956, ..., -0.0209, -0.0267, -0.0492],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 20.81493043899536 second(s)) :
loss = 0.22757573425769806
item_cnt = 9578 | predict_cnt = 1284 | true_predict_cnt = 1165
precision_rate = 0.9073208722741433 | recall_rate = 0.12163290874921695 | F1_measure = 0.2145092984717363
-----
epoch 29 for theta 2 (Used time = 354.46681213378906 second(s)) :
training loss = 0.15885010361671448
tensor([[ 1.6738,  2.9656,  2.8041, ...,  0.0514,  0.0624,  0.1139],
        [-1.6827,  0.2361, -0.5783, ..., -0.0214, -0.0273, -0.0506],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 21.090541124343872 second(s)) :
loss = 0.22430941462516785
item_cnt = 9578 | predict_cnt = 1309 | true_predict_cnt = 1190
precision_rate = 0.9090909090909091 | recall_rate = 0.12424305700563792 | F1_measure = 0.21860935060163497
-----
epoch 30 for theta 2 (Used time = 357.1111013889313 second(s)) :
training loss = 0.15675324201583862
tensor([[ 1.6764,  2.9764,  2.8139, ...,  0.0530,  0.0641,  0.1173],
        [-1.5396,  0.2694, -0.5614, ..., -0.0220, -0.0279, -0.0520],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 22.452785968780518 second(s)) :
loss = 0.22278852760791779
item_cnt = 9578 | predict_cnt = 1348 | true_predict_cnt = 1230
precision_rate = 0.9124629080118695 | recall_rate = 0.12841929421591147 | F1_measure = 0.22515101592531575
-----
epoch 31 for theta 2 (Used time = 361.42310214042664 second(s)) :
training loss = 0.1546894907951355
tensor([[ 1.6809,  2.9859,  2.8228, ...,  0.0545,  0.0657,  0.1207],
        [-1.4091,  0.3027, -0.5441, ..., -0.0225, -0.0285, -0.0534],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
```

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Evaluation For theta 2 (Used time = 22.066205501556396 second(s)) :
loss = 0.21998557448387146
item_cnt = 9578 | predict_cnt = 1359 | true_predict_cnt = 1241
precision_rate = 0.9131714495952906 | recall_rate = 0.1295677594487367 | F1_measure = 0.2269360885069032
-----
epoch 32 for theta 2 (Used time = 366.64315700531006 second(s)) :
training loss = 0.15287651121616364
tensor([[ 1.6960,  2.9967,  2.8316, ...,  0.0560,  0.0672,  0.1241],
        [-1.2956,  0.3341, -0.5272, ..., -0.0230, -0.0291, -0.0548],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 21.547921180725098 second(s)) :
loss = 0.2186787873506546
item_cnt = 9578 | predict_cnt = 1485 | true_predict_cnt = 1367
precision_rate = 0.9205387205387205 | recall_rate = 0.14272290666109835 | F1_measure = 0.2471300732170297
-----
epoch 33 for theta 2 (Used time = 372.73464846611023 second(s)) :
training loss = 0.1510985791683197
tensor([[ 1.7065,  3.0063,  2.8396, ...,  0.0575,  0.0688,  0.1275],
        [-1.1923,  0.3656, -0.5101, ..., -0.0236, -0.0297, -0.0561],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 21.902390718460083 second(s)) :
loss = 0.21615664660930634
item_cnt = 9578 | predict_cnt = 1539 | true_predict_cnt = 1421
precision_rate = 0.9233268356075374 | recall_rate = 0.14836082689496763 | F1_measure = 0.2556445084105424
-----
epoch 34 for theta 2 (Used time = 373.61031317710876 second(s)) :
training loss = 0.14971674978733063
tensor([[ 1.7243,  3.0172,  2.8478, ...,  0.0590,  0.0703,  0.1308],
        [-1.1043,  0.3952, -0.4932, ..., -0.0241, -0.0303, -0.0575],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 23.17565894126892 second(s)) :
loss = 0.21496550738811493
item_cnt = 9578 | predict_cnt = 1543 | true_predict_cnt = 1425
precision_rate = 0.9235255994815295 | recall_rate = 0.14877845061599498 | F1_measure = 0.2562719179929862
-----
epoch 35 for theta 2 (Used time = 377.9530942440033 second(s)) :
training loss = 0.14814692735671997
tensor([[ 1.7351,  3.0270,  2.8552, ...,  0.0605,  0.0719,  0.1341],
        [-1.0239,  0.4250, -0.4762, ..., -0.0246, -0.0309, -0.0588],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 22.858535051345825 second(s)) :
loss = 0.21262456476688385
item_cnt = 9578 | predict_cnt = 1571 | true_predict_cnt = 1452
precision_rate = 0.9242520687460216 | recall_rate = 0.15159741073292962 | F1_measure = 0.2604717911920351
-----
epoch 36 for theta 2 (Used time = 380.7415964603424 second(s)) :
training loss = 0.14656871557235718
tensor([[ 1.7522,  3.0379,  2.8628, ...,  0.0619,  0.0734,  0.1374],
        [-0.9567,  0.4530, -0.4595, ..., -0.0252, -0.0315, -0.0602],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 22.47641611099243 second(s)) :
loss = 0.21156881749629974
item_cnt = 9578 | predict_cnt = 1572 | true_predict_cnt = 1453
precision_rate = 0.9243002544529262 | recall_rate = 0.15170181666318647 | F1_measure = 0.26062780269058294
-----
epoch 37 for theta 2 (Used time = 386.25580048561096 second(s)) :
training loss = 0.14531058073043823
tensor([[ 1.7613,  3.0478,  2.8697, ...,  0.0634,  0.0749,  0.1406],
        [-0.8946,  0.4813, -0.4426, ..., -0.0257, -0.0321, -0.0615],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 23.414396047592163 second(s)) :
loss = 0.20935368537902832
item_cnt = 9578 | predict_cnt = 1629 | true_predict_cnt = 1506
precision_rate = 0.9244935543278084 | recall_rate = 0.15723533096679893 | F1_measure = 0.2687605960560364
-----
epoch 38 for theta 2 (Used time = 384.0733675956726 second(s)) :
training loss = 0.14408858120441437
tensor([[ 1.7762,  3.0588,  2.8768, ...,  0.0648,  0.0763,  0.1438],
        [-0.8439,  0.5078, -0.4260, ..., -0.0262, -0.0326, -0.0628],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
Evaluation For theta 2 (Used time = 23.442418813705444 second(s)) :
loss = 0.2083742916584015
item_cnt = 9578 | predict_cnt = 1629 | true_predict_cnt = 1506
precision_rate = 0.9244935543278084 | recall_rate = 0.15723533096679893 | F1_measure = 0.2687605960560364
-----
epoch 39 for theta 2 (Used time = 383.7409088611603 second(s)) :
training loss = 0.1427755206823349
tensor([[ 1.7827,  3.0688,  2.8834, ...,  0.0662,  0.0778,  0.1470],
        [-0.7960,  0.5346, -0.4093, ..., -0.0268, -0.0332, -0.0642],
        [ 0.0000,  0.0000,  0.0000, ...,  0.0000,  0.0000,  0.0000]],
        requires_grad=True)
```



Evaluation For theta 2 (Used time = 22.963838577270508 second(s)) :  
loss = 0.20627661049365997  
item\_cnt = 9578 | predict\_cnt = 1643 | true\_predict\_cnt = 1519  
precision\_rate = 0.9245283018867925 | recall\_rate = 0.1585926080601378 | F1\_measure = 0.2707423580786026  
-----  
Want to continue? (y/n)  
n  
loss = 0.14970195293426514  
loss = 0.14275889098644257  
loss = 0.14406484365463257

进程退出