

Output_logistic_train.txt

```
eta = 0.1 lambda = 1
CROSS VALIDATION 0
H:/ML Homeworks/Homework 4/linear_brain.py:107: RuntimeWarning: overflow
encountered in exp
  logExp = np.exp(logSum)
iteration: 0 Logisticloss: 75856.39771645072
iteration: 1 Logisticloss: 75852.74645191798
Convergence reached in 2 iterations
[-0.07024048 -0.51245781 0.12728471 ... 0.19160851 -0.19982005
-0.10075717]
CROSS VALIDATION 1
iteration: 0 Logisticloss: 83901.6194552489
iteration: 1 Logisticloss: 75852.73916138263
iteration: 2 Logisticloss: 75852.74642516872
Convergence reached in 3 iterations
[-0.07024048 -0.51245781 0.12728471 ... 0.19160851 -0.19982005
-0.10075717]
CROSS VALIDATION 2
iteration: 0 Logisticloss: 76302.6825956416
iteration: 1 Logisticloss: 75852.74970748671
iteration: 2 Logisticloss: 75852.74642523914
Convergence reached in 3 iterations
[-0.07024048 -0.51245781 0.12728471 ... 0.19160851 -0.19982005
-0.10075717]
CROSS VALIDATION 3
iteration: 0 Logisticloss: 75860.63489884409
iteration: 1 Logisticloss: 75852.74648299663
Convergence reached in 2 iterations
[-0.07024048 -0.51245781 0.12728471 ... 0.19160851 -0.19982005
-0.10075717]
CROSS VALIDATION 4
iteration: 0 Logisticloss: 75860.63489884409
iteration: 1 Logisticloss: 75852.74648299663
Convergence reached in 2 iterations
[-0.07024048 -0.51245781 0.12728471 ... 0.19160851 -0.19982005
-0.10075717]
CROSS VALIDATION 5
iteration: 0 Logisticloss: 75860.63489884409
iteration: 1 Logisticloss: 75852.74648299663
Convergence reached in 2 iterations
[-0.07024048 -0.51245781 0.12728471 ... 0.19160851 -0.19982005
-0.10075717]
CROSS VALIDATION 6
iteration: 0 Logisticloss: 72870.63444817025
iteration: 1 Logisticloss: 83271.98095971941
iteration: 2 Logisticloss: 83272.21826030148
Convergence reached in 3 iterations
[-0.21508333 -0.47275411 -0.10479216 ... 0.16639644 -0.18896458
-0.10756397]
CROSS VALIDATION 7
iteration: 0 Logisticloss: 75860.63489884409
iteration: 1 Logisticloss: 75848.9794238029
```

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Convergence reached in 2 iterations

[-0.07025055 -0.51245995 0.12727476 ... 0.19160269 -0.19982083
-0.10075299]

CROSS VALIDATION 8

iteration: 0 Logisticloss: 75279.85761323334

iteration: 1 Logisticloss: 74476.70250295968

iteration: 2 Logisticloss: 74476.96009616586

iteration: 3 Logisticloss: 74476.95477186072

iteration: 4 Logisticloss: 74476.95487888191

Convergence reached in 5 iterations

[-0.06300272 -0.5156361 0.14916036 ... 0.19294299 -0.19681788
-0.09876445]

CROSS VALIDATION 9

iteration: 0 Logisticloss: 74659.65565215686

iteration: 1 Logisticloss: 73958.26512422271

iteration: 2 Logisticloss: 73958.68058084563

iteration: 3 Logisticloss: 73958.6720795664

iteration: 4 Logisticloss: 73958.67225044704

Convergence reached in 5 iterations

[-0.06300272 -0.5156361 0.14916036 ... 0.19294299 -0.19681788
-0.09876445]

CROSS VALIDATION 10

iteration: 0 Logisticloss: 73916.46461118294

iteration: 1 Logisticloss: 73915.45793107933

Convergence reached in 2 iterations

[-0.07021865 -0.51243399 0.12730971 ... 0.19160667 -0.19983086
-0.10075054]

CROSS VALIDATION 11

iteration: 0 Logisticloss: 75859.88991356338

iteration: 1 Logisticloss: 75844.06466112015

iteration: 2 Logisticloss: 75844.06454547841

Convergence reached in 3 iterations

[-0.07024468 -0.5124418 0.12731737 ... 0.19161237 -0.19981566
-0.10075904]

CROSS VALIDATION 12

iteration: 0 Logisticloss: 72244.00442242828

iteration: 1 Logisticloss: 72233.57601847516

Convergence reached in 2 iterations

[-0.08801267 -0.51658407 0.11705607 ... 0.20797454 -0.19339498
-0.09960365]

CROSS VALIDATION 13

iteration: 0 Logisticloss: 75004.27025263345

iteration: 1 Logisticloss: 83740.84682783656

iteration: 2 Logisticloss: 83741.06898842052

Convergence reached in 3 iterations

[-0.19661941 -0.44548754 -0.10690041 ... 0.18979865 -0.20011079
-0.10064335]

CROSS VALIDATION 14

iteration: 0 Logisticloss: 83897.02357710924

iteration: 1 Logisticloss: 79631.06606929566

iteration: 2 Logisticloss: 79631.10410292588

Convergence reached in 3 iterations

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[-0.09408417 -0.53872172 0.11708975 ... 0.18674852 -0.18378593
-0.10624049]

CROSS VALIDATION 15

iteration: 0 Logisticloss: 83897.02357710924

iteration: 1 Logisticloss: 79631.06606929566

iteration: 2 Logisticloss: 79631.10410292588

Convergence reached in 3 iterations

[-0.09408417 -0.53872172 0.11708975 ... 0.18674852 -0.18378593
-0.10624049]

CROSS VALIDATION 16

iteration: 0 Logisticloss: 80611.74265589971

iteration: 1 Logisticloss: 77255.95330465112

iteration: 2 Logisticloss: 77255.9973332446

Convergence reached in 3 iterations

[-0.09408417 -0.53872172 0.11708975 ... 0.18674852 -0.18378593
-0.10624049]

CROSS VALIDATION 17

iteration: 0 Logisticloss: 79263.75031189594

iteration: 1 Logisticloss: 73960.99244506625

iteration: 2 Logisticloss: 73961.02291647058

Convergence reached in 3 iterations

[-0.09408417 -0.53872172 0.11708975 ... 0.18674852 -0.18378593
-0.10624049]

CROSS VALIDATION 18

iteration: 0 Logisticloss: 72927.87532458083

iteration: 1 Logisticloss: 74464.97967145855

iteration: 2 Logisticloss: 74464.99147249086

Convergence reached in 3 iterations

[-0.21504898 -0.4726451 -0.10488968 ... 0.16627498 -0.1890239
-0.10752102]

CROSS VALIDATION 19

iteration: 0 Logisticloss: 83897.02357710924

iteration: 1 Logisticloss: 79610.80084560323

iteration: 2 Logisticloss: 79610.83423816014

Convergence reached in 3 iterations

[-0.09410774 -0.5387073 0.1171062 ... 0.18672626 -0.18383132
-0.10623035]

Accuracy (Logistic Loss): 0.6

eta = 0.1 lambda = 0.3

CROSS VALIDATION 0

iteration: 0 Logisticloss: 43056.79711489988

iteration: 1 Logisticloss: 31344.94342708837

iteration: 2 Logisticloss: 36930.28806284579

iteration: 3 Logisticloss: 87217.95304872314

iteration: 4 Logisticloss: 43040.917584503426

iteration: 5 Logisticloss: 33949.30072079553

iteration: 6 Logisticloss: 50950.8719250184

iteration: 7 Logisticloss: 17133.996848073402

iteration: 8 Logisticloss: 48052.21244511265

iteration: 9 Logisticloss: 54517.72423191778

iteration: 10 Logisticloss: 43739.36753915458

iteration: 11 Logisticloss: 26697.33006332323

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iteration: 12 Logisticloss: 62577.877259444664
iteration: 13 Logisticloss: 32785.56852234756
iteration: 14 Logisticloss: 46168.031546005084
iteration: 15 Logisticloss: 40976.085771668775
iteration: 16 Logisticloss: 31981.208308738613
iteration: 17 Logisticloss: 45279.38028687948
iteration: 18 Logisticloss: 28090.466341258187
iteration: 19 Logisticloss: 33298.07716937072
iteration: 20 Logisticloss: 62891.84898304664
iteration: 21 Logisticloss: 30320.69589314605
iteration: 22 Logisticloss: 58433.57179674419
iteration: 23 Logisticloss: 43976.06865901872
iteration: 24 Logisticloss: 61386.64237979868
iteration: 25 Logisticloss: 58271.59981712689
iteration: 26 Logisticloss: 64875.7200716149
iteration: 27 Logisticloss: 40463.017105822146
iteration: 28 Logisticloss: 65239.30178056502
iteration: 29 Logisticloss: 59753.110917470214
iteration: 30 Logisticloss: 31852.260760838875
iteration: 31 Logisticloss: 28812.083358463977
iteration: 32 Logisticloss: 35656.65523880164
iteration: 33 Logisticloss: 52223.72277106228
iteration: 34 Logisticloss: 51310.76490847219
iteration: 35 Logisticloss: 34203.24262267828
iteration: 36 Logisticloss: 78456.39699053437
iteration: 37 Logisticloss: 43654.554784944325
iteration: 38 Logisticloss: 31105.674429174738
iteration: 39 Logisticloss: 59809.79314940551
iteration: 40 Logisticloss: 32931.574797779926
iteration: 41 Logisticloss: 55186.99991496111
iteration: 42 Logisticloss: 31829.95514349786
iteration: 43 Logisticloss: 40844.35002687073
iteration: 44 Logisticloss: 22388.938446717693
iteration: 45 Logisticloss: 71546.8812620826
iteration: 46 Logisticloss: 49011.7886526591
iteration: 47 Logisticloss: 40605.32401885457
iteration: 48 Logisticloss: 72592.70945863951
iteration: 49 Logisticloss: 47186.38885914425
iteration: 50 Logisticloss: 29834.68038862093
iteration: 51 Logisticloss: 42537.74133118734
iteration: 52 Logisticloss: 50620.771221880554
iteration: 53 Logisticloss: 23183.769510274757
iteration: 54 Logisticloss: 54067.63689526875
iteration: 55 Logisticloss: 23469.6811815385
iteration: 56 Logisticloss: 46848.63924188034
iteration: 57 Logisticloss: 28913.64581621297
iteration: 58 Logisticloss: 37828.95898275331
iteration: 59 Logisticloss: 64293.56165786782
iteration: 60 Logisticloss: 33854.98265900785
iteration: 61 Logisticloss: 35338.06061574711
iteration: 62 Logisticloss: 29117.900247293757
iteration: 63 Logisticloss: 57341.813651659075

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```
iteration: 64 Logisticloss: 48824.306297728814
iteration: 65 Logisticloss: 71650.50431234039
iteration: 66 Logisticloss: 55029.01859392119
iteration: 67 Logisticloss: 34405.79781729696
iteration: 68 Logisticloss: 50031.000055918645
iteration: 69 Logisticloss: 62773.42617250774
iteration: 70 Logisticloss: 61473.5241143814
iteration: 71 Logisticloss: 20528.434599023
iteration: 72 Logisticloss: 46314.91369892432
iteration: 73 Logisticloss: 53090.33227871176
iteration: 74 Logisticloss: 35869.33294381268
iteration: 75 Logisticloss: 54611.35897702582
iteration: 76 Logisticloss: 35446.505353397195
iteration: 77 Logisticloss: 54613.97409691555
iteration: 78 Logisticloss: 35445.90669688303
iteration: 79 Logisticloss: 54613.97779577567
iteration: 80 Logisticloss: 35445.90584835855
iteration: 81 Logisticloss: 54613.977801006244
iteration: 82 Logisticloss: 35445.90584715586
iteration: 83 Logisticloss: 54613.97780101365
iteration: 84 Logisticloss: 35445.90584715415
iteration: 85 Logisticloss: 54613.977801013665
iteration: 86 Logisticloss: 35445.90584715414
iteration: 87 Logisticloss: 54613.977801013665
iteration: 88 Logisticloss: 35445.90584715414
iteration: 89 Logisticloss: 54613.977801013665
iteration: 90 Logisticloss: 35445.90584715414
iteration: 91 Logisticloss: 54613.977801013665
iteration: 92 Logisticloss: 35445.90584715414
iteration: 93 Logisticloss: 54613.977801013665
iteration: 94 Logisticloss: 35445.90584715414
iteration: 95 Logisticloss: 54613.977801013665
iteration: 96 Logisticloss: 35445.90584715414
iteration: 97 Logisticloss: 54613.977801013665
iteration: 98 Logisticloss: 35445.90584715414
iteration: 99 Logisticloss: 54613.977801013665
[-0.30502843 -0.77501482 -0.25613441 ... 0.43836455 -0.46571712
-0.04239405]
```

CROSS VALIDATION 1

```
iteration: 0 Logisticloss: 36871.47675711075
iteration: 1 Logisticloss: 88943.61718169304
iteration: 2 Logisticloss: 38699.88628248758
iteration: 3 Logisticloss: 86056.15842756446
iteration: 4 Logisticloss: 38593.90404800253
iteration: 5 Logisticloss: 86057.79485916585
iteration: 6 Logisticloss: 38593.754813210806
iteration: 7 Logisticloss: 86057.79718038984
iteration: 8 Logisticloss: 38593.754601658184
iteration: 9 Logisticloss: 86057.79718368042
iteration: 10 Logisticloss: 38593.75460135829
iteration: 11 Logisticloss: 86057.79718368508
iteration: 12 Logisticloss: 38593.75460135786
```

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iteration: 13 Logisticloss: 86057.79718368509
iteration: 14 Logisticloss: 38593.75460135786
iteration: 15 Logisticloss: 86057.79718368509
iteration: 16 Logisticloss: 38593.75460135786
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iteration: 64 Logisticloss: 38593.75460135786

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iteration: 65 Logisticloss: 86057.79718368509
iteration: 66 Logisticloss: 38593.75460135786
iteration: 67 Logisticloss: 86057.79718368509
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iteration: 97 Logisticloss: 86057.79718368509
iteration: 98 Logisticloss: 38593.75460135786
iteration: 99 Logisticloss: 86057.79718368509
[-0.52259015 0.03582248 0.21315283 ... 0.34155618 0.49757702
 0.25795078]
```

CROSS VALIDATION 2

```
iteration: 0 Logisticloss: 33565.910209443304
iteration: 1 Logisticloss: 36214.629723889906
iteration: 2 Logisticloss: 37298.81782323484
iteration: 3 Logisticloss: 29975.594925167625
iteration: 4 Logisticloss: 44159.45170173546
iteration: 5 Logisticloss: 26637.859111617603
iteration: 6 Logisticloss: 35681.092681710856
iteration: 7 Logisticloss: 31084.3881952229
iteration: 8 Logisticloss: 27512.29916107737
iteration: 9 Logisticloss: 44481.94640371508
iteration: 10 Logisticloss: 56323.92222277773
iteration: 11 Logisticloss: 52083.26221050056
iteration: 12 Logisticloss: 38185.4597924538
iteration: 13 Logisticloss: 59717.580221046446
```

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iteration: 14 Logisticloss: 57541.487853086015
iteration: 15 Logisticloss: 63051.66779471307
iteration: 16 Logisticloss: 37486.77472898559
iteration: 17 Logisticloss: 34041.70016665975
iteration: 18 Logisticloss: 56388.70301009946
iteration: 19 Logisticloss: 9250.14270639938
iteration: 20 Logisticloss: 51546.57778884794
iteration: 21 Logisticloss: 20056.200911699307
iteration: 22 Logisticloss: 41212.52871141935
iteration: 23 Logisticloss: 31023.81541084858
iteration: 24 Logisticloss: 27514.768545034487
iteration: 25 Logisticloss: 44482.079291205795
iteration: 26 Logisticloss: 56323.92706718121
iteration: 27 Logisticloss: 52083.262396008184
iteration: 28 Logisticloss: 38185.45979959882
iteration: 29 Logisticloss: 59717.58022141193
iteration: 30 Logisticloss: 57541.487853088576
iteration: 31 Logisticloss: 63051.66779471369
iteration: 32 Logisticloss: 37486.77472898559
iteration: 33 Logisticloss: 34041.70016665975
iteration: 34 Logisticloss: 56388.70301009946
iteration: 35 Logisticloss: 9250.14270639938
iteration: 36 Logisticloss: 51546.57778884794
iteration: 37 Logisticloss: 20056.200911699307
iteration: 38 Logisticloss: 41212.52871141935
iteration: 39 Logisticloss: 31023.81541084858
iteration: 40 Logisticloss: 27514.768545034487
iteration: 41 Logisticloss: 44482.079291205795
iteration: 42 Logisticloss: 56323.92706718121
iteration: 43 Logisticloss: 52083.262396008184
iteration: 44 Logisticloss: 38185.45979959882
iteration: 45 Logisticloss: 59717.58022141193
iteration: 46 Logisticloss: 57541.487853088576
iteration: 47 Logisticloss: 63051.66779471369
iteration: 48 Logisticloss: 37486.77472898559
iteration: 49 Logisticloss: 34041.70016665975
iteration: 50 Logisticloss: 56388.70301009946
iteration: 51 Logisticloss: 9250.14270639938
iteration: 52 Logisticloss: 51546.57778884794
iteration: 53 Logisticloss: 20056.200911699307
iteration: 54 Logisticloss: 41212.52871141935
iteration: 55 Logisticloss: 31023.81541084858
iteration: 56 Logisticloss: 27514.768545034487
iteration: 57 Logisticloss: 44482.079291205795
iteration: 58 Logisticloss: 56323.92706718121
iteration: 59 Logisticloss: 52083.262396008184
iteration: 60 Logisticloss: 38185.45979959882
iteration: 61 Logisticloss: 59717.58022141193
iteration: 62 Logisticloss: 57541.487853088576
iteration: 63 Logisticloss: 63051.66779471369
iteration: 64 Logisticloss: 37486.77472898559
iteration: 65 Logisticloss: 34041.70016665975

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```
iteration: 66 Logisticloss: 56388.70301009946
iteration: 67 Logisticloss: 9250.14270639938
iteration: 68 Logisticloss: 51546.57778884794
iteration: 69 Logisticloss: 20056.200911699307
iteration: 70 Logisticloss: 41212.52871141935
iteration: 71 Logisticloss: 31023.81541084858
iteration: 72 Logisticloss: 27514.768545034487
iteration: 73 Logisticloss: 44482.079291205795
iteration: 74 Logisticloss: 56323.92706718121
iteration: 75 Logisticloss: 52083.262396008184
iteration: 76 Logisticloss: 38185.45979959882
iteration: 77 Logisticloss: 59717.58022141193
iteration: 78 Logisticloss: 57541.487853088576
iteration: 79 Logisticloss: 63051.66779471369
iteration: 80 Logisticloss: 37486.77472898559
iteration: 81 Logisticloss: 34041.70016665975
iteration: 82 Logisticloss: 56388.70301009946
iteration: 83 Logisticloss: 9250.14270639938
iteration: 84 Logisticloss: 51546.57778884794
iteration: 85 Logisticloss: 20056.200911699307
iteration: 86 Logisticloss: 41212.52871141935
iteration: 87 Logisticloss: 31023.81541084858
iteration: 88 Logisticloss: 27514.768545034487
iteration: 89 Logisticloss: 44482.079291205795
iteration: 90 Logisticloss: 56323.92706718121
iteration: 91 Logisticloss: 52083.262396008184
iteration: 92 Logisticloss: 38185.45979959882
iteration: 93 Logisticloss: 59717.58022141193
iteration: 94 Logisticloss: 57541.487853088576
iteration: 95 Logisticloss: 63051.66779471369
iteration: 96 Logisticloss: 37486.77472898559
iteration: 97 Logisticloss: 34041.70016665975
iteration: 98 Logisticloss: 56388.70301009946
iteration: 99 Logisticloss: 9250.14270639938
[-0.29486499 -0.35537172 0.23698444 ... -0.12692135 0.33044157
0.01538898]
```

CROSS VALIDATION 3

```
iteration: 0 Logisticloss: 49515.70594586324
iteration: 1 Logisticloss: 23114.357024560075
iteration: 2 Logisticloss: 42401.899020305114
iteration: 3 Logisticloss: 30584.066855622983
iteration: 4 Logisticloss: 46961.3834086287
iteration: 5 Logisticloss: 25865.903964010406
iteration: 6 Logisticloss: 35392.20485256479
iteration: 7 Logisticloss: 36268.02505693457
iteration: 8 Logisticloss: 23032.02482759239
iteration: 9 Logisticloss: 39236.77556880571
iteration: 10 Logisticloss: 40579.87855185299
iteration: 11 Logisticloss: 33205.14950209204
iteration: 12 Logisticloss: 30580.463079264617
iteration: 13 Logisticloss: 44854.327442228845
iteration: 14 Logisticloss: 41363.67107230416
```

Output_logistic_train.txt

iteration: 15 Logisticloss: 59929.1519931231
iteration: 16 Logisticloss: 32452.768463358196
iteration: 17 Logisticloss: 49462.99031020014
iteration: 18 Logisticloss: 43678.86843865754
iteration: 19 Logisticloss: 38848.088113656275
iteration: 20 Logisticloss: 32979.615460729685
iteration: 21 Logisticloss: 36320.173154498145
iteration: 22 Logisticloss: 31402.009570689246
iteration: 23 Logisticloss: 47445.79966719351
iteration: 24 Logisticloss: 35776.95467474878
iteration: 25 Logisticloss: 13961.730315429235
iteration: 26 Logisticloss: 62700.48651183521
iteration: 27 Logisticloss: 66003.95363915052
iteration: 28 Logisticloss: 42184.04081587001
iteration: 29 Logisticloss: 23187.41357161707
iteration: 30 Logisticloss: 62513.9889600971
iteration: 31 Logisticloss: 44606.870794388626
iteration: 32 Logisticloss: 50246.7552618015
iteration: 33 Logisticloss: 36406.329760347166
iteration: 34 Logisticloss: 28915.5888798247
iteration: 35 Logisticloss: 48652.71959412932
iteration: 36 Logisticloss: 45804.699879195316
iteration: 37 Logisticloss: 29757.98530351209
iteration: 38 Logisticloss: 62010.290537473345
iteration: 39 Logisticloss: 11497.616557031115
iteration: 40 Logisticloss: 51926.38854388412
iteration: 41 Logisticloss: 36900.79224075031
iteration: 42 Logisticloss: 39551.651033898204
iteration: 43 Logisticloss: 41471.61181842303
iteration: 44 Logisticloss: 36704.1534857961
iteration: 45 Logisticloss: 60511.37132276802
iteration: 46 Logisticloss: 40824.4288152213
iteration: 47 Logisticloss: 40464.708018521356
iteration: 48 Logisticloss: 45097.099850969724
iteration: 49 Logisticloss: 35756.200858210126
iteration: 50 Logisticloss: 54510.66430006152
iteration: 51 Logisticloss: 35430.29213013752
iteration: 52 Logisticloss: 54552.237381606246
iteration: 53 Logisticloss: 35429.83209921066
iteration: 54 Logisticloss: 54552.29629948088
iteration: 55 Logisticloss: 35429.831447345874
iteration: 56 Logisticloss: 54552.29638297532
iteration: 57 Logisticloss: 35429.83144642215
iteration: 58 Logisticloss: 54552.29638309365
iteration: 59 Logisticloss: 35429.83144642085
iteration: 60 Logisticloss: 54552.296383093795
iteration: 61 Logisticloss: 35429.83144642085
iteration: 62 Logisticloss: 54552.296383093795
iteration: 63 Logisticloss: 35429.83144642085
iteration: 64 Logisticloss: 54552.296383093795
iteration: 65 Logisticloss: 35429.83144642085
iteration: 66 Logisticloss: 54552.296383093795

Output_logistic_train.txt

```
iteration: 67 Logisticloss: 35429.83144642085
iteration: 68 Logisticloss: 54552.296383093795
iteration: 69 Logisticloss: 35429.83144642085
iteration: 70 Logisticloss: 54552.296383093795
iteration: 71 Logisticloss: 35429.83144642085
iteration: 72 Logisticloss: 54552.296383093795
iteration: 73 Logisticloss: 35429.83144642085
iteration: 74 Logisticloss: 54552.296383093795
iteration: 75 Logisticloss: 35429.83144642085
iteration: 76 Logisticloss: 54552.296383093795
iteration: 77 Logisticloss: 35429.83144642085
iteration: 78 Logisticloss: 54552.296383093795
iteration: 79 Logisticloss: 35429.83144642085
iteration: 80 Logisticloss: 54552.296383093795
iteration: 81 Logisticloss: 35429.83144642085
iteration: 82 Logisticloss: 54552.296383093795
iteration: 83 Logisticloss: 35429.83144642085
iteration: 84 Logisticloss: 54552.296383093795
iteration: 85 Logisticloss: 35429.83144642085
iteration: 86 Logisticloss: 54552.296383093795
iteration: 87 Logisticloss: 35429.83144642085
iteration: 88 Logisticloss: 54552.296383093795
iteration: 89 Logisticloss: 35429.83144642085
iteration: 90 Logisticloss: 54552.296383093795
iteration: 91 Logisticloss: 35429.83144642085
iteration: 92 Logisticloss: 54552.296383093795
iteration: 93 Logisticloss: 35429.83144642085
iteration: 94 Logisticloss: 54552.296383093795
iteration: 95 Logisticloss: 35429.83144642085
iteration: 96 Logisticloss: 54552.296383093795
iteration: 97 Logisticloss: 35429.83144642085
iteration: 98 Logisticloss: 54552.296383093795
iteration: 99 Logisticloss: 35429.83144642085
[-0.51115432 -0.00128011 -0.21637761 ... 0.29714714 -0.17351384
 0.05701844]
```

CROSS VALIDATION 4

```
iteration: 0 Logisticloss: 49515.70594586324
iteration: 1 Logisticloss: 24544.779034535437
iteration: 2 Logisticloss: 42401.899020305114
iteration: 3 Logisticloss: 29124.005799010418
iteration: 4 Logisticloss: 46961.3834086287
iteration: 5 Logisticloss: 25865.903964010406
iteration: 6 Logisticloss: 35392.20485256479
iteration: 7 Logisticloss: 36268.02505693457
iteration: 8 Logisticloss: 20119.038194472912
iteration: 9 Logisticloss: 38125.95637226713
iteration: 10 Logisticloss: 31076.90445951766
iteration: 11 Logisticloss: 59827.62642119794
iteration: 12 Logisticloss: 32957.10494421572
iteration: 13 Logisticloss: 52317.92038880103
iteration: 14 Logisticloss: 31840.79309634456
iteration: 15 Logisticloss: 38348.96724062238
```

Output_logistic_train.txt

iteration: 16 Logisticloss: 22475.8091407964
iteration: 17 Logisticloss: 69276.53194819072
iteration: 18 Logisticloss: 51947.754843796945
iteration: 19 Logisticloss: 68104.23312144516
iteration: 20 Logisticloss: 31954.98736534051
iteration: 21 Logisticloss: 40761.31042768912
iteration: 22 Logisticloss: 22032.47220178161
iteration: 23 Logisticloss: 40813.25787821651
iteration: 24 Logisticloss: 31021.773610635835
iteration: 25 Logisticloss: 25947.41035254392
iteration: 26 Logisticloss: 49858.086682659676
iteration: 27 Logisticloss: 16193.295077649473
iteration: 28 Logisticloss: 45132.59118750141
iteration: 29 Logisticloss: 87693.36883388493
iteration: 30 Logisticloss: 43291.32689122897
iteration: 31 Logisticloss: 72643.13433966624
iteration: 32 Logisticloss: 45991.250732029075
iteration: 33 Logisticloss: 41054.69945958685
iteration: 34 Logisticloss: 22388.51741824009
iteration: 35 Logisticloss: 69280.43699222045
iteration: 36 Logisticloss: 51948.5477767284
iteration: 37 Logisticloss: 68104.2233469909
iteration: 38 Logisticloss: 31954.98703433646
iteration: 39 Logisticloss: 40761.31043157141
iteration: 40 Logisticloss: 22032.472201418488
iteration: 41 Logisticloss: 40813.25787820919
iteration: 42 Logisticloss: 31021.773610635297
iteration: 43 Logisticloss: 25947.410352543793
iteration: 44 Logisticloss: 49858.08668265967
iteration: 45 Logisticloss: 16193.295077649473
iteration: 46 Logisticloss: 45132.59118750141
iteration: 47 Logisticloss: 87693.36883388493
iteration: 48 Logisticloss: 43291.32689122897
iteration: 49 Logisticloss: 72643.13433966624
iteration: 50 Logisticloss: 45991.250732029075
iteration: 51 Logisticloss: 41054.69945958685
iteration: 52 Logisticloss: 22388.51741824009
iteration: 53 Logisticloss: 69280.43699222045
iteration: 54 Logisticloss: 51948.5477767284
iteration: 55 Logisticloss: 68104.2233469909
iteration: 56 Logisticloss: 31954.98703433646
iteration: 57 Logisticloss: 40761.31043157141
iteration: 58 Logisticloss: 22032.472201418488
iteration: 59 Logisticloss: 40813.25787820919
iteration: 60 Logisticloss: 31021.773610635297
iteration: 61 Logisticloss: 25947.410352543793
iteration: 62 Logisticloss: 49858.08668265967
iteration: 63 Logisticloss: 16193.295077649473
iteration: 64 Logisticloss: 45132.59118750141
iteration: 65 Logisticloss: 87693.36883388493
iteration: 66 Logisticloss: 43291.32689122897
iteration: 67 Logisticloss: 72643.13433966624

Output_logistic_train.txt

```
iteration: 68 Logisticloss: 45991.250732029075
iteration: 69 Logisticloss: 41054.69945958685
iteration: 70 Logisticloss: 22388.51741824009
iteration: 71 Logisticloss: 69280.43699222045
iteration: 72 Logisticloss: 51948.5477767284
iteration: 73 Logisticloss: 68104.2233469909
iteration: 74 Logisticloss: 31954.98703433646
iteration: 75 Logisticloss: 40761.31043157141
iteration: 76 Logisticloss: 22032.472201418488
iteration: 77 Logisticloss: 40813.25787820919
iteration: 78 Logisticloss: 31021.773610635297
iteration: 79 Logisticloss: 25947.410352543793
iteration: 80 Logisticloss: 49858.08668265967
iteration: 81 Logisticloss: 16193.295077649473
iteration: 82 Logisticloss: 45132.59118750141
iteration: 83 Logisticloss: 87693.36883388493
iteration: 84 Logisticloss: 43291.32689122897
iteration: 85 Logisticloss: 72643.13433966624
iteration: 86 Logisticloss: 45991.250732029075
iteration: 87 Logisticloss: 41054.69945958685
iteration: 88 Logisticloss: 22388.51741824009
iteration: 89 Logisticloss: 69280.43699222045
iteration: 90 Logisticloss: 51948.5477767284
iteration: 91 Logisticloss: 68104.2233469909
iteration: 92 Logisticloss: 31954.98703433646
iteration: 93 Logisticloss: 40761.31043157141
iteration: 94 Logisticloss: 22032.472201418488
iteration: 95 Logisticloss: 40813.25787820919
iteration: 96 Logisticloss: 31021.773610635297
iteration: 97 Logisticloss: 25947.410352543793
iteration: 98 Logisticloss: 49858.08668265967
iteration: 99 Logisticloss: 16193.295077649473
[-0.32232799 -0.24189131 0.24676588 ... 0.07259134 0.44700356
0.04374171]
```

CROSS VALIDATION 5

```
iteration: 0 Logisticloss: 46848.64319670644
iteration: 1 Logisticloss: 18454.65237655741
iteration: 2 Logisticloss: 36614.385134428325
iteration: 3 Logisticloss: 48408.59210873136
iteration: 4 Logisticloss: 60489.23325669371
iteration: 5 Logisticloss: 10102.504226770507
iteration: 6 Logisticloss: 46248.798489344364
iteration: 7 Logisticloss: 21000.111223145468
iteration: 8 Logisticloss: 50992.47094950487
iteration: 9 Logisticloss: 35030.83559385578
iteration: 10 Logisticloss: 42497.82961787612
iteration: 11 Logisticloss: 5848.447342989261
iteration: 12 Logisticloss: 29819.95243647362
iteration: 13 Logisticloss: 45749.858567016425
iteration: 14 Logisticloss: 44074.86047847966
iteration: 15 Logisticloss: 39573.29553297934
iteration: 16 Logisticloss: 50465.90424632266
```

Output_logistic_train.txt

iteration: 17 Logisticloss: 32421.279063402242
iteration: 18 Logisticloss: 33387.50299583537
iteration: 19 Logisticloss: 62720.709807769315
iteration: 20 Logisticloss: 32459.330971073017
iteration: 21 Logisticloss: 17499.7353002683
iteration: 22 Logisticloss: 83068.48324651846
iteration: 23 Logisticloss: 40506.808972548315
iteration: 24 Logisticloss: 68458.30012310596
iteration: 25 Logisticloss: 46027.69431921939
iteration: 26 Logisticloss: 32392.121578098864
iteration: 27 Logisticloss: 38321.333367162704
iteration: 28 Logisticloss: 36275.419965737216
iteration: 29 Logisticloss: 27538.508292459897
iteration: 30 Logisticloss: 49726.27835868281
iteration: 31 Logisticloss: 24730.79132197688
iteration: 32 Logisticloss: 47929.531795770265
iteration: 33 Logisticloss: 25387.765296708374
iteration: 34 Logisticloss: 61317.89450664129
iteration: 35 Logisticloss: 31573.96802893652
iteration: 36 Logisticloss: 41164.030523801055
iteration: 37 Logisticloss: 28634.525269879046
iteration: 38 Logisticloss: 45181.66887714763
iteration: 39 Logisticloss: 110769.54939198376
iteration: 40 Logisticloss: 39596.98090735472
iteration: 41 Logisticloss: 109865.39606165342
iteration: 42 Logisticloss: 33751.6709037315
iteration: 43 Logisticloss: 47721.35252488223
iteration: 44 Logisticloss: 60458.64259775703
iteration: 45 Logisticloss: 10102.656138566155
iteration: 46 Logisticloss: 46248.77498384233
iteration: 47 Logisticloss: 21000.111038831215
iteration: 48 Logisticloss: 50992.47093825215
iteration: 49 Logisticloss: 35030.8355976846
iteration: 50 Logisticloss: 42497.829617781565
iteration: 51 Logisticloss: 5848.447342988985
iteration: 52 Logisticloss: 29819.952436473573
iteration: 53 Logisticloss: 45749.85856701642
iteration: 54 Logisticloss: 44074.86047847966
iteration: 55 Logisticloss: 39573.29553297934
iteration: 56 Logisticloss: 50465.90424632266
iteration: 57 Logisticloss: 32421.279063402242
iteration: 58 Logisticloss: 33387.50299583537
iteration: 59 Logisticloss: 62720.709807769315
iteration: 60 Logisticloss: 32459.330971073017
iteration: 61 Logisticloss: 17499.7353002683
iteration: 62 Logisticloss: 83068.48324651846
iteration: 63 Logisticloss: 40506.808972548315
iteration: 64 Logisticloss: 68458.30012310596
iteration: 65 Logisticloss: 46027.69431921939
iteration: 66 Logisticloss: 32392.121578098864
iteration: 67 Logisticloss: 38321.333367162704
iteration: 68 Logisticloss: 36275.419965737216

Output_logistic_train.txt

```
iteration: 69 Logisticloss: 27538.508292459897
iteration: 70 Logisticloss: 49726.27835868281
iteration: 71 Logisticloss: 24730.79132197688
iteration: 72 Logisticloss: 47929.531795770265
iteration: 73 Logisticloss: 25387.765296708374
iteration: 74 Logisticloss: 61317.89450664129
iteration: 75 Logisticloss: 31573.96802893652
iteration: 76 Logisticloss: 41164.030523801055
iteration: 77 Logisticloss: 28634.525269879046
iteration: 78 Logisticloss: 45181.66887714763
iteration: 79 Logisticloss: 110769.54939198376
iteration: 80 Logisticloss: 39596.98090735472
iteration: 81 Logisticloss: 109865.39606165342
iteration: 82 Logisticloss: 33751.6709037315
iteration: 83 Logisticloss: 47721.35252488223
iteration: 84 Logisticloss: 60458.64259775703
iteration: 85 Logisticloss: 10102.656138566155
iteration: 86 Logisticloss: 46248.77498384233
iteration: 87 Logisticloss: 21000.111038831215
iteration: 88 Logisticloss: 50992.47093825215
iteration: 89 Logisticloss: 35030.8355976846
iteration: 90 Logisticloss: 42497.829617781565
iteration: 91 Logisticloss: 5848.447342988985
iteration: 92 Logisticloss: 29819.952436473573
iteration: 93 Logisticloss: 45749.85856701642
iteration: 94 Logisticloss: 44074.86047847966
iteration: 95 Logisticloss: 39573.29553297934
iteration: 96 Logisticloss: 50465.90424632266
iteration: 97 Logisticloss: 32421.279063402242
iteration: 98 Logisticloss: 33387.50299583537
iteration: 99 Logisticloss: 62720.709807769315
[-0.20945908 0.03883868 -0.43900842 ... 0.50638222 0.07601425
0.07038481]
```

CROSS VALIDATION 6

```
iteration: 0 Logisticloss: 49515.70594586324
iteration: 1 Logisticloss: 24544.779034535437
iteration: 2 Logisticloss: 50923.134234701836
iteration: 3 Logisticloss: 43272.7483655556
iteration: 4 Logisticloss: 56268.747667076794
iteration: 5 Logisticloss: 56534.75032723295
iteration: 6 Logisticloss: 50812.33894590221
iteration: 7 Logisticloss: 23368.226996627112
iteration: 8 Logisticloss: 34509.70896333886
iteration: 9 Logisticloss: 62745.20941209165
iteration: 10 Logisticloss: 36521.30718595082
iteration: 11 Logisticloss: 43010.93510536406
iteration: 12 Logisticloss: 16986.414665422468
iteration: 13 Logisticloss: 47884.14867791666
iteration: 14 Logisticloss: 16461.71320471142
iteration: 15 Logisticloss: 47965.87407828319
iteration: 16 Logisticloss: 16497.24152074836
iteration: 17 Logisticloss: 47965.990146081596
```

Output_logistic_train.txt

iteration: 18 Logisticloss: 16497.29188585099
iteration: 19 Logisticloss: 47965.99031061925
iteration: 20 Logisticloss: 16497.29195724836
iteration: 21 Logisticloss: 47965.99031085251
iteration: 22 Logisticloss: 16497.291957349575
iteration: 23 Logisticloss: 47965.99031085284
iteration: 24 Logisticloss: 16497.291957349713
iteration: 25 Logisticloss: 47965.99031085283
iteration: 26 Logisticloss: 16497.291957349713
iteration: 27 Logisticloss: 47965.99031085283
iteration: 28 Logisticloss: 16497.291957349713
iteration: 29 Logisticloss: 47965.99031085283
iteration: 30 Logisticloss: 16497.291957349713
iteration: 31 Logisticloss: 47965.99031085283
iteration: 32 Logisticloss: 16497.291957349713
iteration: 33 Logisticloss: 47965.99031085283
iteration: 34 Logisticloss: 16497.291957349713
iteration: 35 Logisticloss: 47965.99031085283
iteration: 36 Logisticloss: 16497.291957349713
iteration: 37 Logisticloss: 47965.99031085283
iteration: 38 Logisticloss: 16497.291957349713
iteration: 39 Logisticloss: 47965.99031085283
iteration: 40 Logisticloss: 16497.291957349713
iteration: 41 Logisticloss: 47965.99031085283
iteration: 42 Logisticloss: 16497.291957349713
iteration: 43 Logisticloss: 47965.99031085283
iteration: 44 Logisticloss: 16497.291957349713
iteration: 45 Logisticloss: 47965.99031085283
iteration: 46 Logisticloss: 16497.291957349713
iteration: 47 Logisticloss: 47965.99031085283
iteration: 48 Logisticloss: 16497.291957349713
iteration: 49 Logisticloss: 47965.99031085283
iteration: 50 Logisticloss: 16497.291957349713
iteration: 51 Logisticloss: 47965.99031085283
iteration: 52 Logisticloss: 16497.291957349713
iteration: 53 Logisticloss: 47965.99031085283
iteration: 54 Logisticloss: 16497.291957349713
iteration: 55 Logisticloss: 47965.99031085283
iteration: 56 Logisticloss: 16497.291957349713
iteration: 57 Logisticloss: 47965.99031085283
iteration: 58 Logisticloss: 16497.291957349713
iteration: 59 Logisticloss: 47965.99031085283
iteration: 60 Logisticloss: 16497.291957349713
iteration: 61 Logisticloss: 47965.99031085283
iteration: 62 Logisticloss: 16497.291957349713
iteration: 63 Logisticloss: 47965.99031085283
iteration: 64 Logisticloss: 16497.291957349713
iteration: 65 Logisticloss: 47965.99031085283
iteration: 66 Logisticloss: 16497.291957349713
iteration: 67 Logisticloss: 47965.99031085283
iteration: 68 Logisticloss: 16497.291957349713
iteration: 69 Logisticloss: 47965.99031085283

Output_logistic_train.txt

```
iteration: 70 Logisticloss: 16497.291957349713
iteration: 71 Logisticloss: 47965.99031085283
iteration: 72 Logisticloss: 16497.291957349713
iteration: 73 Logisticloss: 47965.99031085283
iteration: 74 Logisticloss: 16497.291957349713
iteration: 75 Logisticloss: 47965.99031085283
iteration: 76 Logisticloss: 16497.291957349713
iteration: 77 Logisticloss: 47965.99031085283
iteration: 78 Logisticloss: 16497.291957349713
iteration: 79 Logisticloss: 47965.99031085283
iteration: 80 Logisticloss: 16497.291957349713
iteration: 81 Logisticloss: 47965.99031085283
iteration: 82 Logisticloss: 16497.291957349713
iteration: 83 Logisticloss: 47965.99031085283
iteration: 84 Logisticloss: 16497.291957349713
iteration: 85 Logisticloss: 47965.99031085283
iteration: 86 Logisticloss: 16497.291957349713
iteration: 87 Logisticloss: 47965.99031085283
iteration: 88 Logisticloss: 16497.291957349713
iteration: 89 Logisticloss: 47965.99031085283
iteration: 90 Logisticloss: 16497.291957349713
iteration: 91 Logisticloss: 47965.99031085283
iteration: 92 Logisticloss: 16497.291957349713
iteration: 93 Logisticloss: 47965.99031085283
iteration: 94 Logisticloss: 16497.291957349713
iteration: 95 Logisticloss: 47965.99031085283
iteration: 96 Logisticloss: 16497.291957349713
iteration: 97 Logisticloss: 47965.99031085283
iteration: 98 Logisticloss: 16497.291957349713
iteration: 99 Logisticloss: 47965.99031085283
[-0.02368004 -0.85275892 -0.1262475 ... 0.41272034 -0.46188979
-0.07627624]
```

CROSS VALIDATION 7

```
iteration: 0 Logisticloss: 49515.70594586324
iteration: 1 Logisticloss: 24544.779034535437
iteration: 2 Logisticloss: 50923.134234701836
iteration: 3 Logisticloss: 43272.7483655556
iteration: 4 Logisticloss: 56268.747667076794
iteration: 5 Logisticloss: 56534.75032723295
iteration: 6 Logisticloss: 50812.33894590221
iteration: 7 Logisticloss: 23368.226996627112
iteration: 8 Logisticloss: 34509.70896333886
iteration: 9 Logisticloss: 62745.20941209165
iteration: 10 Logisticloss: 36369.66455171116
iteration: 11 Logisticloss: 43010.93510536406
iteration: 12 Logisticloss: 16986.414665422468
iteration: 13 Logisticloss: 47884.14867791666
iteration: 14 Logisticloss: 16461.71320471142
iteration: 15 Logisticloss: 47965.87407828319
iteration: 16 Logisticloss: 16497.24152074836
iteration: 17 Logisticloss: 47965.990146081596
iteration: 18 Logisticloss: 16497.29188585099
```

Output_logistic_train.txt

iteration: 19 Logisticloss: 47965.99031061925
iteration: 20 Logisticloss: 16497.29195724836
iteration: 21 Logisticloss: 47965.99031085251
iteration: 22 Logisticloss: 16497.291957349575
iteration: 23 Logisticloss: 47965.99031085284
iteration: 24 Logisticloss: 16497.291957349713
iteration: 25 Logisticloss: 47965.99031085283
iteration: 26 Logisticloss: 16497.291957349713
iteration: 27 Logisticloss: 47965.99031085283
iteration: 28 Logisticloss: 16497.291957349713
iteration: 29 Logisticloss: 47965.99031085283
iteration: 30 Logisticloss: 16497.291957349713
iteration: 31 Logisticloss: 47965.99031085283
iteration: 32 Logisticloss: 16497.291957349713
iteration: 33 Logisticloss: 47965.99031085283
iteration: 34 Logisticloss: 16497.291957349713
iteration: 35 Logisticloss: 47965.99031085283
iteration: 36 Logisticloss: 16497.291957349713
iteration: 37 Logisticloss: 47965.99031085283
iteration: 38 Logisticloss: 16497.291957349713
iteration: 39 Logisticloss: 47965.99031085283
iteration: 40 Logisticloss: 16497.291957349713
iteration: 41 Logisticloss: 47965.99031085283
iteration: 42 Logisticloss: 16497.291957349713
iteration: 43 Logisticloss: 47965.99031085283
iteration: 44 Logisticloss: 16497.291957349713
iteration: 45 Logisticloss: 47965.99031085283
iteration: 46 Logisticloss: 16497.291957349713
iteration: 47 Logisticloss: 47965.99031085283
iteration: 48 Logisticloss: 16497.291957349713
iteration: 49 Logisticloss: 47965.99031085283
iteration: 50 Logisticloss: 16497.291957349713
iteration: 51 Logisticloss: 47965.99031085283
iteration: 52 Logisticloss: 16497.291957349713
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iteration: 58 Logisticloss: 16497.291957349713
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iteration: 65 Logisticloss: 47965.99031085283
iteration: 66 Logisticloss: 16497.291957349713
iteration: 67 Logisticloss: 47965.99031085283
iteration: 68 Logisticloss: 16497.291957349713
iteration: 69 Logisticloss: 47965.99031085283
iteration: 70 Logisticloss: 16497.291957349713

Output_logistic_train.txt

```
iteration: 71 Logisticloss: 47965.99031085283
iteration: 72 Logisticloss: 16497.291957349713
iteration: 73 Logisticloss: 47965.99031085283
iteration: 74 Logisticloss: 16497.291957349713
iteration: 75 Logisticloss: 47965.99031085283
iteration: 76 Logisticloss: 16497.291957349713
iteration: 77 Logisticloss: 47965.99031085283
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iteration: 82 Logisticloss: 16497.291957349713
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iteration: 84 Logisticloss: 16497.291957349713
iteration: 85 Logisticloss: 47965.99031085283
iteration: 86 Logisticloss: 16497.291957349713
iteration: 87 Logisticloss: 47965.99031085283
iteration: 88 Logisticloss: 16497.291957349713
iteration: 89 Logisticloss: 47965.99031085283
iteration: 90 Logisticloss: 16497.291957349713
iteration: 91 Logisticloss: 47965.99031085283
iteration: 92 Logisticloss: 16497.291957349713
iteration: 93 Logisticloss: 47965.99031085283
iteration: 94 Logisticloss: 16497.291957349713
iteration: 95 Logisticloss: 47965.99031085283
iteration: 96 Logisticloss: 16497.291957349713
iteration: 97 Logisticloss: 47965.99031085283
iteration: 98 Logisticloss: 16497.291957349713
iteration: 99 Logisticloss: 47965.99031085283
[-0.02368004 -0.85275892 -0.1262475 ... 0.41272034 -0.46188979
-0.07627624]
```

CROSS VALIDATION 8

```
iteration: 0 Logisticloss: 48458.97813909812
iteration: 1 Logisticloss: 31605.364179713513
iteration: 2 Logisticloss: 38864.63505847568
iteration: 3 Logisticloss: 36610.54484176831
iteration: 4 Logisticloss: 35321.49606373692
iteration: 5 Logisticloss: 26840.426804060935
iteration: 6 Logisticloss: 38721.670518875275
iteration: 7 Logisticloss: 56937.354606312256
iteration: 8 Logisticloss: 48843.91925294303
iteration: 9 Logisticloss: 32650.98607971328
iteration: 10 Logisticloss: 28909.026988122216
iteration: 11 Logisticloss: 48584.99474756669
iteration: 12 Logisticloss: 32336.05218040173
iteration: 13 Logisticloss: 47239.53845066026
iteration: 14 Logisticloss: 63864.11394572215
iteration: 15 Logisticloss: 36313.30858500461
iteration: 16 Logisticloss: 53351.64275177615
iteration: 17 Logisticloss: 43849.38245308038
iteration: 18 Logisticloss: 71888.69097467314
iteration: 19 Logisticloss: 63682.498635231015
```

Output_logistic_train.txt

iteration: 20 Logisticloss: 66149.44765680916
iteration: 21 Logisticloss: 46681.78528185075
iteration: 22 Logisticloss: 38062.047034914765
iteration: 23 Logisticloss: 60497.64014820683
iteration: 24 Logisticloss: 30088.98134493575
iteration: 25 Logisticloss: 54984.47832384583
iteration: 26 Logisticloss: 32573.52810840102
iteration: 27 Logisticloss: 50636.27865809734
iteration: 28 Logisticloss: 16592.438528066217
iteration: 29 Logisticloss: 47956.39321479734
iteration: 30 Logisticloss: 16497.38491885803
iteration: 31 Logisticloss: 47965.97670399991
iteration: 32 Logisticloss: 16497.292089128678
iteration: 33 Logisticloss: 47965.99029156381
iteration: 34 Logisticloss: 16497.291957536527
iteration: 35 Logisticloss: 47965.9903108255
iteration: 36 Logisticloss: 16497.291957349986
iteration: 37 Logisticloss: 47965.990310852794
iteration: 38 Logisticloss: 16497.291957349713
iteration: 39 Logisticloss: 47965.99031085283
iteration: 40 Logisticloss: 16497.291957349713
iteration: 41 Logisticloss: 47965.99031085283
iteration: 42 Logisticloss: 16497.291957349713
iteration: 43 Logisticloss: 47965.99031085283
iteration: 44 Logisticloss: 16497.291957349713
iteration: 45 Logisticloss: 47965.99031085283
iteration: 46 Logisticloss: 16497.291957349713
iteration: 47 Logisticloss: 47965.99031085283
iteration: 48 Logisticloss: 16497.291957349713
iteration: 49 Logisticloss: 47965.99031085283
iteration: 50 Logisticloss: 16497.291957349713
iteration: 51 Logisticloss: 47965.99031085283
iteration: 52 Logisticloss: 16497.291957349713
iteration: 53 Logisticloss: 47965.99031085283
iteration: 54 Logisticloss: 16497.291957349713
iteration: 55 Logisticloss: 47965.99031085283
iteration: 56 Logisticloss: 16497.291957349713
iteration: 57 Logisticloss: 47965.99031085283
iteration: 58 Logisticloss: 16497.291957349713
iteration: 59 Logisticloss: 47965.99031085283
iteration: 60 Logisticloss: 16497.291957349713
iteration: 61 Logisticloss: 47965.99031085283
iteration: 62 Logisticloss: 16497.291957349713
iteration: 63 Logisticloss: 47965.99031085283
iteration: 64 Logisticloss: 16497.291957349713
iteration: 65 Logisticloss: 47965.99031085283
iteration: 66 Logisticloss: 16497.291957349713
iteration: 67 Logisticloss: 47965.99031085283
iteration: 68 Logisticloss: 16497.291957349713
iteration: 69 Logisticloss: 47965.99031085283
iteration: 70 Logisticloss: 16497.291957349713
iteration: 71 Logisticloss: 47965.99031085283

Output_logistic_train.txt

```
iteration: 72 Logisticloss: 16497.291957349713
iteration: 73 Logisticloss: 47965.99031085283
iteration: 74 Logisticloss: 16497.291957349713
iteration: 75 Logisticloss: 47965.99031085283
iteration: 76 Logisticloss: 16497.291957349713
iteration: 77 Logisticloss: 47965.99031085283
iteration: 78 Logisticloss: 16497.291957349713
iteration: 79 Logisticloss: 47965.99031085283
iteration: 80 Logisticloss: 16497.291957349713
iteration: 81 Logisticloss: 47965.99031085283
iteration: 82 Logisticloss: 16497.291957349713
iteration: 83 Logisticloss: 47965.99031085283
iteration: 84 Logisticloss: 16497.291957349713
iteration: 85 Logisticloss: 47965.99031085283
iteration: 86 Logisticloss: 16497.291957349713
iteration: 87 Logisticloss: 47965.99031085283
iteration: 88 Logisticloss: 16497.291957349713
iteration: 89 Logisticloss: 47965.99031085283
iteration: 90 Logisticloss: 16497.291957349713
iteration: 91 Logisticloss: 47965.99031085283
iteration: 92 Logisticloss: 16497.291957349713
iteration: 93 Logisticloss: 47965.99031085283
iteration: 94 Logisticloss: 16497.291957349713
iteration: 95 Logisticloss: 47965.99031085283
iteration: 96 Logisticloss: 16497.291957349713
iteration: 97 Logisticloss: 47965.99031085283
iteration: 98 Logisticloss: 16497.291957349713
iteration: 99 Logisticloss: 47965.99031085283
[-0.02368004 -0.85275892 -0.1262475 ... 0.41272034 -0.46188979
-0.07627624]
```

CROSS VALIDATION 9

```
iteration: 0 Logisticloss: 24419.809057752747
iteration: 1 Logisticloss: 89727.63611397814
iteration: 2 Logisticloss: 36224.89057182694
iteration: 3 Logisticloss: 86019.60093688303
iteration: 4 Logisticloss: 36211.39655733859
iteration: 5 Logisticloss: 86020.70160154211
iteration: 6 Logisticloss: 36211.45036024787
iteration: 7 Logisticloss: 86020.70316330016
iteration: 8 Logisticloss: 36211.45043686319
iteration: 9 Logisticloss: 86020.7031655141
iteration: 10 Logisticloss: 36211.45043697182
iteration: 11 Logisticloss: 86020.70316551722
iteration: 12 Logisticloss: 36211.45043697195
iteration: 13 Logisticloss: 86020.70316551722
iteration: 14 Logisticloss: 36211.45043697195
iteration: 15 Logisticloss: 86020.70316551725
iteration: 16 Logisticloss: 36211.45043697195
iteration: 17 Logisticloss: 86020.70316551725
iteration: 18 Logisticloss: 36211.45043697195
iteration: 19 Logisticloss: 86020.70316551725
iteration: 20 Logisticloss: 36211.45043697195
```

Output_logistic_train.txt

iteration: 21 Logisticloss: 86020.70316551725
iteration: 22 Logisticloss: 36211.45043697195
iteration: 23 Logisticloss: 86020.70316551725
iteration: 24 Logisticloss: 36211.45043697195
iteration: 25 Logisticloss: 86020.70316551725
iteration: 26 Logisticloss: 36211.45043697195
iteration: 27 Logisticloss: 86020.70316551725
iteration: 28 Logisticloss: 36211.45043697195
iteration: 29 Logisticloss: 86020.70316551725
iteration: 30 Logisticloss: 36211.45043697195
iteration: 31 Logisticloss: 86020.70316551725
iteration: 32 Logisticloss: 36211.45043697195
iteration: 33 Logisticloss: 86020.70316551725
iteration: 34 Logisticloss: 36211.45043697195
iteration: 35 Logisticloss: 86020.70316551725
iteration: 36 Logisticloss: 36211.45043697195
iteration: 37 Logisticloss: 86020.70316551725
iteration: 38 Logisticloss: 36211.45043697195
iteration: 39 Logisticloss: 86020.70316551725
iteration: 40 Logisticloss: 36211.45043697195
iteration: 41 Logisticloss: 86020.70316551725
iteration: 42 Logisticloss: 36211.45043697195
iteration: 43 Logisticloss: 86020.70316551725
iteration: 44 Logisticloss: 36211.45043697195
iteration: 45 Logisticloss: 86020.70316551725
iteration: 46 Logisticloss: 36211.45043697195
iteration: 47 Logisticloss: 86020.70316551725
iteration: 48 Logisticloss: 36211.45043697195
iteration: 49 Logisticloss: 86020.70316551725
iteration: 50 Logisticloss: 36211.45043697195
iteration: 51 Logisticloss: 86020.70316551725
iteration: 52 Logisticloss: 36211.45043697195
iteration: 53 Logisticloss: 86020.70316551725
iteration: 54 Logisticloss: 36211.45043697195
iteration: 55 Logisticloss: 86020.70316551725
iteration: 56 Logisticloss: 36211.45043697195
iteration: 57 Logisticloss: 86020.70316551725
iteration: 58 Logisticloss: 36211.45043697195
iteration: 59 Logisticloss: 86020.70316551725
iteration: 60 Logisticloss: 36211.45043697195
iteration: 61 Logisticloss: 86020.70316551725
iteration: 62 Logisticloss: 36211.45043697195
iteration: 63 Logisticloss: 86020.70316551725
iteration: 64 Logisticloss: 36211.45043697195
iteration: 65 Logisticloss: 86020.70316551725
iteration: 66 Logisticloss: 36211.45043697195
iteration: 67 Logisticloss: 86020.70316551725
iteration: 68 Logisticloss: 36211.45043697195
iteration: 69 Logisticloss: 86020.70316551725
iteration: 70 Logisticloss: 36211.45043697195
iteration: 71 Logisticloss: 86020.70316551725
iteration: 72 Logisticloss: 36211.45043697195

Output_logistic_train.txt

```
iteration: 73 Logisticloss: 86020.70316551725
iteration: 74 Logisticloss: 36211.45043697195
iteration: 75 Logisticloss: 86020.70316551725
iteration: 76 Logisticloss: 36211.45043697195
iteration: 77 Logisticloss: 86020.70316551725
iteration: 78 Logisticloss: 36211.45043697195
iteration: 79 Logisticloss: 86020.70316551725
iteration: 80 Logisticloss: 36211.45043697195
iteration: 81 Logisticloss: 86020.70316551725
iteration: 82 Logisticloss: 36211.45043697195
iteration: 83 Logisticloss: 86020.70316551725
iteration: 84 Logisticloss: 36211.45043697195
iteration: 85 Logisticloss: 86020.70316551725
iteration: 86 Logisticloss: 36211.45043697195
iteration: 87 Logisticloss: 86020.70316551725
iteration: 88 Logisticloss: 36211.45043697195
iteration: 89 Logisticloss: 86020.70316551725
iteration: 90 Logisticloss: 36211.45043697195
iteration: 91 Logisticloss: 86020.70316551725
iteration: 92 Logisticloss: 36211.45043697195
iteration: 93 Logisticloss: 86020.70316551725
iteration: 94 Logisticloss: 36211.45043697195
iteration: 95 Logisticloss: 86020.70316551725
iteration: 96 Logisticloss: 36211.45043697195
iteration: 97 Logisticloss: 86020.70316551725
iteration: 98 Logisticloss: 36211.45043697195
iteration: 99 Logisticloss: 86020.70316551725
[-0.52404041 0.03577654 0.21303792 ... 0.34292698 0.49928093
 0.25761125]
```

CROSS VALIDATION 10

```
iteration: 0 Logisticloss: 49241.073192647425
iteration: 1 Logisticloss: 26820.418345615275
iteration: 2 Logisticloss: 50611.77205657395
iteration: 3 Logisticloss: 17966.571262325215
iteration: 4 Logisticloss: 47292.13065160913
iteration: 5 Logisticloss: 30277.553191910596
iteration: 6 Logisticloss: 49429.842772339085
iteration: 7 Logisticloss: 30210.3425853729
iteration: 8 Logisticloss: 43767.77751328726
iteration: 9 Logisticloss: 39905.0863424344
iteration: 10 Logisticloss: 51163.02358481244
iteration: 11 Logisticloss: 43520.03678321936
iteration: 12 Logisticloss: 53714.137635628984
iteration: 13 Logisticloss: 49503.9494326591
iteration: 14 Logisticloss: 29199.078053625333
iteration: 15 Logisticloss: 64212.311633465215
iteration: 16 Logisticloss: 45312.80233624988
iteration: 17 Logisticloss: 85917.93931044269
iteration: 18 Logisticloss: 29810.52197719024
iteration: 19 Logisticloss: 24422.289279640783
iteration: 20 Logisticloss: 50271.907005173955
iteration: 21 Logisticloss: 20288.837346472967
```

Output_logistic_train.txt

```

iteration: 22 Logisticloss: 49668.376847373205
iteration: 23 Logisticloss: 78125.23008396718
iteration: 24 Logisticloss: 36017.880684103926
iteration: 25 Logisticloss: 32243.72856666264
iteration: 26 Logisticloss: 36210.096944656325
iteration: 27 Logisticloss: 45095.09736656319
iteration: 28 Logisticloss: 24365.725334378156
iteration: 29 Logisticloss: 16558.95607832844
iteration: 30 Logisticloss: 70013.16840299359
iteration: 31 Logisticloss: 26884.180849508826
iteration: 32 Logisticloss: 59322.20732863155
iteration: 33 Logisticloss: 20497.161530981124
iteration: 34 Logisticloss: 58761.05484537247
iteration: 35 Logisticloss: 57282.43079679254
iteration: 36 Logisticloss: 59339.03728478303
iteration: 37 Logisticloss: 41728.18298759015
iteration: 38 Logisticloss: 63863.91638971485
iteration: 39 Logisticloss: 29142.091583094076
iteration: 40 Logisticloss: 37680.8540084258
iteration: 41 Logisticloss: 48697.85321168216
iteration: 42 Logisticloss: 46005.95510279173
iteration: 43 Logisticloss: 74686.18970134473
iteration: 44 Logisticloss: 45170.658210158785
iteration: 45 Logisticloss: 28278.869892048242
iteration: 46 Logisticloss: 50677.19941757729
iteration: 47 Logisticloss: 17969.902184919796
iteration: 48 Logisticloss: 47292.10296543324
iteration: 49 Logisticloss: 30277.553856715
iteration: 50 Logisticloss: 49429.842720278655
iteration: 51 Logisticloss: 30210.34258731804
iteration: 52 Logisticloss: 43767.77751322417
iteration: 53 Logisticloss: 39905.086342449526
iteration: 54 Logisticloss: 51163.02358481234
iteration: 55 Logisticloss: 43520.03678321937
iteration: 56 Logisticloss: 53714.13763562897
iteration: 57 Logisticloss: 49503.9494326591
iteration: 58 Logisticloss: 29199.078053625333
iteration: 59 Logisticloss: 64212.311633465215
iteration: 60 Logisticloss: 45312.80233624988
iteration: 61 Logisticloss: 85917.93931044269
iteration: 62 Logisticloss: 29810.52197719024
iteration: 63 Logisticloss: 24422.289279640783
iteration: 64 Logisticloss: 50271.907005173955
iteration: 65 Logisticloss: 20288.837346472967
iteration: 66 Logisticloss: 49668.376847373205
iteration: 67 Logisticloss: 78125.23008396718
iteration: 68 Logisticloss: 36017.880684103926
iteration: 69 Logisticloss: 32243.72856666264
iteration: 70 Logisticloss: 36210.096944656325
iteration: 71 Logisticloss: 45095.09736656319
iteration: 72 Logisticloss: 24365.725334378156
iteration: 73 Logisticloss: 16558.95607832844

```


Output_logistic_train.txt

```
iteration: 74 Logisticloss: 70013.16840299359
iteration: 75 Logisticloss: 26884.180849508826
iteration: 76 Logisticloss: 59322.20732863155
iteration: 77 Logisticloss: 20497.161530981124
iteration: 78 Logisticloss: 58761.05484537247
iteration: 79 Logisticloss: 57282.43079679254
iteration: 80 Logisticloss: 59339.03728478303
iteration: 81 Logisticloss: 41728.18298759015
iteration: 82 Logisticloss: 63863.91638971485
iteration: 83 Logisticloss: 29142.091583094076
iteration: 84 Logisticloss: 37680.8540084258
iteration: 85 Logisticloss: 48697.85321168216
iteration: 86 Logisticloss: 46005.95510279173
iteration: 87 Logisticloss: 74686.18970134473
iteration: 88 Logisticloss: 45170.658210158785
iteration: 89 Logisticloss: 28278.869892048242
iteration: 90 Logisticloss: 50677.19941757729
iteration: 91 Logisticloss: 17969.902184919796
iteration: 92 Logisticloss: 47292.10296543324
iteration: 93 Logisticloss: 30277.553856715
iteration: 94 Logisticloss: 49429.842720278655
iteration: 95 Logisticloss: 30210.34258731804
iteration: 96 Logisticloss: 43767.77751322417
iteration: 97 Logisticloss: 39905.086342449526
iteration: 98 Logisticloss: 51163.02358481234
iteration: 99 Logisticloss: 43520.03678321937
[-0.69262007 0.01062566 -0.57190567 ... 0.42879119 -0.19944575
 0.1389136 ]
```

CROSS VALIDATION 11

```
iteration: 0 Logisticloss: 49241.073192647425
iteration: 1 Logisticloss: 27087.577247030193
iteration: 2 Logisticloss: 50611.16383378544
iteration: 3 Logisticloss: 35772.24396408179
iteration: 4 Logisticloss: 27234.76656065364
iteration: 5 Logisticloss: 45400.629705820014
iteration: 6 Logisticloss: 38608.70031729127
iteration: 7 Logisticloss: 51494.06863367702
iteration: 8 Logisticloss: 34165.481877430284
iteration: 9 Logisticloss: 74061.30620813332
iteration: 10 Logisticloss: 65821.3578937434
iteration: 11 Logisticloss: 31611.08990001292
iteration: 12 Logisticloss: 6938.7206659506155
iteration: 13 Logisticloss: 32079.788813890795
iteration: 14 Logisticloss: 27514.970081373503
iteration: 15 Logisticloss: 59038.84390190396
iteration: 16 Logisticloss: 26710.54238210932
iteration: 17 Logisticloss: 41094.33478174663
iteration: 18 Logisticloss: 65371.59767409466
iteration: 19 Logisticloss: 50512.048210540735
iteration: 20 Logisticloss: 16723.538991598787
iteration: 21 Logisticloss: 48474.623734163295
iteration: 22 Logisticloss: 13752.339012682907
```

Output_logistic_train.txt

```
iteration: 23 Logisticloss: 47969.26095725586
iteration: 24 Logisticloss: 13783.72874141824
iteration: 25 Logisticloss: 47968.545310011104
iteration: 26 Logisticloss: 13783.773240439852
iteration: 27 Logisticloss: 47968.54429551392
iteration: 28 Logisticloss: 13783.773303521493
iteration: 29 Logisticloss: 47968.54429407579
iteration: 30 Logisticloss: 13783.773303610917
iteration: 31 Logisticloss: 47968.544294073756
iteration: 32 Logisticloss: 13783.773303611044
iteration: 33 Logisticloss: 47968.54429407374
iteration: 34 Logisticloss: 13783.773303611044
iteration: 35 Logisticloss: 47968.54429407374
iteration: 36 Logisticloss: 13783.773303611044
iteration: 37 Logisticloss: 47968.54429407374
iteration: 38 Logisticloss: 13783.773303611044
iteration: 39 Logisticloss: 47968.54429407374
iteration: 40 Logisticloss: 13783.773303611044
iteration: 41 Logisticloss: 47968.54429407374
iteration: 42 Logisticloss: 13783.773303611044
iteration: 43 Logisticloss: 47968.54429407374
iteration: 44 Logisticloss: 13783.773303611044
iteration: 45 Logisticloss: 47968.54429407374
iteration: 46 Logisticloss: 13783.773303611044
iteration: 47 Logisticloss: 47968.54429407374
iteration: 48 Logisticloss: 13783.773303611044
iteration: 49 Logisticloss: 47968.54429407374
iteration: 50 Logisticloss: 13783.773303611044
iteration: 51 Logisticloss: 47968.54429407374
iteration: 52 Logisticloss: 13783.773303611044
iteration: 53 Logisticloss: 47968.54429407374
iteration: 54 Logisticloss: 13783.773303611044
iteration: 55 Logisticloss: 47968.54429407374
iteration: 56 Logisticloss: 13783.773303611044
iteration: 57 Logisticloss: 47968.54429407374
iteration: 58 Logisticloss: 13783.773303611044
iteration: 59 Logisticloss: 47968.54429407374
iteration: 60 Logisticloss: 13783.773303611044
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iteration: 64 Logisticloss: 13783.773303611044
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iteration: 68 Logisticloss: 13783.773303611044
iteration: 69 Logisticloss: 47968.54429407374
iteration: 70 Logisticloss: 13783.773303611044
iteration: 71 Logisticloss: 47968.54429407374
iteration: 72 Logisticloss: 13783.773303611044
iteration: 73 Logisticloss: 47968.54429407374
iteration: 74 Logisticloss: 13783.773303611044
```

Output_logistic_train.txt

```
iteration: 75 Logisticloss: 47968.54429407374
iteration: 76 Logisticloss: 13783.773303611044
iteration: 77 Logisticloss: 47968.54429407374
iteration: 78 Logisticloss: 13783.773303611044
iteration: 79 Logisticloss: 47968.54429407374
iteration: 80 Logisticloss: 13783.773303611044
iteration: 81 Logisticloss: 47968.54429407374
iteration: 82 Logisticloss: 13783.773303611044
iteration: 83 Logisticloss: 47968.54429407374
iteration: 84 Logisticloss: 13783.773303611044
iteration: 85 Logisticloss: 47968.54429407374
iteration: 86 Logisticloss: 13783.773303611044
iteration: 87 Logisticloss: 47968.54429407374
iteration: 88 Logisticloss: 13783.773303611044
iteration: 89 Logisticloss: 47968.54429407374
iteration: 90 Logisticloss: 13783.773303611044
iteration: 91 Logisticloss: 47968.54429407374
iteration: 92 Logisticloss: 13783.773303611044
iteration: 93 Logisticloss: 47968.54429407374
iteration: 94 Logisticloss: 13783.773303611044
iteration: 95 Logisticloss: 47968.54429407374
iteration: 96 Logisticloss: 13783.773303611044
iteration: 97 Logisticloss: 47968.54429407374
iteration: 98 Logisticloss: 13783.773303611044
iteration: 99 Logisticloss: 47968.54429407374
[-0.02373151 -0.85277435 -0.12623236 ... 0.41273162 -0.46185973
-0.07629306]
```

CROSS VALIDATION 12

```
iteration: 0 Logisticloss: 28154.716510764807
iteration: 1 Logisticloss: 37662.62931546381
iteration: 2 Logisticloss: 36133.39847244948
iteration: 3 Logisticloss: 56713.367680979936
iteration: 4 Logisticloss: 50747.85514994607
iteration: 5 Logisticloss: 34639.88876703226
iteration: 6 Logisticloss: 66006.22374543449
iteration: 7 Logisticloss: 37018.627836849366
iteration: 8 Logisticloss: 41235.86782103457
iteration: 9 Logisticloss: 35190.56377608281
iteration: 10 Logisticloss: 56877.38877245567
iteration: 11 Logisticloss: 62228.7448164564
iteration: 12 Logisticloss: 52339.75093952029
iteration: 13 Logisticloss: 39282.165259696034
iteration: 14 Logisticloss: 39240.91134646658
iteration: 15 Logisticloss: 43836.278676690185
iteration: 16 Logisticloss: 41898.58935887725
iteration: 17 Logisticloss: 33281.56130886981
iteration: 18 Logisticloss: 20685.118156067703
iteration: 19 Logisticloss: 52580.03992991637
iteration: 20 Logisticloss: 32229.80308004391
iteration: 21 Logisticloss: 49283.78272045307
iteration: 22 Logisticloss: 19922.371446288606
iteration: 23 Logisticloss: 56070.092850917456
```

Output_logistic_train.txt

```

iteration: 24 Logisticloss: 20422.8946023142
iteration: 25 Logisticloss: 33429.683772580676
iteration: 26 Logisticloss: 54944.85265230183
iteration: 27 Logisticloss: 30852.392900903338
iteration: 28 Logisticloss: 47779.9421701843
iteration: 29 Logisticloss: 48355.19657711007
iteration: 30 Logisticloss: 65149.27483332056
iteration: 31 Logisticloss: 39350.34174425049
iteration: 32 Logisticloss: 30887.00462948994
iteration: 33 Logisticloss: 72011.03774821127
iteration: 34 Logisticloss: 56665.92308861908
iteration: 35 Logisticloss: 51889.30004146133
iteration: 36 Logisticloss: 18910.46384886287
iteration: 37 Logisticloss: 43189.27538025471
iteration: 38 Logisticloss: 34482.28281356527
iteration: 39 Logisticloss: 42283.1287403184
iteration: 40 Logisticloss: 34620.4958977724
iteration: 41 Logisticloss: 25098.97217386924
iteration: 42 Logisticloss: 33304.26644023691
iteration: 43 Logisticloss: 24112.77447365712
iteration: 44 Logisticloss: 39852.02663202279
iteration: 45 Logisticloss: 27745.828913151512
iteration: 46 Logisticloss: 61180.23297719948
iteration: 47 Logisticloss: 33668.5966595512
iteration: 48 Logisticloss: 43941.30864917023
iteration: 49 Logisticloss: 42027.00173835185
iteration: 50 Logisticloss: 46457.30550768327
iteration: 51 Logisticloss: 65415.88754270338
iteration: 52 Logisticloss: 39326.94697453103
iteration: 53 Logisticloss: 30886.244308882597
iteration: 54 Logisticloss: 72011.02215257728
iteration: 55 Logisticloss: 56665.92311284897
iteration: 56 Logisticloss: 51889.30003590028
iteration: 57 Logisticloss: 18910.46384755633
iteration: 58 Logisticloss: 43189.27538031702
iteration: 59 Logisticloss: 34482.282813564205
iteration: 60 Logisticloss: 42283.1287403184
iteration: 61 Logisticloss: 34620.4958977724
iteration: 62 Logisticloss: 25098.97217386924
iteration: 63 Logisticloss: 33304.26644023691
iteration: 64 Logisticloss: 24112.77447365712
iteration: 65 Logisticloss: 39852.02663202279
iteration: 66 Logisticloss: 27745.828913151512
iteration: 67 Logisticloss: 61180.23297719948
iteration: 68 Logisticloss: 33668.5966595512
iteration: 69 Logisticloss: 43941.30864917023
iteration: 70 Logisticloss: 42027.00173835185
iteration: 71 Logisticloss: 46457.30550768327
iteration: 72 Logisticloss: 65415.88754270338
iteration: 73 Logisticloss: 39326.94697453103
iteration: 74 Logisticloss: 30886.244308882597
iteration: 75 Logisticloss: 72011.02215257728

```

Output_logistic_train.txt

```
iteration: 76 Logisticloss: 56665.92311284897
iteration: 77 Logisticloss: 51889.30003590028
iteration: 78 Logisticloss: 18910.46384755633
iteration: 79 Logisticloss: 43189.27538031702
iteration: 80 Logisticloss: 34482.282813564205
iteration: 81 Logisticloss: 42283.1287403184
iteration: 82 Logisticloss: 34620.4958977724
iteration: 83 Logisticloss: 25098.97217386924
iteration: 84 Logisticloss: 33304.26644023691
iteration: 85 Logisticloss: 24112.77447365712
iteration: 86 Logisticloss: 39852.02663202279
iteration: 87 Logisticloss: 27745.828913151512
iteration: 88 Logisticloss: 61180.23297719948
iteration: 89 Logisticloss: 33668.5966595512
iteration: 90 Logisticloss: 43941.30864917023
iteration: 91 Logisticloss: 42027.00173835185
iteration: 92 Logisticloss: 46457.30550768327
iteration: 93 Logisticloss: 65415.88754270338
iteration: 94 Logisticloss: 39326.94697453103
iteration: 95 Logisticloss: 30886.244308882597
iteration: 96 Logisticloss: 72011.02215257728
iteration: 97 Logisticloss: 56665.92311284897
iteration: 98 Logisticloss: 51889.30003590028
iteration: 99 Logisticloss: 18910.46384755633
[-0.10330891 -0.69613066 0.13384142 ... 0.11260752 -0.24922931
 -0.0208611 ]
```

CROSS VALIDATION 13

```
iteration: 0 Logisticloss: 36768.58070203999
iteration: 1 Logisticloss: 26988.743038341345
iteration: 2 Logisticloss: 49004.53362620447
iteration: 3 Logisticloss: 22356.813693652995
iteration: 4 Logisticloss: 50581.68183713405
iteration: 5 Logisticloss: 32135.131934435427
iteration: 6 Logisticloss: 49514.283338427216
iteration: 7 Logisticloss: 30422.544337829615
iteration: 8 Logisticloss: 52081.926770233564
iteration: 9 Logisticloss: 31035.802825972038
iteration: 10 Logisticloss: 49563.98625267708
iteration: 11 Logisticloss: 34903.62288163407
iteration: 12 Logisticloss: 9225.887660953793
iteration: 13 Logisticloss: 41763.75036439017
iteration: 14 Logisticloss: 30416.91312712855
iteration: 15 Logisticloss: 50795.55415962219
iteration: 16 Logisticloss: 32103.130455311006
iteration: 17 Logisticloss: 49512.94141607225
iteration: 18 Logisticloss: 30422.572841191486
iteration: 19 Logisticloss: 52081.92483989782
iteration: 20 Logisticloss: 31035.802747552014
iteration: 21 Logisticloss: 49563.98625167982
iteration: 22 Logisticloss: 34903.622881714284
iteration: 23 Logisticloss: 9225.887660956752
iteration: 24 Logisticloss: 41763.75036439029
```

Output_logistic_train.txt

iteration: 25 Logisticloss: 30416.91312712855
iteration: 26 Logisticloss: 50795.554159622196
iteration: 27 Logisticloss: 32103.130455311006
iteration: 28 Logisticloss: 49512.94141607225
iteration: 29 Logisticloss: 30422.572841191486
iteration: 30 Logisticloss: 52081.92483989782
iteration: 31 Logisticloss: 31035.802747552014
iteration: 32 Logisticloss: 49563.98625167982
iteration: 33 Logisticloss: 34903.622881714284
iteration: 34 Logisticloss: 9225.887660956752
iteration: 35 Logisticloss: 41763.75036439029
iteration: 36 Logisticloss: 30416.91312712855
iteration: 37 Logisticloss: 50795.554159622196
iteration: 38 Logisticloss: 32103.130455311006
iteration: 39 Logisticloss: 49512.94141607225
iteration: 40 Logisticloss: 30422.572841191486
iteration: 41 Logisticloss: 52081.92483989782
iteration: 42 Logisticloss: 31035.802747552014
iteration: 43 Logisticloss: 49563.98625167982
iteration: 44 Logisticloss: 34903.622881714284
iteration: 45 Logisticloss: 9225.887660956752
iteration: 46 Logisticloss: 41763.75036439029
iteration: 47 Logisticloss: 30416.91312712855
iteration: 48 Logisticloss: 50795.554159622196
iteration: 49 Logisticloss: 32103.130455311006
iteration: 50 Logisticloss: 49512.94141607225
iteration: 51 Logisticloss: 30422.572841191486
iteration: 52 Logisticloss: 52081.92483989782
iteration: 53 Logisticloss: 31035.802747552014
iteration: 54 Logisticloss: 49563.98625167982
iteration: 55 Logisticloss: 34903.622881714284
iteration: 56 Logisticloss: 9225.887660956752
iteration: 57 Logisticloss: 41763.75036439029
iteration: 58 Logisticloss: 30416.91312712855
iteration: 59 Logisticloss: 50795.554159622196
iteration: 60 Logisticloss: 32103.130455311006
iteration: 61 Logisticloss: 49512.94141607225
iteration: 62 Logisticloss: 30422.572841191486
iteration: 63 Logisticloss: 52081.92483989782
iteration: 64 Logisticloss: 31035.802747552014
iteration: 65 Logisticloss: 49563.98625167982
iteration: 66 Logisticloss: 34903.622881714284
iteration: 67 Logisticloss: 9225.887660956752
iteration: 68 Logisticloss: 41763.75036439029
iteration: 69 Logisticloss: 30416.91312712855
iteration: 70 Logisticloss: 50795.554159622196
iteration: 71 Logisticloss: 32103.130455311006
iteration: 72 Logisticloss: 49512.94141607225
iteration: 73 Logisticloss: 30422.572841191486
iteration: 74 Logisticloss: 52081.92483989782
iteration: 75 Logisticloss: 31035.802747552014
iteration: 76 Logisticloss: 49563.98625167982

Output_logistic_train.txt

```
iteration: 77 Logisticloss: 34903.622881714284
iteration: 78 Logisticloss: 9225.887660956752
iteration: 79 Logisticloss: 41763.75036439029
iteration: 80 Logisticloss: 30416.91312712855
iteration: 81 Logisticloss: 50795.554159622196
iteration: 82 Logisticloss: 32103.130455311006
iteration: 83 Logisticloss: 49512.94141607225
iteration: 84 Logisticloss: 30422.572841191486
iteration: 85 Logisticloss: 52081.92483989782
iteration: 86 Logisticloss: 31035.802747552014
iteration: 87 Logisticloss: 49563.98625167982
iteration: 88 Logisticloss: 34903.622881714284
iteration: 89 Logisticloss: 9225.887660956752
iteration: 90 Logisticloss: 41763.75036439029
iteration: 91 Logisticloss: 30416.91312712855
iteration: 92 Logisticloss: 50795.554159622196
iteration: 93 Logisticloss: 32103.130455311006
iteration: 94 Logisticloss: 49512.94141607225
iteration: 95 Logisticloss: 30422.572841191486
iteration: 96 Logisticloss: 52081.92483989782
iteration: 97 Logisticloss: 31035.802747552014
iteration: 98 Logisticloss: 49563.98625167982
iteration: 99 Logisticloss: 34903.622881714284
[ 0.14411458 -0.58966082 0.19966678 ... 0.150839 -0.30827135
-0.00861527]
```

CROSS VALIDATION 14

```
iteration: 0 Logisticloss: 46942.23490207297
iteration: 1 Logisticloss: 23869.81269755751
iteration: 2 Logisticloss: 41407.51914325221
iteration: 3 Logisticloss: 29731.883139274316
iteration: 4 Logisticloss: 46900.181250103684
iteration: 5 Logisticloss: 38711.40836750406
iteration: 6 Logisticloss: 26013.127850852306
iteration: 7 Logisticloss: 24097.104970172193
iteration: 8 Logisticloss: 30963.732327380865
iteration: 9 Logisticloss: 43054.40860961197
iteration: 10 Logisticloss: 42772.79476713695
iteration: 11 Logisticloss: 62723.37422257778
iteration: 12 Logisticloss: 33644.82851166755
iteration: 13 Logisticloss: 38357.86431207853
iteration: 14 Logisticloss: 33195.47168514673
iteration: 15 Logisticloss: 31590.16376224296
iteration: 16 Logisticloss: 40874.65236502366
iteration: 17 Logisticloss: 46289.677267963096
iteration: 18 Logisticloss: 31987.77920225278
iteration: 19 Logisticloss: 35461.692700154104
iteration: 20 Logisticloss: 40624.732385693664
iteration: 21 Logisticloss: 24535.04089380936
iteration: 22 Logisticloss: 43300.62396862385
iteration: 23 Logisticloss: 52104.5599918929
iteration: 24 Logisticloss: 46207.77794960987
iteration: 25 Logisticloss: 43945.103688659205
```

Output_logistic_train.txt

```
iteration: 26 Logisticloss: 26349.048473398587
iteration: 27 Logisticloss: 41600.704498582905
iteration: 28 Logisticloss: 40217.36496461924
iteration: 29 Logisticloss: 46899.144013564495
iteration: 30 Logisticloss: 11129.410796782318
iteration: 31 Logisticloss: 55455.29140936734
iteration: 32 Logisticloss: 42475.80139101975
iteration: 33 Logisticloss: 62119.40912772191
iteration: 34 Logisticloss: 27532.45114767547
iteration: 35 Logisticloss: 40489.636864546796
iteration: 36 Logisticloss: 62451.029027870405
iteration: 37 Logisticloss: 40491.58614213014
iteration: 38 Logisticloss: 45192.07073218417
iteration: 39 Logisticloss: 43941.005159087545
iteration: 40 Logisticloss: 26347.565074159873
iteration: 41 Logisticloss: 41600.66016133378
iteration: 42 Logisticloss: 40217.36441001395
iteration: 43 Logisticloss: 46899.1439508208
iteration: 44 Logisticloss: 11129.41079604203
iteration: 45 Logisticloss: 55455.29140927849
iteration: 46 Logisticloss: 42475.80139101954
iteration: 47 Logisticloss: 62119.40912772184
iteration: 48 Logisticloss: 27532.45114767547
iteration: 49 Logisticloss: 40489.636864546796
iteration: 50 Logisticloss: 62451.029027870405
iteration: 51 Logisticloss: 40491.58614213014
iteration: 52 Logisticloss: 45192.07073218417
iteration: 53 Logisticloss: 43941.005159087545
iteration: 54 Logisticloss: 26347.565074159873
iteration: 55 Logisticloss: 41600.66016133378
iteration: 56 Logisticloss: 40217.36441001395
iteration: 57 Logisticloss: 46899.1439508208
iteration: 58 Logisticloss: 11129.41079604203
iteration: 59 Logisticloss: 55455.29140927849
iteration: 60 Logisticloss: 42475.80139101954
iteration: 61 Logisticloss: 62119.40912772184
iteration: 62 Logisticloss: 27532.45114767547
iteration: 63 Logisticloss: 40489.636864546796
iteration: 64 Logisticloss: 62451.029027870405
iteration: 65 Logisticloss: 40491.58614213014
iteration: 66 Logisticloss: 45192.07073218417
iteration: 67 Logisticloss: 43941.005159087545
iteration: 68 Logisticloss: 26347.565074159873
iteration: 69 Logisticloss: 41600.66016133378
iteration: 70 Logisticloss: 40217.36441001395
iteration: 71 Logisticloss: 46899.1439508208
iteration: 72 Logisticloss: 11129.41079604203
iteration: 73 Logisticloss: 55455.29140927849
iteration: 74 Logisticloss: 42475.80139101954
iteration: 75 Logisticloss: 62119.40912772184
iteration: 76 Logisticloss: 27532.45114767547
iteration: 77 Logisticloss: 40489.636864546796
```


Output_logistic_train.txt

```
iteration: 78 Logisticloss: 62451.029027870405
iteration: 79 Logisticloss: 40491.58614213014
iteration: 80 Logisticloss: 45192.07073218417
iteration: 81 Logisticloss: 43941.005159087545
iteration: 82 Logisticloss: 26347.565074159873
iteration: 83 Logisticloss: 41600.66016133378
iteration: 84 Logisticloss: 40217.36441001395
iteration: 85 Logisticloss: 46899.1439508208
iteration: 86 Logisticloss: 11129.41079604203
iteration: 87 Logisticloss: 55455.29140927849
iteration: 88 Logisticloss: 42475.80139101954
iteration: 89 Logisticloss: 62119.40912772184
iteration: 90 Logisticloss: 27532.45114767547
iteration: 91 Logisticloss: 40489.636864546796
iteration: 92 Logisticloss: 62451.029027870405
iteration: 93 Logisticloss: 40491.58614213014
iteration: 94 Logisticloss: 45192.07073218417
iteration: 95 Logisticloss: 43941.005159087545
iteration: 96 Logisticloss: 26347.565074159873
iteration: 97 Logisticloss: 41600.66016133378
iteration: 98 Logisticloss: 40217.36441001395
iteration: 99 Logisticloss: 46899.1439508208
[-0.27279756 -0.56284912 -0.07647129 ... 0.43101121 -0.34147964
-0.01963616]
```

CROSS VALIDATION 15

```
iteration: 0 Logisticloss: 49238.87254532072
iteration: 1 Logisticloss: 23613.880580259593
iteration: 2 Logisticloss: 42277.19737378252
iteration: 3 Logisticloss: 30392.78751957814
iteration: 4 Logisticloss: 46900.181250103684
iteration: 5 Logisticloss: 25753.920460625603
iteration: 6 Logisticloss: 34219.34717143139
iteration: 7 Logisticloss: 36398.41379671008
iteration: 8 Logisticloss: 22161.770180682965
iteration: 9 Logisticloss: 38078.250572992496
iteration: 10 Logisticloss: 29148.189067520005
iteration: 11 Logisticloss: 59551.191383276455
iteration: 12 Logisticloss: 43760.86901952477
iteration: 13 Logisticloss: 53017.03219400661
iteration: 14 Logisticloss: 59692.204733058294
iteration: 15 Logisticloss: 22543.932470619635
iteration: 16 Logisticloss: 38906.36122530612
iteration: 17 Logisticloss: 64296.95493394823
iteration: 18 Logisticloss: 33478.08155971369
iteration: 19 Logisticloss: 35316.878144349495
iteration: 20 Logisticloss: 28917.160084027444
iteration: 21 Logisticloss: 57085.48026080432
iteration: 22 Logisticloss: 48649.54360681092
iteration: 23 Logisticloss: 65339.03116012766
iteration: 24 Logisticloss: 21039.16617548628
iteration: 25 Logisticloss: 41563.18178638305
iteration: 26 Logisticloss: 31421.670206655384
```

Output_logistic_train.txt

iteration: 27 Logisticloss: 52114.341121607154
iteration: 28 Logisticloss: 15517.018157974795
iteration: 29 Logisticloss: 53340.075385361466
iteration: 30 Logisticloss: 50761.120444752654
iteration: 31 Logisticloss: 44396.17050827488
iteration: 32 Logisticloss: 40822.33876486229
iteration: 33 Logisticloss: 58220.024929213025
iteration: 34 Logisticloss: 58121.891817171156
iteration: 35 Logisticloss: 41010.41744021598
iteration: 36 Logisticloss: 29326.508827875216
iteration: 37 Logisticloss: 59581.034068117646
iteration: 38 Logisticloss: 29131.061231104104
iteration: 39 Logisticloss: 38713.86600684012
iteration: 40 Logisticloss: 51170.53202083151
iteration: 41 Logisticloss: 7427.334332007478
iteration: 42 Logisticloss: 34103.22040453156
iteration: 43 Logisticloss: 22419.56973464877
iteration: 44 Logisticloss: 66170.50456358586
iteration: 45 Logisticloss: 48522.92910635201
iteration: 46 Logisticloss: 32610.370251571327
iteration: 47 Logisticloss: 43744.65533460376
iteration: 48 Logisticloss: 61516.73871136735
iteration: 49 Logisticloss: 42149.82926206843
iteration: 50 Logisticloss: 51604.93973542795
iteration: 51 Logisticloss: 48788.80331390434
iteration: 52 Logisticloss: 56711.70501343964
iteration: 53 Logisticloss: 21407.37291306988
iteration: 54 Logisticloss: 34878.321942636016
iteration: 55 Logisticloss: 46847.2001598434
iteration: 56 Logisticloss: 49425.4795589479
iteration: 57 Logisticloss: 46115.86679325848
iteration: 58 Logisticloss: 29665.281971595126
iteration: 59 Logisticloss: 61287.33237367885
iteration: 60 Logisticloss: 11414.87789807706
iteration: 61 Logisticloss: 72470.79937061168
iteration: 62 Logisticloss: 9781.412465520094
iteration: 63 Logisticloss: 55787.48971385842
iteration: 64 Logisticloss: 29835.017169635554
iteration: 65 Logisticloss: 38839.46120725824
iteration: 66 Logisticloss: 43720.577910088956
iteration: 67 Logisticloss: 43885.430268469645
iteration: 68 Logisticloss: 48937.57262666973
iteration: 69 Logisticloss: 72032.45919586263
iteration: 70 Logisticloss: 31350.99253693167
iteration: 71 Logisticloss: 70752.55043035797
iteration: 72 Logisticloss: 32074.686066892435
iteration: 73 Logisticloss: 76687.5427285023
iteration: 74 Logisticloss: 24422.31548263292
iteration: 75 Logisticloss: 103763.65515558924
iteration: 76 Logisticloss: 40999.45658384095
iteration: 77 Logisticloss: 38777.58184475105
iteration: 78 Logisticloss: 46882.68335526158

Output_logistic_train.txt

```
iteration: 79 Logisticloss: 25391.587982378376
iteration: 80 Logisticloss: 72704.62296397623
iteration: 81 Logisticloss: 52895.21360756691
iteration: 82 Logisticloss: 49295.75377360731
iteration: 83 Logisticloss: 42390.882998500376
iteration: 84 Logisticloss: 67053.24781786189
iteration: 85 Logisticloss: 49937.27363971518
iteration: 86 Logisticloss: 49061.562342099634
iteration: 87 Logisticloss: 29140.313566583536
iteration: 88 Logisticloss: 54306.359137153064
iteration: 89 Logisticloss: 60207.01450002748
iteration: 90 Logisticloss: 47483.662266638145
iteration: 91 Logisticloss: 57271.45038697613
iteration: 92 Logisticloss: 42351.723082046905
iteration: 93 Logisticloss: 54983.607836706644
iteration: 94 Logisticloss: 40382.75409517354
iteration: 95 Logisticloss: 49463.950681673196
iteration: 96 Logisticloss: 36119.33228533749
iteration: 97 Logisticloss: 52389.397369652186
iteration: 98 Logisticloss: 30750.459531318185
iteration: 99 Logisticloss: 27993.984485847635
[-0.11823132 -0.09941029 -0.25592094 ... 0.56202942 -0.01889262
0.08557381]
```

CROSS VALIDATION 16

```
iteration: 0 Logisticloss: 49238.87254532072
iteration: 1 Logisticloss: 24429.91565158814
iteration: 2 Logisticloss: 26015.125403881313
iteration: 3 Logisticloss: 41910.67489156931
iteration: 4 Logisticloss: 14841.886761932405
iteration: 5 Logisticloss: 51194.98784813209
iteration: 6 Logisticloss: 25704.578541569877
iteration: 7 Logisticloss: 79783.3983579178
iteration: 8 Logisticloss: 33880.09729827432
iteration: 9 Logisticloss: 34883.73234358007
iteration: 10 Logisticloss: 48397.64467211861
iteration: 11 Logisticloss: 40489.42158517572
iteration: 12 Logisticloss: 67706.23905300641
iteration: 13 Logisticloss: 36554.48313744817
iteration: 14 Logisticloss: 52323.55516237589
iteration: 15 Logisticloss: 38003.71669753929
iteration: 16 Logisticloss: 68173.66525418987
iteration: 17 Logisticloss: 48212.59141942566
iteration: 18 Logisticloss: 40407.59695368078
iteration: 19 Logisticloss: 67937.79381319304
iteration: 20 Logisticloss: 36611.33587927796
iteration: 21 Logisticloss: 52393.91362721673
iteration: 22 Logisticloss: 38005.37925406071
iteration: 23 Logisticloss: 68172.8514165193
iteration: 24 Logisticloss: 48212.59296098124
iteration: 25 Logisticloss: 40407.596970874336
iteration: 26 Logisticloss: 67937.79381366313
iteration: 27 Logisticloss: 36611.33504767486
```

Output_logistic_train.txt

iteration: 28 Logisticloss: 52393.9133561012
iteration: 29 Logisticloss: 38005.37924763972
iteration: 30 Logisticloss: 68172.85141966652
iteration: 31 Logisticloss: 48212.59296097532
iteration: 32 Logisticloss: 40407.59697087427
iteration: 33 Logisticloss: 67937.79381366313
iteration: 34 Logisticloss: 36611.33504767819
iteration: 35 Logisticloss: 52393.91335610229
iteration: 36 Logisticloss: 38005.37924763975
iteration: 37 Logisticloss: 68172.85141966649
iteration: 38 Logisticloss: 48212.59296097532
iteration: 39 Logisticloss: 40407.59697087427
iteration: 40 Logisticloss: 67937.79381366313
iteration: 41 Logisticloss: 36611.33504767819
iteration: 42 Logisticloss: 52393.91335610229
iteration: 43 Logisticloss: 38005.37924763975
iteration: 44 Logisticloss: 68172.85141966649
iteration: 45 Logisticloss: 48212.59296097532
iteration: 46 Logisticloss: 40407.59697087427
iteration: 47 Logisticloss: 67937.79381366313
iteration: 48 Logisticloss: 36611.33504767819
iteration: 49 Logisticloss: 52393.91335610229
iteration: 50 Logisticloss: 38005.37924763975
iteration: 51 Logisticloss: 68172.85141966649
iteration: 52 Logisticloss: 48212.59296097532
iteration: 53 Logisticloss: 40407.59697087427
iteration: 54 Logisticloss: 67937.79381366313
iteration: 55 Logisticloss: 36611.33504767819
iteration: 56 Logisticloss: 52393.91335610229
iteration: 57 Logisticloss: 38005.37924763975
iteration: 58 Logisticloss: 68172.85141966649
iteration: 59 Logisticloss: 48212.59296097532
iteration: 60 Logisticloss: 40407.59697087427
iteration: 61 Logisticloss: 67937.79381366313
iteration: 62 Logisticloss: 36611.33504767819
iteration: 63 Logisticloss: 52393.91335610229
iteration: 64 Logisticloss: 38005.37924763975
iteration: 65 Logisticloss: 68172.85141966649
iteration: 66 Logisticloss: 48212.59296097532
iteration: 67 Logisticloss: 40407.59697087427
iteration: 68 Logisticloss: 67937.79381366313
iteration: 69 Logisticloss: 36611.33504767819
iteration: 70 Logisticloss: 52393.91335610229
iteration: 71 Logisticloss: 38005.37924763975
iteration: 72 Logisticloss: 68172.85141966649
iteration: 73 Logisticloss: 48212.59296097532
iteration: 74 Logisticloss: 40407.59697087427
iteration: 75 Logisticloss: 67937.79381366313
iteration: 76 Logisticloss: 36611.33504767819
iteration: 77 Logisticloss: 52393.91335610229
iteration: 78 Logisticloss: 38005.37924763975
iteration: 79 Logisticloss: 68172.85141966649

Output_logistic_train.txt

```
iteration: 80 Logisticloss: 48212.59296097532
iteration: 81 Logisticloss: 40407.59697087427
iteration: 82 Logisticloss: 67937.79381366313
iteration: 83 Logisticloss: 36611.33504767819
iteration: 84 Logisticloss: 52393.91335610229
iteration: 85 Logisticloss: 38005.37924763975
iteration: 86 Logisticloss: 68172.85141966649
iteration: 87 Logisticloss: 48212.59296097532
iteration: 88 Logisticloss: 40407.59697087427
iteration: 89 Logisticloss: 67937.79381366313
iteration: 90 Logisticloss: 36611.33504767819
iteration: 91 Logisticloss: 52393.91335610229
iteration: 92 Logisticloss: 38005.37924763975
iteration: 93 Logisticloss: 68172.85141966649
iteration: 94 Logisticloss: 48212.59296097532
iteration: 95 Logisticloss: 40407.59697087427
iteration: 96 Logisticloss: 67937.79381366313
iteration: 97 Logisticloss: 36611.33504767819
iteration: 98 Logisticloss: 52393.91335610229
iteration: 99 Logisticloss: 38005.37924763975
[-0.17495669 -0.81845981 -0.2226258 ... 0.31371283 -0.38833625
-0.0542279 ]
```

CROSS VALIDATION 17

```
iteration: 0 Logisticloss: 48282.588431442746
iteration: 1 Logisticloss: 29903.064590143586
iteration: 2 Logisticloss: 40456.68456700532
iteration: 3 Logisticloss: 43755.480268459556
iteration: 4 Logisticloss: 43885.20356364979
iteration: 5 Logisticloss: 48937.64583583351
iteration: 6 Logisticloss: 72032.46423150972
iteration: 7 Logisticloss: 48285.30091495333
iteration: 8 Logisticloss: 42884.17894172366
iteration: 9 Logisticloss: 52071.16435073363
iteration: 10 Logisticloss: 2802.236060729746
iteration: 11 Logisticloss: 44907.156690917545
iteration: 12 Logisticloss: 28444.90292588201
iteration: 13 Logisticloss: 39832.561276884066
iteration: 14 Logisticloss: 69157.02866818663
iteration: 15 Logisticloss: 25279.75940915958
iteration: 16 Logisticloss: 57715.48102958745
iteration: 17 Logisticloss: 46202.248455936795
iteration: 18 Logisticloss: 49551.230245498766
iteration: 19 Logisticloss: 43385.73771351946
iteration: 20 Logisticloss: 62232.34366967522
iteration: 21 Logisticloss: 41021.44478828231
iteration: 22 Logisticloss: 62403.62343113667
iteration: 23 Logisticloss: 41019.986962102295
iteration: 24 Logisticloss: 62403.86696498505
iteration: 25 Logisticloss: 41019.98489652622
iteration: 26 Logisticloss: 62403.86731021912
iteration: 27 Logisticloss: 41019.984893598055
iteration: 28 Logisticloss: 62403.86731070853
```

Output_logistic_train.txt

iteration: 29 Logisticloss: 41019.98489359391
iteration: 30 Logisticloss: 62403.8673107092
iteration: 31 Logisticloss: 41019.9848935939
iteration: 32 Logisticloss: 62403.8673107092
iteration: 33 Logisticloss: 41019.9848935939
iteration: 34 Logisticloss: 62403.8673107092
iteration: 35 Logisticloss: 41019.9848935939
iteration: 36 Logisticloss: 62403.8673107092
iteration: 37 Logisticloss: 41019.9848935939
iteration: 38 Logisticloss: 62403.8673107092
iteration: 39 Logisticloss: 41019.9848935939
iteration: 40 Logisticloss: 62403.8673107092
iteration: 41 Logisticloss: 41019.9848935939
iteration: 42 Logisticloss: 62403.8673107092
iteration: 43 Logisticloss: 41019.9848935939
iteration: 44 Logisticloss: 62403.8673107092
iteration: 45 Logisticloss: 41019.9848935939
iteration: 46 Logisticloss: 62403.8673107092
iteration: 47 Logisticloss: 41019.9848935939
iteration: 48 Logisticloss: 62403.8673107092
iteration: 49 Logisticloss: 41019.9848935939
iteration: 50 Logisticloss: 62403.8673107092
iteration: 51 Logisticloss: 41019.9848935939
iteration: 52 Logisticloss: 62403.8673107092
iteration: 53 Logisticloss: 41019.9848935939
iteration: 54 Logisticloss: 62403.8673107092
iteration: 55 Logisticloss: 41019.9848935939
iteration: 56 Logisticloss: 62403.8673107092
iteration: 57 Logisticloss: 41019.9848935939
iteration: 58 Logisticloss: 62403.8673107092
iteration: 59 Logisticloss: 41019.9848935939
iteration: 60 Logisticloss: 62403.8673107092
iteration: 61 Logisticloss: 41019.9848935939
iteration: 62 Logisticloss: 62403.8673107092
iteration: 63 Logisticloss: 41019.9848935939
iteration: 64 Logisticloss: 62403.8673107092
iteration: 65 Logisticloss: 41019.9848935939
iteration: 66 Logisticloss: 62403.8673107092
iteration: 67 Logisticloss: 41019.9848935939
iteration: 68 Logisticloss: 62403.8673107092
iteration: 69 Logisticloss: 41019.9848935939
iteration: 70 Logisticloss: 62403.8673107092
iteration: 71 Logisticloss: 41019.9848935939
iteration: 72 Logisticloss: 62403.8673107092
iteration: 73 Logisticloss: 41019.9848935939
iteration: 74 Logisticloss: 62403.8673107092
iteration: 75 Logisticloss: 41019.9848935939
iteration: 76 Logisticloss: 62403.8673107092
iteration: 77 Logisticloss: 41019.9848935939
iteration: 78 Logisticloss: 62403.8673107092
iteration: 79 Logisticloss: 41019.9848935939
iteration: 80 Logisticloss: 62403.8673107092

Output_logistic_train.txt

```
iteration: 81 Logisticloss: 41019.9848935939
iteration: 82 Logisticloss: 62403.8673107092
iteration: 83 Logisticloss: 41019.9848935939
iteration: 84 Logisticloss: 62403.8673107092
iteration: 85 Logisticloss: 41019.9848935939
iteration: 86 Logisticloss: 62403.8673107092
iteration: 87 Logisticloss: 41019.9848935939
iteration: 88 Logisticloss: 62403.8673107092
iteration: 89 Logisticloss: 41019.9848935939
iteration: 90 Logisticloss: 62403.8673107092
iteration: 91 Logisticloss: 41019.9848935939
iteration: 92 Logisticloss: 62403.8673107092
iteration: 93 Logisticloss: 41019.9848935939
iteration: 94 Logisticloss: 62403.8673107092
iteration: 95 Logisticloss: 41019.9848935939
iteration: 96 Logisticloss: 62403.8673107092
iteration: 97 Logisticloss: 41019.9848935939
iteration: 98 Logisticloss: 62403.8673107092
iteration: 99 Logisticloss: 41019.9848935939
[-0.17813607 -0.8293133 -0.23425012 ... 0.37142883 -0.50630114
-0.02782964]
```

CROSS VALIDATION 18

```
iteration: 0 Logisticloss: 48637.568346296524
iteration: 1 Logisticloss: 26982.285704588365
iteration: 2 Logisticloss: 41538.79436670965
iteration: 3 Logisticloss: 42882.53930675506
iteration: 4 Logisticloss: 39197.76380889725
iteration: 5 Logisticloss: 57945.16007265979
iteration: 6 Logisticloss: 41906.05191657106
iteration: 7 Logisticloss: 29246.2057729531
iteration: 8 Logisticloss: 42027.28611773131
iteration: 9 Logisticloss: 26288.756036145736
iteration: 10 Logisticloss: 41796.93060676764
iteration: 11 Logisticloss: 26969.312146268618
iteration: 12 Logisticloss: 43937.00334937123
iteration: 13 Logisticloss: 44260.66374612926
iteration: 14 Logisticloss: 23699.46651135674
iteration: 15 Logisticloss: 33529.84116110444
iteration: 16 Logisticloss: 73692.07912095413
iteration: 17 Logisticloss: 36797.72659787933
iteration: 18 Logisticloss: 49598.02021989917
iteration: 19 Logisticloss: 63364.24474128969
iteration: 20 Logisticloss: 46855.34167392294
iteration: 21 Logisticloss: 42988.49537016861
iteration: 22 Logisticloss: 23719.381871966158
iteration: 23 Logisticloss: 33528.269612801356
iteration: 24 Logisticloss: 73692.07284884424
iteration: 25 Logisticloss: 36797.726137318816
iteration: 26 Logisticloss: 49598.02024358441
iteration: 27 Logisticloss: 63364.244739269394
iteration: 28 Logisticloss: 46855.34167400528
iteration: 29 Logisticloss: 42988.495370163495
```

Output_logistic_train.txt

iteration: 30 Logisticloss: 23719.381871966238
iteration: 31 Logisticloss: 33528.26961280135
iteration: 32 Logisticloss: 73692.07284884424
iteration: 33 Logisticloss: 36797.726137318816
iteration: 34 Logisticloss: 49598.02024358441
iteration: 35 Logisticloss: 63364.244739269394
iteration: 36 Logisticloss: 46855.34167400528
iteration: 37 Logisticloss: 42988.495370163495
iteration: 38 Logisticloss: 23719.381871966238
iteration: 39 Logisticloss: 33528.26961280135
iteration: 40 Logisticloss: 73692.07284884424
iteration: 41 Logisticloss: 36797.726137318816
iteration: 42 Logisticloss: 49598.02024358441
iteration: 43 Logisticloss: 63364.244739269394
iteration: 44 Logisticloss: 46855.34167400528
iteration: 45 Logisticloss: 42988.495370163495
iteration: 46 Logisticloss: 23719.381871966238
iteration: 47 Logisticloss: 33528.26961280135
iteration: 48 Logisticloss: 73692.07284884424
iteration: 49 Logisticloss: 36797.726137318816
iteration: 50 Logisticloss: 49598.02024358441
iteration: 51 Logisticloss: 63364.244739269394
iteration: 52 Logisticloss: 46855.34167400528
iteration: 53 Logisticloss: 42988.495370163495
iteration: 54 Logisticloss: 23719.381871966238
iteration: 55 Logisticloss: 33528.26961280135
iteration: 56 Logisticloss: 73692.07284884424
iteration: 57 Logisticloss: 36797.726137318816
iteration: 58 Logisticloss: 49598.02024358441
iteration: 59 Logisticloss: 63364.244739269394
iteration: 60 Logisticloss: 46855.34167400528
iteration: 61 Logisticloss: 42988.495370163495
iteration: 62 Logisticloss: 23719.381871966238
iteration: 63 Logisticloss: 33528.26961280135
iteration: 64 Logisticloss: 73692.07284884424
iteration: 65 Logisticloss: 36797.726137318816
iteration: 66 Logisticloss: 49598.02024358441
iteration: 67 Logisticloss: 63364.244739269394
iteration: 68 Logisticloss: 46855.34167400528
iteration: 69 Logisticloss: 42988.495370163495
iteration: 70 Logisticloss: 23719.381871966238
iteration: 71 Logisticloss: 33528.26961280135
iteration: 72 Logisticloss: 73692.07284884424
iteration: 73 Logisticloss: 36797.726137318816
iteration: 74 Logisticloss: 49598.02024358441
iteration: 75 Logisticloss: 63364.244739269394
iteration: 76 Logisticloss: 46855.34167400528
iteration: 77 Logisticloss: 42988.495370163495
iteration: 78 Logisticloss: 23719.381871966238
iteration: 79 Logisticloss: 33528.26961280135
iteration: 80 Logisticloss: 73692.07284884424
iteration: 81 Logisticloss: 36797.726137318816

Output_logistic_train.txt

```
iteration: 82 Logisticloss: 49598.02024358441
iteration: 83 Logisticloss: 63364.244739269394
iteration: 84 Logisticloss: 46855.34167400528
iteration: 85 Logisticloss: 42988.495370163495
iteration: 86 Logisticloss: 23719.381871966238
iteration: 87 Logisticloss: 33528.26961280135
iteration: 88 Logisticloss: 73692.07284884424
iteration: 89 Logisticloss: 36797.726137318816
iteration: 90 Logisticloss: 49598.02024358441
iteration: 91 Logisticloss: 63364.244739269394
iteration: 92 Logisticloss: 46855.34167400528
iteration: 93 Logisticloss: 42988.495370163495
iteration: 94 Logisticloss: 23719.381871966238
iteration: 95 Logisticloss: 33528.26961280135
iteration: 96 Logisticloss: 73692.07284884424
iteration: 97 Logisticloss: 36797.726137318816
iteration: 98 Logisticloss: 49598.02024358441
iteration: 99 Logisticloss: 63364.244739269394
[-0.34512707 -0.47977547 0.0970114 ... 0.48787968 0.14780533
 0.00176231]
```

CROSS VALIDATION 19

```
iteration: 0 Logisticloss: 49116.00372904564
iteration: 1 Logisticloss: 26984.344566822212
iteration: 2 Logisticloss: 51409.8331876477
iteration: 3 Logisticloss: 14624.324946667315
iteration: 4 Logisticloss: 29729.13513393837
iteration: 5 Logisticloss: 43977.22560824291
iteration: 6 Logisticloss: 43113.045879677135
iteration: 7 Logisticloss: 28539.5562756354
iteration: 8 Logisticloss: 46386.93033414336
iteration: 9 Logisticloss: 18582.571476487126
iteration: 10 Logisticloss: 56907.37923156508
iteration: 11 Logisticloss: 42525.385188616594
iteration: 12 Logisticloss: 60434.68148740432
iteration: 13 Logisticloss: 17176.572929650727
iteration: 14 Logisticloss: 47426.424241402565
iteration: 15 Logisticloss: 36261.435159808076
iteration: 16 Logisticloss: 55360.68446191202
iteration: 17 Logisticloss: 15055.518542666698
iteration: 18 Logisticloss: 29729.7403505695
iteration: 19 Logisticloss: 43978.120059405395
iteration: 20 Logisticloss: 43113.05729292159
iteration: 21 Logisticloss: 28539.556507638365
iteration: 22 Logisticloss: 46386.93035237407
iteration: 23 Logisticloss: 18582.571478072427
iteration: 24 Logisticloss: 56907.37923157995
iteration: 25 Logisticloss: 42525.385188617074
iteration: 26 Logisticloss: 60434.68148740438
iteration: 27 Logisticloss: 17176.572929650727
iteration: 28 Logisticloss: 47426.42424140255
iteration: 29 Logisticloss: 36261.435159808076
iteration: 30 Logisticloss: 55360.68446191202
```

Output_logistic_train.txt

iteration: 31 Logisticloss: 15055.518542666698
iteration: 32 Logisticloss: 29729.7403505695
iteration: 33 Logisticloss: 43978.120059405395
iteration: 34 Logisticloss: 43113.05729292159
iteration: 35 Logisticloss: 28539.556507638365
iteration: 36 Logisticloss: 46386.93035237407
iteration: 37 Logisticloss: 18582.571478072427
iteration: 38 Logisticloss: 56907.37923157995
iteration: 39 Logisticloss: 42525.385188617074
iteration: 40 Logisticloss: 60434.68148740438
iteration: 41 Logisticloss: 17176.572929650727
iteration: 42 Logisticloss: 47426.42424140255
iteration: 43 Logisticloss: 36261.435159808076
iteration: 44 Logisticloss: 55360.68446191202
iteration: 45 Logisticloss: 15055.518542666698
iteration: 46 Logisticloss: 29729.7403505695
iteration: 47 Logisticloss: 43978.120059405395
iteration: 48 Logisticloss: 43113.05729292159
iteration: 49 Logisticloss: 28539.556507638365
iteration: 50 Logisticloss: 46386.93035237407
iteration: 51 Logisticloss: 18582.571478072427
iteration: 52 Logisticloss: 56907.37923157995
iteration: 53 Logisticloss: 42525.385188617074
iteration: 54 Logisticloss: 60434.68148740438
iteration: 55 Logisticloss: 17176.572929650727
iteration: 56 Logisticloss: 47426.42424140255
iteration: 57 Logisticloss: 36261.435159808076
iteration: 58 Logisticloss: 55360.68446191202
iteration: 59 Logisticloss: 15055.518542666698
iteration: 60 Logisticloss: 29729.7403505695
iteration: 61 Logisticloss: 43978.120059405395
iteration: 62 Logisticloss: 43113.05729292159
iteration: 63 Logisticloss: 28539.556507638365
iteration: 64 Logisticloss: 46386.93035237407
iteration: 65 Logisticloss: 18582.571478072427
iteration: 66 Logisticloss: 56907.37923157995
iteration: 67 Logisticloss: 42525.385188617074
iteration: 68 Logisticloss: 60434.68148740438
iteration: 69 Logisticloss: 17176.572929650727
iteration: 70 Logisticloss: 47426.42424140255
iteration: 71 Logisticloss: 36261.435159808076
iteration: 72 Logisticloss: 55360.68446191202
iteration: 73 Logisticloss: 15055.518542666698
iteration: 74 Logisticloss: 29729.7403505695
iteration: 75 Logisticloss: 43978.120059405395
iteration: 76 Logisticloss: 43113.05729292159
iteration: 77 Logisticloss: 28539.556507638365
iteration: 78 Logisticloss: 46386.93035237407
iteration: 79 Logisticloss: 18582.571478072427
iteration: 80 Logisticloss: 56907.37923157995
iteration: 81 Logisticloss: 42525.385188617074
iteration: 82 Logisticloss: 60434.68148740438

Output_logistic_train.txt

```
iteration: 83 Logisticloss: 17176.572929650727
iteration: 84 Logisticloss: 47426.42424140255
iteration: 85 Logisticloss: 36261.435159808076
iteration: 86 Logisticloss: 55360.68446191202
iteration: 87 Logisticloss: 15055.518542666698
iteration: 88 Logisticloss: 29729.7403505695
iteration: 89 Logisticloss: 43978.120059405395
iteration: 90 Logisticloss: 43113.05729292159
iteration: 91 Logisticloss: 28539.556507638365
iteration: 92 Logisticloss: 46386.93035237407
iteration: 93 Logisticloss: 18582.571478072427
iteration: 94 Logisticloss: 56907.37923157995
iteration: 95 Logisticloss: 42525.385188617074
iteration: 96 Logisticloss: 60434.68148740438
iteration: 97 Logisticloss: 17176.572929650727
iteration: 98 Logisticloss: 47426.42424140255
iteration: 99 Logisticloss: 36261.435159808076
[-0.2613111  0.12088805  0.22271977 ...  0.17099992  0.23666002
 0.09819163]
```

Accuracy (Logistic Loss): 0.75

eta = 0.1 lambda = 0.1

CROSS VALIDATION 0

```
iteration: 0 Logisticloss: 21903.204803147855
iteration: 1 Logisticloss: 3948.1678365556054
iteration: 2 Logisticloss: 5645.011237946803
iteration: 3 Logisticloss: 340.6423796799843
iteration: 4 Logisticloss: 40.018674648268835
iteration: 5 Logisticloss: 4.7013948238290935
iteration: 6 Logisticloss: 0.5523934993676252
iteration: 7 Logisticloss: 53749.73554160184
iteration: 8 Logisticloss: 13506.083321854443
iteration: 9 Logisticloss: 2848.082966847219
iteration: 10 Logisticloss: 19364.735717818912
iteration: 11 Logisticloss: 24902.191925496736
iteration: 12 Logisticloss: 6996.7872054155105
iteration: 13 Logisticloss: 15122.478739485643
iteration: 14 Logisticloss: 42647.04188154021
iteration: 15 Logisticloss: 7794.318158686956
iteration: 16 Logisticloss: 6868.788723990741
iteration: 17 Logisticloss: 18908.434799188024
iteration: 18 Logisticloss: 1473.5952337194842
iteration: 19 Logisticloss: 173.1180021606829
iteration: 20 Logisticloss: 20.337906900295618
iteration: 21 Logisticloss: 2.3892977889489697
iteration: 22 Logisticloss: 0.2807341123391011
iteration: 23 Logisticloss: 0.06393409251732549
iteration: 24 Logisticloss: 31414.266947572185
iteration: 25 Logisticloss: 20405.738232469586
iteration: 26 Logisticloss: 7980.658763692518
iteration: 27 Logisticloss: 12997.42940324287
iteration: 28 Logisticloss: 23187.871250800687
iteration: 29 Logisticloss: 29400.753749173862
```

Output_logistic_train.txt

```
iteration: 30 Logisticloss: 9015.202850675505
iteration: 31 Logisticloss: 21214.21099595713
iteration: 32 Logisticloss: 22405.623248161653
iteration: 33 Logisticloss: 26220.82540852412
iteration: 34 Logisticloss: 6980.135105297559
iteration: 35 Logisticloss: 1570.9872355238979
iteration: 36 Logisticloss: 38767.8184151561
iteration: 37 Logisticloss: 29554.67098547705
iteration: 38 Logisticloss: 16833.673308310477
iteration: 39 Logisticloss: 3553.262715997059
iteration: 40 Logisticloss: 34117.380046234895
iteration: 41 Logisticloss: 7117.999616695264
iteration: 42 Logisticloss: 18613.89329203676
iteration: 43 Logisticloss: 26310.771018971056
iteration: 44 Logisticloss: 5597.622545536271
iteration: 45 Logisticloss: 13583.830631095107
iteration: 46 Logisticloss: 27804.28676271728
iteration: 47 Logisticloss: 7600.7815363200025
iteration: 48 Logisticloss: 20903.097810408526
iteration: 49 Logisticloss: 4956.539919683619
iteration: 50 Logisticloss: 11365.795229585103
iteration: 51 Logisticloss: 13555.272515621493
iteration: 52 Logisticloss: 18943.023770339252
iteration: 53 Logisticloss: 5623.326555687482
iteration: 54 Logisticloss: 26769.622868383405
iteration: 55 Logisticloss: 33508.91350379506
iteration: 56 Logisticloss: 13672.4389833618
iteration: 57 Logisticloss: 34054.725083938116
iteration: 58 Logisticloss: 13809.05922660233
iteration: 59 Logisticloss: 38393.022335856585
iteration: 60 Logisticloss: 2508.5971804647315
iteration: 61 Logisticloss: 17255.93734520095
iteration: 62 Logisticloss: 41013.4971471009
iteration: 63 Logisticloss: 20514.301225067953
iteration: 64 Logisticloss: 5476.888132237247
iteration: 65 Logisticloss: 24818.238509894574
iteration: 66 Logisticloss: 38779.637580252245
iteration: 67 Logisticloss: 4333.479621321327
iteration: 68 Logisticloss: 35610.82952615321
iteration: 69 Logisticloss: 5106.514425904224
iteration: 70 Logisticloss: 23283.19456340043
iteration: 71 Logisticloss: 5185.190946973253
iteration: 72 Logisticloss: 10405.171196435207
iteration: 73 Logisticloss: 1377.2478758928523
iteration: 74 Logisticloss: 30877.30431894656
iteration: 75 Logisticloss: 17041.282768862628
iteration: 76 Logisticloss: 27065.536184359164
iteration: 77 Logisticloss: 14120.466621132975
iteration: 78 Logisticloss: 19671.60324862881
iteration: 79 Logisticloss: 23686.872593622003
iteration: 80 Logisticloss: 9014.06562164846
iteration: 81 Logisticloss: 13825.887775257524
```

Output_logistic_train.txt

```
iteration: 82 Logisticloss: 37907.71636724628
iteration: 83 Logisticloss: 30864.647569676137
iteration: 84 Logisticloss: 25249.218972176142
iteration: 85 Logisticloss: 30416.900889559423
iteration: 86 Logisticloss: 4888.619196475992
iteration: 87 Logisticloss: 9947.093777975846
iteration: 88 Logisticloss: 26410.11290719903
iteration: 89 Logisticloss: 10472.728663272337
iteration: 90 Logisticloss: 24445.89636967284
iteration: 91 Logisticloss: 21187.47022646264
iteration: 92 Logisticloss: 22959.565321840746
iteration: 93 Logisticloss: 13238.586945626592
iteration: 94 Logisticloss: 32952.34877860497
iteration: 95 Logisticloss: 12059.15628414671
iteration: 96 Logisticloss: 18582.38905309695
iteration: 97 Logisticloss: 22936.994536939674
iteration: 98 Logisticloss: 32339.318187245895
iteration: 99 Logisticloss: 21241.501151372577
[-0.32580029 -0.02868749 0.20528355 ... 0.11413497 0.06986788
-0.12600736]
```

CROSS VALIDATION 1

```
iteration: 0 Logisticloss: 27361.11049526307
iteration: 1 Logisticloss: 11998.640938311586
iteration: 2 Logisticloss: 4744.237829918506
iteration: 3 Logisticloss: 42653.19360360119
iteration: 4 Logisticloss: 14388.816087814426
iteration: 5 Logisticloss: 7401.21030452414
iteration: 6 Logisticloss: 31302.666742004752
iteration: 7 Logisticloss: 23977.298986109832
iteration: 8 Logisticloss: 3641.667350938187
iteration: 9 Logisticloss: 21648.423775835206
iteration: 10 Logisticloss: 3745.2573683569863
iteration: 11 Logisticloss: 439.99292231082484
iteration: 12 Logisticloss: 51.69037869580309
iteration: 13 Logisticloss: 6.072596747322768
iteration: 14 Logisticloss: 0.7756895989704836
iteration: 15 Logisticloss: 0.0921498760712827
iteration: 16 Logisticloss: 2.8197830403326978
iteration: 17 Logisticloss: 29580.040651140203
iteration: 18 Logisticloss: 17820.870427879694
iteration: 19 Logisticloss: 46493.70366056562
iteration: 20 Logisticloss: 9737.123058060655
iteration: 21 Logisticloss: 22084.0478654109
iteration: 22 Logisticloss: 22589.402987076875
iteration: 23 Logisticloss: 11895.229509135952
iteration: 24 Logisticloss: 14289.167115764552
iteration: 25 Logisticloss: 40388.33660349193
iteration: 26 Logisticloss: 16437.86087294443
iteration: 27 Logisticloss: 4485.950356417388
iteration: 28 Logisticloss: 5052.015145542961
iteration: 29 Logisticloss: 24623.64513599057
iteration: 30 Logisticloss: 24473.409198754165
```

Output_logistic_train.txt

```

iteration: 31 Logisticloss: 2692.9561822036158
iteration: 32 Logisticloss: 20656.965537200307
iteration: 33 Logisticloss: 12095.78829901619
iteration: 34 Logisticloss: 7554.283216025355
iteration: 35 Logisticloss: 28058.398170934408
iteration: 36 Logisticloss: 5430.029458778458
iteration: 37 Logisticloss: 637.919986484109
iteration: 38 Logisticloss: 74.94285477549356
iteration: 39 Logisticloss: 8.804288313423182
iteration: 40 Logisticloss: 1.0343933096746003
iteration: 41 Logisticloss: 0.12279059712240889
iteration: 42 Logisticloss: 124172.74991773444
iteration: 43 Logisticloss: 41084.446427357485
iteration: 44 Logisticloss: 33517.56362682532
iteration: 45 Logisticloss: 8040.6989454589975
iteration: 46 Logisticloss: 2105.965838056103
iteration: 47 Logisticloss: 247.4089153930605
iteration: 48 Logisticloss: 29.065605106145057
iteration: 49 Logisticloss: 3.4146279605350127
iteration: 50 Logisticloss: 0.4012427846081954
iteration: 51 Logisticloss: 0.05062210051963352
iteration: 52 Logisticloss: 98380.00345795049
iteration: 53 Logisticloss: 21793.387039149962
iteration: 54 Logisticloss: 5097.01157049528
iteration: 55 Logisticloss: 598.7970372615904
iteration: 56 Logisticloss: 70.34668979541225
iteration: 57 Logisticloss: 8.264330745193863
iteration: 58 Logisticloss: 0.9708938839948512
iteration: 59 Logisticloss: 0.11464374802462259
iteration: 60 Logisticloss: 0.031039462303821864
iteration: 61 Logisticloss: 16368.891004455736
iteration: 62 Logisticloss: 7888.342522338574
iteration: 63 Logisticloss: 16277.306870523276
iteration: 64 Logisticloss: 67453.19525168334
iteration: 65 Logisticloss: 3311.5496956080556
iteration: 66 Logisticloss: 389.0409348790122
iteration: 67 Logisticloss: 45.70453803313521
iteration: 68 Logisticloss: 5.369372259869108
iteration: 69 Logisticloss: 11.810590714318364
iteration: 70 Logisticloss: 28974.612155615658
iteration: 71 Logisticloss: 17616.350552879096
iteration: 72 Logisticloss: 40854.42457187301
iteration: 73 Logisticloss: 4712.38193139167
iteration: 74 Logisticloss: 553.6107383582396
iteration: 75 Logisticloss: 65.038202446437
iteration: 76 Logisticloss: 7.641266414322527
iteration: 77 Logisticloss: 0.8977301747337774
iteration: 78 Logisticloss: 0.12016017125094934
iteration: 79 Logisticloss: 36339.015589419156
iteration: 80 Logisticloss: 10687.147410910464
iteration: 81 Logisticloss: 1298.8693829343918
iteration: 82 Logisticloss: 152.5919386646219

```

Output_logistic_train.txt

```
iteration: 83 Logisticloss: 17.93485863710217
iteration: 84 Logisticloss: 2.1069876077520218
iteration: 85 Logisticloss: 0.2475294478803983
iteration: 86 Logisticloss: 16.145448624293802
iteration: 87 Logisticloss: 27726.909722403518
iteration: 88 Logisticloss: 7830.478490678802
iteration: 89 Logisticloss: 2327.03897353099
iteration: 90 Logisticloss: 11943.605207342434
iteration: 91 Logisticloss: 33672.4836117704
iteration: 92 Logisticloss: 5934.179428835915
iteration: 93 Logisticloss: 697.1475366339691
iteration: 94 Logisticloss: 81.90090873779845
iteration: 95 Logisticloss: 9.621720672616682
iteration: 96 Logisticloss: 1.1305036617001119
iteration: 97 Logisticloss: 69199.48646587564
iteration: 98 Logisticloss: 20336.329504088
iteration: 99 Logisticloss: 17957.43202304153
[-0.77883448 -0.36918599 0.41686376 ... 0.11852862 0.11809526
0.01691384]
```

CROSS VALIDATION 2

```
iteration: 0 Logisticloss: 20143.940209738736
iteration: 1 Logisticloss: 10018.805792468564
iteration: 2 Logisticloss: 10478.479971165814
iteration: 3 Logisticloss: 20543.458604564577
iteration: 4 Logisticloss: 19094.36133607359
iteration: 5 Logisticloss: 1081.5914847303955
iteration: 6 Logisticloss: 7627.579938125126
iteration: 7 Logisticloss: 51173.07818536789
iteration: 8 Logisticloss: 52959.08500658622
iteration: 9 Logisticloss: 16440.043206495546
iteration: 10 Logisticloss: 17267.25089570483
iteration: 11 Logisticloss: 12405.803826162617
iteration: 12 Logisticloss: 17200.807394562937
iteration: 13 Logisticloss: 15243.77648829797
iteration: 14 Logisticloss: 11823.89088905976
iteration: 15 Logisticloss: 12095.665374664162
iteration: 16 Logisticloss: 1901.9188161318866
iteration: 17 Logisticloss: 36569.367919921184
iteration: 18 Logisticloss: 41014.68668645338
iteration: 19 Logisticloss: 32178.318738044425
iteration: 20 Logisticloss: 2920.7751049636518
iteration: 21 Logisticloss: 21319.41553104942
iteration: 22 Logisticloss: 16536.702944536504
iteration: 23 Logisticloss: 4840.378775780001
iteration: 24 Logisticloss: 568.6478105992035
iteration: 25 Logisticloss: 66.8047579493734
iteration: 26 Logisticloss: 7.848224509950665
iteration: 27 Logisticloss: 0.9220487684869468
iteration: 28 Logisticloss: 0.111654290153578
iteration: 29 Logisticloss: 4355.17297294882
iteration: 30 Logisticloss: 22800.128109971956
iteration: 31 Logisticloss: 21754.621634589144
```

Output_logistic_train.txt

```
iteration: 32 Logisticloss: 14431.584642976733
iteration: 33 Logisticloss: 6882.421440774766
iteration: 34 Logisticloss: 1244.404875577582
iteration: 35 Logisticloss: 84858.95113782857
iteration: 36 Logisticloss: 45484.96801877454
iteration: 37 Logisticloss: 10627.925861756547
iteration: 38 Logisticloss: 23349.119618498222
iteration: 39 Logisticloss: 31135.278486105122
iteration: 40 Logisticloss: 4024.630745186512
iteration: 41 Logisticloss: 23325.737343848745
iteration: 42 Logisticloss: 34035.45396195127
iteration: 43 Logisticloss: 3313.1525465261134
iteration: 44 Logisticloss: 389.22923784196024
iteration: 45 Logisticloss: 45.72665986958022
iteration: 46 Logisticloss: 5.371969059727403
iteration: 47 Logisticloss: 0.6311277820656371
iteration: 48 Logisticloss: 101335.97017836629
iteration: 49 Logisticloss: 37026.67484055667
iteration: 50 Logisticloss: 2377.942539523455
iteration: 51 Logisticloss: 279.36074457578405
iteration: 52 Logisticloss: 32.819306737990495
iteration: 53 Logisticloss: 3.85561291512303
iteration: 54 Logisticloss: 0.4531321145171798
iteration: 55 Logisticloss: 49.96412304677414
iteration: 56 Logisticloss: 35131.98459417189
iteration: 57 Logisticloss: 7165.332163017125
iteration: 58 Logisticloss: 3868.0787212644886
iteration: 59 Logisticloss: 33721.76811328829
iteration: 60 Logisticloss: 18534.942578224527
iteration: 61 Logisticloss: 12734.896770784102
iteration: 62 Logisticloss: 23699.59881470128
iteration: 63 Logisticloss: 3409.2583578045287
iteration: 64 Logisticloss: 21016.586347926303
iteration: 65 Logisticloss: 32133.133778102354
iteration: 66 Logisticloss: 9350.106549260214
iteration: 67 Logisticloss: 908.2935100838724
iteration: 68 Logisticloss: 106.70634258640122
iteration: 69 Logisticloss: 12.536728413935666
iteration: 70 Logisticloss: 1.4757783476207016
iteration: 71 Logisticloss: 0.1734667646762124
iteration: 72 Logisticloss: 98016.01863037988
iteration: 73 Logisticloss: 20087.716547146327
iteration: 74 Logisticloss: 15737.589372947414
iteration: 75 Logisticloss: 1612.1320209216658
iteration: 76 Logisticloss: 22739.826051451957
iteration: 77 Logisticloss: 35734.32180492656
iteration: 78 Logisticloss: 18830.921014277243
iteration: 79 Logisticloss: 5221.947492369516
iteration: 80 Logisticloss: 23137.45522648641
iteration: 81 Logisticloss: 15299.387436515946
iteration: 82 Logisticloss: 13809.035485811726
iteration: 83 Logisticloss: 34624.460974078705
```


Output_logistic_train.txt

```
iteration: 84 Logisticloss: 2338.602864757499
iteration: 85 Logisticloss: 274.7391951882967
iteration: 86 Logisticloss: 32.28124704177778
iteration: 87 Logisticloss: 3.7924016495508726
iteration: 88 Logisticloss: 0.44555649532413
iteration: 89 Logisticloss: 97393.55177435573
iteration: 90 Logisticloss: 19979.35007411919
iteration: 91 Logisticloss: 15802.434487535571
iteration: 92 Logisticloss: 1610.1556014615433
iteration: 93 Logisticloss: 22733.468970547336
iteration: 94 Logisticloss: 35728.30595429963
iteration: 95 Logisticloss: 18802.28166468533
iteration: 96 Logisticloss: 5219.484840217389
iteration: 97 Logisticloss: 23124.914500418075
iteration: 98 Logisticloss: 15298.538705631177
iteration: 99 Logisticloss: 13808.985198708502
[-0.47295908 -0.37998241 0.46932359 ... 0.16779999 0.02170876
0.14521541]
```

CROSS VALIDATION 3

```
iteration: 0 Logisticloss: 27407.42600991889
iteration: 1 Logisticloss: 17018.638690285603
iteration: 2 Logisticloss: 6618.837409389165
iteration: 3 Logisticloss: 16291.559500603436
iteration: 4 Logisticloss: 17018.972527339414
iteration: 5 Logisticloss: 5052.2462416682865
iteration: 6 Logisticloss: 40580.47126123179
iteration: 7 Logisticloss: 11969.70931126671
iteration: 8 Logisticloss: 25125.666570523525
iteration: 9 Logisticloss: 13532.229598070277
iteration: 10 Logisticloss: 23817.927789851365
iteration: 11 Logisticloss: 21477.846257195044
iteration: 12 Logisticloss: 29914.185681764106
iteration: 13 Logisticloss: 7892.226714865945
iteration: 14 Logisticloss: 25412.94471255022
iteration: 15 Logisticloss: 28370.516594201097
iteration: 16 Logisticloss: 21977.300300710966
iteration: 17 Logisticloss: 1240.1233147830756
iteration: 18 Logisticloss: 145.6897157208083
iteration: 19 Logisticloss: 17.115631174568104
iteration: 20 Logisticloss: 2.0107448278375384
iteration: 21 Logisticloss: 0.24162706323528937
iteration: 22 Logisticloss: 36625.36531242862
iteration: 23 Logisticloss: 10726.901941609412
iteration: 24 Logisticloss: 1298.7381887492036
iteration: 25 Logisticloss: 152.57752083622546
iteration: 26 Logisticloss: 17.954100743553976
iteration: 27 Logisticloss: 2.109248170863299
iteration: 28 Logisticloss: 0.24779487160825187
iteration: 29 Logisticloss: 0.09034460505788264
iteration: 30 Logisticloss: 37768.03108119839
iteration: 31 Logisticloss: 19340.60680665298
iteration: 32 Logisticloss: 3450.795283281187
```

Output_logistic_train.txt

iteration: 33 Logisticloss: 50069.79402666469
iteration: 34 Logisticloss: 13156.858775820127
iteration: 35 Logisticloss: 16237.534159378636
iteration: 36 Logisticloss: 20403.048309665333
iteration: 37 Logisticloss: 30777.543707082645
iteration: 38 Logisticloss: 3947.5905648338858
iteration: 39 Logisticloss: 28696.297416442147
iteration: 40 Logisticloss: 17543.397994004787
iteration: 41 Logisticloss: 1190.208551615514
iteration: 42 Logisticloss: 18593.06691259829
iteration: 43 Logisticloss: 18127.76117493155
iteration: 44 Logisticloss: 19523.934438084736
iteration: 45 Logisticloss: 33230.32365316886
iteration: 46 Logisticloss: 3463.895112554656
iteration: 47 Logisticloss: 1387.812395431227
iteration: 48 Logisticloss: 48576.611305100916
iteration: 49 Logisticloss: 19128.75345492212
iteration: 50 Logisticloss: 43075.65022526085
iteration: 51 Logisticloss: 5822.571741428499
iteration: 52 Logisticloss: 31290.966121706155
iteration: 53 Logisticloss: 6454.375638412217
iteration: 54 Logisticloss: 25362.530785947278
iteration: 55 Logisticloss: 48579.90036423349
iteration: 56 Logisticloss: 7959.937566785762
iteration: 57 Logisticloss: 8845.965803397561
iteration: 58 Logisticloss: 9478.394391829317
iteration: 59 Logisticloss: 5840.856074255437
iteration: 60 Logisticloss: 6401.078103419972
iteration: 61 Logisticloss: 20200.54422556895
iteration: 62 Logisticloss: 8313.548292875217
iteration: 63 Logisticloss: 37978.854754533204
iteration: 64 Logisticloss: 55228.04373818328
iteration: 65 Logisticloss: 12295.467928987531
iteration: 66 Logisticloss: 14121.628214123597
iteration: 67 Logisticloss: 4329.507719604775
iteration: 68 Logisticloss: 20999.739721042533
iteration: 69 Logisticloss: 47599.258063435074
iteration: 70 Logisticloss: 6215.446987883664
iteration: 71 Logisticloss: 6859.670025770974
iteration: 72 Logisticloss: 25826.575257609096
iteration: 73 Logisticloss: 8909.011451200591
iteration: 74 Logisticloss: 26382.88577814941
iteration: 75 Logisticloss: 37923.00609413781
iteration: 76 Logisticloss: 26784.966051470023
iteration: 77 Logisticloss: 14984.690951101427
iteration: 78 Logisticloss: 1732.5836681956685
iteration: 79 Logisticloss: 67051.53899114604
iteration: 80 Logisticloss: 13256.762075506813
iteration: 81 Logisticloss: 6758.891206175065
iteration: 82 Logisticloss: 25163.98008808116
iteration: 83 Logisticloss: 6212.97015446784
iteration: 84 Logisticloss: 28815.635953227793

Output_logistic_train.txt

```
iteration: 85 Logisticloss: 18186.372991298755
iteration: 86 Logisticloss: 1961.1117922027709
iteration: 87 Logisticloss: 230.39145873386315
iteration: 88 Logisticloss: 27.06639390398874
iteration: 89 Logisticloss: 3.1797902318126385
iteration: 90 Logisticloss: 0.3737374197087278
iteration: 91 Logisticloss: 0.045524573862889696
iteration: 92 Logisticloss: 33589.75471540058
iteration: 93 Logisticloss: 24759.47376880776
iteration: 94 Logisticloss: 3827.954566309083
iteration: 95 Logisticloss: 33744.786115328505
iteration: 96 Logisticloss: 14222.489333791706
iteration: 97 Logisticloss: 4372.253392988354
iteration: 98 Logisticloss: 38109.17762112044
iteration: 99 Logisticloss: 20551.34954368585
[-0.26359922 0.22257267 -0.52909713 ... 0.58177967 0.13502155
0.17862518]
```

CROSS VALIDATION 4

```
iteration: 0 Logisticloss: 27407.42600991889
iteration: 1 Logisticloss: 17018.638690285603
iteration: 2 Logisticloss: 6245.0202155334955
iteration: 3 Logisticloss: 23669.214939164925
iteration: 4 Logisticloss: 29720.43125069183
iteration: 5 Logisticloss: 14759.632984936587
iteration: 6 Logisticloss: 21217.717497399037
iteration: 7 Logisticloss: 15263.180494785986
iteration: 8 Logisticloss: 5033.052039601343
iteration: 9 Logisticloss: 16317.593847022974
iteration: 10 Logisticloss: 15551.205821616002
iteration: 11 Logisticloss: 10247.746763168792
iteration: 12 Logisticloss: 13960.491014196235
iteration: 13 Logisticloss: 9066.732540271367
iteration: 14 Logisticloss: 19997.02007416485
iteration: 15 Logisticloss: 30306.806406854696
iteration: 16 Logisticloss: 10202.929866059538
iteration: 17 Logisticloss: 34502.94507876204
iteration: 18 Logisticloss: 25416.47271567393
iteration: 19 Logisticloss: 12213.1814242152
iteration: 20 Logisticloss: 14448.966065455392
iteration: 21 Logisticloss: 40497.84642292308
iteration: 22 Logisticloss: 3506.549291530168
iteration: 23 Logisticloss: 16721.889232864625
iteration: 24 Logisticloss: 51208.61888160872
iteration: 25 Logisticloss: 21872.706365847134
iteration: 26 Logisticloss: 4394.113869353802
iteration: 27 Logisticloss: 28876.021607276452
iteration: 28 Logisticloss: 25409.232834996965
iteration: 29 Logisticloss: 3822.449809065529
iteration: 30 Logisticloss: 14792.714197312249
iteration: 31 Logisticloss: 22683.361922889784
iteration: 32 Logisticloss: 11116.078197858535
iteration: 33 Logisticloss: 14527.293068883904
```

Output_logistic_train.txt

```

iteration: 34 Logisticloss: 2403.060671934394
iteration: 35 Logisticloss: 42118.456582177016
iteration: 36 Logisticloss: 37351.61349214694
iteration: 37 Logisticloss: 7917.343779460446
iteration: 38 Logisticloss: 19986.756316403673
iteration: 39 Logisticloss: 21969.252413238
iteration: 40 Logisticloss: 3594.8896311050553
iteration: 41 Logisticloss: 422.327717058517
iteration: 42 Logisticloss: 49.61506997393727
iteration: 43 Logisticloss: 5.828779569143169
iteration: 44 Logisticloss: 0.6853474723601322
iteration: 45 Logisticloss: 0.08227464716452844
iteration: 46 Logisticloss: 0.011925905589305452
iteration: 47 Logisticloss: 19124.502109849636
iteration: 48 Logisticloss: 33062.06077715808
iteration: 49 Logisticloss: 11767.427662339323
iteration: 50 Logisticloss: 28699.787398213844
iteration: 51 Logisticloss: 4704.256715978076
iteration: 52 Logisticloss: 9990.84213546258
iteration: 53 Logisticloss: 9897.347387802609
iteration: 54 Logisticloss: 3586.661442695964
iteration: 55 Logisticloss: 7933.517854378356
iteration: 56 Logisticloss: 20819.28051344174
iteration: 57 Logisticloss: 3485.125639188291
iteration: 58 Logisticloss: 15315.517570892276
iteration: 59 Logisticloss: 27598.1222999854
iteration: 60 Logisticloss: 4967.649340188269
iteration: 61 Logisticloss: 583.5995594513009
iteration: 62 Logisticloss: 68.56128975054521
iteration: 63 Logisticloss: 8.054581922034108
iteration: 64 Logisticloss: 0.9463585025055344
iteration: 65 Logisticloss: 12.935123529188871
iteration: 66 Logisticloss: 30239.209561748998
iteration: 67 Logisticloss: 16557.868596505174
iteration: 68 Logisticloss: 24667.485608315143
iteration: 69 Logisticloss: 2521.744819916623
iteration: 70 Logisticloss: 5335.11845710896
iteration: 71 Logisticloss: 57790.65512712618
iteration: 72 Logisticloss: 5704.914930024281
iteration: 73 Logisticloss: 670.2135380077249
iteration: 74 Logisticloss: 78.7367019558555
iteration: 75 Logisticloss: 9.249989568676726
iteration: 76 Logisticloss: 1.0867181010922138
iteration: 77 Logisticloss: 105595.68280948451
iteration: 78 Logisticloss: 37080.85077296671
iteration: 79 Logisticloss: 2378.5326221480036
iteration: 80 Logisticloss: 279.43006749617206
iteration: 81 Logisticloss: 32.82745079628204
iteration: 82 Logisticloss: 3.8565696792730186
iteration: 83 Logisticloss: 0.4531717826056421
iteration: 84 Logisticloss: 33.51191777005681
iteration: 85 Logisticloss: 32024.415528969785

```

Output_logistic_train.txt

```
iteration: 86 Logisticloss: 12362.653577546504
iteration: 87 Logisticloss: 20523.516422060937
iteration: 88 Logisticloss: 18567.871073634087
iteration: 89 Logisticloss: 4067.3262213240087
iteration: 90 Logisticloss: 6472.126113209107
iteration: 91 Logisticloss: 942.6815327898473
iteration: 92 Logisticloss: 30426.88775909108
iteration: 93 Logisticloss: 4396.1531823214
iteration: 94 Logisticloss: 516.460177599003
iteration: 95 Logisticloss: 60.67375361673492
iteration: 96 Logisticloss: 7.127953979062723
iteration: 97 Logisticloss: 0.8373929469751932
iteration: 98 Logisticloss: 0.1199109193897075
iteration: 99 Logisticloss: 29486.13211313749
[-1.3884826  0.06340174 -0.37011376 ...  0.10605739 -0.54691191
 0.10520479]
```

CROSS VALIDATION 5

```
iteration: 0 Logisticloss: 23826.479124706144
iteration: 1 Logisticloss: 16527.598014789863
iteration: 2 Logisticloss: 2354.967296820376
iteration: 3 Logisticloss: 276.6616125313116
iteration: 4 Logisticloss: 32.50221264294006
iteration: 5 Logisticloss: 3.818360693502733
iteration: 6 Logisticloss: 0.4487448580260702
iteration: 7 Logisticloss: 0.05421122583613088
iteration: 8 Logisticloss: 136925.4438121444
iteration: 9 Logisticloss: 78770.68720254432
iteration: 10 Logisticloss: 18436.28645053878
iteration: 11 Logisticloss: 8015.696158968012
iteration: 12 Logisticloss: 15617.233567039802
iteration: 13 Logisticloss: 13710.055569628224
iteration: 14 Logisticloss: 13378.228822550303
iteration: 15 Logisticloss: 57113.71025594629
iteration: 16 Logisticloss: 22137.198520712565
iteration: 17 Logisticloss: 18675.603498709064
iteration: 18 Logisticloss: 19534.44384237669
iteration: 19 Logisticloss: 10936.078606424311
iteration: 20 Logisticloss: 32870.56637126783
iteration: 21 Logisticloss: 16415.425573575605
iteration: 22 Logisticloss: 41391.34596526965
iteration: 23 Logisticloss: 6833.938819027625
iteration: 24 Logisticloss: 27456.14745044642
iteration: 25 Logisticloss: 9255.88051227402
iteration: 26 Logisticloss: 14686.615942518498
iteration: 27 Logisticloss: 35005.16929278459
iteration: 28 Logisticloss: 41326.51018368662
iteration: 29 Logisticloss: 2562.2799258206683
iteration: 30 Logisticloss: 301.01670498408845
iteration: 31 Logisticloss: 35.36344946794059
iteration: 32 Logisticloss: 4.154504156058451
iteration: 33 Logisticloss: 0.49119886968722176
iteration: 34 Logisticloss: 41534.04035131662
```

Output_logistic_train.txt

iteration: 35 Logisticloss: 7242.138932510655
iteration: 36 Logisticloss: 26740.85523152141
iteration: 37 Logisticloss: 52469.65594881232
iteration: 38 Logisticloss: 11995.990533492415
iteration: 39 Logisticloss: 13802.863212013088
iteration: 40 Logisticloss: 13244.323316305166
iteration: 41 Logisticloss: 5374.927502362107
iteration: 42 Logisticloss: 12887.392802809758
iteration: 43 Logisticloss: 8547.068792864697
iteration: 44 Logisticloss: 6771.526695351067
iteration: 45 Logisticloss: 3222.908528741835
iteration: 46 Logisticloss: 33266.76704495641
iteration: 47 Logisticloss: 27756.505163939823
iteration: 48 Logisticloss: 14777.160185265346
iteration: 49 Logisticloss: 8975.671322465256
iteration: 50 Logisticloss: 35678.97735226727
iteration: 51 Logisticloss: 19288.887765625655
iteration: 52 Logisticloss: 21754.15411425999
iteration: 53 Logisticloss: 12315.031131962329
iteration: 54 Logisticloss: 8081.3463565535185
iteration: 55 Logisticloss: 18262.525435478485
iteration: 56 Logisticloss: 22928.440397431747
iteration: 57 Logisticloss: 15863.276624975624
iteration: 58 Logisticloss: 15029.742424808197
iteration: 59 Logisticloss: 9565.669253780423
iteration: 60 Logisticloss: 15994.974746576094
iteration: 61 Logisticloss: 4915.543138283471
iteration: 62 Logisticloss: 577.4781216456348
iteration: 63 Logisticloss: 67.8421430954675
iteration: 64 Logisticloss: 7.970096540921793
iteration: 65 Logisticloss: 0.9363271260808392
iteration: 66 Logisticloss: 0.11015735717883517
iteration: 67 Logisticloss: 137969.10441541154
iteration: 68 Logisticloss: 78858.46762321974
iteration: 69 Logisticloss: 18457.885636098392
iteration: 70 Logisticloss: 8016.276969371873
iteration: 71 Logisticloss: 15619.009961955297
iteration: 72 Logisticloss: 13709.673811733102
iteration: 73 Logisticloss: 13377.876272987189
iteration: 74 Logisticloss: 57114.03764253174
iteration: 75 Logisticloss: 22137.182320116408
iteration: 76 Logisticloss: 18675.58929293432
iteration: 77 Logisticloss: 19534.442742876465
iteration: 78 Logisticloss: 10936.082661514776
iteration: 79 Logisticloss: 32870.56649987203
iteration: 80 Logisticloss: 16415.42551772694
iteration: 81 Logisticloss: 41391.345914089776
iteration: 82 Logisticloss: 6833.9388042700475
iteration: 83 Logisticloss: 27456.147459030886
iteration: 84 Logisticloss: 9255.88051424517
iteration: 85 Logisticloss: 14686.615943466173
iteration: 86 Logisticloss: 35005.169292395185

Output_logistic_train.txt

iteration: 87 Logisticloss: 41326.510183629405
iteration: 88 Logisticloss: 2562.2799258207046
iteration: 89 Logisticloss: 301.0167049840928
iteration: 90 Logisticloss: 35.36344946794113
iteration: 91 Logisticloss: 4.154504156058515
iteration: 92 Logisticloss: 0.49119886968717485
iteration: 93 Logisticloss: 41534.040349887364
iteration: 94 Logisticloss: 7242.138932917247
iteration: 95 Logisticloss: 26740.855231958256
iteration: 96 Logisticloss: 52469.65594859081
iteration: 97 Logisticloss: 11995.990533460998
iteration: 98 Logisticloss: 13802.86321201839
iteration: 99 Logisticloss: 13244.323316303511
[-0.79224076 -0.35947002 -1.05929347 ... 0.49862977 -0.27113056
0.26840643]

CROSS VALIDATION 6

iteration: 0 Logisticloss: 27407.42600991889
iteration: 1 Logisticloss: 16915.740090279287
iteration: 2 Logisticloss: 6580.025832755106
iteration: 3 Logisticloss: 23898.984991564765
iteration: 4 Logisticloss: 31678.89230950618
iteration: 5 Logisticloss: 5407.73657525362
iteration: 6 Logisticloss: 635.3010180116884
iteration: 7 Logisticloss: 74.63517829874293
iteration: 8 Logisticloss: 8.76814248663797
iteration: 9 Logisticloss: 1.0320434268339476
iteration: 10 Logisticloss: 17671.821987776428
iteration: 11 Logisticloss: 32880.05173868677
iteration: 12 Logisticloss: 4222.007051159636
iteration: 13 Logisticloss: 27042.707083630175
iteration: 14 Logisticloss: 21438.620000288873
iteration: 15 Logisticloss: 18683.202628246487
iteration: 16 Logisticloss: 9798.223119139671
iteration: 17 Logisticloss: 14120.38124068882
iteration: 18 Logisticloss: 6924.737665258591
iteration: 19 Logisticloss: 43391.487448495216
iteration: 20 Logisticloss: 24261.765662039088
iteration: 21 Logisticloss: 11474.530170637801
iteration: 22 Logisticloss: 19189.835944825427
iteration: 23 Logisticloss: 13414.328559768515
iteration: 24 Logisticloss: 15790.170959471765
iteration: 25 Logisticloss: 8828.5266871108
iteration: 26 Logisticloss: 33677.47625904173
iteration: 27 Logisticloss: 39297.14437434562
iteration: 28 Logisticloss: 3713.419336603908
iteration: 29 Logisticloss: 436.2525896036474
iteration: 30 Logisticloss: 51.25096432280158
iteration: 31 Logisticloss: 6.020964474740754
iteration: 32 Logisticloss: 0.7073839420750829
iteration: 33 Logisticloss: 103704.64319126078
iteration: 34 Logisticloss: 33888.75548285454
iteration: 35 Logisticloss: 23165.32299971747

Output_logistic_train.txt

```

iteration: 36 Logisticloss: 8513.906227718357
iteration: 37 Logisticloss: 34092.97709716322
iteration: 38 Logisticloss: 6650.803691323882
iteration: 39 Logisticloss: 5319.2583365267665
iteration: 40 Logisticloss: 31372.5577441457
iteration: 41 Logisticloss: 8917.697054924793
iteration: 42 Logisticloss: 33620.42331383248
iteration: 43 Logisticloss: 13846.859495188852
iteration: 44 Logisticloss: 70426.77238382546
iteration: 45 Logisticloss: 25732.56214299105
iteration: 46 Logisticloss: 15405.164327379838
iteration: 47 Logisticloss: 14273.820721747126
iteration: 48 Logisticloss: 9034.265680222099
iteration: 49 Logisticloss: 37818.41214237314
iteration: 50 Logisticloss: 57859.98407173129
iteration: 51 Logisticloss: 4156.457318976748
iteration: 52 Logisticloss: 488.3013467380909
iteration: 53 Logisticloss: 57.37084339388451
iteration: 54 Logisticloss: 6.739928009643227
iteration: 55 Logisticloss: 0.7918087343929883
iteration: 56 Logisticloss: 0.10378606886077515
iteration: 57 Logisticloss: 31336.565314995867
iteration: 58 Logisticloss: 5765.23225306236
iteration: 59 Logisticloss: 7667.092505111303
iteration: 60 Logisticloss: 19828.064623038314
iteration: 61 Logisticloss: 31776.852414229255
iteration: 62 Logisticloss: 13924.933556745891
iteration: 63 Logisticloss: 45363.80116881153
iteration: 64 Logisticloss: 19489.838625612938
iteration: 65 Logisticloss: 33882.49858398605
iteration: 66 Logisticloss: 9306.440584092323
iteration: 67 Logisticloss: 477.4960550224216
iteration: 68 Logisticloss: 56.09624759469401
iteration: 69 Logisticloss: 6.590188465656436
iteration: 70 Logisticloss: 0.774215558891018
iteration: 71 Logisticloss: 10.546653540060735
iteration: 72 Logisticloss: 34627.29159169961
iteration: 73 Logisticloss: 8112.296207604663
iteration: 74 Logisticloss: 4425.163957800161
iteration: 75 Logisticloss: 1723.2469467821734
iteration: 76 Logisticloss: 24725.190162431667
iteration: 77 Logisticloss: 21129.930479523195
iteration: 78 Logisticloss: 6317.832880263316
iteration: 79 Logisticloss: 7456.44608678001
iteration: 80 Logisticloss: 28998.01961988887
iteration: 81 Logisticloss: 2266.0587356836672
iteration: 82 Logisticloss: 35028.51184482065
iteration: 83 Logisticloss: 7646.523639045419
iteration: 84 Logisticloss: 898.3137740780518
iteration: 85 Logisticloss: 105.5339229683063
iteration: 86 Logisticloss: 12.398127714108911
iteration: 87 Logisticloss: 1.457515610140281

```


Output_logistic_train.txt

iteration: 88 Logisticloss: 51157.09768830222
iteration: 89 Logisticloss: 17102.96690659943
iteration: 90 Logisticloss: 5719.698674715606
iteration: 91 Logisticloss: 14094.919827127871
iteration: 92 Logisticloss: 27614.4561501154
iteration: 93 Logisticloss: 22107.912201846524
iteration: 94 Logisticloss: 21884.93942873193
iteration: 95 Logisticloss: 15064.688922827298
iteration: 96 Logisticloss: 29336.821433548328
iteration: 97 Logisticloss: 9912.67027499873
iteration: 98 Logisticloss: 4726.45932406304
iteration: 99 Logisticloss: 33163.91936105697
[-1.15992492 -0.4923409 -1.22028558 ... 0.61728672 -0.70701219
0.12267738]

CROSS VALIDATION 7

iteration: 0 Logisticloss: 27407.42600991889
iteration: 1 Logisticloss: 16915.740090279287
iteration: 2 Logisticloss: 6580.025832755106
iteration: 3 Logisticloss: 16370.119021117933
iteration: 4 Logisticloss: 16931.842311590153
iteration: 5 Logisticloss: 5040.5134382684755
iteration: 6 Logisticloss: 40523.414499517974
iteration: 7 Logisticloss: 11961.741485445193
iteration: 8 Logisticloss: 25148.252206441117
iteration: 9 Logisticloss: 13388.924033168849
iteration: 10 Logisticloss: 22402.361542684495
iteration: 11 Logisticloss: 16061.955733383871
iteration: 12 Logisticloss: 25406.476329340894
iteration: 13 Logisticloss: 9628.544870696594
iteration: 14 Logisticloss: 62989.320045895685
iteration: 15 Logisticloss: 20038.830110564435
iteration: 16 Logisticloss: 20143.824244606432
iteration: 17 Logisticloss: 18153.305228783734
iteration: 18 Logisticloss: 3054.0654873163594
iteration: 19 Logisticloss: 2585.162298428023
iteration: 20 Logisticloss: 40709.767249562705
iteration: 21 Logisticloss: 41400.12032299602
iteration: 22 Logisticloss: 15893.409436231887
iteration: 23 Logisticloss: 18352.33311882981
iteration: 24 Logisticloss: 4596.629493442544
iteration: 25 Logisticloss: 17875.602184480107
iteration: 26 Logisticloss: 43881.142693222006
iteration: 27 Logisticloss: 7610.047582601597
iteration: 28 Logisticloss: 36727.90621754039
iteration: 29 Logisticloss: 24642.100766669475
iteration: 30 Logisticloss: 2994.127058957368
iteration: 31 Logisticloss: 23531.592717057712
iteration: 32 Logisticloss: 17244.3387215384
iteration: 33 Logisticloss: 9324.09821033732
iteration: 34 Logisticloss: 11452.054800874568
iteration: 35 Logisticloss: 13615.521557096054
iteration: 36 Logisticloss: 10512.827761242357

Output_logistic_train.txt

iteration: 37 Logisticloss: 3892.472199129179
iteration: 38 Logisticloss: 30236.143671230813
iteration: 39 Logisticloss: 28976.870677646555
iteration: 40 Logisticloss: 8045.70665558197
iteration: 41 Logisticloss: 32723.33329565857
iteration: 42 Logisticloss: 25317.34632896754
iteration: 43 Logisticloss: 8597.223483373511
iteration: 44 Logisticloss: 9900.82290717346
iteration: 45 Logisticloss: 18356.484378379555
iteration: 46 Logisticloss: 8931.009632902082
iteration: 47 Logisticloss: 30977.876690456607
iteration: 48 Logisticloss: 14675.886048998265
iteration: 49 Logisticloss: 2988.6633391185787
iteration: 50 Logisticloss: 22119.182884188605
iteration: 51 Logisticloss: 15566.811811443458
iteration: 52 Logisticloss: 14972.254816316741
iteration: 53 Logisticloss: 27773.934535894106
iteration: 54 Logisticloss: 4503.602335711923
iteration: 55 Logisticloss: 2914.8114915064575
iteration: 56 Logisticloss: 342.43212147947
iteration: 57 Logisticloss: 40.22893355629228
iteration: 58 Logisticloss: 4.72609604520899
iteration: 59 Logisticloss: 0.5552542875204027
iteration: 60 Logisticloss: 91213.4058518737
iteration: 61 Logisticloss: 56664.72252083942
iteration: 62 Logisticloss: 21636.814985405148
iteration: 63 Logisticloss: 1985.7318191673903
iteration: 64 Logisticloss: 19072.876712862984
iteration: 65 Logisticloss: 14550.236833655234
iteration: 66 Logisticloss: 14695.107209192314
iteration: 67 Logisticloss: 1694.7317863392072
iteration: 68 Logisticloss: 199.09712948019674
iteration: 69 Logisticloss: 23.389935379026365
iteration: 70 Logisticloss: 2.747928446176874
iteration: 71 Logisticloss: 0.32317254664605904
iteration: 72 Logisticloss: 0.20182261633230758
iteration: 73 Logisticloss: 40886.034513244944
iteration: 74 Logisticloss: 2910.757697430406
iteration: 75 Logisticloss: 11478.270009657817
iteration: 76 Logisticloss: 25675.79080775698
iteration: 77 Logisticloss: 18233.027683995933
iteration: 78 Logisticloss: 8466.875724822854
iteration: 79 Logisticloss: 9833.787025005184
iteration: 80 Logisticloss: 4204.516371740179
iteration: 81 Logisticloss: 22416.333127043195
iteration: 82 Logisticloss: 60278.728870082676
iteration: 83 Logisticloss: 10125.907855517788
iteration: 84 Logisticloss: 9906.39263940337
iteration: 85 Logisticloss: 17853.67358976258
iteration: 86 Logisticloss: 2382.8848617618623
iteration: 87 Logisticloss: 19375.326873805447
iteration: 88 Logisticloss: 24784.165412958515

Output_logistic_train.txt

```

iteration: 89 Logisticloss: 5955.201421977099
iteration: 90 Logisticloss: 24680.564196784122
iteration: 91 Logisticloss: 22113.082227788127
iteration: 92 Logisticloss: 10205.751235677399
iteration: 93 Logisticloss: 20864.366167987067
iteration: 94 Logisticloss: 8042.471778632771
iteration: 95 Logisticloss: 2683.585131952529
iteration: 96 Logisticloss: 315.2676434078179
iteration: 97 Logisticloss: 37.037650043768856
iteration: 98 Logisticloss: 4.351183986486726
iteration: 99 Logisticloss: 0.511669580535573
[-0.00853684 -0.00608484 -0.00025368 ... 0.00516658 0.00225367
-0.00079081]

```

CROSS VALIDATION 8

```

iteration: 0 Logisticloss: 27407.42600991889
iteration: 1 Logisticloss: 16915.740090279287
iteration: 2 Logisticloss: 6580.025832755106
iteration: 3 Logisticloss: 16370.119021117933
iteration: 4 Logisticloss: 16931.842311590153
iteration: 5 Logisticloss: 5040.5134382684755
iteration: 6 Logisticloss: 40523.414499517974
iteration: 7 Logisticloss: 11961.741485445193
iteration: 8 Logisticloss: 25148.252206441117
iteration: 9 Logisticloss: 13388.924033168849
iteration: 10 Logisticloss: 23699.2264203795
iteration: 11 Logisticloss: 16061.970464250593
iteration: 12 Logisticloss: 26274.3108391232
iteration: 13 Logisticloss: 9628.549221486908
iteration: 14 Logisticloss: 60054.70788492117
iteration: 15 Logisticloss: 16271.48258236318
iteration: 16 Logisticloss: 10421.371995052079
iteration: 17 Logisticloss: 11419.81599997317
iteration: 18 Logisticloss: 13035.924572408627
iteration: 19 Logisticloss: 3997.4706970806164
iteration: 20 Logisticloss: 4047.1499866189815
iteration: 21 Logisticloss: 29964.471825557026
iteration: 22 Logisticloss: 28258.074520975264
iteration: 23 Logisticloss: 2365.733008302167
iteration: 24 Logisticloss: 25360.681313724937
iteration: 25 Logisticloss: 3649.3808842706976
iteration: 26 Logisticloss: 428.72935074150405
iteration: 27 Logisticloss: 50.36713404716717
iteration: 28 Logisticloss: 5.917132073507978
iteration: 29 Logisticloss: 0.6952656318496709
iteration: 30 Logisticloss: 62.29476447801654
iteration: 31 Logisticloss: 31336.085398335672
iteration: 32 Logisticloss: 5784.570845086993
iteration: 33 Logisticloss: 7657.893601351172
iteration: 34 Logisticloss: 19848.543263417207
iteration: 35 Logisticloss: 31778.8293157707
iteration: 36 Logisticloss: 13931.350276915002
iteration: 37 Logisticloss: 44747.86243057591

```

Output_logistic_train.txt

iteration: 38 Logisticloss: 19488.454595881518
iteration: 39 Logisticloss: 34585.01286501542
iteration: 40 Logisticloss: 9306.402661182754
iteration: 41 Logisticloss: 477.4959589211778
iteration: 42 Logisticloss: 56.09623630471765
iteration: 43 Logisticloss: 6.59018713930975
iteration: 44 Logisticloss: 0.7742154030773085
iteration: 45 Logisticloss: 10.54748937840784
iteration: 46 Logisticloss: 34627.299720413546
iteration: 47 Logisticloss: 23764.323152835674
iteration: 48 Logisticloss: 9642.638995280668
iteration: 49 Logisticloss: 21814.477924782557
iteration: 50 Logisticloss: 11883.205973075012
iteration: 51 Logisticloss: 5384.317359458418
iteration: 52 Logisticloss: 6985.1270266533265
iteration: 53 Logisticloss: 27079.798119146213
iteration: 54 Logisticloss: 38697.375660745915
iteration: 55 Logisticloss: 21013.342298030544
iteration: 56 Logisticloss: 9002.452237602978
iteration: 57 Logisticloss: 11135.731305667216
iteration: 58 Logisticloss: 11279.499502828337
iteration: 59 Logisticloss: 10617.069369797175
iteration: 60 Logisticloss: 30009.807461565408
iteration: 61 Logisticloss: 8944.249204868844
iteration: 62 Logisticloss: 16613.756145624815
iteration: 63 Logisticloss: 14612.592076607623
iteration: 64 Logisticloss: 19258.679782567142
iteration: 65 Logisticloss: 21139.143555666982
iteration: 66 Logisticloss: 33157.644276725674
iteration: 67 Logisticloss: 11292.619642739235
iteration: 68 Logisticloss: 1585.5623145857048
iteration: 69 Logisticloss: 64455.51338489109
iteration: 70 Logisticloss: 14640.718379092756
iteration: 71 Logisticloss: 18019.11824162094
iteration: 72 Logisticloss: 19875.012131588555
iteration: 73 Logisticloss: 11061.69229174456
iteration: 74 Logisticloss: 13976.876064898843
iteration: 75 Logisticloss: 64342.28981447649
iteration: 76 Logisticloss: 21984.648492989156
iteration: 77 Logisticloss: 21489.459130544063
iteration: 78 Logisticloss: 24378.800653404785
iteration: 79 Logisticloss: 21574.176273403795
iteration: 80 Logisticloss: 19516.602881722498
iteration: 81 Logisticloss: 20118.90818599981
iteration: 82 Logisticloss: 36879.35429077777
iteration: 83 Logisticloss: 18042.145441537126
iteration: 84 Logisticloss: 47584.19581635418
iteration: 85 Logisticloss: 15571.024174501541
iteration: 86 Logisticloss: 2902.8338312760443
iteration: 87 Logisticloss: 50688.938418066
iteration: 88 Logisticloss: 11023.815211425423
iteration: 89 Logisticloss: 24510.8874524338

Output_logistic_train.txt

iteration: 90 Logisticloss: 42427.276366058824
iteration: 91 Logisticloss: 3856.2071908336316
iteration: 92 Logisticloss: 24730.548931826008
iteration: 93 Logisticloss: 73891.15279496176
iteration: 94 Logisticloss: 4338.643149067219
iteration: 95 Logisticloss: 30818.125878291343
iteration: 96 Logisticloss: 12983.290654455559
iteration: 97 Logisticloss: 14469.708029628917
iteration: 98 Logisticloss: 14347.443852233067
iteration: 99 Logisticloss: 4050.2164945348736
[-0.32771562 -0.52068423 0.01635836 ... -0.04009854 -0.01402441
0.02235863]

CROSS VALIDATION 9

iteration: 0 Logisticloss: 34968.56903058304
iteration: 1 Logisticloss: 5352.8510613623475
iteration: 2 Logisticloss: 628.8530665695301
iteration: 3 Logisticloss: 73.87767281409371
iteration: 4 Logisticloss: 8.679163424435421
iteration: 5 Logisticloss: 1.0277018910984028
iteration: 6 Logisticloss: 20718.36029362602
iteration: 7 Logisticloss: 18649.88762007798
iteration: 8 Logisticloss: 7210.65810264149
iteration: 9 Logisticloss: 2037.0729377730026
iteration: 10 Logisticloss: 239.3153758788654
iteration: 11 Logisticloss: 28.114787919699534
iteration: 12 Logisticloss: 3.3060649782003035
iteration: 13 Logisticloss: 0.3884825402006542
iteration: 14 Logisticloss: 70630.40741801195
iteration: 15 Logisticloss: 21763.200423974475
iteration: 16 Logisticloss: 1123.4974668155326
iteration: 17 Logisticloss: 131.9885084025172
iteration: 18 Logisticloss: 15.506051399934679
iteration: 19 Logisticloss: 1.8293164234903525
iteration: 20 Logisticloss: 0.2156025104695935
iteration: 21 Logisticloss: 67272.43860869418
iteration: 22 Logisticloss: 10554.709034415868
iteration: 23 Logisticloss: 25906.202383195945
iteration: 24 Logisticloss: 16061.279804577127
iteration: 25 Logisticloss: 14818.330129499951
iteration: 26 Logisticloss: 6077.946102172811
iteration: 27 Logisticloss: 23228.696860604403
iteration: 28 Logisticloss: 19301.288684597734
iteration: 29 Logisticloss: 40950.80995629952
iteration: 30 Logisticloss: 6311.338419163778
iteration: 31 Logisticloss: 1490.1034835381315
iteration: 32 Logisticloss: 175.05739173142695
iteration: 33 Logisticloss: 20.56574643197778
iteration: 34 Logisticloss: 2.41618130888729
iteration: 35 Logisticloss: 127395.86988267723
iteration: 36 Logisticloss: 51272.84030055812
iteration: 37 Logisticloss: 14694.629315520988
iteration: 38 Logisticloss: 28515.82737406275

Output_logistic_train.txt

```

iteration: 39 Logisticloss: 2909.388137953186
iteration: 40 Logisticloss: 24861.741061377936
iteration: 41 Logisticloss: 6270.472504182313
iteration: 42 Logisticloss: 22821.70157863099
iteration: 43 Logisticloss: 11276.726799059086
iteration: 44 Logisticloss: 10761.664541641001
iteration: 45 Logisticloss: 33271.95367606684
iteration: 46 Logisticloss: 15650.321019067462
iteration: 47 Logisticloss: 1402.5416519692228
iteration: 48 Logisticloss: 164.77062573227383
iteration: 49 Logisticloss: 19.357256924303332
iteration: 50 Logisticloss: 2.274102159959733
iteration: 51 Logisticloss: 88204.42215769456
iteration: 52 Logisticloss: 70729.2297512423
iteration: 53 Logisticloss: 4209.4691879300235
iteration: 54 Logisticloss: 494.5285376174885
iteration: 55 Logisticloss: 58.09722414008912
iteration: 56 Logisticloss: 6.829156187154605
iteration: 57 Logisticloss: 0.8059039793181698
iteration: 58 Logisticloss: 0.09489223064742335
iteration: 59 Logisticloss: 34401.57263608527
iteration: 60 Logisticloss: 33214.78105882519
iteration: 61 Logisticloss: 23456.457527022394
iteration: 62 Logisticloss: 33065.68915610498
iteration: 63 Logisticloss: 18701.58411949376
iteration: 64 Logisticloss: 5840.87286179359
iteration: 65 Logisticloss: 12857.781765575997
iteration: 66 Logisticloss: 30523.714583269673
iteration: 67 Logisticloss: 30383.656893120988
iteration: 68 Logisticloss: 3719.791718974073
iteration: 69 Logisticloss: 27725.012028531044
iteration: 70 Logisticloss: 12263.470407084065
iteration: 71 Logisticloss: 33925.24608504871
iteration: 72 Logisticloss: 13639.649422899747
iteration: 73 Logisticloss: 25624.202790230793
iteration: 74 Logisticloss: 42931.34836534228
iteration: 75 Logisticloss: 12742.674121625038
iteration: 76 Logisticloss: 6411.6140360600875
iteration: 77 Logisticloss: 15465.774026623294
iteration: 78 Logisticloss: 18831.393282387726
iteration: 79 Logisticloss: 16650.222466986706
iteration: 80 Logisticloss: 57226.040152565925
iteration: 81 Logisticloss: 3403.4137046651076
iteration: 82 Logisticloss: 35670.677526061314
iteration: 83 Logisticloss: 13838.114457879132
iteration: 84 Logisticloss: 7447.243710137057
iteration: 85 Logisticloss: 8670.40261873584
iteration: 86 Logisticloss: 13917.13346220333
iteration: 87 Logisticloss: 16989.69112584449
iteration: 88 Logisticloss: 38740.54525822289
iteration: 89 Logisticloss: 5661.001746302554
iteration: 90 Logisticloss: 35664.14444076388

```

Output_logistic_train.txt

```

iteration: 91 Logisticloss: 3550.528804145875
iteration: 92 Logisticloss: 4834.883238968223
iteration: 93 Logisticloss: 34371.69338477208
iteration: 94 Logisticloss: 19955.19198590805
iteration: 95 Logisticloss: 5618.681851349748
iteration: 96 Logisticloss: 73156.5912720414
iteration: 97 Logisticloss: 31671.61380450638
iteration: 98 Logisticloss: 26236.1528746001
iteration: 99 Logisticloss: 11980.475612222508
[-1.05404258 -0.85629305 -0.49249582 ... 0.41310739 0.04345014
-0.02153756]

```

CROSS VALIDATION 10

```

iteration: 0 Logisticloss: 27396.302100804212
iteration: 1 Logisticloss: 10877.663332882126
iteration: 2 Logisticloss: 875.9744738054553
iteration: 3 Logisticloss: 102.90950145528475
iteration: 4 Logisticloss: 12.089810612594698
iteration: 5 Logisticloss: 1.4203112305619023
iteration: 6 Logisticloss: 0.16690726667209807
iteration: 7 Logisticloss: 98074.76874160735
iteration: 8 Logisticloss: 24946.18323388142
iteration: 9 Logisticloss: 4535.812756541832
iteration: 10 Logisticloss: 6825.10943090274
iteration: 11 Logisticloss: 22500.61439682615
iteration: 12 Logisticloss: 19326.323767563783
iteration: 13 Logisticloss: 4033.101356728987
iteration: 14 Logisticloss: 473.8088407263215
iteration: 15 Logisticloss: 55.66307357385522
iteration: 16 Logisticloss: 6.539299281931403
iteration: 17 Logisticloss: 0.782423657290042
iteration: 18 Logisticloss: 0.09267654240713168
iteration: 19 Logisticloss: 61357.502096579774
iteration: 20 Logisticloss: 27303.51671660423
iteration: 21 Logisticloss: 4475.023836704746
iteration: 22 Logisticloss: 25555.352267279966
iteration: 23 Logisticloss: 20108.305287267285
iteration: 24 Logisticloss: 16925.661331894808
iteration: 25 Logisticloss: 34268.143836307245
iteration: 26 Logisticloss: 3841.4424029831744
iteration: 27 Logisticloss: 37844.09975493965
iteration: 28 Logisticloss: 17233.21916871251
iteration: 29 Logisticloss: 1846.833877889047
iteration: 30 Logisticloss: 216.9660867155607
iteration: 31 Logisticloss: 25.489180888576
iteration: 32 Logisticloss: 2.9944696448582686
iteration: 33 Logisticloss: 0.3552744677027945
iteration: 34 Logisticloss: 46039.02830879041
iteration: 35 Logisticloss: 17243.575412431215
iteration: 36 Logisticloss: 3338.8702727982873
iteration: 37 Logisticloss: 20808.457394432324
iteration: 38 Logisticloss: 16727.628091059523
iteration: 39 Logisticloss: 16353.230684829108

```

Output_logistic_train.txt

iteration: 40 Logisticloss: 7623.862703253896
iteration: 41 Logisticloss: 32525.049292154534
iteration: 42 Logisticloss: 30638.47073541329
iteration: 43 Logisticloss: 24763.93597524127
iteration: 44 Logisticloss: 21957.01539767553
iteration: 45 Logisticloss: 20235.035757062462
iteration: 46 Logisticloss: 18007.19594675257
iteration: 47 Logisticloss: 15173.1155415993
iteration: 48 Logisticloss: 971.1628611744584
iteration: 49 Logisticloss: 37107.92781087404
iteration: 50 Logisticloss: 19632.11600308183
iteration: 51 Logisticloss: 7618.9919140872225
iteration: 52 Logisticloss: 5917.800989170351
iteration: 53 Logisticloss: 13128.822891808502
iteration: 54 Logisticloss: 53096.78889160162
iteration: 55 Logisticloss: 3314.664483490319
iteration: 56 Logisticloss: 33601.7820799873
iteration: 57 Logisticloss: 6706.6933111216385
iteration: 58 Logisticloss: 18527.6168153465
iteration: 59 Logisticloss: 21931.34561152799
iteration: 60 Logisticloss: 80722.02504702378
iteration: 61 Logisticloss: 13600.14850723166
iteration: 62 Logisticloss: 6423.422836306161
iteration: 63 Logisticloss: 23940.966022782184
iteration: 64 Logisticloss: 10311.559693386918
iteration: 65 Logisticloss: 21881.355329566944
iteration: 66 Logisticloss: 51182.38315046782
iteration: 67 Logisticloss: 8640.763008771355
iteration: 68 Logisticloss: 26980.304894254234
iteration: 69 Logisticloss: 54245.973752885104
iteration: 70 Logisticloss: 3922.7736697948903
iteration: 71 Logisticloss: 5171.318196970229
iteration: 72 Logisticloss: 13718.467160008458
iteration: 73 Logisticloss: 54644.908967163086
iteration: 74 Logisticloss: 3216.2283477486217
iteration: 75 Logisticloss: 753.2013814654297
iteration: 76 Logisticloss: 88.48611572584886
iteration: 77 Logisticloss: 10.395350923421486
iteration: 78 Logisticloss: 1.2212738185524847
iteration: 79 Logisticloss: 109.87414441722889
iteration: 80 Logisticloss: 33637.4849378087
iteration: 81 Logisticloss: 21798.943780597325
iteration: 82 Logisticloss: 10785.44821930788
iteration: 83 Logisticloss: 75092.52781779534
iteration: 84 Logisticloss: 3863.513120341771
iteration: 85 Logisticloss: 22391.808590283854
iteration: 86 Logisticloss: 24481.900853969786
iteration: 87 Logisticloss: 5489.445726415628
iteration: 88 Logisticloss: 7223.643826124358
iteration: 89 Logisticloss: 26370.779336334046
iteration: 90 Logisticloss: 23831.180072521518
iteration: 91 Logisticloss: 25027.568007721773

Output_logistic_train.txt

```
iteration: 92 Logisticloss: 24986.129766217506
iteration: 93 Logisticloss: 21345.96102278414
iteration: 94 Logisticloss: 4901.698576867233
iteration: 95 Logisticloss: 22711.188194182327
iteration: 96 Logisticloss: 15949.947261860056
iteration: 97 Logisticloss: 17277.084274303
iteration: 98 Logisticloss: 17163.686344815458
iteration: 99 Logisticloss: 34928.35339623001
[-0.24553863 -0.53486867 -1.14361237 ... 0.58100564 -0.09123346
 0.26736217]
```

CROSS VALIDATION 11

```
iteration: 0 Logisticloss: 27396.302100804212
iteration: 1 Logisticloss: 14169.016302924865
iteration: 2 Logisticloss: 4430.065685830019
iteration: 3 Logisticloss: 16351.112129915666
iteration: 4 Logisticloss: 16783.37896997303
iteration: 5 Logisticloss: 5032.573399083996
iteration: 6 Logisticloss: 29975.73038173522
iteration: 7 Logisticloss: 17809.122839834767
iteration: 8 Logisticloss: 8888.481957232865
iteration: 9 Logisticloss: 18499.598547556
iteration: 10 Logisticloss: 10475.052653922976
iteration: 11 Logisticloss: 14849.489520189636
iteration: 12 Logisticloss: 35247.53104461067
iteration: 13 Logisticloss: 2896.0766365764225
iteration: 14 Logisticloss: 340.23115028870996
iteration: 15 Logisticloss: 39.97036340986486
iteration: 16 Logisticloss: 4.695719218422427
iteration: 17 Logisticloss: 0.5516608838249114
iteration: 18 Logisticloss: 0.0738587116478476
iteration: 19 Logisticloss: 20193.415240482274
iteration: 20 Logisticloss: 17277.271231096158
iteration: 21 Logisticloss: 26975.113265336156
iteration: 22 Logisticloss: 31362.42094612834
iteration: 23 Logisticloss: 14103.000943381918
iteration: 24 Logisticloss: 1488.9968125198193
iteration: 25 Logisticloss: 18565.911737257837
iteration: 26 Logisticloss: 29651.870494210667
iteration: 27 Logisticloss: 10212.555660814814
iteration: 28 Logisticloss: 35765.113406161734
iteration: 29 Logisticloss: 13111.958392276938
iteration: 30 Logisticloss: 23141.237743242513
iteration: 31 Logisticloss: 15434.779376470757
iteration: 32 Logisticloss: 12561.874903435739
iteration: 33 Logisticloss: 24568.437800846958
iteration: 34 Logisticloss: 1671.8862593202846
iteration: 35 Logisticloss: 26932.6552295818
iteration: 36 Logisticloss: 7404.074082582583
iteration: 37 Logisticloss: 20468.77662929664
iteration: 38 Logisticloss: 6957.402268367137
iteration: 39 Logisticloss: 20494.23329841654
iteration: 40 Logisticloss: 40653.67932491516
```

Output_logistic_train.txt

```
iteration: 41 Logisticloss: 7852.08719299816
iteration: 42 Logisticloss: 11034.616534488785
iteration: 43 Logisticloss: 24639.668701281225
iteration: 44 Logisticloss: 8617.301309117292
iteration: 45 Logisticloss: 24012.26964515448
iteration: 46 Logisticloss: 14619.80016277192
iteration: 47 Logisticloss: 8682.084589738348
iteration: 48 Logisticloss: 6658.656705633366
iteration: 49 Logisticloss: 28086.538216077475
iteration: 50 Logisticloss: 24642.71300024893
iteration: 51 Logisticloss: 1150.6995264029015
iteration: 52 Logisticloss: 135.1842069923766
iteration: 53 Logisticloss: 15.881443766023644
iteration: 54 Logisticloss: 1.865752381584606
iteration: 55 Logisticloss: 0.22001332095107884
iteration: 56 Logisticloss: 52858.73044145559
iteration: 57 Logisticloss: 14862.144282008609
iteration: 58 Logisticloss: 8796.077063429959
iteration: 59 Logisticloss: 9412.173424909193
iteration: 60 Logisticloss: 35891.226885270036
iteration: 61 Logisticloss: 24762.29385381397
iteration: 62 Logisticloss: 15438.498920993592
iteration: 63 Logisticloss: 7830.173272672646
iteration: 64 Logisticloss: 66434.79392428257
iteration: 65 Logisticloss: 50936.90280459354
iteration: 66 Logisticloss: 5242.291592008029
iteration: 67 Logisticloss: 20352.01054533957
iteration: 68 Logisticloss: 10537.543436150125
iteration: 69 Logisticloss: 8008.624206064071
iteration: 70 Logisticloss: 11317.504802070674
iteration: 71 Logisticloss: 35488.14994644094
iteration: 72 Logisticloss: 22888.9368762157
iteration: 73 Logisticloss: 15515.892974679151
iteration: 74 Logisticloss: 10735.23513794899
iteration: 75 Logisticloss: 21769.34213614301
iteration: 76 Logisticloss: 24464.443908306203
iteration: 77 Logisticloss: 17591.814895842494
iteration: 78 Logisticloss: 50987.38556476633
iteration: 79 Logisticloss: 17775.230893748732
iteration: 80 Logisticloss: 12950.018529652489
iteration: 81 Logisticloss: 32471.64512621531
iteration: 82 Logisticloss: 29465.865846080687
iteration: 83 Logisticloss: 21257.138885681015
iteration: 84 Logisticloss: 7920.490605020059
iteration: 85 Logisticloss: 17776.78548854145
iteration: 86 Logisticloss: 9076.62177775223
iteration: 87 Logisticloss: 3115.580569007401
iteration: 88 Logisticloss: 366.0184773506662
iteration: 89 Logisticloss: 42.99985918989793
iteration: 90 Logisticloss: 5.051624452772938
iteration: 91 Logisticloss: 0.593530175987593
iteration: 92 Logisticloss: 105749.50150730037
```

Output_logistic_train.txt

```
iteration: 93 Logisticloss: 26944.303138541065
iteration: 94 Logisticloss: 5904.116189264897
iteration: 95 Logisticloss: 6929.638916387798
iteration: 96 Logisticloss: 36613.20341196058
iteration: 97 Logisticloss: 19366.964398161057
iteration: 98 Logisticloss: 1296.0532964381748
iteration: 99 Logisticloss: 152.2603712600333
[-0.19694469 -0.14638977 -0.01077358 ... 0.05406069 0.0056074
-0.00588313]
```

CROSS VALIDATION 12

```
iteration: 0 Logisticloss: 28534.875622175015
iteration: 1 Logisticloss: 8381.881900350396
iteration: 2 Logisticloss: 10220.648583268367
iteration: 3 Logisticloss: 12048.721426141738
iteration: 4 Logisticloss: 12085.842167896455
iteration: 5 Logisticloss: 15199.37169946325
iteration: 6 Logisticloss: 4316.90471685058
iteration: 7 Logisticloss: 507.1500660414533
iteration: 8 Logisticloss: 59.58002425717283
iteration: 9 Logisticloss: 7.081628165093548
iteration: 10 Logisticloss: 0.8319759320695781
iteration: 11 Logisticloss: 0.09781869240076774
iteration: 12 Logisticloss: 0.057834774632845386
iteration: 13 Logisticloss: 24305.95251997096
iteration: 14 Logisticloss: 4645.132477994949
iteration: 15 Logisticloss: 545.7102710168431
iteration: 16 Logisticloss: 64.11005526839578
iteration: 17 Logisticloss: 7.531650776625947
iteration: 18 Logisticloss: 0.8848191113337747
iteration: 19 Logisticloss: 0.10738725960528751
iteration: 20 Logisticloss: 33947.921265619094
iteration: 21 Logisticloss: 17230.075088588863
iteration: 22 Logisticloss: 68982.36495716809
iteration: 23 Logisticloss: 14226.822614735142
iteration: 24 Logisticloss: 4914.191199534382
iteration: 25 Logisticloss: 31327.251732153298
iteration: 26 Logisticloss: 19018.16339276867
iteration: 27 Logisticloss: 4732.9468245240505
iteration: 28 Logisticloss: 28150.195786170367
iteration: 29 Logisticloss: 21012.020296302304
iteration: 30 Logisticloss: 13954.21879923932
iteration: 31 Logisticloss: 11901.657624102321
iteration: 32 Logisticloss: 61922.921274640525
iteration: 33 Logisticloss: 15376.973014113166
iteration: 34 Logisticloss: 8606.521148788219
iteration: 35 Logisticloss: 9770.080230905456
iteration: 36 Logisticloss: 26777.888826336504
iteration: 37 Logisticloss: 19510.777232145098
iteration: 38 Logisticloss: 14309.592193039458
iteration: 39 Logisticloss: 36455.382831281306
iteration: 40 Logisticloss: 4872.447160508535
iteration: 41 Logisticloss: 26258.74438124655
```

Output_logistic_train.txt

```

iteration: 42 Logisticloss: 41243.87852306443
iteration: 43 Logisticloss: 1754.2351882799871
iteration: 44 Logisticloss: 206.0875905172829
iteration: 45 Logisticloss: 24.21117490344199
iteration: 46 Logisticloss: 2.8443293971832975
iteration: 47 Logisticloss: 0.3359406397352938
iteration: 48 Logisticloss: 49165.28034782378
iteration: 49 Logisticloss: 24832.02987364135
iteration: 50 Logisticloss: 3258.1274168202003
iteration: 51 Logisticloss: 382.7654847458347
iteration: 52 Logisticloss: 44.96889434320215
iteration: 53 Logisticloss: 5.3007770629680016
iteration: 54 Logisticloss: 0.6230201132269849
iteration: 55 Logisticloss: 0.07520068793380638
iteration: 56 Logisticloss: 0.0206928618393023
iteration: 57 Logisticloss: 25539.642852435387
iteration: 58 Logisticloss: 7684.204577294831
iteration: 59 Logisticloss: 8877.862749168575
iteration: 60 Logisticloss: 34207.07341671228
iteration: 61 Logisticloss: 28347.34854276851
iteration: 62 Logisticloss: 7191.293503977625
iteration: 63 Logisticloss: 64766.743382148874
iteration: 64 Logisticloss: 26663.942007407444
iteration: 65 Logisticloss: 3000.249461167035
iteration: 66 Logisticloss: 29907.403598834382
iteration: 67 Logisticloss: 6120.957560166624
iteration: 68 Logisticloss: 15064.528789894695
iteration: 69 Logisticloss: 32942.37329565217
iteration: 70 Logisticloss: 13538.98920764308
iteration: 71 Logisticloss: 19278.38303397042
iteration: 72 Logisticloss: 22878.75833952552
iteration: 73 Logisticloss: 9137.586469005142
iteration: 74 Logisticloss: 598.3188862280897
iteration: 75 Logisticloss: 70.29052612175732
iteration: 76 Logisticloss: 8.25826047276483
iteration: 77 Logisticloss: 0.9701806314608038
iteration: 78 Logisticloss: 0.11399317884550077
iteration: 79 Logisticloss: 0.01742950836089903
iteration: 80 Logisticloss: 22442.88367028615
iteration: 81 Logisticloss: 35030.58258567243
iteration: 82 Logisticloss: 9043.990184819104
iteration: 83 Logisticloss: 31722.545198127682
iteration: 84 Logisticloss: 30346.271986916738
iteration: 85 Logisticloss: 22007.078130328053
iteration: 86 Logisticloss: 3865.8700916190423
iteration: 87 Logisticloss: 53053.8844366653
iteration: 88 Logisticloss: 18326.524090753792
iteration: 89 Logisticloss: 11919.819317899273
iteration: 90 Logisticloss: 2083.7588816422385
iteration: 91 Logisticloss: 244.8000416396253
iteration: 92 Logisticloss: 28.759114557214517
iteration: 93 Logisticloss: 3.3786216478175244

```

Output_logistic_train.txt

iteration: 94 Logisticloss: 0.39898761879834915
iteration: 95 Logisticloss: 68932.55944950279
iteration: 96 Logisticloss: 12447.292994013613
iteration: 97 Logisticloss: 4269.747268201416
iteration: 98 Logisticloss: 501.6100078827835
iteration: 99 Logisticloss: 58.929155334796945
[-0.10165875 0.04459065 -0.07697009 ... 0.07631969 0.00020931
0.01010691]

CROSS VALIDATION 13

iteration: 0 Logisticloss: 42095.74360057032
iteration: 1 Logisticloss: 7104.161276947695
iteration: 2 Logisticloss: 19637.656567731974
iteration: 3 Logisticloss: 19432.039147831507
iteration: 4 Logisticloss: 17395.735239578007
iteration: 5 Logisticloss: 5670.138906109413
iteration: 6 Logisticloss: 13497.883358468462
iteration: 7 Logisticloss: 33612.76518515866
iteration: 8 Logisticloss: 23288.297763493163
iteration: 9 Logisticloss: 14327.916823650545
iteration: 10 Logisticloss: 27841.88756407541
iteration: 11 Logisticloss: 10604.962457677184
iteration: 12 Logisticloss: 13268.199014482187
iteration: 13 Logisticloss: 15312.63395030607
iteration: 14 Logisticloss: 10636.412874629656
iteration: 15 Logisticloss: 17857.140623296487
iteration: 16 Logisticloss: 2964.5675305211635
iteration: 17 Logisticloss: 19437.171375365557
iteration: 18 Logisticloss: 3906.1810358036237
iteration: 19 Logisticloss: 41763.528270223076
iteration: 20 Logisticloss: 16413.309129544192
iteration: 21 Logisticloss: 17889.276517506907
iteration: 22 Logisticloss: 30218.918950972984
iteration: 23 Logisticloss: 1170.4920650493739
iteration: 24 Logisticloss: 137.50943489062172
iteration: 25 Logisticloss: 16.154634878617593
iteration: 26 Logisticloss: 90.49427465495059
iteration: 27 Logisticloss: 66523.61976681149
iteration: 28 Logisticloss: 12740.341301444045
iteration: 29 Logisticloss: 6722.660598691324
iteration: 30 Logisticloss: 12712.84343407029
iteration: 31 Logisticloss: 14101.599034959592
iteration: 32 Logisticloss: 8097.949532774832
iteration: 33 Logisticloss: 30568.788086735567
iteration: 34 Logisticloss: 11458.306343241602
iteration: 35 Logisticloss: 13423.106227855194
iteration: 36 Logisticloss: 26492.127479784307
iteration: 37 Logisticloss: 46959.25656752688
iteration: 38 Logisticloss: 27093.4926844288
iteration: 39 Logisticloss: 12525.45191599707
iteration: 40 Logisticloss: 55849.32177631306
iteration: 41 Logisticloss: 1845.637391468229
iteration: 42 Logisticloss: 216.82552346315273

Output_logistic_train.txt

```

iteration: 43 Logisticloss: 25.4726901109257
iteration: 44 Logisticloss: 2.998507898046727
iteration: 45 Logisticloss: 0.3527058961691329
iteration: 46 Logisticloss: 0.04288093889436182
iteration: 47 Logisticloss: 68874.23618734263
iteration: 48 Logisticloss: 13115.292601814002
iteration: 49 Logisticloss: 18165.412944645606
iteration: 50 Logisticloss: 23248.621364181352
iteration: 51 Logisticloss: 9971.06502362435
iteration: 52 Logisticloss: 32716.197140511013
iteration: 53 Logisticloss: 50491.84721066476
iteration: 54 Logisticloss: 11318.104714364883
iteration: 55 Logisticloss: 23754.036024817724
iteration: 56 Logisticloss: 19345.575349648992
iteration: 57 Logisticloss: 36378.69589710421
iteration: 58 Logisticloss: 18206.22255215208
iteration: 59 Logisticloss: 18739.71774648407
iteration: 60 Logisticloss: 9340.051033000742
iteration: 61 Logisticloss: 41302.16444152521
iteration: 62 Logisticloss: 37821.58772616944
iteration: 63 Logisticloss: 19065.213746674395
iteration: 64 Logisticloss: 21357.20267453932
iteration: 65 Logisticloss: 20405.318493582028
iteration: 66 Logisticloss: 21114.34631608409
iteration: 67 Logisticloss: 8822.972852149629
iteration: 68 Logisticloss: 25828.69674952712
iteration: 69 Logisticloss: 21707.24842877706
iteration: 70 Logisticloss: 10209.605235192246
iteration: 71 Logisticloss: 16320.108539720863
iteration: 72 Logisticloss: 20812.017656903434
iteration: 73 Logisticloss: 21785.231788923345
iteration: 74 Logisticloss: 13821.769902901926
iteration: 75 Logisticloss: 7207.53952845133
iteration: 76 Logisticloss: 15087.346888055688
iteration: 77 Logisticloss: 23081.44733079696
iteration: 78 Logisticloss: 14757.36608859821
iteration: 79 Logisticloss: 16554.883475944414
iteration: 80 Logisticloss: 5269.396942336625
iteration: 81 Logisticloss: 37302.26011625018
iteration: 82 Logisticloss: 15925.024304853012
iteration: 83 Logisticloss: 4126.997626309888
iteration: 84 Logisticloss: 484.8397766497211
iteration: 85 Logisticloss: 56.958988181424424
iteration: 86 Logisticloss: 6.691543249751873
iteration: 87 Logisticloss: 0.7861227832279064
iteration: 88 Logisticloss: 0.09417620151703343
iteration: 89 Logisticloss: 55043.349140022656
iteration: 90 Logisticloss: 24667.492636538984
iteration: 91 Logisticloss: 36732.91475371813
iteration: 92 Logisticloss: 8323.20185924799
iteration: 93 Logisticloss: 40221.87686349602
iteration: 94 Logisticloss: 20592.888271715427

```

Output_logistic_train.txt

iteration: 95 Logisticloss: 16103.718765301619
iteration: 96 Logisticloss: 27915.933190756994
iteration: 97 Logisticloss: 6859.5558940378405
iteration: 98 Logisticloss: 15881.748442894073
iteration: 99 Logisticloss: 35426.76522258578
[-1.40751488 -1.08589333 -0.61657973 ... 0.64455991 0.04563254
0.1274558]

CROSS VALIDATION 14

iteration: 0 Logisticloss: 27391.140695081547
iteration: 1 Logisticloss: 17030.79189660719
iteration: 2 Logisticloss: 6613.493083276202
iteration: 3 Logisticloss: 15816.616926862303
iteration: 4 Logisticloss: 11854.686802815351
iteration: 5 Logisticloss: 16905.67342038323
iteration: 6 Logisticloss: 16396.237714223687
iteration: 7 Logisticloss: 16510.480425841295
iteration: 8 Logisticloss: 28486.65869764655
iteration: 9 Logisticloss: 17384.026099461666
iteration: 10 Logisticloss: 34195.065480475794
iteration: 11 Logisticloss: 24247.17323792926
iteration: 12 Logisticloss: 23119.641727385693
iteration: 13 Logisticloss: 6282.069960977929
iteration: 14 Logisticloss: 23006.216235667478
iteration: 15 Logisticloss: 3411.3370285230894
iteration: 16 Logisticloss: 25916.164131033835
iteration: 17 Logisticloss: 29893.533880785664
iteration: 18 Logisticloss: 3480.4172313538857
iteration: 19 Logisticloss: 16677.89249400857
iteration: 20 Logisticloss: 15708.25505083139
iteration: 21 Logisticloss: 20808.70264420427
iteration: 22 Logisticloss: 6052.8264616370925
iteration: 23 Logisticloss: 2483.705964095733
iteration: 24 Logisticloss: 291.7858341422112
iteration: 25 Logisticloss: 34.27900654780742
iteration: 26 Logisticloss: 4.027098482553217
iteration: 27 Logisticloss: 0.4731058316021054
iteration: 28 Logisticloss: 0.05974286440271396
iteration: 29 Logisticloss: 32225.208738210473
iteration: 30 Logisticloss: 7953.605542531335
iteration: 31 Logisticloss: 3150.237850544314
iteration: 32 Logisticloss: 370.0900155876943
iteration: 33 Logisticloss: 43.47818369581667
iteration: 34 Logisticloss: 5.1109436325687
iteration: 35 Logisticloss: 8.326348776884828
iteration: 36 Logisticloss: 43964.7436683353
iteration: 37 Logisticloss: 67878.18606801904
iteration: 38 Logisticloss: 2777.6872134583655
iteration: 39 Logisticloss: 24633.872042618932
iteration: 40 Logisticloss: 17403.097976501576
iteration: 41 Logisticloss: 1644.1666721182667
iteration: 42 Logisticloss: 20068.56624648928
iteration: 43 Logisticloss: 34161.43882853882

Output_logistic_train.txt

```

iteration: 44 Logisticloss: 1581.9168583804885
iteration: 45 Logisticloss: 185.8436291327379
iteration: 46 Logisticloss: 21.832913851480992
iteration: 47 Logisticloss: 2.5649312245496803
iteration: 48 Logisticloss: 0.3013283487397076
iteration: 49 Logisticloss: 0.040271996760497523
iteration: 50 Logisticloss: 37702.03261958375
iteration: 51 Logisticloss: 20741.125850352015
iteration: 52 Logisticloss: 1347.4709604008601
iteration: 53 Logisticloss: 158.30091961232515
iteration: 54 Logisticloss: 18.59719569960377
iteration: 55 Logisticloss: 2.1847989811831328
iteration: 56 Logisticloss: 0.2566716171782916
iteration: 57 Logisticloss: 0.0350729057909284
iteration: 58 Logisticloss: 32214.846572637005
iteration: 59 Logisticloss: 7923.689878626431
iteration: 60 Logisticloss: 3150.21638316294
iteration: 61 Logisticloss: 370.0874935992335
iteration: 62 Logisticloss: 43.47788744903073
iteration: 63 Logisticloss: 5.111036740194811
iteration: 64 Logisticloss: 8.52195685349027
iteration: 65 Logisticloss: 43963.85849302031
iteration: 66 Logisticloss: 67877.84354090142
iteration: 67 Logisticloss: 2776.7108725303187
iteration: 68 Logisticloss: 24633.876720012595
iteration: 69 Logisticloss: 17403.01301796882
iteration: 70 Logisticloss: 1644.1679292400595
iteration: 71 Logisticloss: 20068.56804236863
iteration: 72 Logisticloss: 34161.43518878981
iteration: 73 Logisticloss: 1581.9168593503782
iteration: 74 Logisticloss: 185.84362924668073
iteration: 75 Logisticloss: 21.83291386486698
iteration: 76 Logisticloss: 2.5649312261222676
iteration: 77 Logisticloss: 0.3013283489233098
iteration: 78 Logisticloss: 0.04027199049187029
iteration: 79 Logisticloss: 37702.032829992124
iteration: 80 Logisticloss: 20741.1252664324
iteration: 81 Logisticloss: 1347.4709620456424
iteration: 82 Logisticloss: 158.30091980555437
iteration: 83 Logisticloss: 18.59719572230433
iteration: 84 Logisticloss: 2.184798983849994
iteration: 85 Logisticloss: 0.2566716174915463
iteration: 86 Logisticloss: 0.035072905568088085
iteration: 87 Logisticloss: 32214.84657112306
iteration: 88 Logisticloss: 7923.689878482563
iteration: 89 Logisticloss: 3150.2163831640078
iteration: 90 Logisticloss: 370.087493599359
iteration: 91 Logisticloss: 43.47788744904544
iteration: 92 Logisticloss: 5.111036740159844
iteration: 93 Logisticloss: 8.52195672732526
iteration: 94 Logisticloss: 43963.858493863445
iteration: 95 Logisticloss: 67877.84354124045

```


Output_logistic_train.txt

iteration: 96 Logisticloss: 2776.710872800484
iteration: 97 Logisticloss: 24633.876720016895
iteration: 98 Logisticloss: 17403.013018021647
iteration: 99 Logisticloss: 1644.167929240242
[-0.70792046 -0.26396635 -0.40150026 ... 0.1812147 0.1022395
-0.03396788]

CROSS VALIDATION 15

iteration: 0 Logisticloss: 27391.140695081547
iteration: 1 Logisticloss: 17030.79189660719
iteration: 2 Logisticloss: 6613.493083276202
iteration: 3 Logisticloss: 16302.156292795085
iteration: 4 Logisticloss: 16853.532524212224
iteration: 5 Logisticloss: 4766.084479739087
iteration: 6 Logisticloss: 21554.00659584416
iteration: 7 Logisticloss: 23097.16159617564
iteration: 8 Logisticloss: 26867.45536530869
iteration: 9 Logisticloss: 31294.162877605515
iteration: 10 Logisticloss: 5630.847361907737
iteration: 11 Logisticloss: 21516.45040330964
iteration: 12 Logisticloss: 63766.07887134236
iteration: 13 Logisticloss: 6740.778532465147
iteration: 14 Logisticloss: 19377.446396840674
iteration: 15 Logisticloss: 2377.611905750691
iteration: 16 Logisticloss: 279.3219018624141
iteration: 17 Logisticloss: 32.8161273688277
iteration: 18 Logisticloss: 3.8552394045420986
iteration: 19 Logisticloss: 0.45311744019708033
iteration: 20 Logisticloss: 110136.71332206753
iteration: 21 Logisticloss: 75815.32138522215
iteration: 22 Logisticloss: 11237.481874194771
iteration: 23 Logisticloss: 2132.0738680237037
iteration: 24 Logisticloss: 16464.934335975686
iteration: 25 Logisticloss: 41400.15947677556
iteration: 26 Logisticloss: 34335.70308070215
iteration: 27 Logisticloss: 3970.200585420672
iteration: 28 Logisticloss: 3828.739754901878
iteration: 29 Logisticloss: 8031.037612858641
iteration: 30 Logisticloss: 56436.83775838097
iteration: 31 Logisticloss: 22411.88236781732
iteration: 32 Logisticloss: 4006.731333332806
iteration: 33 Logisticloss: 3737.899014069607
iteration: 34 Logisticloss: 30358.584462260762
iteration: 35 Logisticloss: 9901.91830630801
iteration: 36 Logisticloss: 10718.069102592268
iteration: 37 Logisticloss: 16128.227763686791
iteration: 38 Logisticloss: 15136.45813193629
iteration: 39 Logisticloss: 25785.74505505309
iteration: 40 Logisticloss: 3104.2088170939137
iteration: 41 Logisticloss: 364.6825236726943
iteration: 42 Logisticloss: 42.84291132089188
iteration: 43 Logisticloss: 5.033186213489065
iteration: 44 Logisticloss: 0.5912988437723653

Output_logistic_train.txt

```

iteration: 45 Logisticloss: 0.13792517634878965
iteration: 46 Logisticloss: 32339.205756180258
iteration: 47 Logisticloss: 3444.4872936035717
iteration: 48 Logisticloss: 404.65844696809137
iteration: 49 Logisticloss: 47.53928371479531
iteration: 50 Logisticloss: 5.584916151012902
iteration: 51 Logisticloss: 0.6561677645569362
iteration: 52 Logisticloss: 0.07745262923883721
iteration: 53 Logisticloss: 48475.9674210899
iteration: 54 Logisticloss: 14767.679626103476
iteration: 55 Logisticloss: 21182.01456788588
iteration: 56 Logisticloss: 44291.4430445101
iteration: 57 Logisticloss: 16565.489484700178
iteration: 58 Logisticloss: 7468.535125567941
iteration: 59 Logisticloss: 54782.34363860587
iteration: 60 Logisticloss: 18423.785327197744
iteration: 61 Logisticloss: 11128.241898638254
iteration: 62 Logisticloss: 23591.384474011797
iteration: 63 Logisticloss: 64436.569543033154
iteration: 64 Logisticloss: 34225.875141117
iteration: 65 Logisticloss: 14430.048958393969
iteration: 66 Logisticloss: 21852.909356419153
iteration: 67 Logisticloss: 13966.219184585521
iteration: 68 Logisticloss: 17879.01036332715
iteration: 69 Logisticloss: 37631.09760673198
iteration: 70 Logisticloss: 7319.765348515981
iteration: 71 Logisticloss: 18996.844564280836
iteration: 72 Logisticloss: 18721.99788153915
iteration: 73 Logisticloss: 12595.008660374893
iteration: 74 Logisticloss: 24638.601418656253
iteration: 75 Logisticloss: 23305.85016468928
iteration: 76 Logisticloss: 53033.01806456306
iteration: 77 Logisticloss: 7815.154441989833
iteration: 78 Logisticloss: 32678.431986580566
iteration: 79 Logisticloss: 21300.76647475782
iteration: 80 Logisticloss: 8362.825622947948
iteration: 81 Logisticloss: 2792.419740316692
iteration: 82 Logisticloss: 12135.222050549582
iteration: 83 Logisticloss: 20352.049862507884
iteration: 84 Logisticloss: 2693.722224068205
iteration: 85 Logisticloss: 11078.1255827176
iteration: 86 Logisticloss: 16893.01876773617
iteration: 87 Logisticloss: 9374.950104126765
iteration: 88 Logisticloss: 11521.687165037205
iteration: 89 Logisticloss: 11994.643946373882
iteration: 90 Logisticloss: 19959.334728499533
iteration: 91 Logisticloss: 9551.052736057536
iteration: 92 Logisticloss: 11989.132057037692
iteration: 93 Logisticloss: 1674.4933739290655
iteration: 94 Logisticloss: 196.71952032187698
iteration: 95 Logisticloss: 23.11061380053762
iteration: 96 Logisticloss: 2.7156793852222068

```

Output_logistic_train.txt

iteration: 97 Logisticloss: 95861.70244022271
iteration: 98 Logisticloss: 39975.28785017048
iteration: 99 Logisticloss: 9874.832123463086
[-0.51698375 -0.29066737 -0.04820444 ... 0.45852994 0.33523113
0.10035771]

CROSS VALIDATION 16

iteration: 0 Logisticloss: 27391.140695081547
iteration: 1 Logisticloss: 17030.79189660719
iteration: 2 Logisticloss: 771.520559378071
iteration: 3 Logisticloss: 90.63825317098556
iteration: 4 Logisticloss: 10.648184080221371
iteration: 5 Logisticloss: 1.251240929206131
iteration: 6 Logisticloss: 100558.48373234949
iteration: 7 Logisticloss: 37365.47689950501
iteration: 8 Logisticloss: 5231.072351202531
iteration: 9 Logisticloss: 13763.967500590707
iteration: 10 Logisticloss: 28989.30629477738
iteration: 11 Logisticloss: 4908.326387271077
iteration: 12 Logisticloss: 7708.7962433403245
iteration: 13 Logisticloss: 24648.479393048452
iteration: 14 Logisticloss: 4718.993064110767
iteration: 15 Logisticloss: 15837.342363355494
iteration: 16 Logisticloss: 36175.677914465225
iteration: 17 Logisticloss: 6331.912601363686
iteration: 18 Logisticloss: 37315.02777899677
iteration: 19 Logisticloss: 40061.15165989489
iteration: 20 Logisticloss: 8150.731354349601
iteration: 21 Logisticloss: 8354.986858201368
iteration: 22 Logisticloss: 28421.79789035304
iteration: 23 Logisticloss: 7957.474269473514
iteration: 24 Logisticloss: 21547.05733514047
iteration: 25 Logisticloss: 24834.287286722127
iteration: 26 Logisticloss: 48124.97573412946
iteration: 27 Logisticloss: 3619.4256409411123
iteration: 28 Logisticloss: 610.1166156360792
iteration: 29 Logisticloss: 71.67651428787671
iteration: 30 Logisticloss: 8.420809594475891
iteration: 31 Logisticloss: 0.9895874394206265
iteration: 32 Logisticloss: 0.12196267147559439
iteration: 33 Logisticloss: 57308.59941184552
iteration: 34 Logisticloss: 23167.552855214624
iteration: 35 Logisticloss: 6263.745758615247
iteration: 36 Logisticloss: 2367.4568746235095
iteration: 37 Logisticloss: 278.12888842066917
iteration: 38 Logisticloss: 32.674588251077765
iteration: 39 Logisticloss: 3.8397371575256476
iteration: 40 Logisticloss: 72878.27826606849
iteration: 41 Logisticloss: 28324.26956803477
iteration: 42 Logisticloss: 5035.40243140121
iteration: 43 Logisticloss: 26564.479925445143
iteration: 44 Logisticloss: 2788.746254798778
iteration: 45 Logisticloss: 17427.61002679142

Output_logistic_train.txt

iteration: 46 Logisticloss: 37436.797122175114
iteration: 47 Logisticloss: 1708.3409405687391
iteration: 48 Logisticloss: 200.6959332340379
iteration: 49 Logisticloss: 23.577762882419762
iteration: 50 Logisticloss: 2.7708587752642835
iteration: 51 Logisticloss: 0.32626163820649856
iteration: 52 Logisticloss: 61733.21841989455
iteration: 53 Logisticloss: 15166.101007540921
iteration: 54 Logisticloss: 3605.7363972775997
iteration: 55 Logisticloss: 9296.73908947453
iteration: 56 Logisticloss: 40638.402316309024
iteration: 57 Logisticloss: 9320.953981121505
iteration: 58 Logisticloss: 3564.185908332063
iteration: 59 Logisticloss: 17292.46320269883
iteration: 60 Logisticloss: 18001.288667084704
iteration: 61 Logisticloss: 3326.661443184945
iteration: 62 Logisticloss: 19013.81556245371
iteration: 63 Logisticloss: 34267.64657396385
iteration: 64 Logisticloss: 14834.159880350797
iteration: 65 Logisticloss: 8873.433076060926
iteration: 66 Logisticloss: 27008.067626284974
iteration: 67 Logisticloss: 27429.13262402087
iteration: 68 Logisticloss: 3924.346134204399
iteration: 69 Logisticloss: 13238.11639209743
iteration: 70 Logisticloss: 20464.8862524738
iteration: 71 Logisticloss: 4685.13827021078
iteration: 72 Logisticloss: 17848.34054096514
iteration: 73 Logisticloss: 29811.74346804384
iteration: 74 Logisticloss: 21475.065937944077
iteration: 75 Logisticloss: 5168.880509414021
iteration: 76 Logisticloss: 29754.77027220061
iteration: 77 Logisticloss: 28287.4971903669
iteration: 78 Logisticloss: 34691.921916501065
iteration: 79 Logisticloss: 5177.9613008287815
iteration: 80 Logisticloss: 8896.349717541576
iteration: 81 Logisticloss: 27084.94935788465
iteration: 82 Logisticloss: 65251.930117897486
iteration: 83 Logisticloss: 8572.24127466995
iteration: 84 Logisticloss: 21933.02504772703
iteration: 85 Logisticloss: 17228.670447283617
iteration: 86 Logisticloss: 15303.095820796516
iteration: 87 Logisticloss: 12516.29127784834
iteration: 88 Logisticloss: 12292.480905014454
iteration: 89 Logisticloss: 702.1382585071138
iteration: 90 Logisticloss: 82.48721885895542
iteration: 91 Logisticloss: 9.690600380546387
iteration: 92 Logisticloss: 1.1384592805195055
iteration: 93 Logisticloss: 0.13569112229798158
iteration: 94 Logisticloss: 106412.91474193228
iteration: 95 Logisticloss: 37380.38721472842
iteration: 96 Logisticloss: 5241.544056272365
iteration: 97 Logisticloss: 13756.796364156842

Output_logistic_train.txt

iteration: 98 Logisticloss: 29006.146194441408
iteration: 99 Logisticloss: 4910.151617857889
[-0.38459657 -0.24287248 0.36036077 ... 0.68391409 0.19616834
-0.06343638]

CROSS VALIDATION 17

iteration: 0 Logisticloss: 27391.140695081547
iteration: 1 Logisticloss: 17030.79189660719
iteration: 2 Logisticloss: 6836.026798902976
iteration: 3 Logisticloss: 16339.244179673704
iteration: 4 Logisticloss: 16876.86223074322
iteration: 5 Logisticloss: 5022.863190861713
iteration: 6 Logisticloss: 40226.77689754387
iteration: 7 Logisticloss: 7242.578142132599
iteration: 8 Logisticloss: 20373.548377929674
iteration: 9 Logisticloss: 30240.491233965742
iteration: 10 Logisticloss: 6882.572868828671
iteration: 11 Logisticloss: 13050.321300250347
iteration: 12 Logisticloss: 19135.237411448954
iteration: 13 Logisticloss: 37576.439906756226
iteration: 14 Logisticloss: 8053.608242870551
iteration: 15 Logisticloss: 17241.227643457758
iteration: 16 Logisticloss: 11570.445278321673
iteration: 17 Logisticloss: 15479.748935768761
iteration: 18 Logisticloss: 20362.667333286998
iteration: 19 Logisticloss: 2861.9962816444076
iteration: 20 Logisticloss: 336.22738940257744
iteration: 21 Logisticloss: 39.500001488324536
iteration: 22 Logisticloss: 4.640697161839716
iteration: 23 Logisticloss: 0.5543094200607555
iteration: 24 Logisticloss: 47505.19440577095
iteration: 25 Logisticloss: 26857.10363113864
iteration: 26 Logisticloss: 10627.3023840417
iteration: 27 Logisticloss: 12674.055341216259
iteration: 28 Logisticloss: 18914.35700186808
iteration: 29 Logisticloss: 44131.981451865744
iteration: 30 Logisticloss: 10633.428960025693
iteration: 31 Logisticloss: 3541.2996260409536
iteration: 32 Logisticloss: 3893.4944488281585
iteration: 33 Logisticloss: 40048.50836501155
iteration: 34 Logisticloss: 23360.670232049728
iteration: 35 Logisticloss: 2639.470585617565
iteration: 36 Logisticloss: 310.08506548344644
iteration: 37 Logisticloss: 36.42880066927362
iteration: 38 Logisticloss: 4.279656345699725
iteration: 39 Logisticloss: 0.5028995960791824
iteration: 40 Logisticloss: 0.05983436140172551
iteration: 41 Logisticloss: 75130.02025902667
iteration: 42 Logisticloss: 28435.606988738
iteration: 43 Logisticloss: 43743.117310024856
iteration: 44 Logisticloss: 6539.539702755987
iteration: 45 Logisticloss: 5748.314321750049
iteration: 46 Logisticloss: 33640.09751292061

Output_logistic_train.txt

```

iteration: 47 Logisticloss: 52557.17223207242
iteration: 48 Logisticloss: 5275.013310947362
iteration: 49 Logisticloss: 21509.57878337556
iteration: 50 Logisticloss: 51581.66617816224
iteration: 51 Logisticloss: 7294.3651355598795
iteration: 52 Logisticloss: 20663.93302791987
iteration: 53 Logisticloss: 20845.530805376802
iteration: 54 Logisticloss: 16105.906867845126
iteration: 55 Logisticloss: 13630.78268672818
iteration: 56 Logisticloss: 8329.975151592564
iteration: 57 Logisticloss: 24544.865837764584
iteration: 58 Logisticloss: 5524.115185629626
iteration: 59 Logisticloss: 20714.81287697248
iteration: 60 Logisticloss: 11595.375807470868
iteration: 61 Logisticloss: 5945.864619456346
iteration: 62 Logisticloss: 20962.785720665845
iteration: 63 Logisticloss: 46057.27960462024
iteration: 64 Logisticloss: 6861.702987937549
iteration: 65 Logisticloss: 16320.632332349087
iteration: 66 Logisticloss: 19050.874181368796
iteration: 67 Logisticloss: 19184.510409064198
iteration: 68 Logisticloss: 26317.928014241126
iteration: 69 Logisticloss: 6833.180698355277
iteration: 70 Logisticloss: 7371.427692728827
iteration: 71 Logisticloss: 18493.27121194076
iteration: 72 Logisticloss: 23887.282859642866
iteration: 73 Logisticloss: 25546.07424969731
iteration: 74 Logisticloss: 12657.853188597634
iteration: 75 Logisticloss: 3771.4753920347966
iteration: 76 Logisticloss: 21312.537438203442
iteration: 77 Logisticloss: 18379.83285878199
iteration: 78 Logisticloss: 28871.288635443303
iteration: 79 Logisticloss: 30457.458550284253
iteration: 80 Logisticloss: 4986.570496781324
iteration: 81 Logisticloss: 40440.58325942645
iteration: 82 Logisticloss: 33298.12376799466
iteration: 83 Logisticloss: 8884.245291036386
iteration: 84 Logisticloss: 8181.963082023938
iteration: 85 Logisticloss: 15377.134982281492
iteration: 86 Logisticloss: 1566.0349303204605
iteration: 87 Logisticloss: 183.9778198566915
iteration: 88 Logisticloss: 21.613718534550742
iteration: 89 Logisticloss: 2.539180153643894
iteration: 90 Logisticloss: 0.2983029597124223
iteration: 91 Logisticloss: 4.79005177954385
iteration: 92 Logisticloss: 47977.01563665603
iteration: 93 Logisticloss: 23962.09572785472
iteration: 94 Logisticloss: 8874.916073632767
iteration: 95 Logisticloss: 26792.179594533707
iteration: 96 Logisticloss: 8789.871678929916
iteration: 97 Logisticloss: 20307.589347518955
iteration: 98 Logisticloss: 23931.033466646575

```

Output_logistic_train.txt

iteration: 99 Logisticloss: 7005.878892448536
[-0.87935972 -0.28516296 -0.22662746 ... 0.32312508 -0.05205885
0.0918771]

CROSS VALIDATION 18

iteration: 0 Logisticloss: 23685.4557517035
iteration: 1 Logisticloss: 4596.251852451731
iteration: 2 Logisticloss: 3330.0110793578883
iteration: 3 Logisticloss: 11162.007611181609
iteration: 4 Logisticloss: 10515.865273723792
iteration: 5 Logisticloss: 20975.804381811533
iteration: 6 Logisticloss: 9282.084712250846
iteration: 7 Logisticloss: 6774.385431272961
iteration: 8 Logisticloss: 24181.71140211575
iteration: 9 Logisticloss: 51226.59204373308
iteration: 10 Logisticloss: 5532.823235184161
iteration: 11 Logisticloss: 14634.942349731617
iteration: 12 Logisticloss: 36685.722717863166
iteration: 13 Logisticloss: 7705.318519669525
iteration: 14 Logisticloss: 3091.465925990101
iteration: 15 Logisticloss: 363.1854885309105
iteration: 16 Logisticloss: 42.667039597789326
iteration: 17 Logisticloss: 5.012524799388793
iteration: 18 Logisticloss: 0.5888715294375528
iteration: 19 Logisticloss: 0.06922595700639224
iteration: 20 Logisticloss: 92220.32927153405
iteration: 21 Logisticloss: 33245.360731294044
iteration: 22 Logisticloss: 46531.955928273055
iteration: 23 Logisticloss: 8495.462132680053
iteration: 24 Logisticloss: 14999.570096720712
iteration: 25 Logisticloss: 1166.8877515574263
iteration: 26 Logisticloss: 41211.4248269183
iteration: 27 Logisticloss: 6838.073464156116
iteration: 28 Logisticloss: 2740.8861097318822
iteration: 29 Logisticloss: 321.9993636034492
iteration: 30 Logisticloss: 37.82849268814336
iteration: 31 Logisticloss: 4.444092196465409
iteration: 32 Logisticloss: 0.5220920901536358
iteration: 33 Logisticloss: 0.06193106993148367
iteration: 34 Logisticloss: 77531.63428676929
iteration: 35 Logisticloss: 34511.48616486329
iteration: 36 Logisticloss: 20192.532500580644
iteration: 37 Logisticloss: 2170.4635069395513
iteration: 38 Logisticloss: 25638.281104594575
iteration: 39 Logisticloss: 18425.557573881524
iteration: 40 Logisticloss: 11830.80076993171
iteration: 41 Logisticloss: 29020.03038292252
iteration: 42 Logisticloss: 51943.63203634888
iteration: 43 Logisticloss: 20000.25266873948
iteration: 44 Logisticloss: 864.0905728301286
iteration: 45 Logisticloss: 101.51338049367719
iteration: 46 Logisticloss: 11.925852232148324
iteration: 47 Logisticloss: 196.81212727751384

Output_logistic_train.txt

```

iteration: 48 Logisticloss: 26454.111550055266
iteration: 49 Logisticloss: 12602.586834509508
iteration: 50 Logisticloss: 20871.57285168883
iteration: 51 Logisticloss: 35902.43423079173
iteration: 52 Logisticloss: 19099.445955106057
iteration: 53 Logisticloss: 4210.436747780974
iteration: 54 Logisticloss: 52640.85093277453
iteration: 55 Logisticloss: 2916.940509800532
iteration: 56 Logisticloss: 342.68223924857756
iteration: 57 Logisticloss: 40.25842024863718
iteration: 58 Logisticloss: 4.729561044159147
iteration: 59 Logisticloss: 0.5558271344415588
iteration: 60 Logisticloss: 84178.06035840455
iteration: 61 Logisticloss: 33298.59351887408
iteration: 62 Logisticloss: 5146.601357533387
iteration: 63 Logisticloss: 13316.630067374166
iteration: 64 Logisticloss: 15921.638330404474
iteration: 65 Logisticloss: 23182.52731154897
iteration: 66 Logisticloss: 2450.986725458366
iteration: 67 Logisticloss: 16842.186088201022
iteration: 68 Logisticloss: 7024.970058689687
iteration: 69 Logisticloss: 14889.138667922412
iteration: 70 Logisticloss: 31637.496161797106
iteration: 71 Logisticloss: 4293.499509090378
iteration: 72 Logisticloss: 48346.11920347709
iteration: 73 Logisticloss: 19151.004042784723
iteration: 74 Logisticloss: 20646.296337918913
iteration: 75 Logisticloss: 20063.504336278034
iteration: 76 Logisticloss: 60977.61883728375
iteration: 77 Logisticloss: 17809.23229491442
iteration: 78 Logisticloss: 27790.806598335843
iteration: 79 Logisticloss: 4305.210682041438
iteration: 80 Logisticloss: 37642.65638967964
iteration: 81 Logisticloss: 3865.4908497731412
iteration: 82 Logisticloss: 20727.79151579678
iteration: 83 Logisticloss: 30483.364663904224
iteration: 84 Logisticloss: 16241.865890512281
iteration: 85 Logisticloss: 32906.53156818007
iteration: 86 Logisticloss: 16693.451824401847
iteration: 87 Logisticloss: 7283.496232322999
iteration: 88 Logisticloss: 21902.502367779794
iteration: 89 Logisticloss: 2969.7512777744146
iteration: 90 Logisticloss: 348.8864488416976
iteration: 91 Logisticloss: 40.98718808417885
iteration: 92 Logisticloss: 4.815178809242972
iteration: 93 Logisticloss: 0.5725228577792327
iteration: 94 Logisticloss: 24333.922752780352
iteration: 95 Logisticloss: 13981.150917972542
iteration: 96 Logisticloss: 5509.44283473925
iteration: 97 Logisticloss: 19728.72636410311
iteration: 98 Logisticloss: 19993.18070947013
iteration: 99 Logisticloss: 21707.374704897684

```


Output_logistic_train.txt

[0.13625699 -0.31914932 0.19164285 ... 0.22788439 -0.04223641
0.03726494]

CROSS VALIDATION 19

iteration: 0 Logisticloss: 27316.94904818499
iteration: 1 Logisticloss: 16998.963985046295
iteration: 2 Logisticloss: 4928.004996729849
iteration: 3 Logisticloss: 13662.98884919472
iteration: 4 Logisticloss: 13960.026599771012
iteration: 5 Logisticloss: 10503.908623163199
iteration: 6 Logisticloss: 32503.48946584894
iteration: 7 Logisticloss: 15367.672491205565
iteration: 8 Logisticloss: 3612.5264113294097
iteration: 9 Logisticloss: 27453.15263522215
iteration: 10 Logisticloss: 2693.840833793423
iteration: 11 Logisticloss: 18827.570493457664
iteration: 12 Logisticloss: 46337.96351435727
iteration: 13 Logisticloss: 3340.9979598894993
iteration: 14 Logisticloss: 392.5005176483153
iteration: 15 Logisticloss: 46.1109698969579
iteration: 16 Logisticloss: 5.417332502835975
iteration: 17 Logisticloss: 0.6398989296971377
iteration: 18 Logisticloss: 58561.60149872313
iteration: 19 Logisticloss: 14932.726759629893
iteration: 20 Logisticloss: 13028.797380834138
iteration: 21 Logisticloss: 8685.560891901505
iteration: 22 Logisticloss: 35639.677803716266
iteration: 23 Logisticloss: 29914.56397146119
iteration: 24 Logisticloss: 4816.635588735216
iteration: 25 Logisticloss: 33124.795487685624
iteration: 26 Logisticloss: 26541.085755015494
iteration: 27 Logisticloss: 24244.935382073727
iteration: 28 Logisticloss: 16458.28616325268
iteration: 29 Logisticloss: 39200.110598457744
iteration: 30 Logisticloss: 13236.84862394589
iteration: 31 Logisticloss: 8702.730139122355
iteration: 32 Logisticloss: 26295.37508577446
iteration: 33 Logisticloss: 4308.760537229546
iteration: 34 Logisticloss: 42491.5469715801
iteration: 35 Logisticloss: 23479.36778762268
iteration: 36 Logisticloss: 582.1981887468264
iteration: 37 Logisticloss: 68.3971657671222
iteration: 38 Logisticloss: 8.035300617232645
iteration: 39 Logisticloss: 0.9439924400900728
iteration: 40 Logisticloss: 0.1147088567922115
iteration: 41 Logisticloss: 20109.78355099586
iteration: 42 Logisticloss: 27396.59586746698
iteration: 43 Logisticloss: 11898.104520724903
iteration: 44 Logisticloss: 3297.0694613026753
iteration: 45 Logisticloss: 27210.70498650348
iteration: 46 Logisticloss: 16802.207037851094
iteration: 47 Logisticloss: 2636.276503682212
iteration: 48 Logisticloss: 24675.116709747945

Output_logistic_train.txt

```

iteration: 49 Logisticloss: 5951.766381841422
iteration: 50 Logisticloss: 38617.77473292071
iteration: 51 Logisticloss: 56450.92368594151
iteration: 52 Logisticloss: 11285.297087681105
iteration: 53 Logisticloss: 5106.232400990096
iteration: 54 Logisticloss: 23605.800571231466
iteration: 55 Logisticloss: 32538.10304445951
iteration: 56 Logisticloss: 16537.262900713038
iteration: 57 Logisticloss: 5172.586490485212
iteration: 58 Logisticloss: 26064.13059379809
iteration: 59 Logisticloss: 14823.642813867391
iteration: 60 Logisticloss: 18853.584023153635
iteration: 61 Logisticloss: 41989.10423657491
iteration: 62 Logisticloss: 2828.436743632946
iteration: 63 Logisticloss: 28195.816766741525
iteration: 64 Logisticloss: 26479.12452314882
iteration: 65 Logisticloss: 18271.005942100375
iteration: 66 Logisticloss: 622.1365877170215
iteration: 67 Logisticloss: 73.08862072306196
iteration: 68 Logisticloss: 8.58645285403048
iteration: 69 Logisticloss: 1.008736697459206
iteration: 70 Logisticloss: 0.12255624549947494
iteration: 71 Logisticloss: 66873.74683983071
iteration: 72 Logisticloss: 13468.929575468715
iteration: 73 Logisticloss: 13448.832396589227
iteration: 74 Logisticloss: 23601.961485259802
iteration: 75 Logisticloss: 17632.64143600651
iteration: 76 Logisticloss: 27646.82029201758
iteration: 77 Logisticloss: 18205.127093683477
iteration: 78 Logisticloss: 24893.16845305829
iteration: 79 Logisticloss: 6470.241607947608
iteration: 80 Logisticloss: 29767.66829001667
iteration: 81 Logisticloss: 54641.6890207996
iteration: 82 Logisticloss: 13772.417009399232
iteration: 83 Logisticloss: 26037.782963392998
iteration: 84 Logisticloss: 3468.140135754449
iteration: 85 Logisticloss: 407.4371834113726
iteration: 86 Logisticloss: 47.86572974779817
iteration: 87 Logisticloss: 5.625146149659833
iteration: 88 Logisticloss: 0.6635250254458013
iteration: 89 Logisticloss: 0.08466032802035346
iteration: 90 Logisticloss: 33578.57930482785
iteration: 91 Logisticloss: 11554.201396812688
iteration: 92 Logisticloss: 5845.758098416972
iteration: 93 Logisticloss: 12219.82216364079
iteration: 94 Logisticloss: 29667.994613025967
iteration: 95 Logisticloss: 10369.043718602774
iteration: 96 Logisticloss: 25640.027285549462
iteration: 97 Logisticloss: 28120.367881277074
iteration: 98 Logisticloss: 7530.384095746332
iteration: 99 Logisticloss: 884.6696978434644
[-0.39997532 -0.02629364 -0.46583586 ... 0.15745239 -0.03657423

```

Output_logistic_train.txt

0.10663795]

Accuracy (Logistic Loss): 0.8

eta = 0.01 lambda = 1

CROSS VALIDATION 0

iteration: 0 Logisticloss: 2190.3204803000613
iteration: 1 Logisticloss: 394.8325843142614
iteration: 2 Logisticloss: 565.749878369442
iteration: 3 Logisticloss: 35.2333208925076
iteration: 4 Logisticloss: 4.139211364300463
iteration: 5 Logisticloss: 0.48797234534142925
iteration: 6 Logisticloss: 5282.46263400881
iteration: 7 Logisticloss: 555.6762005729959
iteration: 8 Logisticloss: 856.4638815301362
iteration: 9 Logisticloss: 4331.950358907176
iteration: 10 Logisticloss: 1901.8949235445907
iteration: 11 Logisticloss: 2709.701572274699
iteration: 12 Logisticloss: 1210.2121145207466
iteration: 13 Logisticloss: 1634.2948736127396
iteration: 14 Logisticloss: 2535.3979349621145
iteration: 15 Logisticloss: 525.6308325579607
iteration: 16 Logisticloss: 1323.6204450003597
iteration: 17 Logisticloss: 4346.53331171476
iteration: 18 Logisticloss: 2141.6446307385695
iteration: 19 Logisticloss: 460.387601828892
iteration: 20 Logisticloss: 4971.09690108471
iteration: 21 Logisticloss: 1330.2381329598447
iteration: 22 Logisticloss: 2683.005937727744
iteration: 23 Logisticloss: 3682.896223540777
iteration: 24 Logisticloss: 2425.446309541329
iteration: 25 Logisticloss: 2264.8833453900234
iteration: 26 Logisticloss: 240.2424832858868
iteration: 27 Logisticloss: 28.22369307736377
iteration: 28 Logisticloss: 3.322681427943975
iteration: 29 Logisticloss: 0.42794012418684746
iteration: 30 Logisticloss: 3302.889299540938
iteration: 31 Logisticloss: 988.7307681037069
iteration: 32 Logisticloss: 130.16852757762
iteration: 33 Logisticloss: 15.298534452833897
iteration: 34 Logisticloss: 1.8165271169416461
iteration: 35 Logisticloss: 0.2780004755589426
iteration: 36 Logisticloss: 6182.33350591081
iteration: 37 Logisticloss: 985.4143397422943
iteration: 38 Logisticloss: 1335.9768013923738
iteration: 39 Logisticloss: 5547.108594480417
iteration: 40 Logisticloss: 216.1727021476984
iteration: 41 Logisticloss: 26.22927435416622
iteration: 42 Logisticloss: 4032.7460045879675
iteration: 43 Logisticloss: 1171.9496230019913
iteration: 44 Logisticloss: 834.3036550121942
iteration: 45 Logisticloss: 1303.082246233278
iteration: 46 Logisticloss: 5495.71842042696
iteration: 47 Logisticloss: 598.9596816892885

Output_logistic_train.txt

```

iteration: 48 Logisticloss: 702.0576080021362
iteration: 49 Logisticloss: 3898.4762945304738
iteration: 50 Logisticloss: 1493.3445585563752
iteration: 51 Logisticloss: 2346.7466178831455
iteration: 52 Logisticloss: 2378.735762641528
iteration: 53 Logisticloss: 1666.3524595393465
iteration: 54 Logisticloss: 569.0292350333448
iteration: 55 Logisticloss: 2384.0881510698305
iteration: 56 Logisticloss: 112.37595226031303
iteration: 57 Logisticloss: 13.201929472251173
iteration: 58 Logisticloss: 1.5510164314272872
iteration: 59 Logisticloss: 0.1971892543390464
iteration: 60 Logisticloss: 5078.789290375044
iteration: 61 Logisticloss: 3274.0322438562284
iteration: 62 Logisticloss: 205.08074553453181
iteration: 63 Logisticloss: 3494.365896176564
iteration: 64 Logisticloss: 2174.940433684243
iteration: 65 Logisticloss: 3480.417319934877
iteration: 66 Logisticloss: 1369.4369160728984
iteration: 67 Logisticloss: 2335.00859160331
iteration: 68 Logisticloss: 9090.12164060961
iteration: 69 Logisticloss: 1555.1093322892934
iteration: 70 Logisticloss: 733.7363342612025
iteration: 71 Logisticloss: 3511.410417258262
iteration: 72 Logisticloss: 1065.1334741921373
iteration: 73 Logisticloss: 1705.4817811007395
iteration: 74 Logisticloss: 3428.550328818685
iteration: 75 Logisticloss: 952.6928883704884
iteration: 76 Logisticloss: 110.46882078770949
iteration: 77 Logisticloss: 12.97790504637095
iteration: 78 Logisticloss: 1.5845089803860855
iteration: 79 Logisticloss: 4848.406941447195
iteration: 80 Logisticloss: 524.5967415614201
iteration: 81 Logisticloss: 312.84954425668275
iteration: 82 Logisticloss: 36.7535717000018
iteration: 83 Logisticloss: 4.318194798033447
iteration: 84 Logisticloss: 6561.273668628877
iteration: 85 Logisticloss: 1655.869490802087
iteration: 86 Logisticloss: 1261.4709342677993
iteration: 87 Logisticloss: 1191.2433828978883
iteration: 88 Logisticloss: 1287.1737755545166
iteration: 89 Logisticloss: 2108.9736969259534
iteration: 90 Logisticloss: 2832.993552448962
iteration: 91 Logisticloss: 4056.831163805592
iteration: 92 Logisticloss: 335.4608988065311
iteration: 93 Logisticloss: 3032.156889089477
iteration: 94 Logisticloss: 3847.473253727597
iteration: 95 Logisticloss: 4024.0517786284763
iteration: 96 Logisticloss: 276.2383409683904
iteration: 97 Logisticloss: 2109.0681788588986
iteration: 98 Logisticloss: 1925.6626834819212
iteration: 99 Logisticloss: 1801.4599188409152

```

Output_logistic_train.txt

[-0.09682417 -0.0391092 -0.08195338 ... 0.0699524 -0.0756923
0.01270601]

CROSS VALIDATION 1

| | | | |
|------------|----|---------------|--------------------|
| iteration: | 0 | Logisticloss: | 2736.1110495263074 |
| iteration: | 1 | Logisticloss: | 1199.8640940440869 |
| iteration: | 2 | Logisticloss: | 474.4237829826528 |
| iteration: | 3 | Logisticloss: | 4265.319360304323 |
| iteration: | 4 | Logisticloss: | 1438.881608791865 |
| iteration: | 5 | Logisticloss: | 740.1210305049166 |
| iteration: | 6 | Logisticloss: | 3130.265562318286 |
| iteration: | 7 | Logisticloss: | 2390.6715192214892 |
| iteration: | 8 | Logisticloss: | 364.17781785515376 |
| iteration: | 9 | Logisticloss: | 2010.8766497747101 |
| iteration: | 10 | Logisticloss: | 374.4504448917417 |
| iteration: | 11 | Logisticloss: | 43.990486235675405 |
| iteration: | 12 | Logisticloss: | 5.188657961366888 |
| iteration: | 13 | Logisticloss: | 0.6248815258354544 |
| iteration: | 14 | Logisticloss: | 4564.287877037484 |
| iteration: | 15 | Logisticloss: | 3245.5482106104414 |
| iteration: | 16 | Logisticloss: | 1347.412320098719 |
| iteration: | 17 | Logisticloss: | 137.7741925867069 |
| iteration: | 18 | Logisticloss: | 1741.3757411680099 |
| iteration: | 19 | Logisticloss: | 637.1784918337833 |
| iteration: | 20 | Logisticloss: | 2585.973573785956 |
| iteration: | 21 | Logisticloss: | 4039.463265380517 |
| iteration: | 22 | Logisticloss: | 1877.0181034956852 |
| iteration: | 23 | Logisticloss: | 2176.146598816211 |
| iteration: | 24 | Logisticloss: | 1416.8181353588348 |
| iteration: | 25 | Logisticloss: | 3080.451765005851 |
| iteration: | 26 | Logisticloss: | 2138.233799902767 |
| iteration: | 27 | Logisticloss: | 624.1905197760185 |
| iteration: | 28 | Logisticloss: | 1680.1936125714747 |
| iteration: | 29 | Logisticloss: | 2219.5905125351246 |
| iteration: | 30 | Logisticloss: | 1480.9437665697255 |
| iteration: | 31 | Logisticloss: | 1546.186859940697 |
| iteration: | 32 | Logisticloss: | 130.1420913182022 |
| iteration: | 33 | Logisticloss: | 15.289639806435657 |
| iteration: | 34 | Logisticloss: | 1.7963669565279166 |
| iteration: | 35 | Logisticloss: | 0.9178345104160894 |
| iteration: | 36 | Logisticloss: | 5219.203543973303 |
| iteration: | 37 | Logisticloss: | 1804.9941928844423 |
| iteration: | 38 | Logisticloss: | 1036.70468722751 |
| iteration: | 39 | Logisticloss: | 2469.311389208042 |
| iteration: | 40 | Logisticloss: | 677.0665833371004 |
| iteration: | 41 | Logisticloss: | 1798.6707782782753 |
| iteration: | 42 | Logisticloss: | 199.51361322190903 |
| iteration: | 43 | Logisticloss: | 1997.552220636527 |
| iteration: | 44 | Logisticloss: | 4470.160679931412 |
| iteration: | 45 | Logisticloss: | 1682.6760959880478 |
| iteration: | 46 | Logisticloss: | 1722.1747766094238 |
| iteration: | 47 | Logisticloss: | 2718.3100088035003 |
| iteration: | 48 | Logisticloss: | 1275.1929503924794 |

Output_logistic_train.txt

```

iteration: 49 Logisticloss: 1924.5230616184056
iteration: 50 Logisticloss: 1386.1253376614836
iteration: 51 Logisticloss: 445.284387476107
iteration: 52 Logisticloss: 1263.8628821918924
iteration: 53 Logisticloss: 1533.066004953596
iteration: 54 Logisticloss: 1591.1205252831164
iteration: 55 Logisticloss: 2801.991468102887
iteration: 56 Logisticloss: 6359.662752021149
iteration: 57 Logisticloss: 741.5027682119635
iteration: 58 Logisticloss: 1337.765871097215
iteration: 59 Logisticloss: 1687.839856248347
iteration: 60 Logisticloss: 1381.674442002754
iteration: 61 Logisticloss: 808.0731180577889
iteration: 62 Logisticloss: 94.9324486119293
iteration: 63 Logisticloss: 11.153672337809704
iteration: 64 Logisticloss: 1.320336096217662
iteration: 65 Logisticloss: 1.4939331098456885
iteration: 66 Logisticloss: 2222.548331454637
iteration: 67 Logisticloss: 1652.4555836618376
iteration: 68 Logisticloss: 2555.022853739843
iteration: 69 Logisticloss: 1609.8165870063087
iteration: 70 Logisticloss: 1490.9313094992715
iteration: 71 Logisticloss: 2291.07547333988
iteration: 72 Logisticloss: 2611.842065513799
iteration: 73 Logisticloss: 2356.4180788631306
iteration: 74 Logisticloss: 1824.7693692281332
iteration: 75 Logisticloss: 901.2309406216224
iteration: 76 Logisticloss: 2696.240706856036
iteration: 77 Logisticloss: 1330.8535163964752
iteration: 78 Logisticloss: 2291.0875014671165
iteration: 79 Logisticloss: 5209.099469438834
iteration: 80 Logisticloss: 430.4279038292933
iteration: 81 Logisticloss: 790.5906928817144
iteration: 82 Logisticloss: 2085.4336677302913
iteration: 83 Logisticloss: 3058.038560590485
iteration: 84 Logisticloss: 110.96758121587297
iteration: 85 Logisticloss: 13.036474013340243
iteration: 86 Logisticloss: 1.5326969848120673
iteration: 87 Logisticloss: 12.008824903948977
iteration: 88 Logisticloss: 2788.3645954550993
iteration: 89 Logisticloss: 813.1556587400144
iteration: 90 Logisticloss: 548.5558205305612
iteration: 91 Logisticloss: 1040.4474396534238
iteration: 92 Logisticloss: 1563.6050738825288
iteration: 93 Logisticloss: 2555.923110080309
iteration: 94 Logisticloss: 1540.8654875801358
iteration: 95 Logisticloss: 4664.469985707397
iteration: 96 Logisticloss: 563.38953150468
iteration: 97 Logisticloss: 1418.5205844751447
iteration: 98 Logisticloss: 4093.603954284948
iteration: 99 Logisticloss: 238.96368832596997
[-0.00969171 -0.00069055 0.00929812 ... 0.01703518 0.00571333

```

0.00900798]

CROSS VALIDATION 2

| | | | |
|------------|----|---------------|--------------------|
| iteration: | 0 | Logisticloss: | 3722.2840883406175 |
| iteration: | 1 | Logisticloss: | 981.6641404979873 |
| iteration: | 2 | Logisticloss: | 913.4514462048608 |
| iteration: | 3 | Logisticloss: | 4686.752647254693 |
| iteration: | 4 | Logisticloss: | 1683.195958300272 |
| iteration: | 5 | Logisticloss: | 155.17403894823636 |
| iteration: | 6 | Logisticloss: | 1975.3661783365467 |
| iteration: | 7 | Logisticloss: | 283.91513816422594 |
| iteration: | 8 | Logisticloss: | 2353.118062133207 |
| iteration: | 9 | Logisticloss: | 2099.0944062421186 |
| iteration: | 10 | Logisticloss: | 228.73293894867749 |
| iteration: | 11 | Logisticloss: | 3222.340695331596 |
| iteration: | 12 | Logisticloss: | 1659.252230178935 |
| iteration: | 13 | Logisticloss: | 1410.0802762882545 |
| iteration: | 14 | Logisticloss: | 1079.366065091769 |
| iteration: | 15 | Logisticloss: | 1790.9023296579983 |
| iteration: | 16 | Logisticloss: | 2438.127320569273 |
| iteration: | 17 | Logisticloss: | 2074.615550198339 |
| iteration: | 18 | Logisticloss: | 337.3661447193496 |
| iteration: | 19 | Logisticloss: | 752.6450042730735 |
| iteration: | 20 | Logisticloss: | 3228.176462750967 |
| iteration: | 21 | Logisticloss: | 2091.9561867106427 |
| iteration: | 22 | Logisticloss: | 1824.0912829619772 |
| iteration: | 23 | Logisticloss: | 1882.504484729 |
| iteration: | 24 | Logisticloss: | 1255.028315934496 |
| iteration: | 25 | Logisticloss: | 2871.893676773383 |
| iteration: | 26 | Logisticloss: | 3782.9292431551585 |
| iteration: | 27 | Logisticloss: | 288.3994146684162 |
| iteration: | 28 | Logisticloss: | 1956.4604808399363 |
| iteration: | 29 | Logisticloss: | 2341.923452292751 |
| iteration: | 30 | Logisticloss: | 2375.7268432513656 |
| iteration: | 31 | Logisticloss: | 2388.4142584352203 |
| iteration: | 32 | Logisticloss: | 6248.384651339874 |
| iteration: | 33 | Logisticloss: | 433.14750945477033 |
| iteration: | 34 | Logisticloss: | 3933.1883717568926 |
| iteration: | 35 | Logisticloss: | 697.8562433723629 |
| iteration: | 36 | Logisticloss: | 1979.2731869889724 |
| iteration: | 37 | Logisticloss: | 2326.2310795161807 |
| iteration: | 38 | Logisticloss: | 1221.5912497900345 |
| iteration: | 39 | Logisticloss: | 74.89258310267977 |
| iteration: | 40 | Logisticloss: | 8.798389747585512 |
| iteration: | 41 | Logisticloss: | 1.0580942753859228 |
| iteration: | 42 | Logisticloss: | 5808.754552836592 |
| iteration: | 43 | Logisticloss: | 2592.443658853115 |
| iteration: | 44 | Logisticloss: | 1288.6985008079166 |
| iteration: | 45 | Logisticloss: | 372.59371278945736 |
| iteration: | 46 | Logisticloss: | 1706.049825224859 |
| iteration: | 47 | Logisticloss: | 2866.1977670733622 |
| iteration: | 48 | Logisticloss: | 3615.1666503799397 |
| iteration: | 49 | Logisticloss: | 745.2376178368759 |

Output_logistic_train.txt

```

iteration: 50 Logisticloss: 1147.837854991793
iteration: 51 Logisticloss: 2893.1679181872514
iteration: 52 Logisticloss: 895.7795362004279
iteration: 53 Logisticloss: 310.0424577812779
iteration: 54 Logisticloss: 1772.7820813048143
iteration: 55 Logisticloss: 623.5692650793719
iteration: 56 Logisticloss: 3065.3228970684722
iteration: 57 Logisticloss: 2535.6070083091968
iteration: 58 Logisticloss: 405.14665067040016
iteration: 59 Logisticloss: 2493.815398515835
iteration: 60 Logisticloss: 2247.7642210048425
iteration: 61 Logisticloss: 1067.0757969078618
iteration: 62 Logisticloss: 418.96337590535757
iteration: 63 Logisticloss: 49.219827097403375
iteration: 64 Logisticloss: 5.782346451129713
iteration: 65 Logisticloss: 0.6828092945221055
iteration: 66 Logisticloss: 0.11533222596060147
iteration: 67 Logisticloss: 1894.5245458759573
iteration: 68 Logisticloss: 3310.337851536501
iteration: 69 Logisticloss: 1433.0072082103293
iteration: 70 Logisticloss: 2031.897846791196
iteration: 71 Logisticloss: 178.43488644156048
iteration: 72 Logisticloss: 1485.264096797143
iteration: 73 Logisticloss: 4067.1747473036453
iteration: 74 Logisticloss: 425.96064076492473
iteration: 75 Logisticloss: 50.0421386642298
iteration: 76 Logisticloss: 5.94113163838677
iteration: 77 Logisticloss: 0.7185418837539528
iteration: 78 Logisticloss: 0.10547656640273612
iteration: 79 Logisticloss: 5005.7919319756775
iteration: 80 Logisticloss: 2300.9619773725367
iteration: 81 Logisticloss: 408.590576321461
iteration: 82 Logisticloss: 2741.3790629424807
iteration: 83 Logisticloss: 3736.88185874748
iteration: 84 Logisticloss: 1979.2327595146705
iteration: 85 Logisticloss: 2504.2604660734214
iteration: 86 Logisticloss: 1657.670644392093
iteration: 87 Logisticloss: 465.5518620838747
iteration: 88 Logisticloss: 54.693049332617434
iteration: 89 Logisticloss: 6.630205854700425
iteration: 90 Logisticloss: 16.827372980223835
iteration: 91 Logisticloss: 6603.484872060268
iteration: 92 Logisticloss: 1255.057588472196
iteration: 93 Logisticloss: 672.4178387598806
iteration: 94 Logisticloss: 1274.0376850891305
iteration: 95 Logisticloss: 1738.0925707233023
iteration: 96 Logisticloss: 2441.850079025555
iteration: 97 Logisticloss: 1458.6332832405894
iteration: 98 Logisticloss: 4185.979711279151
iteration: 99 Logisticloss: 639.4981626251694
[-0.01848257 -0.04465844 -0.05026868 ... 0.04905098 -0.03372004
 0.00209951]

```


CROSS VALIDATION 3

```
iteration: 0 Logisticloss: 2740.74260099189
iteration: 1 Logisticloss: 1701.863869117113
iteration: 2 Logisticloss: 661.8837409345607
iteration: 3 Logisticloss: 1629.150795698975
iteration: 4 Logisticloss: 1702.1460966334894
iteration: 5 Logisticloss: 505.2197125669009
iteration: 6 Logisticloss: 4058.0436654861915
iteration: 7 Logisticloss: 1196.9707898423947
iteration: 8 Logisticloss: 2512.5667809350175
iteration: 9 Logisticloss: 1353.217799876291
iteration: 10 Logisticloss: 2381.792896088197
iteration: 11 Logisticloss: 2147.784582169239
iteration: 12 Logisticloss: 2990.9218739226567
iteration: 13 Logisticloss: 777.950577740552
iteration: 14 Logisticloss: 2538.4048058592734
iteration: 15 Logisticloss: 2837.6961570754393
iteration: 16 Logisticloss: 2193.8464995978397
iteration: 17 Logisticloss: 123.8814708353146
iteration: 18 Logisticloss: 14.553598857681335
iteration: 19 Logisticloss: 1.721955385411637
iteration: 20 Logisticloss: 0.32402434891674226
iteration: 21 Logisticloss: 1992.5284464053848
iteration: 22 Logisticloss: 1754.8909460314444
iteration: 23 Logisticloss: 2438.355917249514
iteration: 24 Logisticloss: 3708.9226897579065
iteration: 25 Logisticloss: 2394.615777540055
iteration: 26 Logisticloss: 3022.217612247908
iteration: 27 Logisticloss: 1905.0968820428457
iteration: 28 Logisticloss: 1789.8225954993666
iteration: 29 Logisticloss: 2136.676332060222
iteration: 30 Logisticloss: 1346.139019973567
iteration: 31 Logisticloss: 1089.5945906769227
iteration: 32 Logisticloss: 883.6511701263008
iteration: 33 Logisticloss: 233.22878720014205
iteration: 34 Logisticloss: 3081.4511945513923
iteration: 35 Logisticloss: 3314.469031083282
iteration: 36 Logisticloss: 929.4224704271419
iteration: 37 Logisticloss: 1033.1440394159797
iteration: 38 Logisticloss: 1548.9429327449318
iteration: 39 Logisticloss: 916.6461054444953
iteration: 40 Logisticloss: 1520.565845807499
iteration: 41 Logisticloss: 4956.433873222675
iteration: 42 Logisticloss: 2364.4031869415403
iteration: 43 Logisticloss: 726.4790082270613
iteration: 44 Logisticloss: 2820.7629488581033
iteration: 45 Logisticloss: 1643.7210169078685
iteration: 46 Logisticloss: 1164.8480697842751
iteration: 47 Logisticloss: 2026.9568396122784
iteration: 48 Logisticloss: 1132.570995775512
iteration: 49 Logisticloss: 2360.7155371996723
iteration: 50 Logisticloss: 1108.2432920998672
```

Output_logistic_train.txt

```

iteration: 51 Logisticloss: 1092.6421513693515
iteration: 52 Logisticloss: 3611.0292455127037
iteration: 53 Logisticloss: 784.2574963877098
iteration: 54 Logisticloss: 3150.0879914651205
iteration: 55 Logisticloss: 3242.8034289167654
iteration: 56 Logisticloss: 697.8767110960301
iteration: 57 Logisticloss: 1150.4851228588395
iteration: 58 Logisticloss: 2496.2671779235598
iteration: 59 Logisticloss: 520.9727100119175
iteration: 60 Logisticloss: 1121.075309154349
iteration: 61 Logisticloss: 5893.920034215423
iteration: 62 Logisticloss: 1556.891749720321
iteration: 63 Logisticloss: 1570.1095107046494
iteration: 64 Logisticloss: 1008.6569305849637
iteration: 65 Logisticloss: 2965.0863033484393
iteration: 66 Logisticloss: 1414.7088471672091
iteration: 67 Logisticloss: 5114.7525508900435
iteration: 68 Logisticloss: 933.5545192147749
iteration: 69 Logisticloss: 1656.0826079308151
iteration: 70 Logisticloss: 3360.4660757838124
iteration: 71 Logisticloss: 1943.7006234801931
iteration: 72 Logisticloss: 863.3032649399436
iteration: 73 Logisticloss: 2300.505654156954
iteration: 74 Logisticloss: 496.3704721443421
iteration: 75 Logisticloss: 2488.781932992685
iteration: 76 Logisticloss: 2765.7886604777505
iteration: 77 Logisticloss: 485.68385566774515
iteration: 78 Logisticloss: 2327.2981690784595
iteration: 79 Logisticloss: 2860.143566058444
iteration: 80 Logisticloss: 1443.3716087097184
iteration: 81 Logisticloss: 2702.3750007867275
iteration: 82 Logisticloss: 2490.7903996655305
iteration: 83 Logisticloss: 1467.5246922103506
iteration: 84 Logisticloss: 6397.794013445794
iteration: 85 Logisticloss: 311.1360381634931
iteration: 86 Logisticloss: 36.55228953599713
iteration: 87 Logisticloss: 4.315095569499796
iteration: 88 Logisticloss: 0.5219818469673714
iteration: 89 Logisticloss: 0.09382965709561075
iteration: 90 Logisticloss: 1859.197762851346
iteration: 91 Logisticloss: 3289.5865469333903
iteration: 92 Logisticloss: 1429.3447380101911
iteration: 93 Logisticloss: 2029.8523769411695
iteration: 94 Logisticloss: 177.9449861173655
iteration: 95 Logisticloss: 1485.2156344082684
iteration: 96 Logisticloss: 4067.1753622884567
iteration: 97 Logisticloss: 425.96029175632566
iteration: 98 Logisticloss: 50.042097784296644
iteration: 99 Logisticloss: 5.941167566214171
[ 4.56174904e-03 1.56974407e-04 -5.65375007e-05 ... -3.25754555e-05
-2.55563951e-03 1.96468632e-03]

```

CROSS VALIDATION 4

Output_logistic_train.txt

```
iteration: 0 Logisticloss: 2740.74260099189
iteration: 1 Logisticloss: 1701.863869117113
iteration: 2 Logisticloss: 624.5020215500612
iteration: 3 Logisticloss: 2366.921504071005
iteration: 4 Logisticloss: 2972.0431250717284
iteration: 5 Logisticloss: 1475.9567591687423
iteration: 6 Logisticloss: 2121.771477711525
iteration: 7 Logisticloss: 1526.8608400893525
iteration: 8 Logisticloss: 159.2113275950229
iteration: 9 Logisticloss: 1834.093195536942
iteration: 10 Logisticloss: 574.5276415018739
iteration: 11 Logisticloss: 1803.3262635534572
iteration: 12 Logisticloss: 3310.3640034680766
iteration: 13 Logisticloss: 808.7497023612265
iteration: 14 Logisticloss: 1818.21724740142
iteration: 15 Logisticloss: 3251.5302203696847
iteration: 16 Logisticloss: 990.5702951240053
iteration: 17 Logisticloss: 84.42085941965532
iteration: 18 Logisticloss: 9.917775086490565
iteration: 19 Logisticloss: 1.1877365001895257
iteration: 20 Logisticloss: 10647.8243988255
iteration: 21 Logisticloss: 7354.425127948266
iteration: 22 Logisticloss: 1642.535582864672
iteration: 23 Logisticloss: 1831.9979018771337
iteration: 24 Logisticloss: 151.77718471353418
iteration: 25 Logisticloss: 17.830787172828483
iteration: 26 Logisticloss: 2.0952573212015153
iteration: 27 Logisticloss: 0.27536668591335633
iteration: 28 Logisticloss: 4758.208472042246
iteration: 29 Logisticloss: 2472.209116642326
iteration: 30 Logisticloss: 599.3129830216089
iteration: 31 Logisticloss: 2587.248174351098
iteration: 32 Logisticloss: 2299.462085709615
iteration: 33 Logisticloss: 579.2374944513543
iteration: 34 Logisticloss: 299.97793602342574
iteration: 35 Logisticloss: 2718.1513796212234
iteration: 36 Logisticloss: 4017.7219708564057
iteration: 37 Logisticloss: 387.2936421597509
iteration: 38 Logisticloss: 1163.9162408241782
iteration: 39 Logisticloss: 3633.9434550365413
iteration: 40 Logisticloss: 1604.8019790332687
iteration: 41 Logisticloss: 506.88602466253866
iteration: 42 Logisticloss: 2205.90394393661
iteration: 43 Logisticloss: 1780.5725704873696
iteration: 44 Logisticloss: 3585.734493671273
iteration: 45 Logisticloss: 815.9302371967128
iteration: 46 Logisticloss: 2473.201458053626
iteration: 47 Logisticloss: 3309.401894925431
iteration: 48 Logisticloss: 1564.3204847682664
iteration: 49 Logisticloss: 1686.2260104942463
iteration: 50 Logisticloss: 264.32805773220633
iteration: 51 Logisticloss: 3079.384130024141
```

Output_logistic_train.txt

```

iteration: 52 Logisticloss: 3212.170414070654
iteration: 53 Logisticloss: 1178.0240864663274
iteration: 54 Logisticloss: 2768.2228411989713
iteration: 55 Logisticloss: 391.85824203882373
iteration: 56 Logisticloss: 46.04073223029355
iteration: 57 Logisticloss: 5.409754414660657
iteration: 58 Logisticloss: 27.545944922246296
iteration: 59 Logisticloss: 4170.451408712271
iteration: 60 Logisticloss: 3634.7002259227093
iteration: 61 Logisticloss: 689.961805979957
iteration: 62 Logisticloss: 4759.375151224839
iteration: 63 Logisticloss: 428.2841375760007
iteration: 64 Logisticloss: 1565.3889885244216
iteration: 65 Logisticloss: 4757.808836413029
iteration: 66 Logisticloss: 376.232479977639
iteration: 67 Logisticloss: 1395.4793935532969
iteration: 68 Logisticloss: 1904.5838240731862
iteration: 69 Logisticloss: 2849.5386007754328
iteration: 70 Logisticloss: 1008.3351506260475
iteration: 71 Logisticloss: 1378.1293868877558
iteration: 72 Logisticloss: 2429.599389362842
iteration: 73 Logisticloss: 280.5957210615319
iteration: 74 Logisticloss: 32.98275022219422
iteration: 75 Logisticloss: 3.87604076192892
iteration: 76 Logisticloss: 4963.2018666204
iteration: 77 Logisticloss: 2576.538121314584
iteration: 78 Logisticloss: 1108.4470725116066
iteration: 79 Logisticloss: 2299.975857173243
iteration: 80 Logisticloss: 303.1233010906326
iteration: 81 Logisticloss: 2686.7548049559296
iteration: 82 Logisticloss: 2089.454475048152
iteration: 83 Logisticloss: 1708.6328835035679
iteration: 84 Logisticloss: 2030.7193422086973
iteration: 85 Logisticloss: 2561.513806060597
iteration: 86 Logisticloss: 2654.783470136886
iteration: 87 Logisticloss: 1872.4826978593903
iteration: 88 Logisticloss: 1431.7105916221858
iteration: 89 Logisticloss: 334.0756369421911
iteration: 90 Logisticloss: 1622.8958263618483
iteration: 91 Logisticloss: 2814.3152291720953
iteration: 92 Logisticloss: 1791.2028834661191
iteration: 93 Logisticloss: 3698.6298120186552
iteration: 94 Logisticloss: 566.4611647756333
iteration: 95 Logisticloss: 2874.7414217958894
iteration: 96 Logisticloss: 3399.6961044907994
iteration: 97 Logisticloss: 903.8246938140555
iteration: 98 Logisticloss: 79.45101693444919
iteration: 99 Logisticloss: 9.333946561757983
[-0.01072228 -0.00467269 -0.01570644 ... 0.0082776 0.00777533
 0.00270368]
CROSS VALIDATION 5
iteration: 0 Logisticloss: 2382.647912470615

```

Output_logistic_train.txt

iteration: 1 Logisticloss: 1652.8384541183032
iteration: 2 Logisticloss: 235.4954440965495
iteration: 3 Logisticloss: 27.66601022313144
iteration: 4 Logisticloss: 3.251006271831404
iteration: 5 Logisticloss: 0.39441933537707435
iteration: 6 Logisticloss: 4.0102143134637585
iteration: 7 Logisticloss: 2226.724682918413
iteration: 8 Logisticloss: 3378.8082585030065
iteration: 9 Logisticloss: 599.5013193688831
iteration: 10 Logisticloss: 2667.2315774616322
iteration: 11 Logisticloss: 1854.7016108187331
iteration: 12 Logisticloss: 1328.6569660447249
iteration: 13 Logisticloss: 1749.4930643040598
iteration: 14 Logisticloss: 1560.6645758528848
iteration: 15 Logisticloss: 139.50642517143402
iteration: 16 Logisticloss: 2473.8228098940845
iteration: 17 Logisticloss: 599.9506065150126
iteration: 18 Logisticloss: 3860.062601787234
iteration: 19 Logisticloss: 3658.609382384924
iteration: 20 Logisticloss: 1970.9152855489988
iteration: 21 Logisticloss: 1117.7439686679709
iteration: 22 Logisticloss: 1109.6905227149182
iteration: 23 Logisticloss: 1425.1923239312616
iteration: 24 Logisticloss: 1759.3297643150668
iteration: 25 Logisticloss: 164.69766009005892
iteration: 26 Logisticloss: 5688.5814217601455
iteration: 27 Logisticloss: 1341.3497438827062
iteration: 28 Logisticloss: 781.6427151326665
iteration: 29 Logisticloss: 1696.6267663408394
iteration: 30 Logisticloss: 1867.488238219513
iteration: 31 Logisticloss: 688.8388298602201
iteration: 32 Logisticloss: 3338.186979654153
iteration: 33 Logisticloss: 306.90784808031975
iteration: 34 Logisticloss: 1142.3789656216843
iteration: 35 Logisticloss: 1606.8514127789394
iteration: 36 Logisticloss: 1232.7627921513827
iteration: 37 Logisticloss: 1882.4620326363608
iteration: 38 Logisticloss: 5252.852259465421
iteration: 39 Logisticloss: 1622.9073019267455
iteration: 40 Logisticloss: 691.6761274780303
iteration: 41 Logisticloss: 325.8628031406471
iteration: 42 Logisticloss: 3933.3427590050305
iteration: 43 Logisticloss: 2490.6789556476238
iteration: 44 Logisticloss: 437.15108316227395
iteration: 45 Logisticloss: 1177.0265253203381
iteration: 46 Logisticloss: 1389.0332450820786
iteration: 47 Logisticloss: 1042.1325969030636
iteration: 48 Logisticloss: 3306.907943560316
iteration: 49 Logisticloss: 431.1864943451179
iteration: 50 Logisticloss: 3535.165042875132
iteration: 51 Logisticloss: 2991.343630460877
iteration: 52 Logisticloss: 309.94331104483166

Output_logistic_train.txt

```

iteration: 53 Logisticloss: 6198.300346027345
iteration: 54 Logisticloss: 1117.506793126205
iteration: 55 Logisticloss: 2397.6178438994966
iteration: 56 Logisticloss: 2145.2271623797624
iteration: 57 Logisticloss: 241.69834604312507
iteration: 58 Logisticloss: 4576.473632276896
iteration: 59 Logisticloss: 333.4294384629768
iteration: 60 Logisticloss: 39.17168164733462
iteration: 61 Logisticloss: 8.681951009751472
iteration: 62 Logisticloss: 2276.4991366735
iteration: 63 Logisticloss: 1852.4888657838935
iteration: 64 Logisticloss: 162.88532943577283
iteration: 65 Logisticloss: 19.1370755017583
iteration: 66 Logisticloss: 2.2743872254010937
iteration: 67 Logisticloss: 0.29076708984464805
iteration: 68 Logisticloss: 4594.919341724079
iteration: 69 Logisticloss: 3400.9060935790585
iteration: 70 Logisticloss: 579.4351672543303
iteration: 71 Logisticloss: 1948.6577816172066
iteration: 72 Logisticloss: 1098.297672394989
iteration: 73 Logisticloss: 1740.7918762884574
iteration: 74 Logisticloss: 1207.1073035272616
iteration: 75 Logisticloss: 1569.512132663909
iteration: 76 Logisticloss: 2155.6726322949767
iteration: 77 Logisticloss: 2901.3996904589494
iteration: 78 Logisticloss: 480.6611479524569
iteration: 79 Logisticloss: 2760.206156939312
iteration: 80 Logisticloss: 1702.5507105571166
iteration: 81 Logisticloss: 480.7198382687584
iteration: 82 Logisticloss: 2105.099771356233
iteration: 83 Logisticloss: 680.4940340173844
iteration: 84 Logisticloss: 2481.998386859708
iteration: 85 Logisticloss: 2741.042417591602
iteration: 86 Logisticloss: 1725.427150628722
iteration: 87 Logisticloss: 2197.538211030725
iteration: 88 Logisticloss: 4426.3194908735095
iteration: 89 Logisticloss: 957.3846279381434
iteration: 90 Logisticloss: 1799.8188988596914
iteration: 91 Logisticloss: 2336.7281162161885
iteration: 92 Logisticloss: 1297.3479671193245
iteration: 93 Logisticloss: 800.701171771896
iteration: 94 Logisticloss: 3630.783336836045
iteration: 95 Logisticloss: 4542.533100979458
iteration: 96 Logisticloss: 262.9992100841534
iteration: 97 Logisticloss: 1748.702437750618
iteration: 98 Logisticloss: 36.95887359246617
iteration: 99 Logisticloss: 4.3429093409112145
[-0.00958173 -0.01036301 -0.00650194 ... 0.00698262 0.00268861
 0.00128052]
CROSS VALIDATION 6
iteration: 0 Logisticloss: 2740.74260099189
iteration: 1 Logisticloss: 1691.5740090155168

```

Output_logistic_train.txt

iteration: 2 Logisticloss: 658.0025832665056
iteration: 3 Logisticloss: 2389.898499157922
iteration: 4 Logisticloss: 3167.8892309509556
iteration: 5 Logisticloss: 540.7736575255658
iteration: 6 Logisticloss: 63.53010199275046
iteration: 7 Logisticloss: 7.468467094285718
iteration: 8 Logisticloss: 0.8842874997196216
iteration: 9 Logisticloss: 10535.999172884916
iteration: 10 Logisticloss: 6392.479518359759
iteration: 11 Logisticloss: 2276.5399171551217
iteration: 12 Logisticloss: 490.78805679325257
iteration: 13 Logisticloss: 1905.6047799807322
iteration: 14 Logisticloss: 1826.6042088472423
iteration: 15 Logisticloss: 2224.3357064788615
iteration: 16 Logisticloss: 331.5000187292361
iteration: 17 Logisticloss: 3669.952048879599
iteration: 18 Logisticloss: 3610.14318000005
iteration: 19 Logisticloss: 1321.7631144585732
iteration: 20 Logisticloss: 1908.08779602206
iteration: 21 Logisticloss: 1280.589680857638
iteration: 22 Logisticloss: 904.4712483034115
iteration: 23 Logisticloss: 3640.1317041360317
iteration: 24 Logisticloss: 2099.064779381945
iteration: 25 Logisticloss: 323.3898992351311
iteration: 26 Logisticloss: 3862.2410273413525
iteration: 27 Logisticloss: 1487.6390369738726
iteration: 28 Logisticloss: 312.00963574778353
iteration: 29 Logisticloss: 1298.2283509502909
iteration: 30 Logisticloss: 3446.5121011614865
iteration: 31 Logisticloss: 1908.4789300401706
iteration: 32 Logisticloss: 2874.9263445327133
iteration: 33 Logisticloss: 2061.962912689369
iteration: 34 Logisticloss: 1510.015795438608
iteration: 35 Logisticloss: 5056.856839482592
iteration: 36 Logisticloss: 1458.456661181804
iteration: 37 Logisticloss: 1125.7142455213166
iteration: 38 Logisticloss: 2295.9445615247123
iteration: 39 Logisticloss: 1807.1867381138154
iteration: 40 Logisticloss: 357.7347340010756
iteration: 41 Logisticloss: 3157.030367358911
iteration: 42 Logisticloss: 2255.402602399833
iteration: 43 Logisticloss: 413.09725658841217
iteration: 44 Logisticloss: 1762.2378240233177
iteration: 45 Logisticloss: 3124.1669944128407
iteration: 46 Logisticloss: 1625.3366342769257
iteration: 47 Logisticloss: 247.23519079529714
iteration: 48 Logisticloss: 2638.7504918364434
iteration: 49 Logisticloss: 2698.7560688205444
iteration: 50 Logisticloss: 4344.284680625314
iteration: 51 Logisticloss: 3483.1262792950843
iteration: 52 Logisticloss: 724.4983355285038
iteration: 53 Logisticloss: 1259.0175619118982

Output_logistic_train.txt

```

iteration: 54 Logisticloss: 2199.238057916449
iteration: 55 Logisticloss: 2480.893989354056
iteration: 56 Logisticloss: 932.1488238953531
iteration: 57 Logisticloss: 1123.9089891219026
iteration: 58 Logisticloss: 1554.9213284807965
iteration: 59 Logisticloss: 883.8038025798103
iteration: 60 Logisticloss: 2019.738495762561
iteration: 61 Logisticloss: 1946.5379445547196
iteration: 62 Logisticloss: 1031.9864995200141
iteration: 63 Logisticloss: 3301.3794806561173
iteration: 64 Logisticloss: 886.6746433889928
iteration: 65 Logisticloss: 3178.284697101065
iteration: 66 Logisticloss: 2816.014367332755
iteration: 67 Logisticloss: 456.6150279852459
iteration: 68 Logisticloss: 1589.417407360827
iteration: 69 Logisticloss: 5588.385455573384
iteration: 70 Logisticloss: 6917.568937620137
iteration: 71 Logisticloss: 2131.338605167995
iteration: 72 Logisticloss: 2638.209622563545
iteration: 73 Logisticloss: 380.7345649367253
iteration: 74 Logisticloss: 1474.5526059938493
iteration: 75 Logisticloss: 2479.878848066067
iteration: 76 Logisticloss: 4312.354351860451
iteration: 77 Logisticloss: 1165.2906706249858
iteration: 78 Logisticloss: 2232.825139034292
iteration: 79 Logisticloss: 2982.7283163192837
iteration: 80 Logisticloss: 3089.1989797442075
iteration: 81 Logisticloss: 290.37672620743547
iteration: 82 Logisticloss: 34.1134645150321
iteration: 83 Logisticloss: 4.007834284544222
iteration: 84 Logisticloss: 0.4783625344333421
iteration: 85 Logisticloss: 9464.497856270933
iteration: 86 Logisticloss: 2094.733969241767
iteration: 87 Logisticloss: 1366.8369031821583
iteration: 88 Logisticloss: 79.26492069676785
iteration: 89 Logisticloss: 9.312045136450312
iteration: 90 Logisticloss: 1.095163306461294
iteration: 91 Logisticloss: 0.14137280521832668
iteration: 92 Logisticloss: 2509.72365333322
iteration: 93 Logisticloss: 4426.180660358107
iteration: 94 Logisticloss: 1009.2676539886594
iteration: 95 Logisticloss: 1415.0233185512311
iteration: 96 Logisticloss: 3508.5649058678955
iteration: 97 Logisticloss: 422.15294846413406
iteration: 98 Logisticloss: 49.59453817654333
iteration: 99 Logisticloss: 5.827715558556597
[-6.41488671e-04 8.96905357e-04 2.38445085e-03 ... 2.88469839e-03
-3.63996812e-06 2.97963016e-03]
CROSS VALIDATION 7
iteration: 0 Logisticloss: 2740.74260099189
iteration: 1 Logisticloss: 1691.5740090155168
iteration: 2 Logisticloss: 658.0025832665056

```


Output_logistic_train.txt

iteration: 3 Logisticloss: 1637.0118974220275
iteration: 4 Logisticloss: 1693.19143654853
iteration: 5 Logisticloss: 504.0513674952028
iteration: 6 Logisticloss: 4052.3414907410233
iteration: 7 Logisticloss: 1196.174155209876
iteration: 8 Logisticloss: 2514.8252203291563
iteration: 9 Logisticloss: 1338.8845207878953
iteration: 10 Logisticloss: 2240.236994512771
iteration: 11 Logisticloss: 3319.4326827934424
iteration: 12 Logisticloss: 1406.846450871225
iteration: 13 Logisticloss: 2371.5163970412004
iteration: 14 Logisticloss: 2725.9801899930726
iteration: 15 Logisticloss: 664.0272057058978
iteration: 16 Logisticloss: 3065.3731395123373
iteration: 17 Logisticloss: 3284.0959287695496
iteration: 18 Logisticloss: 1515.187270121843
iteration: 19 Logisticloss: 267.7301888422038
iteration: 20 Logisticloss: 31.452948799635024
iteration: 21 Logisticloss: 3.6973196275553475
iteration: 22 Logisticloss: 0.43563481837648205
iteration: 23 Logisticloss: 0.06119110909886333
iteration: 24 Logisticloss: 5454.859336221583
iteration: 25 Logisticloss: 370.7801205620008
iteration: 26 Logisticloss: 1174.2825842077548
iteration: 27 Logisticloss: 2044.8352461814113
iteration: 28 Logisticloss: 1762.9844896552543
iteration: 29 Logisticloss: 528.3801837886074
iteration: 30 Logisticloss: 2260.1395383380323
iteration: 31 Logisticloss: 1313.0127970440194
iteration: 32 Logisticloss: 1963.5294224898335
iteration: 33 Logisticloss: 3971.1213409754323
iteration: 34 Logisticloss: 1441.699192951675
iteration: 35 Logisticloss: 557.1052697739805
iteration: 36 Logisticloss: 2726.2331791884326
iteration: 37 Logisticloss: 1713.294881124524
iteration: 38 Logisticloss: 3311.036079125088
iteration: 39 Logisticloss: 1129.3060928273203
iteration: 40 Logisticloss: 606.4420047287008
iteration: 41 Logisticloss: 1799.9382849189205
iteration: 42 Logisticloss: 1104.5413556570659
iteration: 43 Logisticloss: 767.7969626622363
iteration: 44 Logisticloss: 6761.538619733772
iteration: 45 Logisticloss: 204.78436835047438
iteration: 46 Logisticloss: 24.058153473488392
iteration: 47 Logisticloss: 2.8464405339342336
iteration: 48 Logisticloss: 9675.432899951627
iteration: 49 Logisticloss: 3321.1905516279216
iteration: 50 Logisticloss: 1105.9140242533272
iteration: 51 Logisticloss: 5182.701379669291
iteration: 52 Logisticloss: 2672.5282337736153
iteration: 53 Logisticloss: 891.0693990594468
iteration: 54 Logisticloss: 1960.8480597789412

Output_logistic_train.txt

```

iteration: 55 Logisticloss: 2123.8487977442514
iteration: 56 Logisticloss: 1101.3777778473864
iteration: 57 Logisticloss: 1977.8613569351196
iteration: 58 Logisticloss: 2981.9613726406533
iteration: 59 Logisticloss: 468.50822260098306
iteration: 60 Logisticloss: 1983.32476880929
iteration: 61 Logisticloss: 4548.183958736474
iteration: 62 Logisticloss: 443.4751002603465
iteration: 63 Logisticloss: 1429.1522958216456
iteration: 64 Logisticloss: 2369.157673161449
iteration: 65 Logisticloss: 2847.1856859377253
iteration: 66 Logisticloss: 4137.652573993764
iteration: 67 Logisticloss: 1479.827801042774
iteration: 68 Logisticloss: 497.13681418562476
iteration: 69 Logisticloss: 1760.5024005387115
iteration: 70 Logisticloss: 1398.1820411670512
iteration: 71 Logisticloss: 1934.214421831935
iteration: 72 Logisticloss: 488.5127658181999
iteration: 73 Logisticloss: 2897.20152851241
iteration: 74 Logisticloss: 435.4119652176389
iteration: 75 Logisticloss: 1943.3380851481716
iteration: 76 Logisticloss: 320.85750309605316
iteration: 77 Logisticloss: 37.69574672463166
iteration: 78 Logisticloss: 7348.114234072875
iteration: 79 Logisticloss: 3356.5652536750445
iteration: 80 Logisticloss: 203.79607685255348
iteration: 81 Logisticloss: 23.941974702774402
iteration: 82 Logisticloss: 2.820428018909655
iteration: 83 Logisticloss: 93.76168134549512
iteration: 84 Logisticloss: 4187.819843851339
iteration: 85 Logisticloss: 885.7534390345442
iteration: 86 Logisticloss: 343.2433973256372
iteration: 87 Logisticloss: 40.32424226147545
iteration: 88 Logisticloss: 4.737329861250002
iteration: 89 Logisticloss: 0.5574947275343102
iteration: 90 Logisticloss: 9518.139558476681
iteration: 91 Logisticloss: 2133.2903742361677
iteration: 92 Logisticloss: 1365.964269390572
iteration: 93 Logisticloss: 79.26952045979131
iteration: 94 Logisticloss: 9.312585506587943
iteration: 95 Logisticloss: 1.095299961544642
iteration: 96 Logisticloss: 0.1753315599224765
iteration: 97 Logisticloss: 4658.361891269664
iteration: 98 Logisticloss: 2605.7648307067366
iteration: 99 Logisticloss: 1272.5125732877523
[-0.119276 -0.02793353 -0.04336553 ... 0.03609916 0.04834259
0.01027994]
CROSS VALIDATION 8
iteration: 0 Logisticloss: 2740.74260099189
iteration: 1 Logisticloss: 1691.5740090155168
iteration: 2 Logisticloss: 658.0025832665056
iteration: 3 Logisticloss: 1637.0118974220275

```

Output_logistic_train.txt

iteration: 4 Logisticloss: 1693.19143654853
iteration: 5 Logisticloss: 504.0513674952028
iteration: 6 Logisticloss: 4052.3414907410233
iteration: 7 Logisticloss: 1196.174155209876
iteration: 8 Logisticloss: 2514.8252203291563
iteration: 9 Logisticloss: 1338.8845207878953
iteration: 10 Logisticloss: 2369.9235775164525
iteration: 11 Logisticloss: 1606.1969903755667
iteration: 12 Logisticloss: 2627.1494020053524
iteration: 13 Logisticloss: 962.8826648487287
iteration: 14 Logisticloss: 6026.693307527528
iteration: 15 Logisticloss: 1629.6349988544127
iteration: 16 Logisticloss: 1037.9463967994373
iteration: 17 Logisticloss: 1128.9567092540628
iteration: 18 Logisticloss: 1294.6087082624408
iteration: 19 Logisticloss: 393.2839651293865
iteration: 20 Logisticloss: 405.0212246466416
iteration: 21 Logisticloss: 2996.804243184864
iteration: 22 Logisticloss: 2825.6259756588333
iteration: 23 Logisticloss: 236.4997024628263
iteration: 24 Logisticloss: 2537.193984988553
iteration: 25 Logisticloss: 320.713970217286
iteration: 26 Logisticloss: 1540.9765874672553
iteration: 27 Logisticloss: 4515.7210394130325
iteration: 28 Logisticloss: 1087.6375231461714
iteration: 29 Logisticloss: 797.5191060270813
iteration: 30 Logisticloss: 1527.370618030099
iteration: 31 Logisticloss: 489.9826421937624
iteration: 32 Logisticloss: 1154.5709851488875
iteration: 33 Logisticloss: 339.98883262873096
iteration: 34 Logisticloss: 39.94189592556259
iteration: 35 Logisticloss: 4.692376645231988
iteration: 36 Logisticloss: 0.5708120879583005
iteration: 37 Logisticloss: 2331.158523973258
iteration: 38 Logisticloss: 1776.2611138496777
iteration: 39 Logisticloss: 878.1782621810787
iteration: 40 Logisticloss: 2126.919052070114
iteration: 41 Logisticloss: 2351.8406865943293
iteration: 42 Logisticloss: 3008.8719735111526
iteration: 43 Logisticloss: 1628.2741893007378
iteration: 44 Logisticloss: 864.0462126071498
iteration: 45 Logisticloss: 2724.7957344097113
iteration: 46 Logisticloss: 3989.8308367102068
iteration: 47 Logisticloss: 1079.3845999334224
iteration: 48 Logisticloss: 1728.7708319199762
iteration: 49 Logisticloss: 3359.1097359333526
iteration: 50 Logisticloss: 788.0232288324034
iteration: 51 Logisticloss: 6374.29406813717
iteration: 52 Logisticloss: 5832.448687319102
iteration: 53 Logisticloss: 453.4930688750346
iteration: 54 Logisticloss: 2169.320790840569
iteration: 55 Logisticloss: 958.9377980131537

Output_logistic_train.txt

```

iteration: 56 Logisticloss: 2242.913142102703
iteration: 57 Logisticloss: 2802.921653710909
iteration: 58 Logisticloss: 633.604717910776
iteration: 59 Logisticloss: 4369.894556739873
iteration: 60 Logisticloss: 4798.4979506077325
iteration: 61 Logisticloss: 1902.3722707248603
iteration: 62 Logisticloss: 1199.7989822861937
iteration: 63 Logisticloss: 4106.5244966321525
iteration: 64 Logisticloss: 1562.5377059052466
iteration: 65 Logisticloss: 1019.2103648559515
iteration: 66 Logisticloss: 1439.8835102590483
iteration: 67 Logisticloss: 1889.1125745602794
iteration: 68 Logisticloss: 470.1964772802114
iteration: 69 Logisticloss: 1741.2763390022403
iteration: 70 Logisticloss: 1329.0814376047938
iteration: 71 Logisticloss: 2136.4685754739226
iteration: 72 Logisticloss: 1375.3341398842795
iteration: 73 Logisticloss: 464.49674947424285
iteration: 74 Logisticloss: 1898.8185435442192
iteration: 75 Logisticloss: 1238.4404542005987
iteration: 76 Logisticloss: 713.9422836540997
iteration: 77 Logisticloss: 679.4649313619445
iteration: 78 Logisticloss: 4172.071368522234
iteration: 79 Logisticloss: 1239.3764076209852
iteration: 80 Logisticloss: 154.47364367606986
iteration: 81 Logisticloss: 18.14756727860394
iteration: 82 Logisticloss: 2.1324038724221044
iteration: 83 Logisticloss: 3899.38084183468
iteration: 84 Logisticloss: 4234.906080037627
iteration: 85 Logisticloss: 1067.100932912028
iteration: 86 Logisticloss: 3015.48917178277
iteration: 87 Logisticloss: 1402.9896407943747
iteration: 88 Logisticloss: 2078.458164677381
iteration: 89 Logisticloss: 2266.888810780723
iteration: 90 Logisticloss: 2396.2512786278635
iteration: 91 Logisticloss: 473.2412074972191
iteration: 92 Logisticloss: 1848.4743734541098
iteration: 93 Logisticloss: 925.1071841643331
iteration: 94 Logisticloss: 3181.048988255241
iteration: 95 Logisticloss: 1960.095084745243
iteration: 96 Logisticloss: 998.9091917955702
iteration: 97 Logisticloss: 409.1880046982972
iteration: 98 Logisticloss: 9965.242930422477
iteration: 99 Logisticloss: 1249.9291829168978
[-0.05184285 -0.01251955 0.00578612 ... 0.07473783 -0.02333107
 0.01198777]
CROSS VALIDATION 9
iteration: 0 Logisticloss: 3496.903054427831
iteration: 1 Logisticloss: 535.2851061360142
iteration: 2 Logisticloss: 62.88537468165569
iteration: 3 Logisticloss: 7.410311280317424
iteration: 4 Logisticloss: 0.8869674617447239

```

Output_logistic_train.txt

iteration: 5 Logisticloss: 0.12698105340865323
iteration: 6 Logisticloss: 7790.604129607079
iteration: 7 Logisticloss: 1040.2716504195525
iteration: 8 Logisticloss: 4292.468815047892
iteration: 9 Logisticloss: 503.35516384972163
iteration: 10 Logisticloss: 1549.7183266612567
iteration: 11 Logisticloss: 4282.312209827746
iteration: 12 Logisticloss: 926.6085678563684
iteration: 13 Logisticloss: 1637.3759098906885
iteration: 14 Logisticloss: 3322.7020266134327
iteration: 15 Logisticloss: 1077.4330496626726
iteration: 16 Logisticloss: 1774.9811112711418
iteration: 17 Logisticloss: 2519.4437120724106
iteration: 18 Logisticloss: 524.541400106474
iteration: 19 Logisticloss: 61.623167303607154
iteration: 20 Logisticloss: 7.239579941037302
iteration: 21 Logisticloss: 0.8522765754531538
iteration: 22 Logisticloss: 8283.377108617926
iteration: 23 Logisticloss: 5401.734289765058
iteration: 24 Logisticloss: 1970.347899465514
iteration: 25 Logisticloss: 199.03355737663907
iteration: 26 Logisticloss: 2927.146191631753
iteration: 27 Logisticloss: 2062.4309811211033
iteration: 28 Logisticloss: 1737.7262494950328
iteration: 29 Logisticloss: 6977.980766105044
iteration: 30 Logisticloss: 1316.3981979307514
iteration: 31 Logisticloss: 1753.235351752266
iteration: 32 Logisticloss: 1722.0701978718396
iteration: 33 Logisticloss: 1388.3784440291324
iteration: 34 Logisticloss: 922.2628894651313
iteration: 35 Logisticloss: 705.4091060068268
iteration: 36 Logisticloss: 2154.321723535463
iteration: 37 Logisticloss: 396.3582510518064
iteration: 38 Logisticloss: 2229.4463027186625
iteration: 39 Logisticloss: 4601.051508014228
iteration: 40 Logisticloss: 464.4465121956058
iteration: 41 Logisticloss: 1995.7800270639204
iteration: 42 Logisticloss: 3330.5265517685193
iteration: 43 Logisticloss: 338.1000608773612
iteration: 44 Logisticloss: 507.8129305975034
iteration: 45 Logisticloss: 414.9835648072435
iteration: 46 Logisticloss: 1910.5244146760147
iteration: 47 Logisticloss: 3500.6687150261473
iteration: 48 Logisticloss: 4074.217264857984
iteration: 49 Logisticloss: 867.7553027714937
iteration: 50 Logisticloss: 1536.1616572510222
iteration: 51 Logisticloss: 2040.474307909859
iteration: 52 Logisticloss: 619.5566576265784
iteration: 53 Logisticloss: 112.13803619298798
iteration: 54 Logisticloss: 13.174002268682338
iteration: 55 Logisticloss: 1.5532833670083757
iteration: 56 Logisticloss: 0.2093384073211529

Output_logistic_train.txt

```
iteration: 57 Logisticloss: 5467.446835946042
iteration: 58 Logisticloss: 1153.2638170493124
iteration: 59 Logisticloss: 2586.072602564097
iteration: 60 Logisticloss: 69.32918289194939
iteration: 61 Logisticloss: 8.144904162871118
iteration: 62 Logisticloss: 0.9683264461689485
iteration: 63 Logisticloss: 5155.234312485126
iteration: 64 Logisticloss: 1520.7648560325604
iteration: 65 Logisticloss: 861.1564285585114
iteration: 66 Logisticloss: 1195.375301423023
iteration: 67 Logisticloss: 5182.785203182594
iteration: 68 Logisticloss: 2636.698115832319
iteration: 69 Logisticloss: 737.8769784957806
iteration: 70 Logisticloss: 1469.0217184736327
iteration: 71 Logisticloss: 752.5557744949698
iteration: 72 Logisticloss: 1548.8890260718724
iteration: 73 Logisticloss: 2184.0241360667214
iteration: 74 Logisticloss: 1921.0725125752074
iteration: 75 Logisticloss: 4866.181359569953
iteration: 76 Logisticloss: 1603.5900237626506
iteration: 77 Logisticloss: 2077.7455110614746
iteration: 78 Logisticloss: 1590.5366954833344
iteration: 79 Logisticloss: 365.4863766617156
iteration: 80 Logisticloss: 2380.565167532004
iteration: 81 Logisticloss: 1559.6525183756553
iteration: 82 Logisticloss: 1683.853969775153
iteration: 83 Logisticloss: 192.32377011888508
iteration: 84 Logisticloss: 22.594229190772808
iteration: 85 Logisticloss: 2.6570351951410003
iteration: 86 Logisticloss: 5820.673469715482
iteration: 87 Logisticloss: 1932.005178091042
iteration: 88 Logisticloss: 393.34472848144026
iteration: 89 Logisticloss: 46.21014780515087
iteration: 90 Logisticloss: 5.428769233642073
iteration: 91 Logisticloss: 0.6382284188104869
iteration: 92 Logisticloss: 0.13116852383828928
iteration: 93 Logisticloss: 1882.6847644387667
iteration: 94 Logisticloss: 2875.9306528858297
iteration: 95 Logisticloss: 626.4442553201559
iteration: 96 Logisticloss: 2957.8397171633897
iteration: 97 Logisticloss: 2227.615572643389
iteration: 98 Logisticloss: 1463.983582950647
iteration: 99 Logisticloss: 2984.817729437758
[-0.10654387 -0.03793244 -0.07798182 ... 0.1163042 0.0067664
0.01686361]
```

CROSS VALIDATION 10

```
iteration: 0 Logisticloss: 2739.63021008044
iteration: 1 Logisticloss: 1099.6276600174115
iteration: 2 Logisticloss: 87.6649351596501
iteration: 3 Logisticloss: 10.298878611427238
iteration: 4 Logisticloss: 1.2101832298321749
iteration: 5 Logisticloss: 0.4888964899896977
```

Output_logistic_train.txt

iteration: 6 Logisticloss: 4635.523618659245
iteration: 7 Logisticloss: 2589.575379773413
iteration: 8 Logisticloss: 1307.4995089693905
iteration: 9 Logisticloss: 3545.286089660337
iteration: 10 Logisticloss: 1711.5335072375383
iteration: 11 Logisticloss: 1179.8386836016286
iteration: 12 Logisticloss: 3482.021197837375
iteration: 13 Logisticloss: 2097.57820075661
iteration: 14 Logisticloss: 5260.1505277336455
iteration: 15 Logisticloss: 187.9718643629721
iteration: 16 Logisticloss: 22.082938975789663
iteration: 17 Logisticloss: 2.5947836535229767
iteration: 18 Logisticloss: 0.30668074672844226
iteration: 19 Logisticloss: 7782.954638782328
iteration: 20 Logisticloss: 832.5408915356525
iteration: 21 Logisticloss: 802.7869565289116
iteration: 22 Logisticloss: 1783.679998878429
iteration: 23 Logisticloss: 307.43779684711194
iteration: 24 Logisticloss: 36.117799488612675
iteration: 25 Logisticloss: 4.243205006390241
iteration: 26 Logisticloss: 7261.443904862079
iteration: 27 Logisticloss: 4505.7806758798715
iteration: 28 Logisticloss: 250.95934233225242
iteration: 29 Logisticloss: 29.482709347056513
iteration: 30 Logisticloss: 3.4646360916579173
iteration: 31 Logisticloss: 0.42749404838625077
iteration: 32 Logisticloss: 9677.19196354124
iteration: 33 Logisticloss: 2382.8144951133227
iteration: 34 Logisticloss: 2068.6482996131754
iteration: 35 Logisticloss: 3675.5333521585408
iteration: 36 Logisticloss: 3364.499984434071
iteration: 37 Logisticloss: 1539.4251603468633
iteration: 38 Logisticloss: 557.0539861020227
iteration: 39 Logisticloss: 1487.1565847674874
iteration: 40 Logisticloss: 1646.4172484672506
iteration: 41 Logisticloss: 1308.1643013501975
iteration: 42 Logisticloss: 1734.873270806334
iteration: 43 Logisticloss: 4482.231347785336
iteration: 44 Logisticloss: 1121.925663068492
iteration: 45 Logisticloss: 625.5670349919606
iteration: 46 Logisticloss: 181.30939700483498
iteration: 47 Logisticloss: 21.3002402750223
iteration: 48 Logisticloss: 2.5185867644102733
iteration: 49 Logisticloss: 10484.243985272635
iteration: 50 Logisticloss: 2021.165842226257
iteration: 51 Logisticloss: 720.0761231823831
iteration: 52 Logisticloss: 354.2321290239231
iteration: 53 Logisticloss: 5194.950194796629
iteration: 54 Logisticloss: 1375.7249632624382
iteration: 55 Logisticloss: 52.432377628592796
iteration: 56 Logisticloss: 6.161192295120669
iteration: 57 Logisticloss: 0.747060647166664

Output_logistic_train.txt

```
iteration: 58 Logisticloss: 8251.828574723113
iteration: 59 Logisticloss: 4645.779594204213
iteration: 60 Logisticloss: 273.43288841801285
iteration: 61 Logisticloss: 32.1229020640112
iteration: 62 Logisticloss: 3.7752115580416983
iteration: 63 Logisticloss: 0.45109125317389687
iteration: 64 Logisticloss: 5208.740469205919
iteration: 65 Logisticloss: 7485.728745309751
iteration: 66 Logisticloss: 485.1908681664908
iteration: 67 Logisticloss: 876.7346103379105
iteration: 68 Logisticloss: 2709.499900422439
iteration: 69 Logisticloss: 1327.3029828875174
iteration: 70 Logisticloss: 1766.8975356511382
iteration: 71 Logisticloss: 1045.4058516700125
iteration: 72 Logisticloss: 3000.331888251701
iteration: 73 Logisticloss: 4935.910911885876
iteration: 74 Logisticloss: 2099.8193571953425
iteration: 75 Logisticloss: 129.46357743083686
iteration: 76 Logisticloss: 15.209384072751769
iteration: 77 Logisticloss: 1.787041336079326
iteration: 78 Logisticloss: 31.151345998449468
iteration: 79 Logisticloss: 2684.7441155163206
iteration: 80 Logisticloss: 405.0552704247583
iteration: 81 Logisticloss: 2617.5167942265084
iteration: 82 Logisticloss: 5132.131469939456
iteration: 83 Logisticloss: 2163.7131978855687
iteration: 84 Logisticloss: 3402.475225402519
iteration: 85 Logisticloss: 1241.8257108791145
iteration: 86 Logisticloss: 4674.471321161112
iteration: 87 Logisticloss: 797.8490226119607
iteration: 88 Logisticloss: 1344.225446349796
iteration: 89 Logisticloss: 2655.788289571503
iteration: 90 Logisticloss: 343.45327620819216
iteration: 91 Logisticloss: 40.35133479294781
iteration: 92 Logisticloss: 4.817981592446186
iteration: 93 Logisticloss: 4911.061734523669
iteration: 94 Logisticloss: 497.72006946226185
iteration: 95 Logisticloss: 1675.99260954877
iteration: 96 Logisticloss: 2133.873973563251
iteration: 97 Logisticloss: 650.3202433435331
iteration: 98 Logisticloss: 1008.6129225619314
iteration: 99 Logisticloss: 1022.3227569909843
[-0.09511708 0.0101098 -0.10032784 ... 0.04619208 -0.06283868
 0.0220068 ]
```

CROSS VALIDATION 11

```
iteration: 0 Logisticloss: 2739.63021008044
iteration: 1 Logisticloss: 1416.9016302416899
iteration: 2 Logisticloss: 443.0065685386413
iteration: 3 Logisticloss: 1635.1112094256578
iteration: 4 Logisticloss: 1678.351984157164
iteration: 5 Logisticloss: 503.25752898641855
iteration: 6 Logisticloss: 2997.5732341773837
```


Output_logistic_train.txt

iteration: 7 Logisticloss: 1781.4366690942206
iteration: 8 Logisticloss: 888.8019804625426
iteration: 9 Logisticloss: 1845.2715576031396
iteration: 10 Logisticloss: 1060.5219911452748
iteration: 11 Logisticloss: 1482.9680547752969
iteration: 12 Logisticloss: 3524.4079921743487
iteration: 13 Logisticloss: 289.68862288698904
iteration: 14 Logisticloss: 34.03262612100842
iteration: 15 Logisticloss: 3.998190453861551
iteration: 16 Logisticloss: 0.4845979460541212
iteration: 17 Logisticloss: 0.32782997959753657
iteration: 18 Logisticloss: 4700.994655190771
iteration: 19 Logisticloss: 2361.3067879845576
iteration: 20 Logisticloss: 527.793542182799
iteration: 21 Logisticloss: 2154.3750318534712
iteration: 22 Logisticloss: 1814.6391987407117
iteration: 23 Logisticloss: 322.6850527266393
iteration: 24 Logisticloss: 2017.945843725399
iteration: 25 Logisticloss: 1679.5247262896596
iteration: 26 Logisticloss: 2179.430093365865
iteration: 27 Logisticloss: 1287.7212020390762
iteration: 28 Logisticloss: 1504.1607686597117
iteration: 29 Logisticloss: 877.3930198183061
iteration: 30 Logisticloss: 2313.479957254809
iteration: 31 Logisticloss: 3006.7871398521247
iteration: 32 Logisticloss: 255.59015975737253
iteration: 33 Logisticloss: 30.02726010028086
iteration: 34 Logisticloss: 21.056370361328714
iteration: 35 Logisticloss: 3332.3148143206213
iteration: 36 Logisticloss: 1462.2757990148802
iteration: 37 Logisticloss: 900.208459058149
iteration: 38 Logisticloss: 923.316406835755
iteration: 39 Logisticloss: 1400.553533373841
iteration: 40 Logisticloss: 922.2845318262509
iteration: 41 Logisticloss: 1538.4013113171818
iteration: 42 Logisticloss: 128.7799386211355
iteration: 43 Logisticloss: 15.129070170771804
iteration: 44 Logisticloss: 1.7783158552218856
iteration: 45 Logisticloss: 0.21705594767915973
iteration: 46 Logisticloss: 0.648982726512801
iteration: 47 Logisticloss: 3761.257589679365
iteration: 48 Logisticloss: 2088.82581343178
iteration: 49 Logisticloss: 343.6340704110099
iteration: 50 Logisticloss: 40.402874085560796
iteration: 51 Logisticloss: 4.746748302972089
iteration: 52 Logisticloss: 27.31672570691479
iteration: 53 Logisticloss: 3763.233692870781
iteration: 54 Logisticloss: 2727.8074849022664
iteration: 55 Logisticloss: 2299.1286175130276
iteration: 56 Logisticloss: 1509.891711372085
iteration: 57 Logisticloss: 2199.421116109378
iteration: 58 Logisticloss: 1052.3191695237122

Output_logistic_train.txt

```
iteration: 59 Logisticloss: 3582.5557233860472
iteration: 60 Logisticloss: 1763.0587549963088
iteration: 61 Logisticloss: 2769.615710397842
iteration: 62 Logisticloss: 379.2704453597214
iteration: 63 Logisticloss: 1521.057558251719
iteration: 64 Logisticloss: 2002.0806221112225
iteration: 65 Logisticloss: 1914.677752334594
iteration: 66 Logisticloss: 3946.9255407434875
iteration: 67 Logisticloss: 1235.4148234905174
iteration: 68 Logisticloss: 1814.918560751314
iteration: 69 Logisticloss: 1956.3546546218295
iteration: 70 Logisticloss: 2519.2885884866296
iteration: 71 Logisticloss: 2526.435476578847
iteration: 72 Logisticloss: 2805.4999651205812
iteration: 73 Logisticloss: 1067.1688764606745
iteration: 74 Logisticloss: 2313.898669543868
iteration: 75 Logisticloss: 919.9506554744532
iteration: 76 Logisticloss: 1889.7755439211567
iteration: 77 Logisticloss: 784.6836700861523
iteration: 78 Logisticloss: 2564.058900135082
iteration: 79 Logisticloss: 1748.9324882402695
iteration: 80 Logisticloss: 649.4378713872596
iteration: 81 Logisticloss: 438.9957951724401
iteration: 82 Logisticloss: 2677.238448011193
iteration: 83 Logisticloss: 4612.208654981038
iteration: 84 Logisticloss: 6021.94895184081
iteration: 85 Logisticloss: 2479.284828678675
iteration: 86 Logisticloss: 162.37346244447272
iteration: 87 Logisticloss: 3012.6490293921706
iteration: 88 Logisticloss: 871.5353231761376
iteration: 89 Logisticloss: 2152.6783230756214
iteration: 90 Logisticloss: 6730.413035688087
iteration: 91 Logisticloss: 929.1468166839147
iteration: 92 Logisticloss: 4088.7659040037765
iteration: 93 Logisticloss: 3989.702945523605
iteration: 94 Logisticloss: 1112.5257343243863
iteration: 95 Logisticloss: 2782.8936153729087
iteration: 96 Logisticloss: 1414.8505586277633
iteration: 97 Logisticloss: 441.40824110272126
iteration: 98 Logisticloss: 370.1299497352998
iteration: 99 Logisticloss: 3057.374979332721
[-0.04159219 -0.01640474 -0.06048375 ... 0.02528431 -0.03386807
0.01311976]
```

CROSS VALIDATION 12

```
iteration: 0 Logisticloss: 2853.487562217502
iteration: 1 Logisticloss: 838.18819003504
iteration: 2 Logisticloss: 1022.064858415091
iteration: 3 Logisticloss: 1204.4553321555725
iteration: 4 Logisticloss: 1206.3679702571767
iteration: 5 Logisticloss: 1523.2923954079831
iteration: 6 Logisticloss: 431.6600249626803
iteration: 7 Logisticloss: 50.766879757450525
```

Output_logistic_train.txt

```

iteration: 8 Logisticloss: 5.964104566476567
iteration: 9 Logisticloss: 0.7062363015596658
iteration: 10 Logisticloss: 0.12666127391426252
iteration: 11 Logisticloss: 1821.1547645526186
iteration: 12 Logisticloss: 5567.912126086934
iteration: 13 Logisticloss: 200.46925094503007
iteration: 14 Logisticloss: 23.558382095692945
iteration: 15 Logisticloss: 2.783647451623819
iteration: 16 Logisticloss: 0.33150340748618473
iteration: 17 Logisticloss: 0.0687217195790844
iteration: 18 Logisticloss: 3052.2012167244784
iteration: 19 Logisticloss: 1696.7634396238939
iteration: 20 Logisticloss: 6776.238492181986
iteration: 21 Logisticloss: 415.55037648631924
iteration: 22 Logisticloss: 243.83690513237437
iteration: 23 Logisticloss: 28.645965258692584
iteration: 24 Logisticloss: 3.366071856519932
iteration: 25 Logisticloss: 0.4061502442508377
iteration: 26 Logisticloss: 9308.810336774653
iteration: 27 Logisticloss: 7946.771479626594
iteration: 28 Logisticloss: 342.49828189997265
iteration: 29 Logisticloss: 3351.4584766372645
iteration: 30 Logisticloss: 2186.289960702998
iteration: 31 Logisticloss: 128.3252817667426
iteration: 32 Logisticloss: 15.07565707178051
iteration: 33 Logisticloss: 1.7710886750125916
iteration: 34 Logisticloss: 0.21456466076764424
iteration: 35 Logisticloss: 4500.699843716902
iteration: 36 Logisticloss: 1754.1953121929587
iteration: 37 Logisticloss: 323.9890086841108
iteration: 38 Logisticloss: 39.75286186785736
iteration: 39 Logisticloss: 4.670167216534877
iteration: 40 Logisticloss: 0.5490219888648553
iteration: 41 Logisticloss: 837.481679338701
iteration: 42 Logisticloss: 1878.3438656627059
iteration: 43 Logisticloss: 2025.1169768661284
iteration: 44 Logisticloss: 409.1427224263342
iteration: 45 Logisticloss: 3266.876261149396
iteration: 46 Logisticloss: 2129.4409628923895
iteration: 47 Logisticloss: 3336.885366419227
iteration: 48 Logisticloss: 882.4214604711226
iteration: 49 Logisticloss: 2220.417577022954
iteration: 50 Logisticloss: 3435.7176745900847
iteration: 51 Logisticloss: 213.2137040512275
iteration: 52 Logisticloss: 25.048350887203785
iteration: 53 Logisticloss: 2.943002933951839
iteration: 54 Logisticloss: 0.37000118981376845
iteration: 55 Logisticloss: 0.8004589716239912
iteration: 56 Logisticloss: 3328.3678431802746
iteration: 57 Logisticloss: 460.6997584441751
iteration: 58 Logisticloss: 354.99957984670175
iteration: 59 Logisticloss: 2694.76098643564

```

Output_logistic_train.txt

```
iteration: 60 Logisticloss: 3160.265621845775
iteration: 61 Logisticloss: 751.3471736308531
iteration: 62 Logisticloss: 1627.2099541788884
iteration: 63 Logisticloss: 1860.8685940771313
iteration: 64 Logisticloss: 499.50565043954657
iteration: 65 Logisticloss: 3987.4986649728426
iteration: 66 Logisticloss: 1907.0091915350586
iteration: 67 Logisticloss: 493.16071349220357
iteration: 68 Logisticloss: 1536.9588078115182
iteration: 69 Logisticloss: 1226.9780554165745
iteration: 70 Logisticloss: 2868.879411356877
iteration: 71 Logisticloss: 941.2752585681826
iteration: 72 Logisticloss: 5880.0929455819705
iteration: 73 Logisticloss: 2025.664322915028
iteration: 74 Logisticloss: 1317.96083771117
iteration: 75 Logisticloss: 1482.7205100157696
iteration: 76 Logisticloss: 2017.0515866761857
iteration: 77 Logisticloss: 3727.6039639687683
iteration: 78 Logisticloss: 4960.823819033321
iteration: 79 Logisticloss: 1497.3492620900183
iteration: 80 Logisticloss: 1439.669003869306
iteration: 81 Logisticloss: 4676.908961728341
iteration: 82 Logisticloss: 1678.6357286489188
iteration: 83 Logisticloss: 2884.5035423174604
iteration: 84 Logisticloss: 674.3296503506667
iteration: 85 Logisticloss: 254.80658548810493
iteration: 86 Logisticloss: 2676.811643302216
iteration: 87 Logisticloss: 2764.5280938935193
iteration: 88 Logisticloss: 2376.7088641114365
iteration: 89 Logisticloss: 4107.396580636469
iteration: 90 Logisticloss: 222.59726683171613
iteration: 91 Logisticloss: 1070.038594132681
iteration: 92 Logisticloss: 1132.38633199104
iteration: 93 Logisticloss: 2636.615803519072
iteration: 94 Logisticloss: 2358.590103518188
iteration: 95 Logisticloss: 477.8849761094814
iteration: 96 Logisticloss: 5746.705865159268
iteration: 97 Logisticloss: 923.9019968969192
iteration: 98 Logisticloss: 2544.7235699581033
iteration: 99 Logisticloss: 6688.482771229977
[-0.13620212 -0.06381226 -0.07027701 ... 0.05645556 -0.06740081
0.00886394]
```

CROSS VALIDATION 13

```
iteration: 0 Logisticloss: 4223.949187375099
iteration: 1 Logisticloss: 713.1921922879719
iteration: 2 Logisticloss: 1963.915183571868
iteration: 3 Logisticloss: 1943.0256777114007
iteration: 4 Logisticloss: 1739.7094390835364
iteration: 5 Logisticloss: 607.12158026715
iteration: 6 Logisticloss: 1405.4402664768945
iteration: 7 Logisticloss: 3396.309726298911
iteration: 8 Logisticloss: 2292.274070506475
```

Output_logistic_train.txt

iteration: 9 Logisticloss: 1419.0643271996846
iteration: 10 Logisticloss: 2853.2463594783994
iteration: 11 Logisticloss: 2449.656909701547
iteration: 12 Logisticloss: 481.2825301053182
iteration: 13 Logisticloss: 1158.8047361114159
iteration: 14 Logisticloss: 2495.1387181262426
iteration: 15 Logisticloss: 190.64754661697583
iteration: 16 Logisticloss: 22.397278188706014
iteration: 17 Logisticloss: 2.63125439656171
iteration: 18 Logisticloss: 0.328448116593136
iteration: 19 Logisticloss: 5693.664943609399
iteration: 20 Logisticloss: 951.6226162895485
iteration: 21 Logisticloss: 247.3412761351807
iteration: 22 Logisticloss: 1090.8505709237113
iteration: 23 Logisticloss: 3925.5076873580447
iteration: 24 Logisticloss: 725.9047192374104
iteration: 25 Logisticloss: 4426.92391070813
iteration: 26 Logisticloss: 382.02070938245845
iteration: 27 Logisticloss: 44.87994754754265
iteration: 28 Logisticloss: 5.375437253432928
iteration: 29 Logisticloss: 4572.851360110155
iteration: 30 Logisticloss: 829.9745653250811
iteration: 31 Logisticloss: 162.72316944169185
iteration: 32 Logisticloss: 19.13676583414564
iteration: 33 Logisticloss: 2.249439230297918
iteration: 34 Logisticloss: 0.6210764089003102
iteration: 35 Logisticloss: 2148.42666024223
iteration: 36 Logisticloss: 2370.5735126150967
iteration: 37 Logisticloss: 334.38121352686727
iteration: 38 Logisticloss: 39.28311270737474
iteration: 39 Logisticloss: 4.616426676004045
iteration: 40 Logisticloss: 6864.628591768073
iteration: 41 Logisticloss: 3607.194218858726
iteration: 42 Logisticloss: 1381.5823393037554
iteration: 43 Logisticloss: 108.91404047638751
iteration: 44 Logisticloss: 1578.6229341198318
iteration: 45 Logisticloss: 1647.380766085334
iteration: 46 Logisticloss: 1148.7537534904027
iteration: 47 Logisticloss: 1549.4653413175506
iteration: 48 Logisticloss: 3452.960498033546
iteration: 49 Logisticloss: 1136.66424586923
iteration: 50 Logisticloss: 2919.1925283004384
iteration: 51 Logisticloss: 4138.098918932141
iteration: 52 Logisticloss: 1614.4601633839911
iteration: 53 Logisticloss: 331.2093754420292
iteration: 54 Logisticloss: 3146.344596935131
iteration: 55 Logisticloss: 1385.9901682962063
iteration: 56 Logisticloss: 940.3906317822119
iteration: 57 Logisticloss: 3918.292480454249
iteration: 58 Logisticloss: 634.7234272916378
iteration: 59 Logisticloss: 1875.3307678587373
iteration: 60 Logisticloss: 3799.5708397075778

Output_logistic_train.txt

```

iteration: 61 Logisticloss: 6767.362451753628
iteration: 62 Logisticloss: 754.6446825435279
iteration: 63 Logisticloss: 3017.3175631422296
iteration: 64 Logisticloss: 3939.870159207575
iteration: 65 Logisticloss: 514.3493597021735
iteration: 66 Logisticloss: 96.22379645213616
iteration: 67 Logisticloss: 11.304373856938382
iteration: 68 Logisticloss: 1.3298522204730179
iteration: 69 Logisticloss: 7611.206501982202
iteration: 70 Logisticloss: 4567.6959375540155
iteration: 71 Logisticloss: 2678.5671409332917
iteration: 72 Logisticloss: 846.049136633049
iteration: 73 Logisticloss: 277.657149935934
iteration: 74 Logisticloss: 2677.9206232956844
iteration: 75 Logisticloss: 1269.87922058243
iteration: 76 Logisticloss: 116.61421129782916
iteration: 77 Logisticloss: 13.70006859199223
iteration: 78 Logisticloss: 1.613598284631045
iteration: 79 Logisticloss: 0.2313517729603318
iteration: 80 Logisticloss: 4559.429219664411
iteration: 81 Logisticloss: 1412.12412137174
iteration: 82 Logisticloss: 1068.4542021781506
iteration: 83 Logisticloss: 8404.795251757818
iteration: 84 Logisticloss: 3280.946119867915
iteration: 85 Logisticloss: 836.4791116792235
iteration: 86 Logisticloss: 511.14668160746726
iteration: 87 Logisticloss: 5220.27800070355
iteration: 88 Logisticloss: 2643.67082358013
iteration: 89 Logisticloss: 3350.119946369068
iteration: 90 Logisticloss: 580.7305840838656
iteration: 91 Logisticloss: 973.2696623146028
iteration: 92 Logisticloss: 4028.176241693271
iteration: 93 Logisticloss: 1661.278399607839
iteration: 94 Logisticloss: 1108.4575533511088
iteration: 95 Logisticloss: 2577.8170727493516
iteration: 96 Logisticloss: 1918.5326219471822
iteration: 97 Logisticloss: 2674.3405265038673
iteration: 98 Logisticloss: 6014.605404857423
iteration: 99 Logisticloss: 1658.208779933209
[-0.02868107 -0.00571244 0.02958802 ... 0.04533541 0.02177672
 0.0166264 ]

```

CROSS VALIDATION 14

```

iteration: 0 Logisticloss: 2739.1140695081544
iteration: 1 Logisticloss: 1703.079188138663
iteration: 2 Logisticloss: 661.3493072707249
iteration: 3 Logisticloss: 1581.6679452699084
iteration: 4 Logisticloss: 1185.4330417060544
iteration: 5 Logisticloss: 1690.4802230601058
iteration: 6 Logisticloss: 1639.6116052941838
iteration: 7 Logisticloss: 1651.1208001943107
iteration: 8 Logisticloss: 2892.810911364559
iteration: 9 Logisticloss: 1748.0295304337565

```

Output_logistic_train.txt

```

iteration: 10 Logisticloss: 3413.622452489523
iteration: 11 Logisticloss: 1541.514003867356
iteration: 12 Logisticloss: 753.5941201509066
iteration: 13 Logisticloss: 1595.0754199591652
iteration: 14 Logisticloss: 1934.7544364780442
iteration: 15 Logisticloss: 1723.7989680450382
iteration: 16 Logisticloss: 1800.0148326901663
iteration: 17 Logisticloss: 2510.895816436939
iteration: 18 Logisticloss: 230.60466370215454
iteration: 19 Logisticloss: 4147.032578101996
iteration: 20 Logisticloss: 1966.1812122548642
iteration: 21 Logisticloss: 1633.9262612437685
iteration: 22 Logisticloss: 4295.722768525253
iteration: 23 Logisticloss: 1186.4395446679732
iteration: 24 Logisticloss: 1405.7197706177544
iteration: 25 Logisticloss: 715.7046117974262
iteration: 26 Logisticloss: 1566.8520302240076
iteration: 27 Logisticloss: 1570.3160825029129
iteration: 28 Logisticloss: 1229.2818291884278
iteration: 29 Logisticloss: 4171.525874744716
iteration: 30 Logisticloss: 1757.0361178852777
iteration: 31 Logisticloss: 115.43336138178735
iteration: 32 Logisticloss: 2195.617007767968
iteration: 33 Logisticloss: 624.9549335068176
iteration: 34 Logisticloss: 1290.3065124915288
iteration: 35 Logisticloss: 2642.025030625768
iteration: 36 Logisticloss: 4448.484839493391
iteration: 37 Logisticloss: 1875.2563006451712
iteration: 38 Logisticloss: 139.62810394492217
iteration: 39 Logisticloss: 16.4055355075299
iteration: 40 Logisticloss: 1.9285551406898283
iteration: 41 Logisticloss: 0.24452035163759941
iteration: 42 Logisticloss: 5418.056259447782
iteration: 43 Logisticloss: 1232.778871861318
iteration: 44 Logisticloss: 473.5843148496298
iteration: 45 Logisticloss: 2324.164824283659
iteration: 46 Logisticloss: 645.8396393450282
iteration: 47 Logisticloss: 1215.9409354729319
iteration: 48 Logisticloss: 2507.985000677093
iteration: 49 Logisticloss: 182.54700526018183
iteration: 50 Logisticloss: 21.448180473326982
iteration: 51 Logisticloss: 8570.260582894514
iteration: 52 Logisticloss: 1218.193413643186
iteration: 53 Logisticloss: 2239.938543284451
iteration: 54 Logisticloss: 1796.7959295548585
iteration: 55 Logisticloss: 3019.758919454707
iteration: 56 Logisticloss: 1660.6412176923945
iteration: 57 Logisticloss: 580.5609402829621
iteration: 58 Logisticloss: 62.15558508929905
iteration: 59 Logisticloss: 7.302039867456883
iteration: 60 Logisticloss: 0.8604845157092852
iteration: 61 Logisticloss: 7859.91476274495

```

Output_logistic_train.txt

```

iteration: 62 Logisticloss: 1588.1363319218199
iteration: 63 Logisticloss: 1057.1874682926564
iteration: 64 Logisticloss: 2077.229675202558
iteration: 65 Logisticloss: 344.2530743090699
iteration: 66 Logisticloss: 977.6038672700383
iteration: 67 Logisticloss: 75.06642006841786
iteration: 68 Logisticloss: 8.818804779659526
iteration: 69 Logisticloss: 1.0361550280254466
iteration: 70 Logisticloss: 0.12539326191001715
iteration: 71 Logisticloss: 5478.891649854237
iteration: 72 Logisticloss: 1284.08278483515
iteration: 73 Logisticloss: 447.2559449100015
iteration: 74 Logisticloss: 2706.9991584164663
iteration: 75 Logisticloss: 1422.702771574272
iteration: 76 Logisticloss: 1184.7947432480282
iteration: 77 Logisticloss: 225.85765543288778
iteration: 78 Logisticloss: 4114.393029041377
iteration: 79 Logisticloss: 1854.0085938077918
iteration: 80 Logisticloss: 918.9718949755904
iteration: 81 Logisticloss: 3460.197479464616
iteration: 82 Logisticloss: 230.08338655652568
iteration: 83 Logisticloss: 3055.211887317023
iteration: 84 Logisticloss: 2342.52874821718
iteration: 85 Logisticloss: 667.9231041756225
iteration: 86 Logisticloss: 3899.4095743936464
iteration: 87 Logisticloss: 496.56796626559714
iteration: 88 Logisticloss: 1189.6294540992963
iteration: 89 Logisticloss: 3227.1196067488036
iteration: 90 Logisticloss: 5010.791130742741
iteration: 91 Logisticloss: 3596.0395182513025
iteration: 92 Logisticloss: 2580.841940240939
iteration: 93 Logisticloss: 278.5520133019505
iteration: 94 Logisticloss: 2492.853528613377
iteration: 95 Logisticloss: 1128.4534070694363
iteration: 96 Logisticloss: 2445.359130270087
iteration: 97 Logisticloss: 2063.146926044225
iteration: 98 Logisticloss: 864.8014821583669
iteration: 99 Logisticloss: 3488.3351858877904
[-0.08587144 0.0205718 -0.06480441 ... 0.06677188 -0.03023623
 0.0082784 ]

```

CROSS VALIDATION 15

```

iteration: 0 Logisticloss: 2739.1140695081544
iteration: 1 Logisticloss: 1703.079188138663
iteration: 2 Logisticloss: 661.3493072707245
iteration: 3 Logisticloss: 1630.163706771271
iteration: 4 Logisticloss: 1683.9681937515788
iteration: 5 Logisticloss: 476.58288231923785
iteration: 6 Logisticloss: 2155.7257593365853
iteration: 7 Logisticloss: 1904.0401231651967
iteration: 8 Logisticloss: 2816.1663566087145
iteration: 9 Logisticloss: 1686.0181683990288
iteration: 10 Logisticloss: 1191.5351536820372

```


Output_logistic_train.txt

iteration: 11 Logisticloss: 1438.9079389179938
iteration: 12 Logisticloss: 757.6147716196929
iteration: 13 Logisticloss: 2013.4652583285126
iteration: 14 Logisticloss: 1972.7140327011011
iteration: 15 Logisticloss: 1626.9679837708402
iteration: 16 Logisticloss: 691.3732205226809
iteration: 17 Logisticloss: 65.96498742771014
iteration: 18 Logisticloss: 7.750770003728856
iteration: 19 Logisticloss: 0.9120219675922964
iteration: 20 Logisticloss: 7591.61277334842
iteration: 21 Logisticloss: 1668.9426117158137
iteration: 22 Logisticloss: 4846.374719090058
iteration: 23 Logisticloss: 1303.2568563300529
iteration: 24 Logisticloss: 4402.924964134935
iteration: 25 Logisticloss: 1451.026116026453
iteration: 26 Logisticloss: 2729.753892936181
iteration: 27 Logisticloss: 826.4918901820843
iteration: 28 Logisticloss: 2822.944364871818
iteration: 29 Logisticloss: 2133.0876137894224
iteration: 30 Logisticloss: 2429.1410048529137
iteration: 31 Logisticloss: 2332.6924981131106
iteration: 32 Logisticloss: 1302.0263753836532
iteration: 33 Logisticloss: 1776.3847592498216
iteration: 34 Logisticloss: 1425.1294677603814
iteration: 35 Logisticloss: 4380.551944863131
iteration: 36 Logisticloss: 488.8647242823352
iteration: 37 Logisticloss: 3314.710923475751
iteration: 38 Logisticloss: 536.2435723222015
iteration: 39 Logisticloss: 1107.672181474787
iteration: 40 Logisticloss: 2932.1336366430182
iteration: 41 Logisticloss: 1494.2576635913824
iteration: 42 Logisticloss: 706.6233769939267
iteration: 43 Logisticloss: 1552.739137685844
iteration: 44 Logisticloss: 2174.98130087506
iteration: 45 Logisticloss: 431.1441679982198
iteration: 46 Logisticloss: 4128.1676268037345
iteration: 47 Logisticloss: 339.16342042442614
iteration: 48 Logisticloss: 39.84492648833057
iteration: 49 Logisticloss: 4.6826332166983855
iteration: 50 Logisticloss: 0.6610587233006312
iteration: 51 Logisticloss: 8048.669725971061
iteration: 52 Logisticloss: 2556.9224970106875
iteration: 53 Logisticloss: 451.9902344597919
iteration: 54 Logisticloss: 2209.3797048950287
iteration: 55 Logisticloss: 1658.7211284839805
iteration: 56 Logisticloss: 977.9871198644765
iteration: 57 Logisticloss: 5816.072798996371
iteration: 58 Logisticloss: 1646.4901300360082
iteration: 59 Logisticloss: 2778.215163217403
iteration: 60 Logisticloss: 2013.4349380790836
iteration: 61 Logisticloss: 2455.387104251909
iteration: 62 Logisticloss: 374.9169157092128

Output_logistic_train.txt

```

iteration: 63 Logisticloss: 5158.822205534906
iteration: 64 Logisticloss: 1380.371501014913
iteration: 65 Logisticloss: 1057.6000615652592
iteration: 66 Logisticloss: 2747.0242189012124
iteration: 67 Logisticloss: 2025.098516017461
iteration: 68 Logisticloss: 708.5282117452526
iteration: 69 Logisticloss: 98.18872624309822
iteration: 70 Logisticloss: 5505.324822773264
iteration: 71 Logisticloss: 1729.5731897260996
iteration: 72 Logisticloss: 536.2895635649692
iteration: 73 Logisticloss: 2303.864678051022
iteration: 74 Logisticloss: 1206.909701881214
iteration: 75 Logisticloss: 207.44388111165833
iteration: 76 Logisticloss: 2085.47732703913
iteration: 77 Logisticloss: 4098.277799860834
iteration: 78 Logisticloss: 504.2851207635902
iteration: 79 Logisticloss: 59.24342765794411
iteration: 80 Logisticloss: 6.959919260094027
iteration: 81 Logisticloss: 0.8193479000559786
iteration: 82 Logisticloss: 7020.398880771452
iteration: 83 Logisticloss: 2195.591472881873
iteration: 84 Logisticloss: 169.2476464992241
iteration: 85 Logisticloss: 19.883217550106725
iteration: 86 Logisticloss: 2.3403817900646566
iteration: 87 Logisticloss: 0.32163867567160176
iteration: 88 Logisticloss: 4617.585217653536
iteration: 89 Logisticloss: 1352.1229623743548
iteration: 90 Logisticloss: 2075.2961546603815
iteration: 91 Logisticloss: 2940.9995344389426
iteration: 92 Logisticloss: 1697.6424819501433
iteration: 93 Logisticloss: 623.9161832348223
iteration: 94 Logisticloss: 1234.5121893237372
iteration: 95 Logisticloss: 1705.4734918920005
iteration: 96 Logisticloss: 4376.252223259263
iteration: 97 Logisticloss: 462.40110426972285
iteration: 98 Logisticloss: 95.15754416263943
iteration: 99 Logisticloss: 11.17911920938827
[-2.18158038e-02 -7.83832055e-03 2.45651272e-05 ... 1.04920508e-02
 2.14287745e-03 2.04009074e-03]

```

CROSS VALIDATION 16

```

iteration: 0 Logisticloss: 2739.1140695081544
iteration: 1 Logisticloss: 1703.079188138663
iteration: 2 Logisticloss: 77.1520559235416
iteration: 3 Logisticloss: 9.064806849890598
iteration: 4 Logisticloss: 1.078839882125414
iteration: 5 Logisticloss: 0.15768694238990755
iteration: 6 Logisticloss: 5851.257997678944
iteration: 7 Logisticloss: 2726.947408048417
iteration: 8 Logisticloss: 390.93432568723705
iteration: 9 Logisticloss: 45.92697748608323
iteration: 10 Logisticloss: 5.399228288936096
iteration: 11 Logisticloss: 0.6374197819736762

```

Output_logistic_train.txt

```

iteration: 12 Logisticloss: 8641.62290281045
iteration: 13 Logisticloss: 3487.504181669976
iteration: 14 Logisticloss: 1261.1486859920892
iteration: 15 Logisticloss: 3364.65628554998
iteration: 16 Logisticloss: 1124.0192788558716
iteration: 17 Logisticloss: 1379.2060860418906
iteration: 18 Logisticloss: 1847.728921473351
iteration: 19 Logisticloss: 4161.894132311121
iteration: 20 Logisticloss: 995.4152430569287
iteration: 21 Logisticloss: 1269.52186747215
iteration: 22 Logisticloss: 3245.390567871325
iteration: 23 Logisticloss: 764.1702333992203
iteration: 24 Logisticloss: 1638.0797614499281
iteration: 25 Logisticloss: 1775.5936559135553
iteration: 26 Logisticloss: 1080.0962165346186
iteration: 27 Logisticloss: 1335.326129320447
iteration: 28 Logisticloss: 3226.7653126025684
iteration: 29 Logisticloss: 947.3479345734966
iteration: 30 Logisticloss: 387.7649785635181
iteration: 31 Logisticloss: 2748.958631039505
iteration: 32 Logisticloss: 1742.0250141360343
iteration: 33 Logisticloss: 1483.1071254166202
iteration: 34 Logisticloss: 1713.5559878208496
iteration: 35 Logisticloss: 4918.521253103425
iteration: 36 Logisticloss: 2252.0612823490114
iteration: 37 Logisticloss: 1346.598889445467
iteration: 38 Logisticloss: 1225.2305446379899
iteration: 39 Logisticloss: 1293.951371098647
iteration: 40 Logisticloss: 1163.5631066062515
iteration: 41 Logisticloss: 2350.1755591377105
iteration: 42 Logisticloss: 562.8377288292481
iteration: 43 Logisticloss: 1069.2308201298717
iteration: 44 Logisticloss: 4775.61344398394
iteration: 45 Logisticloss: 6194.728361785519
iteration: 46 Logisticloss: 1002.0190503592694
iteration: 47 Logisticloss: 1411.4698647109994
iteration: 48 Logisticloss: 2961.461413740556
iteration: 49 Logisticloss: 1574.5408356204102
iteration: 50 Logisticloss: 2714.540847723392
iteration: 51 Logisticloss: 4613.601290957148
iteration: 52 Logisticloss: 2172.211830470401
iteration: 53 Logisticloss: 1546.498049433891
iteration: 54 Logisticloss: 2767.6889017261556
iteration: 55 Logisticloss: 1676.865511275183
iteration: 56 Logisticloss: 856.5426634871912
iteration: 57 Logisticloss: 2173.3197731843634
iteration: 58 Logisticloss: 278.3938249522579
iteration: 59 Logisticloss: 653.2787388774855
iteration: 60 Logisticloss: 2185.301275088016
iteration: 61 Logisticloss: 1144.6835174689857
iteration: 62 Logisticloss: 1525.5803162797565
iteration: 63 Logisticloss: 875.3380976923339

```

Output_logistic_train.txt

```

iteration: 64 Logisticloss: 1446.8998764520359
iteration: 65 Logisticloss: 3067.793321796664
iteration: 66 Logisticloss: 331.9072799336266
iteration: 67 Logisticloss: 38.99247492791087
iteration: 68 Logisticloss: 4.580836903612123
iteration: 69 Logisticloss: 0.5420336097106636
iteration: 70 Logisticloss: 4574.902276110779
iteration: 71 Logisticloss: 706.7585060551074
iteration: 72 Logisticloss: 558.4327206521194
iteration: 73 Logisticloss: 6593.475158511257
iteration: 74 Logisticloss: 1649.4456436006594
iteration: 75 Logisticloss: 462.6657559831507
iteration: 76 Logisticloss: 893.8514291987187
iteration: 77 Logisticloss: 1921.5228598290732
iteration: 78 Logisticloss: 3344.00051546608
iteration: 79 Logisticloss: 620.393624475543
iteration: 80 Logisticloss: 980.216879766973
iteration: 81 Logisticloss: 3725.4606079099526
iteration: 82 Logisticloss: 1137.7229815192443
iteration: 83 Logisticloss: 1087.642629403158
iteration: 84 Logisticloss: 1558.8900251551709
iteration: 85 Logisticloss: 1405.697035939968
iteration: 86 Logisticloss: 6910.563446383193
iteration: 87 Logisticloss: 3626.489480491803
iteration: 88 Logisticloss: 333.73602172534413
iteration: 89 Logisticloss: 1355.592663460248
iteration: 90 Logisticloss: 3274.229429092865
iteration: 91 Logisticloss: 1195.0310431782386
iteration: 92 Logisticloss: 2613.593820609756
iteration: 93 Logisticloss: 2018.4186853270248
iteration: 94 Logisticloss: 362.23682959084056
iteration: 95 Logisticloss: 306.02358692545334
iteration: 96 Logisticloss: 35.95165807598715
iteration: 97 Logisticloss: 4.224073078959131
iteration: 98 Logisticloss: 8397.40787484474
iteration: 99 Logisticloss: 7923.472194554621
[-0.0368581 -0.03082378 -0.00894535 ... 0.06306294 0.02306978
0.03676247]

```

CROSS VALIDATION 17

```

iteration: 0 Logisticloss: 2739.1140695081544
iteration: 1 Logisticloss: 1703.079188138663
iteration: 2 Logisticloss: 683.6026788333922
iteration: 3 Logisticloss: 1633.335381558638
iteration: 4 Logisticloss: 1671.4296589289015
iteration: 5 Logisticloss: 501.72405506802755
iteration: 6 Logisticloss: 4022.1840296657856
iteration: 7 Logisticloss: 724.2538239479761
iteration: 8 Logisticloss: 2037.336040147977
iteration: 9 Logisticloss: 3024.1046381624788
iteration: 10 Logisticloss: 688.3220595271907
iteration: 11 Logisticloss: 2576.5756177081
iteration: 12 Logisticloss: 2729.002347683178

```

Output_logistic_train.txt

```

iteration: 13 Logisticloss: 807.6712385200786
iteration: 14 Logisticloss: 794.6649091986737
iteration: 15 Logisticloss: 2096.581998333926
iteration: 16 Logisticloss: 424.2103776193025
iteration: 17 Logisticloss: 638.0637955131053
iteration: 18 Logisticloss: 3807.4047179566414
iteration: 19 Logisticloss: 1949.5070317029144
iteration: 20 Logisticloss: 955.8015260006489
iteration: 21 Logisticloss: 2755.8981244954775
iteration: 22 Logisticloss: 3699.4627977186756
iteration: 23 Logisticloss: 2998.5996034277114
iteration: 24 Logisticloss: 154.59330115568386
iteration: 25 Logisticloss: 1586.5003526125388
iteration: 26 Logisticloss: 2276.083215599535
iteration: 27 Logisticloss: 1041.742918494474
iteration: 28 Logisticloss: 4390.441884028248
iteration: 29 Logisticloss: 471.93778245676174
iteration: 30 Logisticloss: 1034.4088199933071
iteration: 31 Logisticloss: 2553.966147081254
iteration: 32 Logisticloss: 2393.5593414830596
iteration: 33 Logisticloss: 760.9587422012407
iteration: 34 Logisticloss: 1318.7375478363329
iteration: 35 Logisticloss: 3114.4916455383245
iteration: 36 Logisticloss: 1583.0630901614168
iteration: 37 Logisticloss: 145.19512611591918
iteration: 38 Logisticloss: 3070.3378548941214
iteration: 39 Logisticloss: 3184.905650214996
iteration: 40 Logisticloss: 4250.076476063086
iteration: 41 Logisticloss: 349.5074047716609
iteration: 42 Logisticloss: 2921.796643432695
iteration: 43 Logisticloss: 1640.2176188326425
iteration: 44 Logisticloss: 509.56801648179317
iteration: 45 Logisticloss: 3545.4587420734224
iteration: 46 Logisticloss: 2237.7626345500576
iteration: 47 Logisticloss: 523.6739634970909
iteration: 48 Logisticloss: 962.7696761991739
iteration: 49 Logisticloss: 2675.893701758987
iteration: 50 Logisticloss: 2722.4884603782807
iteration: 51 Logisticloss: 1863.475294147049
iteration: 52 Logisticloss: 2469.9796597261543
iteration: 53 Logisticloss: 2117.5790313826055
iteration: 54 Logisticloss: 1725.1380574099203
iteration: 55 Logisticloss: 544.2529111423448
iteration: 56 Logisticloss: 1452.9902933410194
iteration: 57 Logisticloss: 3122.858794824137
iteration: 58 Logisticloss: 1466.4300421566209
iteration: 59 Logisticloss: 1842.134550830663
iteration: 60 Logisticloss: 188.8461515080065
iteration: 61 Logisticloss: 22.187119072022067
iteration: 62 Logisticloss: 2.6367619399092654
iteration: 63 Logisticloss: 10028.471537380747
iteration: 64 Logisticloss: 4346.6971018303175

```

Output_logistic_train.txt

```
iteration: 65 Logisticloss: 2873.7717268885417
iteration: 66 Logisticloss: 290.02154701862275
iteration: 67 Logisticloss: 4577.648850641888
iteration: 68 Logisticloss: 2002.9725823891915
iteration: 69 Logisticloss: 2898.4286349670474
iteration: 70 Logisticloss: 1129.0953244021016
iteration: 71 Logisticloss: 3085.6399014775693
iteration: 72 Logisticloss: 933.2031922907706
iteration: 73 Logisticloss: 2432.9678542271436
iteration: 74 Logisticloss: 900.2785179734748
iteration: 75 Logisticloss: 1667.913903366273
iteration: 76 Logisticloss: 885.2938175129304
iteration: 77 Logisticloss: 2108.922113182118
iteration: 78 Logisticloss: 266.70825730910656
iteration: 79 Logisticloss: 1911.7015784318705
iteration: 80 Logisticloss: 1100.271748532128
iteration: 81 Logisticloss: 1023.1183748116325
iteration: 82 Logisticloss: 5964.726656576797
iteration: 83 Logisticloss: 4513.79290781454
iteration: 84 Logisticloss: 2188.807763466733
iteration: 85 Logisticloss: 799.3556340690741
iteration: 86 Logisticloss: 1822.5953159925193
iteration: 87 Logisticloss: 2550.9209081124914
iteration: 88 Logisticloss: 701.3528055453912
iteration: 89 Logisticloss: 1364.1429064099707
iteration: 90 Logisticloss: 1159.1036911956578
iteration: 91 Logisticloss: 977.0143908771738
iteration: 92 Logisticloss: 3083.238396884274
iteration: 93 Logisticloss: 624.3242823775694
iteration: 94 Logisticloss: 1717.7499140042646
iteration: 95 Logisticloss: 3815.353369713186
iteration: 96 Logisticloss: 1660.205465590982
iteration: 97 Logisticloss: 240.9654622431304
iteration: 98 Logisticloss: 226.58620803551256
iteration: 99 Logisticloss: 1715.224971915411
[-0.04404147 -0.05293645 0.03135205 ... 0.01191035 -0.00426469
-0.00168163]
```

CROSS VALIDATION 18

```
iteration: 0 Logisticloss: 2368.567386468935
iteration: 1 Logisticloss: 459.6277746269462
iteration: 2 Logisticloss: 334.2379083331275
iteration: 3 Logisticloss: 1116.4028167488505
iteration: 4 Logisticloss: 1040.191072105023
iteration: 5 Logisticloss: 2092.4127615671205
iteration: 6 Logisticloss: 928.9986537795089
iteration: 7 Logisticloss: 679.561522034043
iteration: 8 Logisticloss: 2417.8154124730686
iteration: 9 Logisticloss: 5121.993091199571
iteration: 10 Logisticloss: 553.1127282258877
iteration: 11 Logisticloss: 1463.4984927657497
iteration: 12 Logisticloss: 3668.301520891312
iteration: 13 Logisticloss: 770.4741324899751
```

Output_logistic_train.txt

```

iteration: 14 Logisticloss: 309.1468806346526
iteration: 15 Logisticloss: 36.318582691524995
iteration: 16 Logisticloss: 4.266707935172127
iteration: 17 Logisticloss: 0.5015525429475827
iteration: 18 Logisticloss: 6804.185890112023
iteration: 19 Logisticloss: 7568.654145472028
iteration: 20 Logisticloss: 2552.81170081634
iteration: 21 Logisticloss: 2085.1059101766714
iteration: 22 Logisticloss: 2011.8076557759155
iteration: 23 Logisticloss: 1929.506532458238
iteration: 24 Logisticloss: 2883.5075141700795
iteration: 25 Logisticloss: 3696.7542883382503
iteration: 26 Logisticloss: 1594.7578877159062
iteration: 27 Logisticloss: 312.1586491004626
iteration: 28 Logisticloss: 36.67512895661535
iteration: 29 Logisticloss: 4.3108863015693615
iteration: 30 Logisticloss: 0.5279291270886898
iteration: 31 Logisticloss: 2658.8721871486314
iteration: 32 Logisticloss: 3152.590505031332
iteration: 33 Logisticloss: 176.84253025597485
iteration: 34 Logisticloss: 20.775677421475642
iteration: 35 Logisticloss: 2.4412192746310635
iteration: 36 Logisticloss: 0.5132642085899788
iteration: 37 Logisticloss: 6095.110195928156
iteration: 38 Logisticloss: 2390.759691953988
iteration: 39 Logisticloss: 4500.877840285176
iteration: 40 Logisticloss: 1347.328813159531
iteration: 41 Logisticloss: 326.0481059706577
iteration: 42 Logisticloss: 242.71289102413357
iteration: 43 Logisticloss: 1828.0577403837601
iteration: 44 Logisticloss: 690.114065468616
iteration: 45 Logisticloss: 683.8197912838125
iteration: 46 Logisticloss: 1596.776362860224
iteration: 47 Logisticloss: 1473.8814864122405
iteration: 48 Logisticloss: 887.7494437707962
iteration: 49 Logisticloss: 1768.596618617561
iteration: 50 Logisticloss: 1520.1172621174853
iteration: 51 Logisticloss: 1103.027815294573
iteration: 52 Logisticloss: 2703.726266929958
iteration: 53 Logisticloss: 1263.2936959960625
iteration: 54 Logisticloss: 2745.8750665879334
iteration: 55 Logisticloss: 1158.3061694125329
iteration: 56 Logisticloss: 2911.1536120598776
iteration: 57 Logisticloss: 2679.5419603132063
iteration: 58 Logisticloss: 3404.574327841564
iteration: 59 Logisticloss: 459.0817255732242
iteration: 60 Logisticloss: 1782.2414836934183
iteration: 61 Logisticloss: 2648.1625961003247
iteration: 62 Logisticloss: 916.2550479163717
iteration: 63 Logisticloss: 2898.019445545436
iteration: 64 Logisticloss: 947.3512473255903
iteration: 65 Logisticloss: 74.80497264977605

```

Output_logistic_train.txt

```
iteration: 66 Logisticloss: 8.788089919602491
iteration: 67 Logisticloss: 1.0336180803588317
iteration: 68 Logisticloss: 0.8103478161762729
iteration: 69 Logisticloss: 4199.83719493698
iteration: 70 Logisticloss: 1009.4546861903802
iteration: 71 Logisticloss: 2258.4615622806027
iteration: 72 Logisticloss: 3214.6546378189587
iteration: 73 Logisticloss: 1931.3115821735037
iteration: 74 Logisticloss: 187.93392892528183
iteration: 75 Logisticloss: 1607.9750542578029
iteration: 76 Logisticloss: 4547.400088656591
iteration: 77 Logisticloss: 307.86708468138926
iteration: 78 Logisticloss: 2029.6725611147378
iteration: 79 Logisticloss: 3159.3612056978204
iteration: 80 Logisticloss: 1049.818874340287
iteration: 81 Logisticloss: 3640.398117237908
iteration: 82 Logisticloss: 3151.669106765765
iteration: 83 Logisticloss: 1234.2500432391998
iteration: 84 Logisticloss: 1798.6352665117079
iteration: 85 Logisticloss: 2862.6426694283514
iteration: 86 Logisticloss: 2083.332259762265
iteration: 87 Logisticloss: 1387.5551928760785
iteration: 88 Logisticloss: 1152.4164715244788
iteration: 89 Logisticloss: 1177.828412866104
iteration: 90 Logisticloss: 2263.153021452308
iteration: 91 Logisticloss: 1132.971511806041
iteration: 92 Logisticloss: 1196.907187888814
iteration: 93 Logisticloss: 2311.149967632002
iteration: 94 Logisticloss: 4099.827447071035
iteration: 95 Logisticloss: 2797.1070043675118
iteration: 96 Logisticloss: 2240.0475909358515
iteration: 97 Logisticloss: 1518.639687188594
iteration: 98 Logisticloss: 248.7543666267624
iteration: 99 Logisticloss: 29.22366892050616
[ 0.0065695 -0.01908603 0.00516369 ... 0.00375283 0.00313534
 0.00136157]
```

CROSS VALIDATION 19

```
iteration: 0 Logisticloss: 2731.6949048184997
iteration: 1 Logisticloss: 1699.8962359604182
iteration: 2 Logisticloss: 492.80043427791907
iteration: 3 Logisticloss: 1371.9636503347854
iteration: 4 Logisticloss: 1371.8450070021236
iteration: 5 Logisticloss: 1049.4593093874319
iteration: 6 Logisticloss: 3250.064784569555
iteration: 7 Logisticloss: 1536.7490895425258
iteration: 8 Logisticloss: 361.2444776830863
iteration: 9 Logisticloss: 2756.286353191431
iteration: 10 Logisticloss: 263.33450466920755
iteration: 11 Logisticloss: 1881.3400885715357
iteration: 12 Logisticloss: 4627.848421139503
iteration: 13 Logisticloss: 334.11294335198664
iteration: 14 Logisticloss: 39.2523755388708
```


Output_logistic_train.txt

```

iteration: 15 Logisticloss: 4.61346136125239
iteration: 16 Logisticloss: 0.5470224829922261
iteration: 17 Logisticloss: 0.166524663187325
iteration: 18 Logisticloss: 4784.1011079641685
iteration: 19 Logisticloss: 1151.3461829331866
iteration: 20 Logisticloss: 2934.1765133805757
iteration: 21 Logisticloss: 601.6992818608293
iteration: 22 Logisticloss: 2779.3487674459084
iteration: 23 Logisticloss: 872.6517398670637
iteration: 24 Logisticloss: 1279.4717321956132
iteration: 25 Logisticloss: 1655.9332505865063
iteration: 26 Logisticloss: 1563.0910277906144
iteration: 27 Logisticloss: 301.08090186794215
iteration: 28 Logisticloss: 2244.601888860101
iteration: 29 Logisticloss: 966.7335956938184
iteration: 30 Logisticloss: 4699.3949293489795
iteration: 31 Logisticloss: 1096.7154065439383
iteration: 32 Logisticloss: 3818.248331344947
iteration: 33 Logisticloss: 1354.4675415912966
iteration: 34 Logisticloss: 3894.05894828175
iteration: 35 Logisticloss: 1486.8424485956268
iteration: 36 Logisticloss: 1173.1163550179344
iteration: 37 Logisticloss: 1843.0008809173287
iteration: 38 Logisticloss: 905.5237640582725
iteration: 39 Logisticloss: 599.9288233422127
iteration: 40 Logisticloss: 1437.4418409473824
iteration: 41 Logisticloss: 1696.1582657355877
iteration: 42 Logisticloss: 1053.282352440658
iteration: 43 Logisticloss: 1563.3974431532552
iteration: 44 Logisticloss: 1212.1641995824987
iteration: 45 Logisticloss: 2552.2164052162807
iteration: 46 Logisticloss: 2236.7014161382467
iteration: 47 Logisticloss: 355.51653299319855
iteration: 48 Logisticloss: 4238.147049704061
iteration: 49 Logisticloss: 1450.1071408975688
iteration: 50 Logisticloss: 1387.2057011586705
iteration: 51 Logisticloss: 2532.8869593038307
iteration: 52 Logisticloss: 1314.462821636799
iteration: 53 Logisticloss: 1062.5555772870116
iteration: 54 Logisticloss: 331.11674610081855
iteration: 55 Logisticloss: 38.9084200849841
iteration: 56 Logisticloss: 5396.372150418984
iteration: 57 Logisticloss: 5784.87144671683
iteration: 58 Logisticloss: 526.328869533683
iteration: 59 Logisticloss: 481.54656998265347
iteration: 60 Logisticloss: 1644.0930202205082
iteration: 61 Logisticloss: 2223.948994150901
iteration: 62 Logisticloss: 1167.5180215249547
iteration: 63 Logisticloss: 1287.9163455694377
iteration: 64 Logisticloss: 1063.0831814085323
iteration: 65 Logisticloss: 735.3878688550244
iteration: 66 Logisticloss: 1718.9947269551074

```

Output_logistic_train.txt

```
iteration: 67 Logisticloss: 1691.3649390663313
iteration: 68 Logisticloss: 2264.4476280745557
iteration: 69 Logisticloss: 776.8508314444935
iteration: 70 Logisticloss: 1472.4349393790494
iteration: 71 Logisticloss: 1414.9870494146235
iteration: 72 Logisticloss: 1711.9390013698217
iteration: 73 Logisticloss: 1512.1264173731208
iteration: 74 Logisticloss: 2220.020667103271
iteration: 75 Logisticloss: 294.32074496250397
iteration: 76 Logisticloss: 2580.825325188848
iteration: 77 Logisticloss: 1783.0658319430418
iteration: 78 Logisticloss: 1544.923352408241
iteration: 79 Logisticloss: 1119.730755445586
iteration: 80 Logisticloss: 3879.4673716557927
iteration: 81 Logisticloss: 2118.9540918649454
iteration: 82 Logisticloss: 335.4535652616881
iteration: 83 Logisticloss: 3416.540879040173
iteration: 84 Logisticloss: 3359.985834863615
iteration: 85 Logisticloss: 626.9874443780418
iteration: 86 Logisticloss: 3039.6350151549273
iteration: 87 Logisticloss: 3416.567312307948
iteration: 88 Logisticloss: 952.1950238425616
iteration: 89 Logisticloss: 4153.429313113118
iteration: 90 Logisticloss: 558.4004588186131
iteration: 91 Logisticloss: 1885.6531635386505
iteration: 92 Logisticloss: 2831.3620803668914
iteration: 93 Logisticloss: 612.2398116956274
iteration: 94 Logisticloss: 2151.1399273053094
iteration: 95 Logisticloss: 1875.6602838298822
iteration: 96 Logisticloss: 1288.4969431296663
iteration: 97 Logisticloss: 1599.6637361176363
iteration: 98 Logisticloss: 2485.728207155515
iteration: 99 Logisticloss: 361.0159614565996
[-0.0809987 -0.06098917 -0.05165221 ... 0.02652988 0.0277708
0.00763971]
```

Accuracy (Logistic Loss): 0.7

eta = 0.01 lambda = 0.3

CROSS VALIDATION 0

```
iteration: 0 Logisticloss: 1422.6304696702032
iteration: 1 Logisticloss: 402.3114384868698
iteration: 2 Logisticloss: 212.5783964439805
iteration: 3 Logisticloss: 112.32485659531895
iteration: 4 Logisticloss: 59.35162566006002
iteration: 5 Logisticloss: 31.360961191191034
iteration: 6 Logisticloss: 16.57090055912708
iteration: 7 Logisticloss: 8.755941620105993
iteration: 8 Logisticloss: 4.626574963813734
iteration: 9 Logisticloss: 2.444648082925022
iteration: 10 Logisticloss: 1.2917340157960673
iteration: 11 Logisticloss: 0.6825431886609467
iteration: 12 Logisticloss: 0.36067931040682927
iteration: 13 Logisticloss: 0.1909905777783473
```

Output_logistic_train.txt

```

iteration: 14 Logisticloss: 0.10183426978913696
iteration: 15 Logisticloss: 0.05417925390825096
iteration: 16 Logisticloss: 0.03023709221836044
iteration: 17 Logisticloss: 0.01659223868338835
iteration: 18 Logisticloss: 0.010573914842180225
iteration: 19 Logisticloss: 0.006669636517089503
iteration: 20 Logisticloss: 0.005417959474509683
iteration: 21 Logisticloss: 0.007780049648068405
iteration: 22 Logisticloss: 9580.619370696748
iteration: 23 Logisticloss: 5052.541029417241
iteration: 24 Logisticloss: 424.85615012697025
iteration: 25 Logisticloss: 224.49085577342342
iteration: 26 Logisticloss: 118.61931223267646
iteration: 27 Logisticloss: 62.677569587754014
iteration: 28 Logisticloss: 33.11836542874134
iteration: 29 Logisticloss: 17.49949999474689
iteration: 30 Logisticloss: 9.246606712076101
iteration: 31 Logisticloss: 4.885838787097728
iteration: 32 Logisticloss: 2.5816424848695516
iteration: 33 Logisticloss: 1.3641626669173483
iteration: 34 Logisticloss: 0.7208170620677405
iteration: 35 Logisticloss: 0.38096582970894627
iteration: 36 Logisticloss: 0.20137377243233787
iteration: 37 Logisticloss: 0.10652499965739043
iteration: 38 Logisticloss: 0.05677707655264208
iteration: 39 Logisticloss: 0.030889850351853324
iteration: 40 Logisticloss: 0.01721103840687788
iteration: 41 Logisticloss: 0.010498781001623545
iteration: 42 Logisticloss: 0.006570883428686991
iteration: 43 Logisticloss: 0.005404086953454722
iteration: 44 Logisticloss: 0.06201254359494278
iteration: 45 Logisticloss: 6462.773426329208
iteration: 46 Logisticloss: 518.9567225680433
iteration: 47 Logisticloss: 1239.3510852336358
iteration: 48 Logisticloss: 231.3265107470448
iteration: 49 Logisticloss: 122.23122189749252
iteration: 50 Logisticloss: 64.58607601137179
iteration: 51 Logisticloss: 34.126806144873115
iteration: 52 Logisticloss: 18.03235263044486
iteration: 53 Logisticloss: 9.52816215230626
iteration: 54 Logisticloss: 5.034614629457046
iteration: 55 Logisticloss: 2.6603679956895365
iteration: 56 Logisticloss: 1.406313294108714
iteration: 57 Logisticloss: 0.7430119284534943
iteration: 58 Logisticloss: 0.39322231086037274
iteration: 59 Logisticloss: 0.2079591237973871
iteration: 60 Logisticloss: 0.11068781898604356
iteration: 61 Logisticloss: 0.05919954915977038
iteration: 62 Logisticloss: 0.03255762510970613
iteration: 63 Logisticloss: 0.01838281315358607
iteration: 64 Logisticloss: 0.011570290959777041
iteration: 65 Logisticloss: 0.007258901559030469

```

Output_logistic_train.txt

```

iteration: 66 Logisticloss: 0.02090362550713822
iteration: 67 Logisticloss: 8606.402715527462
iteration: 68 Logisticloss: 1941.4138353348806
iteration: 69 Logisticloss: 2838.1144709091795
iteration: 70 Logisticloss: 311.4704502012607
iteration: 71 Logisticloss: 164.57868834222754
iteration: 72 Logisticloss: 86.96216736027361
iteration: 73 Logisticloss: 45.95021962890215
iteration: 74 Logisticloss: 24.279753175829423
iteration: 75 Logisticloss: 12.829298816532162
iteration: 76 Logisticloss: 6.778901363061646
iteration: 77 Logisticloss: 3.581972601111782
iteration: 78 Logisticloss: 1.8926842688721601
iteration: 79 Logisticloss: 1.0001374964754697
iteration: 80 Logisticloss: 0.5284638532093053
iteration: 81 Logisticloss: 0.2794230670162387
iteration: 82 Logisticloss: 0.1478165681435778
iteration: 83 Logisticloss: 0.07821151235838185
iteration: 84 Logisticloss: 0.04201144959567321
iteration: 85 Logisticloss: 0.02316793204761155
iteration: 86 Logisticloss: 0.013004557465334887
iteration: 87 Logisticloss: 0.00849360422862679
iteration: 88 Logisticloss: 0.006435389991201715
iteration: 89 Logisticloss: 0.1722313824201224
iteration: 90 Logisticloss: 6372.333047407874
iteration: 91 Logisticloss: 523.3394519974754
iteration: 92 Logisticloss: 1228.21391895672
iteration: 93 Logisticloss: 231.41030290260207
iteration: 94 Logisticloss: 122.27549705439566
iteration: 95 Logisticloss: 64.6094706776835
iteration: 96 Logisticloss: 34.139167713981344
iteration: 97 Logisticloss: 18.038884392333404
iteration: 98 Logisticloss: 9.53161346520624
iteration: 99 Logisticloss: 5.036436414306129
[-0.02266378 -0.00307065 -0.0043004 ... 0.01475457 0.00088541
-0.00131341]

```

CROSS VALIDATION 1

```

iteration: 0 Logisticloss: 1647.9380448664815
iteration: 1 Logisticloss: 423.2155422025561
iteration: 2 Logisticloss: 368.29814324047254
iteration: 3 Logisticloss: 164.5307191403605
iteration: 4 Logisticloss: 86.9368183320352
iteration: 5 Logisticloss: 45.93677351674118
iteration: 6 Logisticloss: 24.27265227339007
iteration: 7 Logisticloss: 12.825490413916397
iteration: 8 Logisticloss: 6.776894534901742
iteration: 9 Logisticloss: 3.580862319807601
iteration: 10 Logisticloss: 1.8921493984269706
iteration: 11 Logisticloss: 0.9999728096059188
iteration: 12 Logisticloss: 0.5283065307627598
iteration: 13 Logisticloss: 0.2793658891456872
iteration: 14 Logisticloss: 0.14775595572848568

```

Output_logistic_train.txt

```

iteration: 15 Logisticloss: 0.07828093636695654
iteration: 16 Logisticloss: 0.04188232687382305
iteration: 17 Logisticloss: 0.022343819353977445
iteration: 18 Logisticloss: 0.01262042078647432
iteration: 19 Logisticloss: 0.008376907088379027
iteration: 20 Logisticloss: 0.006199282907959329
iteration: 21 Logisticloss: 0.06116154180906798
iteration: 22 Logisticloss: 6447.493648475212
iteration: 23 Logisticloss: 788.8066565081995
iteration: 24 Logisticloss: 281.86152830887266
iteration: 25 Logisticloss: 148.93355240533447
iteration: 26 Logisticloss: 78.69539048183141
iteration: 27 Logisticloss: 41.582063833630215
iteration: 28 Logisticloss: 21.971655799373547
iteration: 29 Logisticloss: 11.60966085035225
iteration: 30 Logisticloss: 6.134459154600662
iteration: 31 Logisticloss: 3.241402966420195
iteration: 32 Logisticloss: 1.7127334173614632
iteration: 33 Logisticloss: 0.9049957703451945
iteration: 34 Logisticloss: 0.4781994023898826
iteration: 35 Logisticloss: 0.25284691529693354
iteration: 36 Logisticloss: 0.13428972078858015
iteration: 37 Logisticloss: 0.07117002313274712
iteration: 38 Logisticloss: 0.038860217057957586
iteration: 39 Logisticloss: 0.021560596499998273
iteration: 40 Logisticloss: 0.013286701219429983
iteration: 41 Logisticloss: 0.007988863153943006
iteration: 42 Logisticloss: 0.0065869970824342025
iteration: 43 Logisticloss: 0.027653700808808083
iteration: 44 Logisticloss: 7317.838250022738
iteration: 45 Logisticloss: 1516.6217754464387
iteration: 46 Logisticloss: 385.9450494643659
iteration: 47 Logisticloss: 548.4202513307771
iteration: 48 Logisticloss: 180.9103560112549
iteration: 49 Logisticloss: 95.59169763013661
iteration: 50 Logisticloss: 50.50994789509448
iteration: 51 Logisticloss: 26.689083880866637
iteration: 52 Logisticloss: 14.10231505047968
iteration: 53 Logisticloss: 7.451559246870937
iteration: 54 Logisticloss: 3.937348939579944
iteration: 55 Logisticloss: 2.080466136020841
iteration: 56 Logisticloss: 1.099303056735524
iteration: 57 Logisticloss: 0.5808710495740474
iteration: 58 Logisticloss: 0.3069559559303557
iteration: 59 Logisticloss: 0.16224859342411344
iteration: 60 Logisticloss: 0.08594064798241147
iteration: 61 Logisticloss: 0.04580914203135159
iteration: 62 Logisticloss: 0.024939046327792008
iteration: 63 Logisticloss: 0.013991321957466319
iteration: 64 Logisticloss: 0.009419251178317024
iteration: 65 Logisticloss: 0.00643819397135121
iteration: 66 Logisticloss: 0.01203144674454322

```

Output_logistic_train.txt

```
iteration: 67 Logisticloss: 0.006732265008369624
iteration: 68 Logisticloss: 0.004578144921093565
iteration: 69 Logisticloss: 0.005820984133746495
iteration: 70 Logisticloss: 0.00611339900374543
iteration: 71 Logisticloss: 0.006486960443334999
iteration: 72 Logisticloss: 0.00421235077594795
iteration: 73 Logisticloss: 0.005568730350803281
iteration: 74 Logisticloss: 0.02028111468205838
iteration: 75 Logisticloss: 5804.35323137912
iteration: 76 Logisticloss: 341.63655014211173
iteration: 77 Logisticloss: 180.51823301124924
iteration: 78 Logisticloss: 95.3845027294312
iteration: 79 Logisticloss: 50.40046763842838
iteration: 80 Logisticloss: 26.631235492706978
iteration: 81 Logisticloss: 14.071760580403216
iteration: 82 Logisticloss: 7.4356551321784075
iteration: 83 Logisticloss: 3.929212647442989
iteration: 84 Logisticloss: 2.076401708325632
iteration: 85 Logisticloss: 1.0974036591242804
iteration: 86 Logisticloss: 0.580745364359038
iteration: 87 Logisticloss: 0.30678302840827565
iteration: 88 Logisticloss: 0.1637072634440047
iteration: 89 Logisticloss: 0.08698138710856429
iteration: 90 Logisticloss: 0.04708473738346802
iteration: 91 Logisticloss: 0.03633659135206646
iteration: 92 Logisticloss: 10268.406636628031
iteration: 93 Logisticloss: 1129.0844770548845
iteration: 94 Logisticloss: 1041.8576730473778
iteration: 95 Logisticloss: 238.72503066182892
iteration: 96 Logisticloss: 126.1405452452427
iteration: 97 Logisticloss: 66.65173363117835
iteration: 98 Logisticloss: 35.2182843938444
iteration: 99 Logisticloss: 18.609081685843854
[-0.02080837 -0.02048832 -0.00551164 ... 0.01476307 0.00041809
0.00240845]
```

CROSS VALIDATION 2

```
iteration: 0 Logisticloss: 5553.857443419017
iteration: 1 Logisticloss: 386.6913632409457
iteration: 2 Logisticloss: 204.3248639071104
iteration: 3 Logisticloss: 107.9637512767131
iteration: 4 Logisticloss: 57.04727103427808
iteration: 5 Logisticloss: 30.143495964893066
iteration: 6 Logisticloss: 15.927622820883489
iteration: 7 Logisticloss: 8.416173847626085
iteration: 8 Logisticloss: 4.4470764355562995
iteration: 9 Logisticloss: 2.3499972456626725
iteration: 10 Logisticloss: 1.2418350852017002
iteration: 11 Logisticloss: 0.6564193645522066
iteration: 12 Logisticloss: 0.3507524980505024
iteration: 13 Logisticloss: 6556.019724270189
iteration: 14 Logisticloss: 576.5172197354774
iteration: 15 Logisticloss: 391.5526373731204
```

Output_logistic_train.txt

```

iteration: 16 Logisticloss: 1255.5729452432495
iteration: 17 Logisticloss: 145.01145126878947
iteration: 18 Logisticloss: 76.62298117268112
iteration: 19 Logisticloss: 40.48701804182239
iteration: 20 Logisticloss: 21.393041689809902
iteration: 21 Logisticloss: 11.303926861224074
iteration: 22 Logisticloss: 5.972966349130928
iteration: 23 Logisticloss: 3.1563958824417973
iteration: 24 Logisticloss: 1.6676665781967535
iteration: 25 Logisticloss: 0.8814564847136517
iteration: 26 Logisticloss: 0.4656654858448716
iteration: 27 Logisticloss: 0.2464954835301234
iteration: 28 Logisticloss: 0.13069853276451213
iteration: 29 Logisticloss: 0.069649746705707
iteration: 30 Logisticloss: 0.03767261616779135
iteration: 31 Logisticloss: 0.02136471014101929
iteration: 32 Logisticloss: 0.012572286777999292
iteration: 33 Logisticloss: 0.008847891084991155
iteration: 34 Logisticloss: 0.009447868339392002
iteration: 35 Logisticloss: 38.14856613825422
iteration: 36 Logisticloss: 2314.19480789088
iteration: 37 Logisticloss: 1344.0757449182536
iteration: 38 Logisticloss: 298.805564779916
iteration: 39 Logisticloss: 157.88665628885795
iteration: 40 Logisticloss: 83.4261445312665
iteration: 41 Logisticloss: 44.0817593769191
iteration: 42 Logisticloss: 23.29247648542982
iteration: 43 Logisticloss: 12.307572757823523
iteration: 44 Logisticloss: 6.503230658357559
iteration: 45 Logisticloss: 3.4362591087609275
iteration: 46 Logisticloss: 1.815693966778421
iteration: 47 Logisticloss: 0.9593996488550207
iteration: 48 Logisticloss: 0.5069607171023933
iteration: 49 Logisticloss: 0.26824665779140894
iteration: 50 Logisticloss: 0.14216653904220536
iteration: 51 Logisticloss: 0.07541465386171499
iteration: 52 Logisticloss: 0.04051178026471715
iteration: 53 Logisticloss: 0.022317174164066363
iteration: 54 Logisticloss: 0.012939969189165016
iteration: 55 Logisticloss: 0.00839095767360326
iteration: 56 Logisticloss: 0.0053835038191703925
iteration: 57 Logisticloss: 0.022778842650221252
iteration: 58 Logisticloss: 5277.513807881139
iteration: 59 Logisticloss: 1716.8418852746386
iteration: 60 Logisticloss: 509.0885658796616
iteration: 61 Logisticloss: 255.3736077176531
iteration: 62 Logisticloss: 134.9375305532223
iteration: 63 Logisticloss: 71.29999577690559
iteration: 64 Logisticloss: 37.67439182372583
iteration: 65 Logisticloss: 19.9068707442603
iteration: 66 Logisticloss: 10.518645181144768
iteration: 67 Logisticloss: 5.558025661026524

```

Output_logistic_train.txt

```
iteration: 68 Logisticloss: 2.9368450909438404
iteration: 69 Logisticloss: 1.5519013966435027
iteration: 70 Logisticloss: 0.820875536929425
iteration: 71 Logisticloss: 0.43401811304304705
iteration: 72 Logisticloss: 0.23007196604728142
iteration: 73 Logisticloss: 0.12235135008072055
iteration: 74 Logisticloss: 0.06518409070402667
iteration: 75 Logisticloss: 0.03556900134068836
iteration: 76 Logisticloss: 0.01948669309678999
iteration: 77 Logisticloss: 0.012587894992391498
iteration: 78 Logisticloss: 0.007447588308605927
iteration: 79 Logisticloss: 0.005940634505309418
iteration: 80 Logisticloss: 0.01700899948652053
iteration: 81 Logisticloss: 651.8280657562906
iteration: 82 Logisticloss: 2621.947281653721
iteration: 83 Logisticloss: 1754.109078703385
iteration: 84 Logisticloss: 307.231797586173
iteration: 85 Logisticloss: 162.3390155475328
iteration: 86 Logisticloss: 85.77873832069832
iteration: 87 Logisticloss: 45.32485258133419
iteration: 88 Logisticloss: 23.949317764959098
iteration: 89 Logisticloss: 12.654642844865228
iteration: 90 Logisticloss: 6.686619998369896
iteration: 91 Logisticloss: 3.533166851268322
iteration: 92 Logisticloss: 1.8670624415463755
iteration: 93 Logisticloss: 0.9873267090027281
iteration: 94 Logisticloss: 0.5215437489201347
iteration: 95 Logisticloss: 0.2765528282859095
iteration: 96 Logisticloss: 0.1459739519220129
iteration: 97 Logisticloss: 0.07813466476692223
iteration: 98 Logisticloss: 0.04130918767783196
iteration: 99 Logisticloss: 0.023261009627283825
[-1.47132796e-03 -1.84234778e-04 -4.91331466e-04 ... 1.52918983e-03
 5.70667226e-04 8.39422112e-05]
```

CROSS VALIDATION 3

```
iteration: 0 Logisticloss: 2348.8042470206
iteration: 1 Logisticloss: 359.0834677247939
iteration: 2 Logisticloss: 189.7370555646576
iteration: 3 Logisticloss: 100.2556605639582
iteration: 4 Logisticloss: 52.97435150601257
iteration: 5 Logisticloss: 27.99125672714006
iteration: 6 Logisticloss: 14.790384590999356
iteration: 7 Logisticloss: 7.8152243737148686
iteration: 8 Logisticloss: 4.129480602982071
iteration: 9 Logisticloss: 2.1820615960758984
iteration: 10 Logisticloss: 1.1529711275516425
iteration: 11 Logisticloss: 0.6093187029372338
iteration: 12 Logisticloss: 0.32200368854975703
iteration: 13 Logisticloss: 0.17063508077939987
iteration: 14 Logisticloss: 0.0901591520526724
iteration: 15 Logisticloss: 0.04875793443862291
iteration: 16 Logisticloss: 0.026192789184581733
```


Output_logistic_train.txt

```

iteration: 17 Logisticloss: 0.015562085736722055
iteration: 18 Logisticloss: 0.008852134995120917
iteration: 19 Logisticloss: 0.006588865245088938
iteration: 20 Logisticloss: 0.0047565947482572386
iteration: 21 Logisticloss: 0.005827475699796078
iteration: 22 Logisticloss: 0.03378927606671969
iteration: 23 Logisticloss: 0.006773267981807723
iteration: 24 Logisticloss: 0.005662714562217617
iteration: 25 Logisticloss: 0.005079992809550259
iteration: 26 Logisticloss: 0.004459376921596614
iteration: 27 Logisticloss: 0.008582408065552804
iteration: 28 Logisticloss: 0.006677230096257051
iteration: 29 Logisticloss: 0.005566193328492787
iteration: 30 Logisticloss: 0.0050251098655665636
iteration: 31 Logisticloss: 0.0051353975997166686
iteration: 32 Logisticloss: 0.006148194738797301
iteration: 33 Logisticloss: 0.025096412577272395
iteration: 34 Logisticloss: 0.011981649911319473
iteration: 35 Logisticloss: 0.00772414454841295
iteration: 36 Logisticloss: 0.02151229173433949
iteration: 37 Logisticloss: 4279.708890555597
iteration: 38 Logisticloss: 3303.6760220526417
iteration: 39 Logisticloss: 1576.7374084079752
iteration: 40 Logisticloss: 653.937601368939
iteration: 41 Logisticloss: 234.31955439602456
iteration: 42 Logisticloss: 123.81272408341094
iteration: 43 Logisticloss: 65.42173010045178
iteration: 44 Logisticloss: 34.56835960133748
iteration: 45 Logisticloss: 18.265666222074273
iteration: 46 Logisticloss: 9.651443841907254
iteration: 47 Logisticloss: 5.099773390160542
iteration: 48 Logisticloss: 2.694692023674303
iteration: 49 Logisticloss: 1.4238900756419632
iteration: 50 Logisticloss: 0.7523803628507126
iteration: 51 Logisticloss: 0.39760136299679943
iteration: 52 Logisticloss: 0.21011962797816966
iteration: 53 Logisticloss: 0.11132646466991568
iteration: 54 Logisticloss: 0.05941999804329509
iteration: 55 Logisticloss: 0.031976769622782716
iteration: 56 Logisticloss: 0.018168752830247974
iteration: 57 Logisticloss: 0.010539600611827283
iteration: 58 Logisticloss: 0.0071400394916451195
iteration: 59 Logisticloss: 0.00821706482139184
iteration: 60 Logisticloss: 10162.82398206459
iteration: 61 Logisticloss: 1060.9220104898036
iteration: 62 Logisticloss: 374.6869170507826
iteration: 63 Logisticloss: 197.98180308958243
iteration: 64 Logisticloss: 104.61212433870413
iteration: 65 Logisticloss: 55.27627482867557
iteration: 66 Logisticloss: 29.207575873786755
iteration: 67 Logisticloss: 15.433067675472069
iteration: 68 Logisticloss: 8.154722804077105

```

Output_logistic_train.txt

```

iteration: 69 Logisticloss: 4.308990874393344
iteration: 70 Logisticloss: 2.2769355906812967
iteration: 71 Logisticloss: 1.203285782714833
iteration: 72 Logisticloss: 0.6358998173991599
iteration: 73 Logisticloss: 0.3364829324228858
iteration: 74 Logisticloss: 0.1823589689962708
iteration: 75 Logisticloss: 10071.034319914561
iteration: 76 Logisticloss: 4253.288825199525
iteration: 77 Logisticloss: 926.9186235343192
iteration: 78 Logisticloss: 277.7970185422535
iteration: 79 Logisticloss: 146.78589542653108
iteration: 80 Logisticloss: 77.56058437643496
iteration: 81 Logisticloss: 40.98244065850803
iteration: 82 Logisticloss: 21.65481937657017
iteration: 83 Logisticloss: 11.442250975965933
iteration: 84 Logisticloss: 6.046098708393179
iteration: 85 Logisticloss: 3.1947042434043333
iteration: 86 Logisticloss: 1.6881905547045606
iteration: 87 Logisticloss: 0.8920329499836955
iteration: 88 Logisticloss: 0.47166502914142183
iteration: 89 Logisticloss: 0.24925214633570011
iteration: 90 Logisticloss: 0.13211868617174066
iteration: 91 Logisticloss: 0.07013968833264517
iteration: 92 Logisticloss: 0.03762182883436751
iteration: 93 Logisticloss: 0.02074209198149515
iteration: 94 Logisticloss: 0.013611815658492928
iteration: 95 Logisticloss: 0.007514736365719729
iteration: 96 Logisticloss: 0.022133243744683794
iteration: 97 Logisticloss: 7445.443952395836
iteration: 98 Logisticloss: 290.0034175648213
iteration: 99 Logisticloss: 153.2356666309151
[ 0.03927125 -0.02611528 0.00110906 ... 0.05561589 -0.0204982
 0.00257313]

```

CROSS VALIDATION 4

```

iteration: 0 Logisticloss: 2348.8042470206
iteration: 1 Logisticloss: 359.0834677247939
iteration: 2 Logisticloss: 189.7370555646576
iteration: 3 Logisticloss: 100.2556605639582
iteration: 4 Logisticloss: 52.97435150601257
iteration: 5 Logisticloss: 27.99125672714006
iteration: 6 Logisticloss: 14.790384590999356
iteration: 7 Logisticloss: 7.8152243737148686
iteration: 8 Logisticloss: 4.129480602982071
iteration: 9 Logisticloss: 2.1820615960759033
iteration: 10 Logisticloss: 1.1529711275813794
iteration: 11 Logisticloss: 0.6093187241761778
iteration: 12 Logisticloss: 0.32200551028776303
iteration: 13 Logisticloss: 0.17068061758445152
iteration: 14 Logisticloss: 0.0903226349347634
iteration: 15 Logisticloss: 0.04887524073986629
iteration: 16 Logisticloss: 0.026298439683392225
iteration: 17 Logisticloss: 0.015715073482903713

```

Output_logistic_train.txt

```

iteration: 18 Logisticloss: 0.008941594558858049
iteration: 19 Logisticloss: 0.006442270149797994
iteration: 20 Logisticloss: 0.004776287539838828
iteration: 21 Logisticloss: 0.005696554797794941
iteration: 22 Logisticloss: 0.023835126819981057
iteration: 23 Logisticloss: 4020.462689377132
iteration: 24 Logisticloss: 761.7834813847546
iteration: 25 Logisticloss: 1508.3760791258976
iteration: 26 Logisticloss: 368.1776660253781
iteration: 27 Logisticloss: 163.42762594679053
iteration: 28 Logisticloss: 86.3539520255257
iteration: 29 Logisticloss: 45.62879125996139
iteration: 30 Logisticloss: 24.109916759371426
iteration: 31 Logisticloss: 12.739506237255238
iteration: 32 Logisticloss: 6.731565534218882
iteration: 33 Logisticloss: 3.5569637289872764
iteration: 34 Logisticloss: 1.8797541275504017
iteration: 35 Logisticloss: 0.9932212250246042
iteration: 36 Logisticloss: 0.5251289574358323
iteration: 37 Logisticloss: 0.2774339237642623
iteration: 38 Logisticloss: 0.14696273567415394
iteration: 39 Logisticloss: 0.07800775185962167
iteration: 40 Logisticloss: 0.04268530338283956
iteration: 41 Logisticloss: 0.02292984279846064
iteration: 42 Logisticloss: 0.014167444119905443
iteration: 43 Logisticloss: 0.009204640478225444
iteration: 44 Logisticloss: 6.165288752536971
iteration: 45 Logisticloss: 7943.337644805404
iteration: 46 Logisticloss: 1083.2745221152295
iteration: 47 Logisticloss: 379.4378915846554
iteration: 48 Logisticloss: 200.49218298769168
iteration: 49 Logisticloss: 105.93859055903418
iteration: 50 Logisticloss: 55.97716979481283
iteration: 51 Logisticloss: 29.577923603711778
iteration: 52 Logisticloss: 15.628756670467553
iteration: 53 Logisticloss: 8.25812226202653
iteration: 54 Logisticloss: 4.363609738881777
iteration: 55 Logisticloss: 2.305856065537416
iteration: 56 Logisticloss: 1.2185084309911425
iteration: 57 Logisticloss: 0.6447933417445437
iteration: 58 Logisticloss: 0.3409003452905135
iteration: 59 Logisticloss: 0.18067812155144505
iteration: 60 Logisticloss: 0.0960979653798659
iteration: 61 Logisticloss: 0.051666073321616934
iteration: 62 Logisticloss: 0.028422611114126722
iteration: 63 Logisticloss: 0.016542552156713485
iteration: 64 Logisticloss: 0.010299903619253823
iteration: 65 Logisticloss: 0.012332460976083124
iteration: 66 Logisticloss: 9974.003038915082
iteration: 67 Logisticloss: 1297.984810773316
iteration: 68 Logisticloss: 1898.4954670175873
iteration: 69 Logisticloss: 213.3618730272033

```

Output_logistic_train.txt

```
iteration: 70 Logisticloss: 112.73883984257463
iteration: 71 Logisticloss: 59.57037135416028
iteration: 72 Logisticloss: 31.476544802374832
iteration: 73 Logisticloss: 16.631974086673473
iteration: 74 Logisticloss: 8.788212421552304
iteration: 75 Logisticloss: 4.643626617252889
iteration: 76 Logisticloss: 2.4536580522339198
iteration: 77 Logisticloss: 1.296495184928937
iteration: 78 Logisticloss: 0.6850787344653352
iteration: 79 Logisticloss: 0.36209643025287724
iteration: 80 Logisticloss: 0.19140612085394193
iteration: 81 Logisticloss: 0.1013569955198701
iteration: 82 Logisticloss: 0.054248151140864204
iteration: 83 Logisticloss: 0.02925471745401979
iteration: 84 Logisticloss: 0.016773974990205318
iteration: 85 Logisticloss: 0.01056213956980935
iteration: 86 Logisticloss: 0.006699766593423048
iteration: 87 Logisticloss: 0.005114887235340547
Convergence reached in 88 iterations
[-4.14919593e-04 -2.52480791e-04 -3.47070318e-05 ... 2.01187241e-04
 1.71549861e-04 1.64862838e-05]
```

CROSS VALIDATION 5

```
iteration: 0 Logisticloss: 1985.577390738502
iteration: 1 Logisticloss: 359.0834677247939
iteration: 2 Logisticloss: 189.7370555646576
iteration: 3 Logisticloss: 100.2556605639582
iteration: 4 Logisticloss: 52.97435150601257
iteration: 5 Logisticloss: 27.99125672714006
iteration: 6 Logisticloss: 14.790384590999356
iteration: 7 Logisticloss: 7.8152243737148686
iteration: 8 Logisticloss: 4.129480602982071
iteration: 9 Logisticloss: 2.1820615960748007
iteration: 10 Logisticloss: 1.152971125419524
iteration: 11 Logisticloss: 0.6093182160824104
iteration: 12 Logisticloss: 0.32197678934509666
iteration: 13 Logisticloss: 0.17030605633273826
iteration: 14 Logisticloss: 0.0903056877312133
iteration: 15 Logisticloss: 0.048501116430352445
iteration: 16 Logisticloss: 0.02628033900409293
iteration: 17 Logisticloss: 0.01533536640670406
iteration: 18 Logisticloss: 0.008882358107012527
iteration: 19 Logisticloss: 0.006438366004671696
iteration: 20 Logisticloss: 0.004871512116065988
iteration: 21 Logisticloss: 0.005348664394689919
iteration: 22 Logisticloss: 0.02090377850065686
iteration: 23 Logisticloss: 0.005704428929705004
iteration: 24 Logisticloss: 0.003724711339150478
iteration: 25 Logisticloss: 0.005790802907684751
iteration: 26 Logisticloss: 0.004939866054661863
iteration: 27 Logisticloss: 0.005373134118090116
iteration: 28 Logisticloss: 0.008847955166822945
iteration: 29 Logisticloss: 9810.303970874736
```

Output_logistic_train.txt

```

iteration: 30 Logisticloss: 4855.487301354666
iteration: 31 Logisticloss: 876.9481476493529
iteration: 32 Logisticloss: 1813.412577897243
iteration: 33 Logisticloss: 248.31305872233574
iteration: 34 Logisticloss: 131.20678854627408
iteration: 35 Logisticloss: 69.3286992202725
iteration: 36 Logisticloss: 36.63277326447074
iteration: 37 Logisticloss: 19.356487171098085
iteration: 38 Logisticloss: 10.227825037976894
iteration: 39 Logisticloss: 5.404307304462752
iteration: 40 Logisticloss: 2.8555961178670155
iteration: 41 Logisticloss: 1.5088765770982
iteration: 42 Logisticloss: 0.7973080226357016
iteration: 43 Logisticloss: 0.4213310008393358
iteration: 44 Logisticloss: 0.22264502387561927
iteration: 45 Logisticloss: 0.11793755780130372
iteration: 46 Logisticloss: 0.06266938010161777
iteration: 47 Logisticloss: 0.033464349968237134
iteration: 48 Logisticloss: 0.019313145171866955
iteration: 49 Logisticloss: 0.010896593403098453
iteration: 50 Logisticloss: 0.007885113124295162
iteration: 51 Logisticloss: 0.011574225590073667
iteration: 52 Logisticloss: 9025.925241308873
iteration: 53 Logisticloss: 6321.744254075428
iteration: 54 Logisticloss: 531.9003102635196
iteration: 55 Logisticloss: 1515.8218296647788
iteration: 56 Logisticloss: 212.78909093551536
iteration: 57 Logisticloss: 154.0403353485239
iteration: 58 Logisticloss: 81.393776918801
iteration: 59 Logisticloss: 43.007871322262915
iteration: 60 Logisticloss: 22.725041958890472
iteration: 61 Logisticloss: 12.00774453968396
iteration: 62 Logisticloss: 6.344803639577071
iteration: 63 Logisticloss: 3.3525474406744813
iteration: 64 Logisticloss: 1.771461337571433
iteration: 65 Logisticloss: 0.936027108244936
iteration: 66 Logisticloss: 0.4945907779922422
iteration: 67 Logisticloss: 0.2613811420523498
iteration: 68 Logisticloss: 0.13829539149666578
iteration: 69 Logisticloss: 0.0732456085286681
iteration: 70 Logisticloss: 0.038966825981300336
iteration: 71 Logisticloss: 0.021482002386458476
iteration: 72 Logisticloss: 0.012153144517458957
iteration: 73 Logisticloss: 0.007953175578060976
iteration: 74 Logisticloss: 0.006413705056082485
iteration: 75 Logisticloss: 0.0047891058254073545
iteration: 76 Logisticloss: 0.013342616290578719
iteration: 77 Logisticloss: 0.008454580889163647
iteration: 78 Logisticloss: 0.004006717304177926
iteration: 79 Logisticloss: 0.005131537877702963
iteration: 80 Logisticloss: 0.010040905677046363
iteration: 81 Logisticloss: 9425.827922930233

```

Output_logistic_train.txt

```
iteration: 82 Logisticloss: 6304.340722174343
iteration: 83 Logisticloss: 513.8593907918146
iteration: 84 Logisticloss: 1523.0888944619082
iteration: 85 Logisticloss: 214.15260609512342
iteration: 86 Logisticloss: 153.94407898662377
iteration: 87 Logisticloss: 81.34291576720855
iteration: 88 Logisticloss: 42.98099666493899
iteration: 89 Logisticloss: 22.710841588201582
iteration: 90 Logisticloss: 12.000241168561057
iteration: 91 Logisticloss: 6.3408389136243875
iteration: 92 Logisticloss: 3.3504525087269053
iteration: 93 Logisticloss: 1.7703543909831827
iteration: 94 Logisticloss: 0.9354422053894825
iteration: 95 Logisticloss: 0.4942816573662435
iteration: 96 Logisticloss: 0.26121619077316777
iteration: 97 Logisticloss: 0.1382101492972177
iteration: 98 Logisticloss: 0.07319250154802556
iteration: 99 Logisticloss: 0.0389505303632227
[-0.00281467 -0.00057447 -0.00160573 ... 0.00081377 0.00087515
0.00021286]
```

CROSS VALIDATION 6

```
iteration: 0 Logisticloss: 2348.8042470206
iteration: 1 Logisticloss: 359.0834677247939
iteration: 2 Logisticloss: 189.7370555646576
iteration: 3 Logisticloss: 100.2556605639582
iteration: 4 Logisticloss: 52.97435150601257
iteration: 5 Logisticloss: 27.99125672714006
iteration: 6 Logisticloss: 14.790384590999356
iteration: 7 Logisticloss: 7.8152243737148686
iteration: 8 Logisticloss: 4.129480602982071
iteration: 9 Logisticloss: 2.1820615960759033
iteration: 10 Logisticloss: 1.1529711275814134
iteration: 11 Logisticloss: 0.6093187242043109
iteration: 12 Logisticloss: 0.32200549132267475
iteration: 13 Logisticloss: 0.17066941460097879
iteration: 14 Logisticloss: 0.090320063058296
iteration: 15 Logisticloss: 0.04883811307644979
iteration: 16 Logisticloss: 0.02621306276200776
iteration: 17 Logisticloss: 0.015578561685426436
iteration: 18 Logisticloss: 0.008867326822922933
iteration: 19 Logisticloss: 0.006509836509609372
iteration: 20 Logisticloss: 0.004840179506239472
iteration: 21 Logisticloss: 0.005910154725722253
iteration: 22 Logisticloss: 0.030819665729779597
iteration: 23 Logisticloss: 0.006972962785178716
iteration: 24 Logisticloss: 0.006147135368247308
iteration: 25 Logisticloss: 0.012508423875749408
iteration: 26 Logisticloss: 9046.019213195448
iteration: 27 Logisticloss: 3535.451695322991
iteration: 28 Logisticloss: 1154.3681250291097
iteration: 29 Logisticloss: 247.802185005267
iteration: 30 Logisticloss: 130.9368466426377
```

Output_logistic_train.txt

```

iteration: 31 Logisticloss: 69.18606390961907
iteration: 32 Logisticloss: 36.55740581877515
iteration: 33 Logisticloss: 19.31666368932432
iteration: 34 Logisticloss: 10.206791865535505
iteration: 35 Logisticloss: 5.393355206494631
iteration: 36 Logisticloss: 2.849772456452249
iteration: 37 Logisticloss: 1.5061910234846272
iteration: 38 Logisticloss: 0.7963221623171325
iteration: 39 Logisticloss: 0.4211415119739458
iteration: 40 Logisticloss: 0.2229450987708034
iteration: 41 Logisticloss: 0.11824832903784377
iteration: 42 Logisticloss: 0.0630838315287439
iteration: 43 Logisticloss: 0.03422053987717528
iteration: 44 Logisticloss: 0.019088166035728677
iteration: 45 Logisticloss: 0.011130511920604422
iteration: 46 Logisticloss: 0.007773767407110499
iteration: 47 Logisticloss: 0.004998430658044483
iteration: 48 Logisticloss: 0.013198444383072102
iteration: 49 Logisticloss: 9582.631713109891
iteration: 50 Logisticloss: 2113.918740573879
iteration: 51 Logisticloss: 4598.083631931221
iteration: 52 Logisticloss: 312.3103741257358
iteration: 53 Logisticloss: 165.02249792889074
iteration: 54 Logisticloss: 87.19667061628573
iteration: 55 Logisticloss: 46.074077546937374
iteration: 56 Logisticloss: 24.345202710121825
iteration: 57 Logisticloss: 12.863825529510141
iteration: 58 Logisticloss: 6.797150519715215
iteration: 59 Logisticloss: 3.591564195400297
iteration: 60 Logisticloss: 1.8977560276788912
iteration: 61 Logisticloss: 1.0027603040649495
iteration: 62 Logisticloss: 0.5298534723787607
iteration: 63 Logisticloss: 0.2800442485756416
iteration: 64 Logisticloss: 0.14809905312478588
iteration: 65 Logisticloss: 0.07851741234017162
iteration: 66 Logisticloss: 0.042063512162374576
iteration: 67 Logisticloss: 0.02264377171326557
iteration: 68 Logisticloss: 0.013255102456714782
iteration: 69 Logisticloss: 0.008018773180783437
iteration: 70 Logisticloss: 0.0058445307954422395
iteration: 71 Logisticloss: 0.005203367461690686
iteration: 72 Logisticloss: 0.008109484362243015
iteration: 73 Logisticloss: 0.007183067851216366
iteration: 74 Logisticloss: 0.005059996417384292
iteration: 75 Logisticloss: 0.0039532284473204685
iteration: 76 Logisticloss: 0.009949074967112741
iteration: 77 Logisticloss: 12.731078041638462
iteration: 78 Logisticloss: 1219.5393042242101
iteration: 79 Logisticloss: 1305.0764582089573
iteration: 80 Logisticloss: 395.7213074033441
iteration: 81 Logisticloss: 184.07442038102772
iteration: 82 Logisticloss: 97.26356590338688

```

Output_logistic_train.txt

```
iteration: 83 Logisticloss: 51.393350758135334
iteration: 84 Logisticloss: 27.155867438786217
iteration: 85 Logisticloss: 14.348960426989589
iteration: 86 Logisticloss: 7.581906256577574
iteration: 87 Logisticloss: 4.0064349009837
iteration: 88 Logisticloss: 2.1169611235743204
iteration: 89 Logisticloss: 1.1190128562764816
iteration: 90 Logisticloss: 0.5916782095504054
iteration: 91 Logisticloss: 0.31277712107055117
iteration: 92 Logisticloss: 0.16574989139773977
iteration: 93 Logisticloss: 0.08772748048172646
iteration: 94 Logisticloss: 0.04715856909885421
iteration: 95 Logisticloss: 0.02620958074569959
iteration: 96 Logisticloss: 0.014604965204902672
iteration: 97 Logisticloss: 0.009545973575317248
iteration: 98 Logisticloss: 0.007150022448005002
iteration: 99 Logisticloss: 0.016145762959329214
[-5.11009133e-04 -2.27992822e-04 5.05511360e-07 ... 2.13669836e-04
 1.91216881e-04 4.26497429e-05]
```

CROSS VALIDATION 7

```
iteration: 0 Logisticloss: 2348.8042470206
iteration: 1 Logisticloss: 359.0834677247939
iteration: 2 Logisticloss: 189.7370555646576
iteration: 3 Logisticloss: 100.2556605639582
iteration: 4 Logisticloss: 52.97435150601257
iteration: 5 Logisticloss: 27.99125672714006
iteration: 6 Logisticloss: 14.790384590999356
iteration: 7 Logisticloss: 7.8152243737148686
iteration: 8 Logisticloss: 4.129480602982071
iteration: 9 Logisticloss: 2.1820615960759033
iteration: 10 Logisticloss: 1.1529711275814134
iteration: 11 Logisticloss: 0.6093187242043109
iteration: 12 Logisticloss: 0.3220054913231145
iteration: 13 Logisticloss: 0.17066941560214585
iteration: 14 Logisticloss: 0.09032032953574844
iteration: 15 Logisticloss: 0.04885000869871738
iteration: 16 Logisticloss: 0.026293791547236
iteration: 17 Logisticloss: 0.015584974514144397
iteration: 18 Logisticloss: 0.008828687871283757
iteration: 19 Logisticloss: 0.006520750296521603
iteration: 20 Logisticloss: 0.0047575723171605026
iteration: 21 Logisticloss: 0.00561614352511543
iteration: 22 Logisticloss: 0.016125119278912387
iteration: 23 Logisticloss: 0.005828931079195752
iteration: 24 Logisticloss: 0.0037168845546357507
iteration: 25 Logisticloss: 0.005600796591908779
iteration: 26 Logisticloss: 0.048517319512102454
iteration: 27 Logisticloss: 5854.458937677506
iteration: 28 Logisticloss: 467.6805244997942
iteration: 29 Logisticloss: 247.11893929779637
iteration: 30 Logisticloss: 130.57582465077581
iteration: 31 Logisticloss: 68.99530255219982
```


Output_logistic_train.txt

```

iteration: 32 Logisticloss: 36.45660892436344
iteration: 33 Logisticloss: 19.263403233262576
iteration: 34 Logisticloss: 10.178640171862293
iteration: 35 Logisticloss: 5.3783183888116435
iteration: 36 Logisticloss: 2.841864705815513
iteration: 37 Logisticloss: 1.5016660222910976
iteration: 38 Logisticloss: 0.7940157710783867
iteration: 39 Logisticloss: 0.4194585638254942
iteration: 40 Logisticloss: 0.22224903639691534
iteration: 41 Logisticloss: 0.11800123195521438
iteration: 42 Logisticloss: 0.06349946546023208
iteration: 43 Logisticloss: 0.03436832718402066
iteration: 44 Logisticloss: 0.020164279485830532
iteration: 45 Logisticloss: 0.011939663291234144
iteration: 46 Logisticloss: 0.00825506081739083
iteration: 47 Logisticloss: 0.006024570394661671
iteration: 48 Logisticloss: 0.028108764844015154
iteration: 49 Logisticloss: 7612.838852577974
iteration: 50 Logisticloss: 3291.441542943656
iteration: 51 Logisticloss: 1082.5948089968792
iteration: 52 Logisticloss: 250.15532264823705
iteration: 53 Logisticloss: 132.18022721525062
iteration: 54 Logisticloss: 69.84305703238417
iteration: 55 Logisticloss: 36.90455613825367
iteration: 56 Logisticloss: 19.50009525738655
iteration: 57 Logisticloss: 10.303709045154893
iteration: 58 Logisticloss: 5.4444442176499495
iteration: 59 Logisticloss: 2.8768071303446296
iteration: 60 Logisticloss: 1.5201181703516145
iteration: 61 Logisticloss: 0.8032805373889597
iteration: 62 Logisticloss: 0.4245765160483143
iteration: 63 Logisticloss: 0.22445791016710276
iteration: 64 Logisticloss: 0.11881921835949735
iteration: 65 Logisticloss: 0.06287303985850162
iteration: 66 Logisticloss: 0.03374798890739088
iteration: 67 Logisticloss: 0.01896481209650709
iteration: 68 Logisticloss: 0.011321203591493863
iteration: 69 Logisticloss: 0.006868340072297036
iteration: 70 Logisticloss: 0.006094752744145846
iteration: 71 Logisticloss: 0.01127083344657109
iteration: 72 Logisticloss: 0.06918384971660252
iteration: 73 Logisticloss: 3925.205272295106
iteration: 74 Logisticloss: 3685.8785360649895
iteration: 75 Logisticloss: 593.6127788919559
iteration: 76 Logisticloss: 694.4897359966325
iteration: 77 Logisticloss: 371.85211241727563
iteration: 78 Logisticloss: 139.50673508621702
iteration: 79 Logisticloss: 73.71432974737837
iteration: 80 Logisticloss: 38.95010808483721
iteration: 81 Logisticloss: 20.580949962115376
iteration: 82 Logisticloss: 10.874833835583447
iteration: 83 Logisticloss: 5.746404300372926

```

Output_logistic_train.txt

```

iteration: 84 Logisticloss: 3.0364116811155704
iteration: 85 Logisticloss: 1.6047007279713519
iteration: 86 Logisticloss: 0.8479001071975869
iteration: 87 Logisticloss: 0.4484841529859347
iteration: 88 Logisticloss: 0.2373032981360127
iteration: 89 Logisticloss: 0.12603833708487497
iteration: 90 Logisticloss: 0.0672251869743174
iteration: 91 Logisticloss: 0.03585154938969515
iteration: 92 Logisticloss: 0.020288645590477102
iteration: 93 Logisticloss: 0.012085521971195765
iteration: 94 Logisticloss: 0.01136626384857175
iteration: 95 Logisticloss: 0.030873716246052202
iteration: 96 Logisticloss: 6283.494530617815
iteration: 97 Logisticloss: 916.6675257070235
iteration: 98 Logisticloss: 538.7689947183558
iteration: 99 Logisticloss: 261.3583859542902
[-0.20399745 -0.03241845 -0.06448186 ... 0.12487088 0.03142088
-0.00300722]

```

CROSS VALIDATION 8

```

iteration: 0 Logisticloss: 2348.8042470206
iteration: 1 Logisticloss: 359.0834677247939
iteration: 2 Logisticloss: 189.7370555646576
iteration: 3 Logisticloss: 100.2556605639582
iteration: 4 Logisticloss: 52.97435150601257
iteration: 5 Logisticloss: 27.99125672714006
iteration: 6 Logisticloss: 14.790384590999356
iteration: 7 Logisticloss: 7.8152243737148686
iteration: 8 Logisticloss: 4.129480602982071
iteration: 9 Logisticloss: 2.1820615960759033
iteration: 10 Logisticloss: 1.1529711275814134
iteration: 11 Logisticloss: 0.6093187242043109
iteration: 12 Logisticloss: 0.32200549132302436
iteration: 13 Logisticloss: 0.17066941522497814
iteration: 14 Logisticloss: 0.0903201307844429
iteration: 15 Logisticloss: 0.04883485210618217
iteration: 16 Logisticloss: 0.026104595196634862
iteration: 17 Logisticloss: 0.015662780217435997
iteration: 18 Logisticloss: 0.008735165562998614
iteration: 19 Logisticloss: 0.006647551868485872
iteration: 20 Logisticloss: 0.004702507875018545
iteration: 21 Logisticloss: 0.005916132072373459
iteration: 22 Logisticloss: 0.02637273035516885
iteration: 23 Logisticloss: 0.005545121339157477
iteration: 24 Logisticloss: 0.004818542719478695
iteration: 25 Logisticloss: 0.8075723182170345
iteration: 26 Logisticloss: 4339.910590975826
iteration: 27 Logisticloss: 1923.1154588311615
iteration: 28 Logisticloss: 1666.4060743473678
iteration: 29 Logisticloss: 814.499603607183
iteration: 30 Logisticloss: 191.7047258890143
iteration: 31 Logisticloss: 101.29536304881749
iteration: 32 Logisticloss: 53.523722629207015

```

Output_logistic_train.txt

iteration: 33 Logisticloss: 28.281540219689386
iteration: 34 Logisticloss: 14.943757393198917
iteration: 35 Logisticloss: 7.896181717190323
iteration: 36 Logisticloss: 4.172309502343603
iteration: 37 Logisticloss: 2.2046268607745296
iteration: 38 Logisticloss: 1.165024239228768
iteration: 39 Logisticloss: 0.6163065321006177
iteration: 40 Logisticloss: 0.32578140681787704
iteration: 41 Logisticloss: 0.17280498681575693
iteration: 42 Logisticloss: 0.09182894564909912
iteration: 43 Logisticloss: 0.049188569942973784
iteration: 44 Logisticloss: 0.02683089163711037
iteration: 45 Logisticloss: 0.015280398630673146
iteration: 46 Logisticloss: 0.009619267495544143
iteration: 47 Logisticloss: 0.008045018655921311
iteration: 48 Logisticloss: 0.1794063655475123
iteration: 49 Logisticloss: 6141.7390244578855
iteration: 50 Logisticloss: 808.907596981345
iteration: 51 Logisticloss: 543.6066159077309
iteration: 52 Logisticloss: 262.37070534667646
iteration: 53 Logisticloss: 138.63474532627006
iteration: 54 Logisticloss: 73.2535767904594
iteration: 55 Logisticloss: 38.70664962067709
iteration: 56 Logisticloss: 20.45230813976134
iteration: 57 Logisticloss: 10.806848759565462
iteration: 58 Logisticloss: 5.710260100720335
iteration: 59 Logisticloss: 3.0173000143789137
iteration: 60 Logisticloss: 1.5947880330316087
iteration: 61 Logisticloss: 0.8426356900486905
iteration: 62 Logisticloss: 0.4457231959534115
iteration: 63 Logisticloss: 0.23541116588334557
iteration: 64 Logisticloss: 0.1254007309676222
iteration: 65 Logisticloss: 0.06621276179694671
iteration: 66 Logisticloss: 0.036484982018965585
iteration: 67 Logisticloss: 0.020133490394620857
iteration: 68 Logisticloss: 0.012321845958860236
iteration: 69 Logisticloss: 0.007671602894704385
iteration: 70 Logisticloss: 0.011285447235557806
iteration: 71 Logisticloss: 7953.713729769425
iteration: 72 Logisticloss: 3828.8987668791083
iteration: 73 Logisticloss: 1854.4755199133333
iteration: 74 Logisticloss: 323.06814999565626
iteration: 75 Logisticloss: 170.70682734376535
iteration: 76 Logisticloss: 90.20022834861909
iteration: 77 Logisticloss: 47.66113529694261
iteration: 78 Logisticloss: 25.183792318284596
iteration: 79 Logisticloss: 13.306930092602611
iteration: 80 Logisticloss: 7.03128370229015
iteration: 81 Logisticloss: 3.7152784422303773
iteration: 82 Logisticloss: 1.963125835128019
iteration: 83 Logisticloss: 1.0373115181281947
iteration: 84 Logisticloss: 0.5483357053067813

Output_logistic_train.txt

```
iteration: 85 Logisticloss: 0.290271999267634
iteration: 86 Logisticloss: 0.15346952241612702
iteration: 87 Logisticloss: 0.08152790557047665
iteration: 88 Logisticloss: 0.04359520890145151
iteration: 89 Logisticloss: 0.02396766470173892
iteration: 90 Logisticloss: 0.013788683386104814
iteration: 91 Logisticloss: 0.008222338655235546
iteration: 92 Logisticloss: 0.005803538806677026
iteration: 93 Logisticloss: 0.005332380756967932
iteration: 94 Logisticloss: 0.006506380191046421
iteration: 95 Logisticloss: 0.004294080188092338
iteration: 96 Logisticloss: 0.0045814607371155785
iteration: 97 Logisticloss: 0.006743391863464151
iteration: 98 Logisticloss: 0.0065492824294264345
iteration: 99 Logisticloss: 0.005136635392663664
[-3.60142415e-04 -2.29855641e-04 -3.88227725e-05 ... 2.02647702e-04
 9.52694854e-05 1.52814592e-05]
```

CROSS VALIDATION 9

```
iteration: 0 Logisticloss: 2724.174698627309
iteration: 1 Logisticloss: 1836.0240545008105
iteration: 2 Logisticloss: 748.9527693683037
iteration: 3 Logisticloss: 205.95481173153905
iteration: 4 Logisticloss: 108.82500329217301
iteration: 5 Logisticloss: 57.502328991364344
iteration: 6 Logisticloss: 30.38380647279902
iteration: 7 Logisticloss: 16.05457921391577
iteration: 8 Logisticloss: 8.483121229948313
iteration: 9 Logisticloss: 4.4824186880460966
iteration: 10 Logisticloss: 2.368478014940426
iteration: 11 Logisticloss: 1.2515291961006307
iteration: 12 Logisticloss: 0.6614863375392263
iteration: 13 Logisticloss: 0.34945128248872753
iteration: 14 Logisticloss: 0.1849739483837294
iteration: 15 Logisticloss: 0.0977047560523398
iteration: 16 Logisticloss: 0.05201112922046098
iteration: 17 Logisticloss: 0.027881655863891137
iteration: 18 Logisticloss: 0.015834213239456992
iteration: 19 Logisticloss: 0.009123779732840688
iteration: 20 Logisticloss: 0.006657379667862649
iteration: 21 Logisticloss: 0.0046807280912461845
iteration: 22 Logisticloss: 0.04482498687123857
iteration: 23 Logisticloss: 0.008736900211365787
iteration: 24 Logisticloss: 8378.476988335144
iteration: 25 Logisticloss: 2820.2159270590764
iteration: 26 Logisticloss: 375.87863113281406
iteration: 27 Logisticloss: 198.61149601984246
iteration: 28 Logisticloss: 104.94484943812023
iteration: 29 Logisticloss: 55.45208431685859
iteration: 30 Logisticloss: 29.300472310433413
iteration: 31 Logisticloss: 15.482153437336942
iteration: 32 Logisticloss: 8.180656398500046
iteration: 33 Logisticloss: 4.322631847360655
```

Output_logistic_train.txt

```

iteration: 34 Logisticloss: 2.2842562994943463
iteration: 35 Logisticloss: 1.2070264518342362
iteration: 36 Logisticloss: 0.638319722450325
iteration: 37 Logisticloss: 0.33734480394432614
iteration: 38 Logisticloss: 0.17954616565048329
iteration: 39 Logisticloss: 0.09499573459669322
iteration: 40 Logisticloss: 0.051125008435063526
iteration: 41 Logisticloss: 0.027970771024823947
iteration: 42 Logisticloss: 0.015813194186678946
iteration: 43 Logisticloss: 0.010098177848242186
iteration: 44 Logisticloss: 0.00648662041143591
iteration: 45 Logisticloss: 0.005281971259436938
iteration: 46 Logisticloss: 0.9226777012314665
iteration: 47 Logisticloss: 6667.736511332812
iteration: 48 Logisticloss: 669.4604372660947
iteration: 49 Logisticloss: 1129.2462494088522
iteration: 50 Logisticloss: 347.8672574655488
iteration: 51 Logisticloss: 183.81049280010743
iteration: 52 Logisticloss: 97.12410851649177
iteration: 53 Logisticloss: 51.31966250360741
iteration: 54 Logisticloss: 27.11693110714072
iteration: 55 Logisticloss: 14.328386368825566
iteration: 56 Logisticloss: 7.571013663869056
iteration: 57 Logisticloss: 4.00046777342746
iteration: 58 Logisticloss: 2.1138179628233535
iteration: 59 Logisticloss: 1.1169436349308794
iteration: 60 Logisticloss: 0.5903824809365382
iteration: 61 Logisticloss: 0.31199302623440694
iteration: 62 Logisticloss: 0.1652109819675521
iteration: 63 Logisticloss: 0.08774119425140245
iteration: 64 Logisticloss: 0.0472453959997459
iteration: 65 Logisticloss: 0.025025754892662764
iteration: 66 Logisticloss: 0.015691858919507765
iteration: 67 Logisticloss: 6.451986211078976
iteration: 68 Logisticloss: 7823.610479631466
iteration: 69 Logisticloss: 606.8954255374606
iteration: 70 Logisticloss: 329.08769784528266
iteration: 71 Logisticloss: 173.8875123511328
iteration: 72 Logisticloss: 91.88089774680448
iteration: 73 Logisticloss: 48.54937914665641
iteration: 74 Logisticloss: 25.653056561572306
iteration: 75 Logisticloss: 13.55504649067856
iteration: 76 Logisticloss: 7.162334117036031
iteration: 77 Logisticloss: 3.7847163000324313
iteration: 78 Logisticloss: 1.9997377746084481
iteration: 79 Logisticloss: 1.0568049579722254
iteration: 80 Logisticloss: 0.5583578584022364
iteration: 81 Logisticloss: 0.29524214116914577
iteration: 82 Logisticloss: 0.15616250503874515
iteration: 83 Logisticloss: 0.0837189917995025
iteration: 84 Logisticloss: 0.04419937211295919
iteration: 85 Logisticloss: 0.024466108703388827

```

Output_logistic_train.txt

```
iteration: 86 Logisticloss: 0.014440787908159997
iteration: 87 Logisticloss: 0.009086233287697544
iteration: 88 Logisticloss: 0.1429872131908695
iteration: 89 Logisticloss: 6006.121826190323
iteration: 90 Logisticloss: 814.9952898894446
iteration: 91 Logisticloss: 537.5753581644185
iteration: 92 Logisticloss: 262.5277946718952
iteration: 93 Logisticloss: 138.71775016694545
iteration: 94 Logisticloss: 73.29743593598663
iteration: 95 Logisticloss: 38.729824469646424
iteration: 96 Logisticloss: 20.46455355900346
iteration: 97 Logisticloss: 10.81331914368845
iteration: 98 Logisticloss: 5.713678071018378
iteration: 99 Logisticloss: 3.019065345749207
[-0.02217615 -0.00359407 -0.00709001 ... 0.01343098 0.00329971
-0.00034494]
```

CROSS VALIDATION 10

```
iteration: 0 Logisticloss: 2352.6773577314707
iteration: 1 Logisticloss: 359.4834259060763
iteration: 2 Logisticloss: 189.94839051735352
iteration: 3 Logisticloss: 100.36732839404921
iteration: 4 Logisticloss: 53.03335596336074
iteration: 5 Logisticloss: 28.022434136449498
iteration: 6 Logisticloss: 14.80685210560457
iteration: 7 Logisticloss: 7.823914411534402
iteration: 8 Logisticloss: 4.134078993349713
iteration: 9 Logisticloss: 2.184506777770567
iteration: 10 Logisticloss: 1.154253695155983
iteration: 11 Logisticloss: 0.6099835155161938
iteration: 12 Logisticloss: 0.32237093666298616
iteration: 13 Logisticloss: 0.17089222373825716
iteration: 14 Logisticloss: 0.0903706385262769
iteration: 15 Logisticloss: 0.04859519037919901
iteration: 16 Logisticloss: 0.026319136218319116
iteration: 17 Logisticloss: 0.015523920690510444
iteration: 18 Logisticloss: 0.008961540721424155
iteration: 19 Logisticloss: 0.006326562499520957
iteration: 20 Logisticloss: 0.004961226811898609
iteration: 21 Logisticloss: 0.005583133364442624
iteration: 22 Logisticloss: 0.15466158789720505
iteration: 23 Logisticloss: 1957.367302127237
iteration: 24 Logisticloss: 1334.0227808371733
iteration: 25 Logisticloss: 1022.2342778421062
iteration: 26 Logisticloss: 145.32892822100982
iteration: 27 Logisticloss: 76.79073365236393
iteration: 28 Logisticloss: 40.57565721465087
iteration: 29 Logisticloss: 21.439877965668675
iteration: 30 Logisticloss: 11.328673365684635
iteration: 31 Logisticloss: 5.985987440407982
iteration: 32 Logisticloss: 3.162951607843159
iteration: 33 Logisticloss: 1.6712802981281645
iteration: 34 Logisticloss: 0.8830922333129406
```

Output_logistic_train.txt

```

iteration: 35 Logisticloss: 0.46662550744058084
iteration: 36 Logisticloss: 0.24670225045344885
iteration: 37 Logisticloss: 0.1311046483496873
iteration: 38 Logisticloss: 0.06968268828717994
iteration: 39 Logisticloss: 0.037883682394744746
iteration: 40 Logisticloss: 0.021737016171351632
iteration: 41 Logisticloss: 0.012481317972201145
iteration: 42 Logisticloss: 0.008407854038199717
iteration: 43 Logisticloss: 0.006538719855698561
iteration: 44 Logisticloss: 0.005011318254670832
iteration: 45 Logisticloss: 0.008290126771277917
iteration: 46 Logisticloss: 0.05908792302071168
iteration: 47 Logisticloss: 6090.212998847325
iteration: 48 Logisticloss: 638.0764869888708
iteration: 49 Logisticloss: 388.4130527046926
iteration: 50 Logisticloss: 205.2345919181951
iteration: 51 Logisticloss: 108.44444445550744
iteration: 52 Logisticloss: 57.30124450926457
iteration: 53 Logisticloss: 30.277554915758262
iteration: 54 Logisticloss: 15.998436674940603
iteration: 55 Logisticloss: 8.453455926484764
iteration: 56 Logisticloss: 4.466743754610956
iteration: 57 Logisticloss: 2.3601944672765276
iteration: 58 Logisticloss: 1.2471115233340553
iteration: 59 Logisticloss: 0.6590389823053976
iteration: 60 Logisticloss: 0.3487936117334239
iteration: 61 Logisticloss: 0.18427714547106772
iteration: 62 Logisticloss: 0.09812445693502812
iteration: 63 Logisticloss: 0.0518455828640601
iteration: 64 Logisticloss: 0.029254055584696938
iteration: 65 Logisticloss: 0.016014010168603432
iteration: 66 Logisticloss: 0.011014401391484855
iteration: 67 Logisticloss: 0.006660985532480341
iteration: 68 Logisticloss: 0.02315809783333818
iteration: 69 Logisticloss: 8568.153170403471
iteration: 70 Logisticloss: 2428.192577895883
iteration: 71 Logisticloss: 2052.41771217622
iteration: 72 Logisticloss: 256.44307751738506
iteration: 73 Logisticloss: 177.3577211410092
iteration: 74 Logisticloss: 312.7638719435863
iteration: 75 Logisticloss: 134.2976652769965
iteration: 76 Logisticloss: 70.96189568491747
iteration: 77 Logisticloss: 37.49574222910666
iteration: 78 Logisticloss: 19.81247360631651
iteration: 79 Logisticloss: 10.468764906759944
iteration: 80 Logisticloss: 5.531618153901511
iteration: 81 Logisticloss: 2.9228662705226447
iteration: 82 Logisticloss: 1.5444252541743966
iteration: 83 Logisticloss: 0.8161087842488471
iteration: 84 Logisticloss: 0.43129059528434494
iteration: 85 Logisticloss: 0.2279206778560642
iteration: 86 Logisticloss: 0.12061029544764763

```

Output_logistic_train.txt

```

iteration: 87 Logisticloss: 0.06386811208263797
iteration: 88 Logisticloss: 0.034054076096689846
iteration: 89 Logisticloss: 0.018401215268163806
iteration: 90 Logisticloss: 0.012173008445643433
iteration: 91 Logisticloss: 0.021295496554505994
iteration: 92 Logisticloss: 4313.045781516966
iteration: 93 Logisticloss: 2164.9549784355563
iteration: 94 Logisticloss: 543.252604048446
iteration: 95 Logisticloss: 280.2757754637063
iteration: 96 Logisticloss: 148.095652299263
iteration: 97 Logisticloss: 78.25265024655792
iteration: 98 Logisticloss: 41.348123159187395
iteration: 99 Logisticloss: 21.848043272662597
[-0.03183199 -0.02717522 -0.01396514 ... 0.02053557 0.0180777
0.00162784]

```

CROSS VALIDATION 11

```

iteration: 0 Logisticloss: 2352.6773577314707
iteration: 1 Logisticloss: 359.4834259060763
iteration: 2 Logisticloss: 189.94839051735352
iteration: 3 Logisticloss: 100.36732839404921
iteration: 4 Logisticloss: 53.03335596336074
iteration: 5 Logisticloss: 28.022434136449498
iteration: 6 Logisticloss: 14.80685210560457
iteration: 7 Logisticloss: 7.823914411534402
iteration: 8 Logisticloss: 4.134078993349713
iteration: 9 Logisticloss: 2.184506777770567
iteration: 10 Logisticloss: 1.154253695155983
iteration: 11 Logisticloss: 0.6099835155166329
iteration: 12 Logisticloss: 0.32237093765779856
iteration: 13 Logisticloss: 0.17089251542543507
iteration: 14 Logisticloss: 0.09039164158301832
iteration: 15 Logisticloss: 0.04884498847808303
iteration: 16 Logisticloss: 0.026314634710842274
iteration: 17 Logisticloss: 0.015497720306057377
iteration: 18 Logisticloss: 0.008857750111751949
iteration: 19 Logisticloss: 0.0064463442184380555
iteration: 20 Logisticloss: 0.004780892303223625
iteration: 21 Logisticloss: 0.0056838755689636875
iteration: 22 Logisticloss: 0.015550391322471258
iteration: 23 Logisticloss: 0.00553649215961163
iteration: 24 Logisticloss: 0.0061137265222802354
iteration: 25 Logisticloss: 0.01582152744404973
iteration: 26 Logisticloss: 13322.779331367583
iteration: 27 Logisticloss: 5695.624218632875
iteration: 28 Logisticloss: 412.8476574973654
iteration: 29 Logisticloss: 218.14565684871638
iteration: 30 Logisticloss: 115.26655596607192
iteration: 31 Logisticloss: 60.90600208792565
iteration: 32 Logisticloss: 32.182396024455144
iteration: 33 Logisticloss: 17.00515238026104
iteration: 34 Logisticloss: 8.985747359910347
iteration: 35 Logisticloss: 4.748067015471459

```


Output_logistic_train.txt

```

iteration: 36 Logisticloss: 2.5091028604744965
iteration: 37 Logisticloss: 1.326385247950585
iteration: 38 Logisticloss: 0.7011038399151939
iteration: 39 Logisticloss: 0.37099534307629045
iteration: 40 Logisticloss: 0.19656260468698647
iteration: 41 Logisticloss: 0.1048322846872678
iteration: 42 Logisticloss: 0.05616776144096771
iteration: 43 Logisticloss: 0.0309975636270277
iteration: 44 Logisticloss: 0.016897314074774572
iteration: 45 Logisticloss: 0.011072157798334979
iteration: 46 Logisticloss: 0.006533542573419719
iteration: 47 Logisticloss: 0.005494077978724024
iteration: 48 Logisticloss: 0.029453008386689204
iteration: 49 Logisticloss: 6058.954737690726
iteration: 50 Logisticloss: 470.3397362408743
iteration: 51 Logisticloss: 248.5240471660935
iteration: 52 Logisticloss: 131.31827328359833
iteration: 53 Logisticloss: 69.38760693310685
iteration: 54 Logisticloss: 36.663899665399356
iteration: 55 Logisticloss: 19.3729341317471
iteration: 56 Logisticloss: 10.236515494236203
iteration: 57 Logisticloss: 5.408900000503108
iteration: 58 Logisticloss: 2.8580567314843206
iteration: 59 Logisticloss: 1.510531479121523
iteration: 60 Logisticloss: 0.7981920825928422
iteration: 61 Logisticloss: 0.4222558367474084
iteration: 62 Logisticloss: 0.22333684587823396
iteration: 63 Logisticloss: 0.11878601370461861
iteration: 64 Logisticloss: 0.06382445802820183
iteration: 65 Logisticloss: 0.0344410401595316
iteration: 66 Logisticloss: 0.020215237919643223
iteration: 67 Logisticloss: 0.011584165850894602
iteration: 68 Logisticloss: 0.008691656421314559
iteration: 69 Logisticloss: 0.006747240937363756
iteration: 70 Logisticloss: 0.08304045734403025
iteration: 71 Logisticloss: 6313.676962278156
iteration: 72 Logisticloss: 860.314881352904
iteration: 73 Logisticloss: 548.0929991305605
iteration: 74 Logisticloss: 261.8470634922131
iteration: 75 Logisticloss: 138.35805683301862
iteration: 76 Logisticloss: 73.1073766316195
iteration: 77 Logisticloss: 38.629398535192315
iteration: 78 Logisticloss: 20.411489236055523
iteration: 79 Logisticloss: 10.785280366608015
iteration: 80 Logisticloss: 5.698865088879346
iteration: 81 Logisticloss: 3.0113202635208536
iteration: 82 Logisticloss: 1.5917208376897445
iteration: 83 Logisticloss: 0.8408656298680418
iteration: 84 Logisticloss: 0.44487556318586635
iteration: 85 Logisticloss: 0.23493791256691168
iteration: 86 Logisticloss: 0.12512999000578515
iteration: 87 Logisticloss: 0.06607069974150019

```

Output_logistic_train.txt

```

iteration: 88 Logisticloss: 0.036162908749581
iteration: 89 Logisticloss: 0.02001158533076912
iteration: 90 Logisticloss: 0.012184659667170774
iteration: 91 Logisticloss: 0.0075818540427680815
iteration: 92 Logisticloss: 0.016873017828886637
iteration: 93 Logisticloss: 9058.307259535935
iteration: 94 Logisticloss: 6241.511516704508
iteration: 95 Logisticloss: 1553.9035728063977
iteration: 96 Logisticloss: 356.93422288337973
iteration: 97 Logisticloss: 681.2009097827965
iteration: 98 Logisticloss: 228.4299691612977
iteration: 99 Logisticloss: 120.70071068993822
[-0.14516116 -0.02378941 -0.0185756 ... 0.03512116 0.02909741
0.00878345]

```

CROSS VALIDATION 12

```

iteration: 0 Logisticloss: 2168.2391117531342
iteration: 1 Logisticloss: 814.0643872955743
iteration: 2 Logisticloss: 197.68825309709496
iteration: 3 Logisticloss: 104.45701468804683
iteration: 4 Logisticloss: 55.194316033435435
iteration: 5 Logisticloss: 29.164269450899322
iteration: 6 Logisticloss: 15.410184847465336
iteration: 7 Logisticloss: 8.142628000089594
iteration: 8 Logisticloss: 4.3025045711082734
iteration: 9 Logisticloss: 2.273411677952324
iteration: 10 Logisticloss: 1.2012539816055772
iteration: 11 Logisticloss: 0.6347363854668345
iteration: 12 Logisticloss: 0.33545488478687785
iteration: 13 Logisticloss: 0.1773442451161036
iteration: 14 Logisticloss: 0.0940487578816583
iteration: 15 Logisticloss: 0.05048429335906324
iteration: 16 Logisticloss: 0.02734125886436363
iteration: 17 Logisticloss: 0.01599376790415349
iteration: 18 Logisticloss: 0.009193904671804795
iteration: 19 Logisticloss: 0.006643642208797092
iteration: 20 Logisticloss: 0.0048873957575517255
iteration: 21 Logisticloss: 0.005140222963944951
iteration: 22 Logisticloss: 0.028639387350831953
iteration: 23 Logisticloss: 2012.2506165669993
iteration: 24 Logisticloss: 645.5290494992123
iteration: 25 Logisticloss: 234.95185916777118
iteration: 26 Logisticloss: 124.14682926060232
iteration: 27 Logisticloss: 65.59826881155105
iteration: 28 Logisticloss: 34.6616413540422
iteration: 29 Logisticloss: 18.314955609692742
iteration: 30 Logisticloss: 9.677487443793458
iteration: 31 Logisticloss: 5.1135129792624845
iteration: 32 Logisticloss: 2.701942538386408
iteration: 33 Logisticloss: 1.4276865063899749
iteration: 34 Logisticloss: 0.75437901933245
iteration: 35 Logisticloss: 0.39860857105759656
iteration: 36 Logisticloss: 0.21064166328551318

```

Output_logistic_train.txt

```

iteration: 37 Logisticloss: 0.11156458667567985
iteration: 38 Logisticloss: 0.05910868372064163
iteration: 39 Logisticloss: 0.03279750478830541
iteration: 40 Logisticloss: 0.01773562248158462
iteration: 41 Logisticloss: 0.010904612673414993
iteration: 42 Logisticloss: 0.007033231266141498
iteration: 43 Logisticloss: 0.006087859139872043
iteration: 44 Logisticloss: 0.004457274399480995
iteration: 45 Logisticloss: 0.006727555876434839
iteration: 46 Logisticloss: 3.590734299444052
iteration: 47 Logisticloss: 5885.09646348172
iteration: 48 Logisticloss: 919.8856489402251
iteration: 49 Logisticloss: 308.0194206630983
iteration: 50 Logisticloss: 162.7551897818852
iteration: 51 Logisticloss: 85.99864356882257
iteration: 52 Logisticloss: 45.44112816979849
iteration: 53 Logisticloss: 24.011422854422985
iteration: 54 Logisticloss: 12.687180249192975
iteration: 55 Logisticloss: 6.7044731434630735
iteration: 56 Logisticloss: 3.5428638498308844
iteration: 57 Logisticloss: 1.8725567078446508
iteration: 58 Logisticloss: 0.9897196172252117
iteration: 59 Logisticloss: 0.523365404698478
iteration: 60 Logisticloss: 0.2770264553354349
iteration: 61 Logisticloss: 0.1470116987597447
iteration: 62 Logisticloss: 0.07820326586533866
iteration: 63 Logisticloss: 0.04254010701773265
iteration: 64 Logisticloss: 0.02349306953631952
iteration: 65 Logisticloss: 0.01395478575468638
iteration: 66 Logisticloss: 0.009029058017217656
iteration: 67 Logisticloss: 0.0071065164974925795
iteration: 68 Logisticloss: 0.005323453835230849
iteration: 69 Logisticloss: 0.00554250353152395
iteration: 70 Logisticloss: 1.3040944318397647
iteration: 71 Logisticloss: 6004.146622911871
iteration: 72 Logisticloss: 946.4548937798161
iteration: 73 Logisticloss: 307.7513086959688
iteration: 74 Logisticloss: 162.61352138743072
iteration: 75 Logisticloss: 85.92378567151172
iteration: 76 Logisticloss: 45.40152513162079
iteration: 77 Logisticloss: 23.990300067951605
iteration: 78 Logisticloss: 12.676334655668382
iteration: 79 Logisticloss: 6.699133125050427
iteration: 80 Logisticloss: 3.5394235845102564
iteration: 81 Logisticloss: 1.8714009124631914
iteration: 82 Logisticloss: 0.9883769905231353
iteration: 83 Logisticloss: 0.523428577630219
iteration: 84 Logisticloss: 0.2762982907800337
iteration: 85 Logisticloss: 0.14735180588483723
iteration: 86 Logisticloss: 0.07796335926626748
iteration: 87 Logisticloss: 0.042485554030569264
iteration: 88 Logisticloss: 0.02364466706223096

```

Output_logistic_train.txt

```
iteration: 89 Logisticloss: 0.01374923890626899
iteration: 90 Logisticloss: 0.009303342595320884
iteration: 91 Logisticloss: 0.04781115480564004
iteration: 92 Logisticloss: 8500.872806426087
iteration: 93 Logisticloss: 758.2934368072077
iteration: 94 Logisticloss: 293.1888358975413
iteration: 95 Logisticloss: 154.9188181792419
iteration: 96 Logisticloss: 81.8579607664687
iteration: 97 Logisticloss: 43.253142675806004
iteration: 98 Logisticloss: 22.854645103862154
iteration: 99 Logisticloss: 12.076290138318813
[-0.03974319 -0.02708206 -0.00993909 ... 0.02755069 0.00588144
-0.00110115]
```

CROSS VALIDATION 13

```
iteration: 0 Logisticloss: 3225.9747236656904
iteration: 1 Logisticloss: 455.2114092452396
iteration: 2 Logisticloss: 240.53035077578528
iteration: 3 Logisticloss: 127.09446307650362
iteration: 4 Logisticloss: 67.15577677663903
iteration: 5 Logisticloss: 35.48461707731716
iteration: 6 Logisticloss: 18.749810621824796
iteration: 7 Logisticloss: 9.907294433396368
iteration: 8 Logisticloss: 5.2351471597524775
iteration: 9 Logisticloss: 2.766124669812916
iteration: 10 Logisticloss: 1.4617721185585215
iteration: 11 Logisticloss: 0.7723343051830894
iteration: 12 Logisticloss: 0.40831265804907496
iteration: 13 Logisticloss: 0.2158046958277703
iteration: 14 Logisticloss: 0.11432802935060112
iteration: 15 Logisticloss: 0.06066723029041849
iteration: 16 Logisticloss: 0.03268381444416224
iteration: 17 Logisticloss: 0.018634740489649013
iteration: 18 Logisticloss: 0.010488692339866533
iteration: 19 Logisticloss: 0.006738387978687292
iteration: 20 Logisticloss: 0.005260258396140456
iteration: 21 Logisticloss: 0.01379769365638481
iteration: 22 Logisticloss: 7660.010505832914
iteration: 23 Logisticloss: 2210.8432760301403
iteration: 24 Logisticloss: 826.0801341517467
iteration: 25 Logisticloss: 1702.2168573069662
iteration: 26 Logisticloss: 2357.9202391794925
iteration: 27 Logisticloss: 247.07346964826715
iteration: 28 Logisticloss: 175.67950189935794
iteration: 29 Logisticloss: 92.82775290283375
iteration: 30 Logisticloss: 49.04949988944069
iteration: 31 Logisticloss: 25.91739392768172
iteration: 32 Logisticloss: 13.69455977159185
iteration: 33 Logisticloss: 7.236104365315605
iteration: 34 Logisticloss: 3.8235041694701555
iteration: 35 Logisticloss: 2.0203113991226416
iteration: 36 Logisticloss: 1.0675176879443942
iteration: 37 Logisticloss: 0.5640738023266383
```

Output_logistic_train.txt

iteration: 38 Logisticloss: 0.2981749797260152
iteration: 39 Logisticloss: 0.15762248949293856
iteration: 40 Logisticloss: 0.0838108275664034
iteration: 41 Logisticloss: 0.04481362275911222
iteration: 42 Logisticloss: 0.024733205482955052
iteration: 43 Logisticloss: 0.01481995950288098
iteration: 44 Logisticloss: 0.08522005379363165
iteration: 45 Logisticloss: 6391.143266299471
iteration: 46 Logisticloss: 788.7816795512922
iteration: 47 Logisticloss: 281.8848495663302
iteration: 48 Logisticloss: 148.94582749468069
iteration: 49 Logisticloss: 78.70206935951005
iteration: 50 Logisticloss: 41.58551319610106
iteration: 51 Logisticloss: 21.97363391278614
iteration: 52 Logisticloss: 11.610658386440411
iteration: 53 Logisticloss: 6.135179056643451
iteration: 54 Logisticloss: 3.2417036489851982
iteration: 55 Logisticloss: 1.7130477889805182
iteration: 56 Logisticloss: 0.9051141513516286
iteration: 57 Logisticloss: 0.4784511450797179
iteration: 58 Logisticloss: 0.25283563297223893
iteration: 59 Logisticloss: 0.13444994987022008
iteration: 60 Logisticloss: 0.07122192397288289
iteration: 61 Logisticloss: 0.039489855080536894
iteration: 62 Logisticloss: 0.021902159900581336
iteration: 63 Logisticloss: 0.013067587562487468
iteration: 64 Logisticloss: 0.008340708207824859
iteration: 65 Logisticloss: 0.00645196732868987
iteration: 66 Logisticloss: 0.022485569179162487
iteration: 67 Logisticloss: 7575.341011240676
iteration: 68 Logisticloss: 417.1712018206401
iteration: 69 Logisticloss: 2404.8942651203934
iteration: 70 Logisticloss: 294.82384755665225
iteration: 71 Logisticloss: 155.78274627924398
iteration: 72 Logisticloss: 82.31445400168991
iteration: 73 Logisticloss: 43.49435030148196
iteration: 74 Logisticloss: 22.982093862995033
iteration: 75 Logisticloss: 12.143568869668053
iteration: 76 Logisticloss: 6.41657221363177
iteration: 77 Logisticloss: 3.390469425803714
iteration: 78 Logisticloss: 1.7914990347807394
iteration: 79 Logisticloss: 0.9466148783662108
iteration: 80 Logisticloss: 0.5001851342929593
iteration: 81 Logisticloss: 0.26434014196592154
iteration: 82 Logisticloss: 0.14032662023374476
iteration: 83 Logisticloss: 0.07458801935605129
iteration: 84 Logisticloss: 0.039877524625423065
iteration: 85 Logisticloss: 0.021852660956877833
iteration: 86 Logisticloss: 0.012918607674889416
iteration: 87 Logisticloss: 0.007889126767394072
iteration: 88 Logisticloss: 0.0058872073212087985
iteration: 89 Logisticloss: 0.01636106120557285

Output_logistic_train.txt

```
iteration: 90 Logisticloss: 4859.026575897338
iteration: 91 Logisticloss: 1649.913934916407
iteration: 92 Logisticloss: 300.349529370425
iteration: 93 Logisticloss: 158.7024757894199
iteration: 94 Logisticloss: 83.85721753746654
iteration: 95 Logisticloss: 44.309535173582844
iteration: 96 Logisticloss: 23.412831536197558
iteration: 97 Logisticloss: 12.37116747884952
iteration: 98 Logisticloss: 6.536833639840894
iteration: 99 Logisticloss: 3.45401467630356
[-0.01933718 -0.00932689 -0.0103989 ... 0.01411867 -0.00366328
 0.0009088 ]
```

CROSS VALIDATION 14

```
iteration: 0 Logisticloss: 1174.4630468570178
iteration: 1 Logisticloss: 327.4197090248795
iteration: 2 Logisticloss: 173.00615903550852
iteration: 3 Logisticloss: 91.41517825350356
iteration: 4 Logisticloss: 48.30310586459913
iteration: 5 Logisticloss: 25.523004830734973
iteration: 6 Logisticloss: 13.48616748197847
iteration: 7 Logisticloss: 7.125991416690791
iteration: 8 Logisticloss: 3.765321299900219
iteration: 9 Logisticloss: 1.9895681011900341
iteration: 10 Logisticloss: 1.0512808776170326
iteration: 11 Logisticloss: 0.5555240279418734
iteration: 12 Logisticloss: 0.29357583778261154
iteration: 13 Logisticloss: 0.15524254212126942
iteration: 14 Logisticloss: 0.08282417083660433
iteration: 15 Logisticloss: 0.045113909528233305
iteration: 16 Logisticloss: 0.024273973340668227
iteration: 17 Logisticloss: 0.014198265489769825
iteration: 18 Logisticloss: 0.008580395618513675
iteration: 19 Logisticloss: 0.006532330887307105
iteration: 20 Logisticloss: 0.004407509214972859
iteration: 21 Logisticloss: 0.013282961477118549
iteration: 22 Logisticloss: 9319.69894397498
iteration: 23 Logisticloss: 6949.663501493482
iteration: 24 Logisticloss: 1590.980432407391
iteration: 25 Logisticloss: 354.5122962655062
iteration: 26 Logisticloss: 591.8922220080159
iteration: 27 Logisticloss: 228.15291487712398
iteration: 28 Logisticloss: 120.55431724987324
iteration: 29 Logisticloss: 63.700011965265944
iteration: 30 Logisticloss: 33.658616438966966
iteration: 31 Logisticloss: 17.78496464338563
iteration: 32 Logisticloss: 9.397444126677987
iteration: 33 Logisticloss: 4.965540156239699
iteration: 34 Logisticloss: 2.6237547902234892
iteration: 35 Logisticloss: 1.3863726770128235
iteration: 36 Logisticloss: 0.7325490959482098
iteration: 37 Logisticloss: 0.3870735390651543
iteration: 38 Logisticloss: 0.2045269714222188
```

Output_logistic_train.txt

```

iteration: 39 Logisticloss: 0.10808391527871175
iteration: 40 Logisticloss: 0.05732437782582469
iteration: 41 Logisticloss: 0.031033145410266215
iteration: 42 Logisticloss: 0.016987985922967123
iteration: 43 Logisticloss: 0.0106620156457225
iteration: 44 Logisticloss: 0.0074459831524715855
iteration: 45 Logisticloss: 0.04069366623228464
iteration: 46 Logisticloss: 7609.773315327993
iteration: 47 Logisticloss: 765.0530366059197
iteration: 48 Logisticloss: 879.0123619503604
iteration: 49 Logisticloss: 272.4063816556122
iteration: 50 Logisticloss: 143.9375226596917
iteration: 51 Logisticloss: 76.05552521747398
iteration: 52 Logisticloss: 40.187178500923984
iteration: 53 Logisticloss: 21.234608678950718
iteration: 54 Logisticloss: 11.220210588752858
iteration: 55 Logisticloss: 5.928676509154447
iteration: 56 Logisticloss: 3.1326689363630695
iteration: 57 Logisticloss: 1.6552796056910535
iteration: 58 Logisticloss: 0.874661864605637
iteration: 59 Logisticloss: 0.46250684002710085
iteration: 60 Logisticloss: 0.2443786679890093
iteration: 61 Logisticloss: 0.12967815227846174
iteration: 62 Logisticloss: 0.06944214704213625
iteration: 63 Logisticloss: 0.03714932646146093
iteration: 64 Logisticloss: 0.02091714399987298
iteration: 65 Logisticloss: 0.012505003173998233
iteration: 66 Logisticloss: 0.008525606532129804
iteration: 67 Logisticloss: 0.007083653998841014
iteration: 68 Logisticloss: 35.60347290958008
iteration: 69 Logisticloss: 1178.4243731259915
iteration: 70 Logisticloss: 331.0941462096948
iteration: 71 Logisticloss: 174.94770453945924
iteration: 72 Logisticloss: 92.44107657597037
iteration: 73 Logisticloss: 48.84518297064609
iteration: 74 Logisticloss: 25.809434374935503
iteration: 75 Logisticloss: 13.637514740284976
iteration: 76 Logisticloss: 7.205962191566028
iteration: 77 Logisticloss: 3.807577267219766
iteration: 78 Logisticloss: 2.0118957560109276
iteration: 79 Logisticloss: 1.0630730924533955
iteration: 80 Logisticloss: 0.5617701963077564
iteration: 81 Logisticloss: 0.29686551157560015
iteration: 82 Logisticloss: 0.1570453294386419
iteration: 83 Logisticloss: 0.0842235889208962
iteration: 84 Logisticloss: 0.045203872995128166
iteration: 85 Logisticloss: 0.024765943235720945
iteration: 86 Logisticloss: 0.014145782959203452
iteration: 87 Logisticloss: 0.008927322523987744
iteration: 88 Logisticloss: 0.006108163685901946
iteration: 89 Logisticloss: 0.004948225359942586
iteration: 90 Logisticloss: 0.01209808826243565

```

Output_logistic_train.txt

```

iteration: 91 Logisticloss: 9620.74048217134
iteration: 92 Logisticloss: 6902.853478383332
iteration: 93 Logisticloss: 1589.835271108233
iteration: 94 Logisticloss: 357.4820374863224
iteration: 95 Logisticloss: 582.5053978684969
iteration: 96 Logisticloss: 228.0746207440592
iteration: 97 Logisticloss: 120.51294720749894
iteration: 98 Logisticloss: 63.67815234004165
iteration: 99 Logisticloss: 33.64706597424609
[-0.07623477 -0.01243295 -0.01002579 ... 0.01867944 0.01577554
0.00476253]

```

CROSS VALIDATION 15

```

iteration: 0 Logisticloss: 1174.4630468570178
iteration: 1 Logisticloss: 327.4197090248795
iteration: 2 Logisticloss: 173.00615903550852
iteration: 3 Logisticloss: 91.41517825350356
iteration: 4 Logisticloss: 48.30310586459913
iteration: 5 Logisticloss: 25.523004830734973
iteration: 6 Logisticloss: 13.48616748197847
iteration: 7 Logisticloss: 7.125991416690791
iteration: 8 Logisticloss: 3.765321299901607
iteration: 9 Logisticloss: 1.9895681035936015
iteration: 10 Logisticloss: 1.05128142133541
iteration: 11 Logisticloss: 0.5555518770166143
iteration: 12 Logisticloss: 0.2938109430660913
iteration: 13 Logisticloss: 0.1552628211756538
iteration: 14 Logisticloss: 0.08288779846277768
iteration: 15 Logisticloss: 0.045040236388512074
iteration: 16 Logisticloss: 0.024430345202761803
iteration: 17 Logisticloss: 0.014049287042166497
iteration: 18 Logisticloss: 0.008727204453846962
iteration: 19 Logisticloss: 0.0064347398831064075
iteration: 20 Logisticloss: 0.004539820261114288
iteration: 21 Logisticloss: 0.01094151575962741
iteration: 22 Logisticloss: 9653.603213411812
iteration: 23 Logisticloss: 6111.8023095912
iteration: 24 Logisticloss: 1592.6394301332687
iteration: 25 Logisticloss: 356.49024815521153
iteration: 26 Logisticloss: 700.7747300813484
iteration: 27 Logisticloss: 227.86793995695578
iteration: 28 Logisticloss: 120.40373860417544
iteration: 29 Logisticloss: 63.62044731962335
iteration: 30 Logisticloss: 33.616575067118454
iteration: 31 Logisticloss: 17.762750292619295
iteration: 32 Logisticloss: 9.38570622759733
iteration: 33 Logisticloss: 4.9593379369501545
iteration: 34 Logisticloss: 2.620477583301597
iteration: 35 Logisticloss: 1.3846410250496426
iteration: 36 Logisticloss: 0.7316341038968533
iteration: 37 Logisticloss: 0.3865901065764398
iteration: 38 Logisticloss: 0.20427588961919269
iteration: 39 Logisticloss: 0.10805872697026941

```


Output_logistic_train.txt

```

iteration: 40 Logisticloss: 0.057351629490079485
iteration: 41 Logisticloss: 0.031147508741704622
iteration: 42 Logisticloss: 0.016896104589698605
iteration: 43 Logisticloss: 0.010709641761440337
iteration: 44 Logisticloss: 0.0078089529510606505
iteration: 45 Logisticloss: 0.11780893585322898
iteration: 46 Logisticloss: 10316.141998747886
iteration: 47 Logisticloss: 2597.4222534001356
iteration: 48 Logisticloss: 555.804220335558
iteration: 49 Logisticloss: 294.9851992960423
iteration: 50 Logisticloss: 155.86800334812554
iteration: 51 Logisticloss: 82.35950320798771
iteration: 52 Logisticloss: 43.51815396978404
iteration: 53 Logisticloss: 22.99467154573797
iteration: 54 Logisticloss: 12.150214824450075
iteration: 55 Logisticloss: 6.4200838871146715
iteration: 56 Logisticloss: 3.3923249681913816
iteration: 57 Logisticloss: 1.7924795083802685
iteration: 58 Logisticloss: 0.9471353828613568
iteration: 59 Logisticloss: 0.5005274341566041
iteration: 60 Logisticloss: 0.2645407046283568
iteration: 61 Logisticloss: 0.13985252533196177
iteration: 62 Logisticloss: 0.07408912803995231
iteration: 63 Logisticloss: 0.039367345508161254
iteration: 64 Logisticloss: 0.02197620910647647
iteration: 65 Logisticloss: 0.012584773269105905
iteration: 66 Logisticloss: 0.008491422679964783
iteration: 67 Logisticloss: 0.006464456615730365
iteration: 68 Logisticloss: 11251.58491258966
iteration: 69 Logisticloss: 4061.661761158769
iteration: 70 Logisticloss: 3521.587187707585
iteration: 71 Logisticloss: 390.3343719803149
iteration: 72 Logisticloss: 206.2498028508121
iteration: 73 Logisticloss: 108.98087442359332
iteration: 74 Logisticloss: 57.58469014742261
iteration: 75 Logisticloss: 30.427325500122713
iteration: 76 Logisticloss: 16.07757434693527
iteration: 77 Logisticloss: 8.495271688647202
iteration: 78 Logisticloss: 4.488838922460627
iteration: 79 Logisticloss: 2.371872564456434
iteration: 80 Logisticloss: 1.2533771937728095
iteration: 81 Logisticloss: 0.6628420117097678
iteration: 82 Logisticloss: 0.35004124728647357
iteration: 83 Logisticloss: 0.1855500524399161
iteration: 84 Logisticloss: 0.09809879931879023
iteration: 85 Logisticloss: 0.052554955992842566
iteration: 86 Logisticloss: 0.028320033942819442
iteration: 87 Logisticloss: 0.016244942939107963
iteration: 88 Logisticloss: 0.009898069123715228
iteration: 89 Logisticloss: 0.007226993898282109
iteration: 90 Logisticloss: 0.017972043198298978
iteration: 91 Logisticloss: 5020.792565340347

```

Output_logistic_train.txt

```
iteration: 92 Logisticloss: 2262.689913169244
iteration: 93 Logisticloss: 438.0834862603513
iteration: 94 Logisticloss: 231.48008261478586
iteration: 95 Logisticloss: 122.31236813958324
iteration: 96 Logisticloss: 64.62895308711687
iteration: 97 Logisticloss: 34.149462075413815
iteration: 98 Logisticloss: 18.044323856958698
iteration: 99 Logisticloss: 9.534487621966239
[-0.01252497 -0.00223873 -0.00778058 ... 0.01374412 0.01065941
0.00239757]
```

CROSS VALIDATION 16

```
iteration: 0 Logisticloss: 2822.8621846713763
iteration: 1 Logisticloss: 332.02173411277704
iteration: 2 Logisticloss: 175.43783514509076
iteration: 3 Logisticloss: 92.70005797253506
iteration: 4 Logisticloss: 48.98202683021439
iteration: 5 Logisticloss: 25.88174166302501
iteration: 6 Logisticloss: 13.675721873288069
iteration: 7 Logisticloss: 7.226176112842569
iteration: 8 Logisticloss: 3.818500585166967
iteration: 9 Logisticloss: 2.0175638931357964
iteration: 10 Logisticloss: 1.0662725678854394
iteration: 11 Logisticloss: 0.5633470776758985
iteration: 12 Logisticloss: 0.2979467010684174
iteration: 13 Logisticloss: 0.1576254430786598
iteration: 14 Logisticloss: 0.08392218805822972
iteration: 15 Logisticloss: 0.045053235665518304
iteration: 16 Logisticloss: 0.02501914030573433
iteration: 17 Logisticloss: 0.013985162118696971
iteration: 18 Logisticloss: 0.009109628275782851
iteration: 19 Logisticloss: 0.005931426904521929
iteration: 20 Logisticloss: 0.005451952703550878
iteration: 21 Logisticloss: 0.007632046033409784
iteration: 22 Logisticloss: 9430.151419791766
iteration: 23 Logisticloss: 6184.515251418785
iteration: 24 Logisticloss: 1775.48101696877
iteration: 25 Logisticloss: 198.5832152887372
iteration: 26 Logisticloss: 104.9299061143841
iteration: 27 Logisticloss: 55.444189425488474
iteration: 28 Logisticloss: 29.296341291859175
iteration: 29 Logisticloss: 15.480017580536057
iteration: 30 Logisticloss: 8.179534946050513
iteration: 31 Logisticloss: 4.32207957502812
iteration: 32 Logisticloss: 2.283737363323207
iteration: 33 Logisticloss: 1.2068231803982241
iteration: 34 Logisticloss: 0.6376576156008436
iteration: 35 Logisticloss: 0.33724857096004945
iteration: 36 Logisticloss: 0.1781666783742182
iteration: 37 Logisticloss: 0.09467455378067591
iteration: 38 Logisticloss: 0.05040147789806813
iteration: 39 Logisticloss: 0.02757762893917278
iteration: 40 Logisticloss: 0.01569677286136896
```

Output_logistic_train.txt

```

iteration: 41 Logisticloss: 0.010236081980887416
iteration: 42 Logisticloss: 0.006589826206820639
iteration: 43 Logisticloss: 0.005674494331582838
iteration: 44 Logisticloss: 0.004996465246602508
iteration: 45 Logisticloss: 0.019442008082947566
iteration: 46 Logisticloss: 4228.405937490458
iteration: 47 Logisticloss: 652.7240892544307
iteration: 48 Logisticloss: 632.9274255530651
iteration: 49 Logisticloss: 250.3461308146223
iteration: 50 Logisticloss: 132.2810488428711
iteration: 51 Logisticloss: 69.89633043670756
iteration: 52 Logisticloss: 36.93270541210028
iteration: 53 Logisticloss: 19.51496910545444
iteration: 54 Logisticloss: 10.31156572304812
iteration: 55 Logisticloss: 5.448555265230769
iteration: 56 Logisticloss: 2.878976582056837
iteration: 57 Logisticloss: 1.5212419681763014
iteration: 58 Logisticloss: 0.8040493120719395
iteration: 59 Logisticloss: 0.42521273531047754
iteration: 60 Logisticloss: 0.22478735022582225
iteration: 61 Logisticloss: 0.11921699672869428
iteration: 62 Logisticloss: 0.06318844150579872
iteration: 63 Logisticloss: 0.03433270759941867
iteration: 64 Logisticloss: 0.01866034395817722
iteration: 65 Logisticloss: 0.0115050108389391
iteration: 66 Logisticloss: 0.007228716089164627
iteration: 67 Logisticloss: 0.00736574734192099
iteration: 68 Logisticloss: 0.004879550926349568
iteration: 69 Logisticloss: 0.007183026206092066
iteration: 70 Logisticloss: 0.007546167935794771
iteration: 71 Logisticloss: 0.005020083676962621
iteration: 72 Logisticloss: 0.006081403986094219
iteration: 73 Logisticloss: 0.004556657095293766
iteration: 74 Logisticloss: 0.005631978585513971
iteration: 75 Logisticloss: 0.00796726070902203
iteration: 76 Logisticloss: 0.015144505899931653
iteration: 77 Logisticloss: 10129.861367192965
iteration: 78 Logisticloss: 764.8775731004391
iteration: 79 Logisticloss: 522.4688267332969
iteration: 80 Logisticloss: 211.98035114634794
iteration: 81 Logisticloss: 112.00885387153427
iteration: 82 Logisticloss: 59.18465215180796
iteration: 83 Logisticloss: 31.272733621111627
iteration: 84 Logisticloss: 16.524281761908277
iteration: 85 Logisticloss: 8.731308591539378
iteration: 86 Logisticloss: 4.61355905322574
iteration: 87 Logisticloss: 2.43777057371738
iteration: 88 Logisticloss: 1.2881004998618155
iteration: 89 Logisticloss: 0.6806480320362445
iteration: 90 Logisticloss: 0.3597734585882163
iteration: 91 Logisticloss: 0.19021329043500623
iteration: 92 Logisticloss: 0.10092381823646587

```

Output_logistic_train.txt

iteration: 93 Logisticloss: 0.05365000956388797
iteration: 94 Logisticloss: 0.029331139627278287
iteration: 95 Logisticloss: 0.016545916016825177
iteration: 96 Logisticloss: 0.010322230665253595
iteration: 97 Logisticloss: 0.007219099520279571
iteration: 98 Logisticloss: 0.004710898181700791
iteration: 99 Logisticloss: 0.0057041830301243135
[-3.60119345e-04 -2.50986270e-04 2.56818832e-05 ... 1.99969254e-04
1.60436434e-04 2.49418139e-05]

CROSS VALIDATION 17

iteration: 0 Logisticloss: 1175.2020530346667
iteration: 1 Logisticloss: 327.5152799085729
iteration: 2 Logisticloss: 173.0566579854728
iteration: 3 Logisticloss: 91.44186152615909
iteration: 4 Logisticloss: 48.31720510904095
iteration: 5 Logisticloss: 25.53045476749487
iteration: 6 Logisticloss: 13.490103973607912
iteration: 7 Logisticloss: 7.128071429830218
iteration: 8 Logisticloss: 3.7664203634569478
iteration: 9 Logisticloss: 1.990148826530865
iteration: 10 Logisticloss: 1.0515875437181579
iteration: 11 Logisticloss: 0.555715955512371
iteration: 12 Logisticloss: 0.2938972591028882
iteration: 13 Logisticloss: 0.15531441684113964
iteration: 14 Logisticloss: 0.08301591406016928
iteration: 15 Logisticloss: 0.045146004025123344
iteration: 16 Logisticloss: 0.024474601005559215
iteration: 17 Logisticloss: 0.01417366135543554
iteration: 18 Logisticloss: 0.008721937839150031
iteration: 19 Logisticloss: 0.006508223685913972
iteration: 20 Logisticloss: 0.004588215487414437
iteration: 21 Logisticloss: 0.011616813849087469
iteration: 22 Logisticloss: 9621.858813190524
iteration: 23 Logisticloss: 6917.6907493589715
iteration: 24 Logisticloss: 1594.1949163251138
iteration: 25 Logisticloss: 354.9002510936977
iteration: 26 Logisticloss: 692.4462896567471
iteration: 27 Logisticloss: 228.14708634550325
iteration: 28 Logisticloss: 120.55123749675909
iteration: 29 Logisticloss: 63.69838464643823
iteration: 30 Logisticloss: 33.657756575702315
iteration: 31 Logisticloss: 17.784510297979384
iteration: 32 Logisticloss: 9.39720405391681
iteration: 33 Logisticloss: 4.9654133035635875
iteration: 34 Logisticloss: 2.6236877622051615
iteration: 35 Logisticloss: 1.3863372599023853
iteration: 36 Logisticloss: 0.7325303818903375
iteration: 37 Logisticloss: 0.3870636972951298
iteration: 38 Logisticloss: 0.2045264313704667
iteration: 39 Logisticloss: 0.10819551667307002
iteration: 40 Logisticloss: 0.057417663078337455
iteration: 41 Logisticloss: 0.031212952010660166

Output_logistic_train.txt

```

iteration: 42 Logisticloss: 0.017019091549212502
iteration: 43 Logisticloss: 0.010808594380656414
iteration: 44 Logisticloss: 0.0077496433868936
iteration: 45 Logisticloss: 0.24505973438795442
iteration: 46 Logisticloss: 5508.607568777872
iteration: 47 Logisticloss: 788.012313482926
iteration: 48 Logisticloss: 346.2621315349577
iteration: 49 Logisticloss: 601.459010847796
iteration: 50 Logisticloss: 193.5894767979014
iteration: 51 Logisticloss: 102.29125152619824
iteration: 52 Logisticloss: 54.04994275447824
iteration: 53 Logisticloss: 28.559591051773968
iteration: 54 Logisticloss: 15.090677241780945
iteration: 55 Logisticloss: 7.973802538095524
iteration: 56 Logisticloss: 4.213298442332531
iteration: 57 Logisticloss: 2.2262758175099746
iteration: 58 Logisticloss: 1.1763477198446481
iteration: 59 Logisticloss: 0.6215734667479151
iteration: 60 Logisticloss: 0.32843639766308447
iteration: 61 Logisticloss: 0.17360760241501097
iteration: 62 Logisticloss: 0.09200328422123878
iteration: 63 Logisticloss: 0.048728031406984444
iteration: 64 Logisticloss: 0.026328492391393017
iteration: 65 Logisticloss: 0.0152606106707454
iteration: 66 Logisticloss: 0.009823861985177654
iteration: 67 Logisticloss: 0.0077804147898879635
iteration: 68 Logisticloss: 0.3316917645125272
iteration: 69 Logisticloss: 2184.974132872593
iteration: 70 Logisticloss: 449.7906091814076
iteration: 71 Logisticloss: 390.73678177746353
iteration: 72 Logisticloss: 656.8518650356575
iteration: 73 Logisticloss: 149.87124447743003
iteration: 74 Logisticloss: 79.19086005583611
iteration: 75 Logisticloss: 41.84386630170034
iteration: 76 Logisticloss: 22.10999029243081
iteration: 77 Logisticloss: 11.682755836118753
iteration: 78 Logisticloss: 6.173087603567678
iteration: 79 Logisticloss: 3.261937491705319
iteration: 80 Logisticloss: 1.7235788782258252
iteration: 81 Logisticloss: 0.910878736176961
iteration: 82 Logisticloss: 0.4812440230939592
iteration: 83 Logisticloss: 0.2545177488599177
iteration: 84 Logisticloss: 0.13486657804379892
iteration: 85 Logisticloss: 0.07167879666946962
iteration: 86 Logisticloss: 0.038311210792185045
iteration: 87 Logisticloss: 0.02106284201604288
iteration: 88 Logisticloss: 0.01278422169675564
iteration: 89 Logisticloss: 0.00800625069213994
iteration: 90 Logisticloss: 0.006369632198882907
iteration: 91 Logisticloss: 0.0049185250830368465
iteration: 92 Logisticloss: 0.009885175992792605
iteration: 93 Logisticloss: 10.596237273747546

```

Output_logistic_train.txt

iteration: 94 Logisticloss: 3685.179440934556
iteration: 95 Logisticloss: 1770.78613415931
iteration: 96 Logisticloss: 1353.7580355570842
iteration: 97 Logisticloss: 485.75844292890883
iteration: 98 Logisticloss: 366.62095754561835
iteration: 99 Logisticloss: 373.3786411721092
[-0.11291164 -0.02567967 0.0320685 ... 0.06470009 0.00052789
-0.00339968]

CROSS VALIDATION 18

iteration: 0 Logisticloss: 3624.857910826686
iteration: 1 Logisticloss: 1780.761637744271
iteration: 2 Logisticloss: 189.8747794281999
iteration: 3 Logisticloss: 100.32843283753304
iteration: 4 Logisticloss: 53.01280383813006
iteration: 5 Logisticloss: 28.011574498836385
iteration: 6 Logisticloss: 14.801109337655774
iteration: 7 Logisticloss: 7.820796993554977
iteration: 8 Logisticloss: 4.132451441249659
iteration: 9 Logisticloss: 2.183556866133909
iteration: 10 Logisticloss: 1.153776728599372
iteration: 11 Logisticloss: 0.6096912388452361
iteration: 12 Logisticloss: 0.3222170339811044
iteration: 13 Logisticloss: 0.1703152925862256
iteration: 14 Logisticloss: 0.09036034978344168
iteration: 15 Logisticloss: 0.04852229330415586
iteration: 16 Logisticloss: 0.026392161293642077
iteration: 17 Logisticloss: 0.014974925383774615
iteration: 18 Logisticloss: 0.009013357174482404
iteration: 19 Logisticloss: 0.0063805962050605645
iteration: 20 Logisticloss: 0.004785573039991556
iteration: 21 Logisticloss: 0.00503777763206347
iteration: 22 Logisticloss: 0.020789510480430935
iteration: 23 Logisticloss: 5421.254767580532
iteration: 24 Logisticloss: 1966.9387016557348
iteration: 25 Logisticloss: 477.824308362279
iteration: 26 Logisticloss: 722.925574131708
iteration: 27 Logisticloss: 142.79853906608807
iteration: 28 Logisticloss: 75.45369468833859
iteration: 29 Logisticloss: 39.869175695889666
iteration: 30 Logisticloss: 21.066579542368537
iteration: 31 Logisticloss: 11.131462163939542
iteration: 32 Logisticloss: 5.881785346815251
iteration: 33 Logisticloss: 3.1079462971073135
iteration: 34 Logisticloss: 1.6422126163059287
iteration: 35 Logisticloss: 0.8677987160120846
iteration: 36 Logisticloss: 0.458544930920267
iteration: 37 Logisticloss: 0.24236022061699328
iteration: 38 Logisticloss: 0.12812702490471045
iteration: 39 Logisticloss: 0.06818644440614095
iteration: 40 Logisticloss: 0.03610046243378625
iteration: 41 Logisticloss: 0.020242971449206823
iteration: 42 Logisticloss: 0.0117671541914898

Output_logistic_train.txt

```

iteration: 43 Logisticloss: 0.007778507817695287
iteration: 44 Logisticloss: 0.0053525662366547145
iteration: 45 Logisticloss: 0.009596345709246501
iteration: 46 Logisticloss: 0.006362769362453859
iteration: 47 Logisticloss: 0.0036848116185176647
iteration: 48 Logisticloss: 0.005665982318251348
iteration: 49 Logisticloss: 0.005862989633057193
iteration: 50 Logisticloss: 0.004685294170239528
iteration: 51 Logisticloss: 0.005232275384801463
iteration: 52 Logisticloss: 0.21673724667046776
iteration: 53 Logisticloss: 694.2777645101373
iteration: 54 Logisticloss: 1791.4343614230597
iteration: 55 Logisticloss: 251.19623150461106
iteration: 56 Logisticloss: 132.73023653605085
iteration: 57 Logisticloss: 70.13370443398347
iteration: 58 Logisticloss: 37.05813803996553
iteration: 59 Logisticloss: 19.581287502068513
iteration: 60 Logisticloss: 10.34661962423607
iteration: 61 Logisticloss: 5.467301324206577
iteration: 62 Logisticloss: 2.8889778118638922
iteration: 63 Logisticloss: 1.5269129133803088
iteration: 64 Logisticloss: 0.8067388813473167
iteration: 65 Logisticloss: 0.42674740578878206
iteration: 66 Logisticloss: 0.22540060647730883
iteration: 67 Logisticloss: 0.11982925898206113
iteration: 68 Logisticloss: 0.06321924666327398
iteration: 69 Logisticloss: 0.0346302287002931
iteration: 70 Logisticloss: 0.01838458415022658
iteration: 71 Logisticloss: 0.01222531608632498
iteration: 72 Logisticloss: 0.007500275171323803
iteration: 73 Logisticloss: 0.005903999601008961
iteration: 74 Logisticloss: 0.004504823207963027
iteration: 75 Logisticloss: 0.04894456202405604
iteration: 76 Logisticloss: 5439.675918726696
iteration: 77 Logisticloss: 1974.3175974921724
iteration: 78 Logisticloss: 488.8750023535388
iteration: 79 Logisticloss: 728.012867016565
iteration: 80 Logisticloss: 144.297993282885
iteration: 81 Logisticloss: 76.24599523575581
iteration: 82 Logisticloss: 40.287821453581124
iteration: 83 Logisticloss: 21.287787673164058
iteration: 84 Logisticloss: 11.24831013144841
iteration: 85 Logisticloss: 5.943534681034514
iteration: 86 Logisticloss: 3.140564710585562
iteration: 87 Logisticloss: 1.6594499456788878
iteration: 88 Logisticloss: 0.8768994762266836
iteration: 89 Logisticloss: 0.463372683031824
iteration: 90 Logisticloss: 0.2448781353333564
iteration: 91 Logisticloss: 0.12946866677103555
iteration: 92 Logisticloss: 0.06883034082828904
iteration: 93 Logisticloss: 0.03651504972968167
iteration: 94 Logisticloss: 0.020395151381694367

```

Output_logistic_train.txt

iteration: 95 Logisticloss: 0.01191939925874991
iteration: 96 Logisticloss: 0.007793349833245233
iteration: 97 Logisticloss: 0.005378397120149552
iteration: 98 Logisticloss: 0.009814538150242115
iteration: 99 Logisticloss: 0.006511859695625193
[-4.29070563e-04 -3.47565073e-04 -3.70532118e-05 ... 2.78921828e-04
1.51127779e-04 5.20227544e-05]

CROSS VALIDATION 19

iteration: 0 Logisticloss: 3399.8087947681997
iteration: 1 Logisticloss: 363.6029735904006
iteration: 2 Logisticloss: 192.12512912588485
iteration: 3 Logisticloss: 101.51750101807316
iteration: 4 Logisticloss: 53.64109869355968
iteration: 5 Logisticloss: 28.343560865829442
iteration: 6 Logisticloss: 14.976528490662353
iteration: 7 Logisticloss: 7.913488179835557
iteration: 8 Logisticloss: 4.181471315432292
iteration: 9 Logisticloss: 2.2098216137148063
iteration: 10 Logisticloss: 1.1675837697089246
iteration: 11 Logisticloss: 0.6174830813370416
iteration: 12 Logisticloss: 0.32612686259133766
iteration: 13 Logisticloss: 0.1731493656819488
iteration: 14 Logisticloss: 0.09164191466809364
iteration: 15 Logisticloss: 0.04941906789540174
iteration: 16 Logisticloss: 0.026665952513223547
iteration: 17 Logisticloss: 0.01539456362046691
iteration: 18 Logisticloss: 0.009119412108502652
iteration: 19 Logisticloss: 0.0062652771293285085
iteration: 20 Logisticloss: 0.005679992845133373
iteration: 21 Logisticloss: 0.006599614468155121
iteration: 22 Logisticloss: 0.02121785469661753
iteration: 23 Logisticloss: 1.4591823409107456
iteration: 24 Logisticloss: 2588.7271210294375
iteration: 25 Logisticloss: 1744.7474041354762
iteration: 26 Logisticloss: 319.0225996405349
iteration: 27 Logisticloss: 168.56918837814308
iteration: 28 Logisticloss: 89.0707156874896
iteration: 29 Logisticloss: 47.06430913865799
iteration: 30 Logisticloss: 24.868433778738353
iteration: 31 Logisticloss: 13.140296966550332
iteration: 32 Logisticloss: 6.943235987654217
iteration: 33 Logisticloss: 3.6687546790591488
iteration: 34 Logisticloss: 1.9385429102503322
iteration: 35 Logisticloss: 1.0243119349639203
iteration: 36 Logisticloss: 0.5412515442025359
iteration: 37 Logisticloss: 0.2862918385079381
iteration: 38 Logisticloss: 0.1522960214939839
iteration: 39 Logisticloss: 0.08041046905387117
iteration: 40 Logisticloss: 0.04381734541355632
iteration: 41 Logisticloss: 0.023825539049032514
iteration: 42 Logisticloss: 0.014016599581212581
iteration: 43 Logisticloss: 0.009145328022810203

Output_logistic_train.txt

```

iteration: 44 Logisticloss: 0.006551584488328889
iteration: 45 Logisticloss: 0.009368016724173603
iteration: 46 Logisticloss: 6728.735436532861
iteration: 47 Logisticloss: 1165.867755037467
iteration: 48 Logisticloss: 2281.929103624535
iteration: 49 Logisticloss: 240.16446191172597
iteration: 50 Logisticloss: 126.901130099716
iteration: 51 Logisticloss: 67.05362105782379
iteration: 52 Logisticloss: 35.4306387455591
iteration: 53 Logisticloss: 18.721288158856886
iteration: 54 Logisticloss: 9.892190565457566
iteration: 55 Logisticloss: 5.226960524991787
iteration: 56 Logisticloss: 2.761887386186319
iteration: 57 Logisticloss: 1.4593613036073543
iteration: 58 Logisticloss: 0.7711368805197893
iteration: 59 Logisticloss: 0.4076627715823187
iteration: 60 Logisticloss: 0.2153241093101416
iteration: 61 Logisticloss: 0.11399124365570713
iteration: 62 Logisticloss: 0.06059094572962815
iteration: 63 Logisticloss: 0.03271562748687507
iteration: 64 Logisticloss: 0.01825764510129747
iteration: 65 Logisticloss: 0.011120255157257192
iteration: 66 Logisticloss: 0.006534948384940077
iteration: 67 Logisticloss: 0.0053291721082207085
iteration: 68 Logisticloss: 0.004249379403201948
iteration: 69 Logisticloss: 0.006131461750116501
iteration: 70 Logisticloss: 0.00981156062053449
iteration: 71 Logisticloss: 0.004469941963759161
iteration: 72 Logisticloss: 0.00591509761595174
iteration: 73 Logisticloss: 0.10288269800991669
iteration: 74 Logisticloss: 6419.332705229112
iteration: 75 Logisticloss: 792.6690389677472
iteration: 76 Logisticloss: 282.7791671166378
iteration: 77 Logisticloss: 149.41842598239006
iteration: 78 Logisticloss: 78.95159410327513
iteration: 79 Logisticloss: 41.71743993731363
iteration: 80 Logisticloss: 22.04318753395732
iteration: 81 Logisticloss: 11.647457691252091
iteration: 82 Logisticloss: 6.1544307265235405
iteration: 83 Logisticloss: 3.251955797703815
iteration: 84 Logisticloss: 1.7183094554814318
iteration: 85 Logisticloss: 0.90794207370579
iteration: 86 Logisticloss: 0.4797539986696296
iteration: 87 Logisticloss: 0.2536269922225531
iteration: 88 Logisticloss: 0.1347149498678528
iteration: 89 Logisticloss: 0.07142713851865684
iteration: 90 Logisticloss: 0.03939206374752977
iteration: 91 Logisticloss: 0.021705645993908295
iteration: 92 Logisticloss: 0.013297717275626094
iteration: 93 Logisticloss: 0.008229918083267812
iteration: 94 Logisticloss: 0.007215814341410356
iteration: 95 Logisticloss: 0.02575965841547304

```

Output_logistic_train.txt

iteration: 96 Logisticloss: 8150.201658534534
iteration: 97 Logisticloss: 622.6738649484026
iteration: 98 Logisticloss: 634.0692239567984
iteration: 99 Logisticloss: 241.58256551839696
[-0.20140993 -0.08973623 -0.11986012 ... 0.05022257 0.03405946
-0.00581035]

Accuracy (Logistic Loss): 0.75

eta = 0.01 lambda = 0.1

CROSS VALIDATION 0

iteration: 0 Logisticloss: 1708.8685949913593
iteration: 1 Logisticloss: 184.5999818879685
iteration: 2 Logisticloss: 149.30317062000145
iteration: 3 Logisticloss: 120.75535725286213
iteration: 4 Logisticloss: 97.66608615564627
iteration: 5 Logisticloss: 78.99164619714743
iteration: 6 Logisticloss: 63.88789223057319
iteration: 7 Logisticloss: 51.67208848988245
iteration: 8 Logisticloss: 41.79204832894592
iteration: 9 Logisticloss: 33.80116767978184
iteration: 10 Logisticloss: 27.338212778485662
iteration: 11 Logisticloss: 22.11100170282701
iteration: 12 Logisticloss: 17.88325627326586
iteration: 13 Logisticloss: 14.463883790522395
iteration: 14 Logisticloss: 11.698319252223534
iteration: 15 Logisticloss: 9.461550048993656
iteration: 16 Logisticloss: 7.652466805481419
iteration: 17 Logisticloss: 6.189292966556054
iteration: 18 Logisticloss: 5.005888227945206
iteration: 19 Logisticloss: 4.048758775442915
iteration: 20 Logisticloss: 3.2746391873136997
iteration: 21 Logisticloss: 2.6485366939489308
iteration: 22 Logisticloss: 2.1421493891034213
iteration: 23 Logisticloss: 1.732586892442306
iteration: 24 Logisticloss: 1.4013356425927728
iteration: 25 Logisticloss: 1.133422086905745
iteration: 26 Logisticloss: 0.9167360612286923
iteration: 27 Logisticloss: 0.7414840316598055
iteration: 28 Logisticloss: 0.5997475044923202
iteration: 29 Logisticloss: 0.4851237447035741
iteration: 30 Logisticloss: 0.39242597847629523
iteration: 31 Logisticloss: 0.3174493455017021
iteration: 32 Logisticloss: 0.2568021462860225
iteration: 33 Logisticloss: 0.20774863264684085
iteration: 34 Logisticloss: 0.1680777354612797
iteration: 35 Logisticloss: 0.13600271381043363
iteration: 36 Logisticloss: 0.11008062852654611
iteration: 37 Logisticloss: 0.08912841693540284
iteration: 38 Logisticloss: 0.0721764905498689
iteration: 39 Logisticloss: 0.058468645142791036
iteration: 40 Logisticloss: 0.047404645356461335
iteration: 41 Logisticloss: 0.038493084361341
iteration: 42 Logisticloss: 0.03132162988601792

Output_logistic_train.txt

```
iteration: 43 Logisticloss: 0.02553147690717275
iteration: 44 Logisticloss: 0.020852122439622214
iteration: 45 Logisticloss: 0.017086840760431984
iteration: 46 Logisticloss: 0.014041863972563379
iteration: 47 Logisticloss: 0.01159234562200939
iteration: 48 Logisticloss: 0.009617186646219491
iteration: 49 Logisticloss: 0.008046116610061268
iteration: 50 Logisticloss: 0.0067995315081599925
iteration: 51 Logisticloss: 0.0057856493470877434
iteration: 52 Logisticloss: 0.0049523334922492186
iteration: 53 Logisticloss: 0.004279261893506406
iteration: 54 Logisticloss: 0.0037540417567687263
iteration: 55 Logisticloss: 0.0033784503390035994
iteration: 56 Logisticloss: 0.003133151570226072
iteration: 57 Logisticloss: 0.0029512525013877166
iteration: 58 Logisticloss: 0.002781369332719392
iteration: 59 Logisticloss: 0.002585025923076378
iteration: 60 Logisticloss: 0.0024338753193374287
iteration: 61 Logisticloss: 0.002324751141747892
Convergence reached in 62 iterations
[-4.06654045e-04 -1.73971185e-04 3.58173324e-05 ... 2.16481634e-04
 1.35100281e-04 3.35596855e-05]
CROSS VALIDATION 1
iteration: 0 Logisticloss: 1093.8871871346164
iteration: 1 Logisticloss: 201.7175948794249
iteration: 2 Logisticloss: 163.14777594493688
iteration: 3 Logisticloss: 131.95277690917132
iteration: 4 Logisticloss: 106.72248048246763
iteration: 5 Logisticloss: 86.31639369113621
iteration: 6 Logisticloss: 69.81209381717274
iteration: 7 Logisticloss: 56.46353183590621
iteration: 8 Logisticloss: 45.66730852901619
iteration: 9 Logisticloss: 36.93539884276973
iteration: 10 Logisticloss: 29.873091548986864
iteration: 11 Logisticloss: 24.161147037514226
iteration: 12 Logisticloss: 19.541366808714475
iteration: 13 Logisticloss: 15.804922571489351
iteration: 14 Logisticloss: 12.78291736731691
iteration: 15 Logisticloss: 10.33874917458102
iteration: 16 Logisticloss: 8.361926029295027
iteration: 17 Logisticloss: 6.763078063736771
iteration: 18 Logisticloss: 5.4699385840109604
iteration: 19 Logisticloss: 4.424056529272807
iteration: 20 Logisticloss: 3.5781544530630005
iteration: 21 Logisticloss: 2.89399478714914
iteration: 22 Logisticloss: 2.3406512478463424
iteration: 23 Logisticloss: 1.8931108742759035
iteration: 24 Logisticloss: 1.5311433592027999
iteration: 25 Logisticloss: 1.2383865730943908
iteration: 26 Logisticloss: 1.0016069478096263
iteration: 27 Logisticloss: 0.8101013080344707
iteration: 28 Logisticloss: 0.6552131912739492
```

Output_logistic_train.txt

```
iteration: 29 Logisticloss: 0.5299420266557884
iteration: 30 Logisticloss: 0.4286279424476975
iteration: 31 Logisticloss: 0.3466974489229317
iteration: 32 Logisticloss: 0.2804509876550811
iteration: 33 Logisticloss: 0.22687649541548682
iteration: 34 Logisticloss: 0.1835361004284264
iteration: 35 Logisticloss: 0.14848348217177434
iteration: 36 Logisticloss: 0.12013473099350658
iteration: 37 Logisticloss: 0.09720240402027842
iteration: 38 Logisticloss: 0.07865587092570002
iteration: 39 Logisticloss: 0.06366311318754621
iteration: 40 Logisticloss: 0.0515489734828296
iteration: 41 Logisticloss: 0.04175827417121207
iteration: 42 Logisticloss: 0.03384822691412494
iteration: 43 Logisticloss: 0.027472341734635957
iteration: 44 Logisticloss: 0.022334854816078484
iteration: 45 Logisticloss: 0.01820143083053885
iteration: 46 Logisticloss: 0.014894554555772856
iteration: 47 Logisticloss: 0.012257906273741466
iteration: 48 Logisticloss: 0.010121497378565021
iteration: 49 Logisticloss: 0.008387411271277661
iteration: 50 Logisticloss: 0.006990208595126892
iteration: 51 Logisticloss: 0.005875224852939527
iteration: 52 Logisticloss: 0.0050061929485870115
iteration: 53 Logisticloss: 0.004335668548938325
iteration: 54 Logisticloss: 0.0038195711686465237
iteration: 55 Logisticloss: 0.0034131350251161577
iteration: 56 Logisticloss: 0.0030765909314959304
iteration: 57 Logisticloss: 0.0028029998323068368
iteration: 58 Logisticloss: 0.0026114798521281405
Convergence reached in 59 iterations
[-3.42307827e-04 -1.09596419e-04 -1.10026327e-04 ... 1.96668066e-04
 5.27003614e-05 7.52234901e-05]
CROSS VALIDATION 2
iteration: 0 Logisticloss: 5012.2504745899505
iteration: 1 Logisticloss: 1552.5845893854766
iteration: 2 Logisticloss: 204.66914039245037
iteration: 3 Logisticloss: 165.53496525451703
iteration: 4 Logisticloss: 133.88351887964902
iteration: 5 Logisticloss: 108.28405104647953
iteration: 6 Logisticloss: 87.57938101086847
iteration: 7 Logisticloss: 70.83358910311321
iteration: 8 Logisticloss: 57.28971005864984
iteration: 9 Logisticloss: 46.33551568065204
iteration: 10 Logisticloss: 37.47584009753232
iteration: 11 Logisticloss: 30.31019662531246
iteration: 12 Logisticloss: 24.514674442897856
iteration: 13 Logisticloss: 19.827296750011573
iteration: 14 Logisticloss: 16.03617854802517
iteration: 15 Logisticloss: 12.969948736152975
iteration: 16 Logisticloss: 10.490003570030854
iteration: 17 Logisticloss: 8.484241313346866
```

Output_logistic_train.txt

```

iteration: 18 Logisticloss: 6.861994868023671
iteration: 19 Logisticloss: 5.549933321051231
iteration: 20 Logisticloss: 4.488747144310529
iteration: 21 Logisticloss: 3.6304672074401574
iteration: 22 Logisticloss: 2.9362964142466232
iteration: 23 Logisticloss: 2.374855945442885
iteration: 24 Logisticloss: 1.9207668320966245
iteration: 25 Logisticloss: 1.5535027423905887
iteration: 26 Logisticloss: 1.2564621251506378
iteration: 27 Logisticloss: 1.016217775032394
iteration: 28 Logisticloss: 0.821909927226574
iteration: 29 Logisticloss: 0.6647555450496883
iteration: 30 Logisticloss: 0.5376518259015408
iteration: 31 Logisticloss: 0.43485587724955727
iteration: 32 Logisticloss: 0.351722869387324
iteration: 33 Logisticloss: 0.284487742707829
iteration: 34 Logisticloss: 0.23010743122308383
iteration: 35 Logisticloss: 0.18613302547461827
iteration: 36 Logisticloss: 0.1505692658355192
iteration: 37 Logisticloss: 0.12179716227462534
iteration: 38 Logisticloss: 0.0985247834915888
iteration: 39 Logisticloss: 0.07970319090881993
iteration: 40 Logisticloss: 0.06448344961498752
iteration: 41 Logisticloss: 0.05218382362656418
iteration: 42 Logisticloss: 0.04226230344776573
iteration: 43 Logisticloss: 0.03428469121264621
iteration: 44 Logisticloss: 0.027868646061929174
iteration: 45 Logisticloss: 0.022684843584245502
iteration: 46 Logisticloss: 0.018504200625327583
iteration: 47 Logisticloss: 0.0151198827328905
iteration: 48 Logisticloss: 0.01236794862045196
iteration: 49 Logisticloss: 0.010144280934249527
iteration: 50 Logisticloss: 0.008373400075598173
iteration: 51 Logisticloss: 0.006987577246883361
iteration: 52 Logisticloss: 0.0059102560206957915
iteration: 53 Logisticloss: 0.0050618611439599845
iteration: 54 Logisticloss: 0.004398029196523283
iteration: 55 Logisticloss: 0.0038760163749678167
iteration: 56 Logisticloss: 0.0034517040953745744
iteration: 57 Logisticloss: 0.0031084616822779354
iteration: 58 Logisticloss: 0.002850750780670725
iteration: 59 Logisticloss: 0.0026658340662217292
iteration: 60 Logisticloss: 0.0024712108988340026
iteration: 61 Logisticloss: 0.002295084480128656
iteration: 62 Logisticloss: 0.002164943999219957
Convergence reached in 63 iterations
[-4.29607696e-04 -2.40065967e-04 -6.62205125e-06 ... 3.62121659e-04
 1.40693864e-04 3.36938309e-05]
CROSS VALIDATION 3
iteration: 0 Logisticloss: 1435.436004276876
iteration: 1 Logisticloss: 828.3721498802443
iteration: 2 Logisticloss: 186.42082063581483

```

Output_logistic_train.txt

```

iteration: 3 Logisticloss: 150.7758522242098
iteration: 4 Logisticloss: 121.94645177722857
iteration: 5 Logisticloss: 98.62943489745453
iteration: 6 Logisticloss: 79.77079518444606
iteration: 7 Logisticloss: 64.5180596540462
iteration: 8 Logisticloss: 52.1817541356877
iteration: 9 Logisticloss: 42.20423675600408
iteration: 10 Logisticloss: 34.13449067896827
iteration: 11 Logisticloss: 27.607736650913694
iteration: 12 Logisticloss: 22.328943769939386
iteration: 13 Logisticloss: 18.05949311185616
iteration: 14 Logisticloss: 14.606391364389452
iteration: 15 Logisticloss: 11.813546890175312
iteration: 16 Logisticloss: 9.554713867698991
iteration: 17 Logisticloss: 7.727785561973988
iteration: 18 Logisticloss: 6.25017876189267
iteration: 19 Logisticloss: 5.055100745527868
iteration: 20 Logisticloss: 4.088530027851262
iteration: 21 Logisticloss: 3.306774410664271
iteration: 22 Logisticloss: 2.67449595050934
iteration: 23 Logisticloss: 2.163113566568932
iteration: 24 Logisticloss: 1.7495110811379844
iteration: 25 Logisticloss: 1.414992291820681
iteration: 26 Logisticloss: 1.1444358412683817
iteration: 27 Logisticloss: 0.9256116819174126
iteration: 28 Logisticloss: 0.748628238743053
iteration: 29 Logisticloss: 0.6054852859995201
iteration: 30 Logisticloss: 0.48971235292592513
iteration: 31 Logisticloss: 0.3960764034494512
iteration: 32 Logisticloss: 0.3203458040703137
iteration: 33 Logisticloss: 0.25910014453337604
iteration: 34 Logisticloss: 0.20957562234805177
iteration: 35 Logisticloss: 0.16953114816568163
iteration: 36 Logisticloss: 0.13714149181898966
iteration: 37 Logisticloss: 0.1109434732738362
iteration: 38 Logisticloss: 0.0897542688800738
iteration: 39 Logisticloss: 0.0726216337966956
iteration: 40 Logisticloss: 0.05877902099540756
iteration: 41 Logisticloss: 0.04759135176925845
iteration: 42 Logisticloss: 0.03854211029809708
iteration: 43 Logisticloss: 0.031235054300615864
iteration: 44 Logisticloss: 0.025347690215269215
iteration: 45 Logisticloss: 0.02060828456262401
iteration: 46 Logisticloss: 0.016779065273418173
iteration: 47 Logisticloss: 0.0136937106742124
iteration: 48 Logisticloss: 0.011228105891480085
iteration: 49 Logisticloss: 0.009257738052139834
iteration: 50 Logisticloss: 0.007688439449938336
iteration: 51 Logisticloss: 0.00645321672728462
iteration: 52 Logisticloss: 0.005486354644549499
iteration: 53 Logisticloss: 0.004732928743401459
iteration: 54 Logisticloss: 0.004123669073880462

```

Output_logistic_train.txt

iteration: 55 Logisticloss: 0.0036313145475500297
iteration: 56 Logisticloss: 0.0032307956137835134
iteration: 57 Logisticloss: 0.0028974531862409735
iteration: 58 Logisticloss: 0.002631768814015746
iteration: 59 Logisticloss: 0.00244910586109755
Convergence reached in 60 iterations
[-4.84498022e-04 -6.26025730e-05 -1.22303846e-04 ... 3.40382051e-04
6.58049239e-05 5.39026195e-05]

CROSS VALIDATION 4

iteration: 0 Logisticloss: 1435.436004276876
iteration: 1 Logisticloss: 828.3721498802443
iteration: 2 Logisticloss: 186.42082063581483
iteration: 3 Logisticloss: 150.7758522242098
iteration: 4 Logisticloss: 121.94645177722857
iteration: 5 Logisticloss: 98.62943489745453
iteration: 6 Logisticloss: 79.77079518444606
iteration: 7 Logisticloss: 64.5180596540462
iteration: 8 Logisticloss: 52.1817541356877
iteration: 9 Logisticloss: 42.20423675600408
iteration: 10 Logisticloss: 34.13449067896827
iteration: 11 Logisticloss: 27.607736650913694
iteration: 12 Logisticloss: 22.328943769939386
iteration: 13 Logisticloss: 18.05949311185616
iteration: 14 Logisticloss: 14.606391364389452
iteration: 15 Logisticloss: 11.813546890175312
iteration: 16 Logisticloss: 9.554713867698991
iteration: 17 Logisticloss: 7.727785561973988
iteration: 18 Logisticloss: 6.25017876189267
iteration: 19 Logisticloss: 5.055100745527868
iteration: 20 Logisticloss: 4.088530027851262
iteration: 21 Logisticloss: 3.306774410664271
iteration: 22 Logisticloss: 2.67449595050934
iteration: 23 Logisticloss: 2.163113566568932
iteration: 24 Logisticloss: 1.7495110811379844
iteration: 25 Logisticloss: 1.414992291820681
iteration: 26 Logisticloss: 1.1444358412683817
iteration: 27 Logisticloss: 0.9256116819174126
iteration: 28 Logisticloss: 0.748628238743053
iteration: 29 Logisticloss: 0.6054852859995201
iteration: 30 Logisticloss: 0.48971235292592513
iteration: 31 Logisticloss: 0.3960764034494512
iteration: 32 Logisticloss: 0.3203458040703137
iteration: 33 Logisticloss: 0.25910014453337604
iteration: 34 Logisticloss: 0.20957562234805177
iteration: 35 Logisticloss: 0.16953114816568163
iteration: 36 Logisticloss: 0.13714149181898966
iteration: 37 Logisticloss: 0.11094347327383633
iteration: 38 Logisticloss: 0.08975426888007866
iteration: 39 Logisticloss: 0.07262163379683115
iteration: 40 Logisticloss: 0.058779020998104864
iteration: 41 Logisticloss: 0.047591351808874624
iteration: 42 Logisticloss: 0.038542110740885566

Output_logistic_train.txt

```
iteration: 43 Logisticloss: 0.03123505817969061
iteration: 44 Logisticloss: 0.02534771756114786
iteration: 45 Logisticloss: 0.020608442449202066
iteration: 46 Logisticloss: 0.016779811543582823
iteration: 47 Logisticloss: 0.013696578570838768
iteration: 48 Logisticloss: 0.011236974211453992
iteration: 49 Logisticloss: 0.009278072628209743
iteration: 50 Logisticloss: 0.00771784616694758
iteration: 51 Logisticloss: 0.006477669741375353
iteration: 52 Logisticloss: 0.005498224447100684
iteration: 53 Logisticloss: 0.004733323155000209
iteration: 54 Logisticloss: 0.0041170585825821265
iteration: 55 Logisticloss: 0.003621984678891011
iteration: 56 Logisticloss: 0.003221049047414379
iteration: 57 Logisticloss: 0.0028885749412749795
iteration: 58 Logisticloss: 0.002623763502790118
iteration: 59 Logisticloss: 0.002442651763902362
Convergence reached in 60 iterations
[-4.73761617e-04 -6.06376127e-05 -1.19901699e-04 ... 3.38083649e-04
 7.27584950e-05 5.44915752e-05]
```

CROSS VALIDATION 5

```
iteration: 0 Logisticloss: 1435.436004276876
iteration: 1 Logisticloss: 828.3721498802443
iteration: 2 Logisticloss: 186.42082063581483
iteration: 3 Logisticloss: 150.7758522242098
iteration: 4 Logisticloss: 121.94645177722857
iteration: 5 Logisticloss: 98.62943489745453
iteration: 6 Logisticloss: 79.77079518444606
iteration: 7 Logisticloss: 64.5180596540462
iteration: 8 Logisticloss: 52.1817541356877
iteration: 9 Logisticloss: 42.20423675600408
iteration: 10 Logisticloss: 34.13449067896827
iteration: 11 Logisticloss: 27.607736650913694
iteration: 12 Logisticloss: 22.328943769939386
iteration: 13 Logisticloss: 18.05949311185616
iteration: 14 Logisticloss: 14.606391364389452
iteration: 15 Logisticloss: 11.813546890175312
iteration: 16 Logisticloss: 9.554713867698991
iteration: 17 Logisticloss: 7.727785561973988
iteration: 18 Logisticloss: 6.25017876189267
iteration: 19 Logisticloss: 5.055100745527868
iteration: 20 Logisticloss: 4.088530027851262
iteration: 21 Logisticloss: 3.306774410664271
iteration: 22 Logisticloss: 2.67449595050934
iteration: 23 Logisticloss: 2.163113566568932
iteration: 24 Logisticloss: 1.7495110811379844
iteration: 25 Logisticloss: 1.414992291820681
iteration: 26 Logisticloss: 1.1444358412683817
iteration: 27 Logisticloss: 0.9256116819174126
iteration: 28 Logisticloss: 0.7486282387430523
iteration: 29 Logisticloss: 0.605485285999499
iteration: 30 Logisticloss: 0.4897123529254218
```


Output_logistic_train.txt

```
iteration: 31 Logisticloss: 0.39607640344073264
iteration: 32 Logisticloss: 0.32034580395701656
iteration: 33 Logisticloss: 0.25910014339632825
iteration: 34 Logisticloss: 0.20957561330866778
iteration: 35 Logisticloss: 0.16953108997024752
iteration: 36 Logisticloss: 0.13714118262432917
iteration: 37 Logisticloss: 0.11094209760855486
iteration: 38 Logisticloss: 0.08974911755549232
iteration: 39 Logisticloss: 0.07260575043182561
iteration: 40 Logisticloss: 0.058741951869985494
iteration: 41 Logisticloss: 0.04753370764821475
iteration: 42 Logisticloss: 0.03847868208188799
iteration: 43 Logisticloss: 0.03116969720126979
iteration: 44 Logisticloss: 0.025278249290834286
iteration: 45 Logisticloss: 0.020536075323579574
iteration: 46 Logisticloss: 0.016707444300018557
iteration: 47 Logisticloss: 0.013623247705700595
iteration: 48 Logisticloss: 0.011161294611563056
iteration: 49 Logisticloss: 0.009203528477005184
iteration: 50 Logisticloss: 0.007652711311665535
iteration: 51 Logisticloss: 0.00642675624248162
iteration: 52 Logisticloss: 0.005462688576120894
iteration: 53 Logisticloss: 0.004705341051678211
iteration: 54 Logisticloss: 0.0040926473360755255
iteration: 55 Logisticloss: 0.00359842729698739
iteration: 56 Logisticloss: 0.0031977229185384203
iteration: 57 Logisticloss: 0.0028652345254291498
iteration: 58 Logisticloss: 0.0026005545876571345
iteration: 59 Logisticloss: 0.002420346637551647
Convergence reached in 60 iterations
[-4.52712584e-04 -5.91324819e-05 -1.09583081e-04 ... 3.08711010e-04
 3.62558120e-05 5.91987288e-05]
CROSS VALIDATION 6
iteration: 0 Logisticloss: 1435.436004276876
iteration: 1 Logisticloss: 828.3721498802443
iteration: 2 Logisticloss: 186.42082063581483
iteration: 3 Logisticloss: 150.7758522242098
iteration: 4 Logisticloss: 121.94645177722857
iteration: 5 Logisticloss: 98.62943489745453
iteration: 6 Logisticloss: 79.77079518444606
iteration: 7 Logisticloss: 64.5180596540462
iteration: 8 Logisticloss: 52.1817541356877
iteration: 9 Logisticloss: 42.20423675600408
iteration: 10 Logisticloss: 34.13449067896827
iteration: 11 Logisticloss: 27.607736650913694
iteration: 12 Logisticloss: 22.328943769939386
iteration: 13 Logisticloss: 18.05949311185616
iteration: 14 Logisticloss: 14.606391364389452
iteration: 15 Logisticloss: 11.813546890175312
iteration: 16 Logisticloss: 9.554713867698991
iteration: 17 Logisticloss: 7.727785561973988
iteration: 18 Logisticloss: 6.25017876189267
```

Output_logistic_train.txt

```
iteration: 19 Logisticloss: 5.055100745527868
iteration: 20 Logisticloss: 4.088530027851262
iteration: 21 Logisticloss: 3.306774410664271
iteration: 22 Logisticloss: 2.67449595050934
iteration: 23 Logisticloss: 2.163113566568932
iteration: 24 Logisticloss: 1.7495110811379844
iteration: 25 Logisticloss: 1.414992291820681
iteration: 26 Logisticloss: 1.1444358412683817
iteration: 27 Logisticloss: 0.9256116819174126
iteration: 28 Logisticloss: 0.748628238743053
iteration: 29 Logisticloss: 0.6054852859995201
iteration: 30 Logisticloss: 0.4897123529259253
iteration: 31 Logisticloss: 0.39607640344945305
iteration: 32 Logisticloss: 0.3203458040703389
iteration: 33 Logisticloss: 0.259100144533638
iteration: 34 Logisticloss: 0.20957562235011695
iteration: 35 Logisticloss: 0.16953114817831696
iteration: 36 Logisticloss: 0.13714149187496566
iteration: 37 Logisticloss: 0.11094347330650778
iteration: 38 Logisticloss: 0.08975426595240452
iteration: 39 Logisticloss: 0.07262159363040895
iteration: 40 Logisticloss: 0.05877874612479513
iteration: 41 Logisticloss: 0.04759050573448236
iteration: 42 Logisticloss: 0.038540960240947275
iteration: 43 Logisticloss: 0.03123390950116053
iteration: 44 Logisticloss: 0.02534657061738523
iteration: 45 Logisticloss: 0.02060725855525835
iteration: 46 Logisticloss: 0.016778595013833875
iteration: 47 Logisticloss: 0.013695469129608121
iteration: 48 Logisticloss: 0.01123639823365558
iteration: 49 Logisticloss: 0.009279200083754761
iteration: 50 Logisticloss: 0.007723122916384978
iteration: 51 Logisticloss: 0.0064901059157959394
iteration: 52 Logisticloss: 0.005517781327032006
iteration: 53 Logisticloss: 0.0047541936566686
iteration: 54 Logisticloss: 0.0041333272711970475
iteration: 55 Logisticloss: 0.003634135484276591
iteration: 56 Logisticloss: 0.003230789921771086
iteration: 57 Logisticloss: 0.0028959169908859728
iteration: 58 Logisticloss: 0.0026303270263271766
iteration: 59 Logisticloss: 0.0024485143600644368
Convergence reached in 60 iterations
[-4.86917486e-04 -6.82344219e-05 -1.18397063e-04 ... 3.30450405e-04
 6.57280192e-05 5.17451021e-05]
CROSS VALIDATION 7
iteration: 0 Logisticloss: 1435.436004276876
iteration: 1 Logisticloss: 828.3721498802443
iteration: 2 Logisticloss: 186.42082063581483
iteration: 3 Logisticloss: 150.7758522242098
iteration: 4 Logisticloss: 121.94645177722857
iteration: 5 Logisticloss: 98.62943489745453
iteration: 6 Logisticloss: 79.77079518444606
```

Output_logistic_train.txt

```

iteration: 7 Logisticloss: 64.5180596540462
iteration: 8 Logisticloss: 52.1817541356877
iteration: 9 Logisticloss: 42.20423675600408
iteration: 10 Logisticloss: 34.13449067896827
iteration: 11 Logisticloss: 27.607736650913694
iteration: 12 Logisticloss: 22.328943769939386
iteration: 13 Logisticloss: 18.05949311185616
iteration: 14 Logisticloss: 14.606391364389452
iteration: 15 Logisticloss: 11.813546890175312
iteration: 16 Logisticloss: 9.554713867698991
iteration: 17 Logisticloss: 7.727785561973988
iteration: 18 Logisticloss: 6.25017876189267
iteration: 19 Logisticloss: 5.055100745527868
iteration: 20 Logisticloss: 4.088530027851262
iteration: 21 Logisticloss: 3.306774410664271
iteration: 22 Logisticloss: 2.67449595050934
iteration: 23 Logisticloss: 2.163113566568932
iteration: 24 Logisticloss: 1.7495110811379844
iteration: 25 Logisticloss: 1.414992291820681
iteration: 26 Logisticloss: 1.1444358412683817
iteration: 27 Logisticloss: 0.9256116819174126
iteration: 28 Logisticloss: 0.748628238743053
iteration: 29 Logisticloss: 0.6054852859995201
iteration: 30 Logisticloss: 0.4897123529259253
iteration: 31 Logisticloss: 0.39607640344945305
iteration: 32 Logisticloss: 0.3203458040703389
iteration: 33 Logisticloss: 0.259100144533638
iteration: 34 Logisticloss: 0.20957562235011695
iteration: 35 Logisticloss: 0.16953114817831694
iteration: 36 Logisticloss: 0.1371414918749651
iteration: 37 Logisticloss: 0.1109434733064885
iteration: 38 Logisticloss: 0.08975426595192701
iteration: 39 Logisticloss: 0.07262159362177316
iteration: 40 Logisticloss: 0.058778746007842685
iteration: 41 Logisticloss: 0.04759050451125398
iteration: 42 Logisticloss: 0.038540950076117436
iteration: 43 Logisticloss: 0.031233840670582096
iteration: 44 Logisticloss: 0.025346182624005533
iteration: 45 Logisticloss: 0.020605416542576985
iteration: 46 Logisticloss: 0.016771283382285146
iteration: 47 Logisticloss: 0.013672530238139987
iteration: 48 Logisticloss: 0.011187846969404988
iteration: 49 Logisticloss: 0.009221409204624428
iteration: 50 Logisticloss: 0.007673588266516767
iteration: 51 Logisticloss: 0.006446759187716961
iteration: 52 Logisticloss: 0.00548070111996569
iteration: 53 Logisticloss: 0.00472465328236237
iteration: 54 Logisticloss: 0.004112548218154511
iteration: 55 Logisticloss: 0.003619632089966556
iteration: 56 Logisticloss: 0.0032197041813440347
iteration: 57 Logisticloss: 0.002887152935692071
iteration: 58 Logisticloss: 0.002621303867169549

```

Output_logistic_train.txt

iteration: 59 Logisticloss: 0.002437483885570609
Convergence reached in 60 iterations
[-4.95308096e-04 -6.73907692e-05 -1.24963998e-04 ... 3.27186357e-04
6.32693148e-05 5.50592200e-05]

CROSS VALIDATION 8

iteration: 0 Logisticloss: 1435.436004276876
iteration: 1 Logisticloss: 828.3721498802443
iteration: 2 Logisticloss: 186.42082063581483
iteration: 3 Logisticloss: 150.7758522242098
iteration: 4 Logisticloss: 121.94645177722857
iteration: 5 Logisticloss: 98.62943489745453
iteration: 6 Logisticloss: 79.77079518444606
iteration: 7 Logisticloss: 64.5180596540462
iteration: 8 Logisticloss: 52.1817541356877
iteration: 9 Logisticloss: 42.20423675600408
iteration: 10 Logisticloss: 34.13449067896827
iteration: 11 Logisticloss: 27.607736650913694
iteration: 12 Logisticloss: 22.328943769939386
iteration: 13 Logisticloss: 18.05949311185616
iteration: 14 Logisticloss: 14.606391364389452
iteration: 15 Logisticloss: 11.813546890175312
iteration: 16 Logisticloss: 9.554713867698991
iteration: 17 Logisticloss: 7.727785561973988
iteration: 18 Logisticloss: 6.25017876189267
iteration: 19 Logisticloss: 5.055100745527868
iteration: 20 Logisticloss: 4.088530027851262
iteration: 21 Logisticloss: 3.306774410664271
iteration: 22 Logisticloss: 2.67449595050934
iteration: 23 Logisticloss: 2.163113566568932
iteration: 24 Logisticloss: 1.7495110811379844
iteration: 25 Logisticloss: 1.414992291820681
iteration: 26 Logisticloss: 1.1444358412683817
iteration: 27 Logisticloss: 0.9256116819174126
iteration: 28 Logisticloss: 0.748628238743053
iteration: 29 Logisticloss: 0.6054852859995201
iteration: 30 Logisticloss: 0.4897123529259253
iteration: 31 Logisticloss: 0.39607640344945305
iteration: 32 Logisticloss: 0.3203458040703389
iteration: 33 Logisticloss: 0.259100144533638
iteration: 34 Logisticloss: 0.20957562235011615
iteration: 35 Logisticloss: 0.16953114817829018
iteration: 36 Logisticloss: 0.13714149187436325
iteration: 37 Logisticloss: 0.1109434732967846
iteration: 38 Logisticloss: 0.08975426583594014
iteration: 39 Logisticloss: 0.07262159255294519
iteration: 40 Logisticloss: 0.05877873817045685
iteration: 41 Logisticloss: 0.04759045787966037
iteration: 42 Logisticloss: 0.03854072193320881
iteration: 43 Logisticloss: 0.031232918122764262
iteration: 44 Logisticloss: 0.025343126905452807
iteration: 45 Logisticloss: 0.020597413407629998
iteration: 46 Logisticloss: 0.01675631489219184

Output_logistic_train.txt

```
iteration: 47 Logisticloss: 0.013657871956033442
iteration: 48 Logisticloss: 0.011188633072603602
iteration: 49 Logisticloss: 0.009227574230847625
iteration: 50 Logisticloss: 0.007671953545634379
iteration: 51 Logisticloss: 0.006443084486003439
iteration: 52 Logisticloss: 0.005479368573718487
iteration: 53 Logisticloss: 0.004727963160834125
iteration: 54 Logisticloss: 0.0041179515991697415
iteration: 55 Logisticloss: 0.0036236339142671453
iteration: 56 Logisticloss: 0.003221647807381562
iteration: 57 Logisticloss: 0.002887422176269485
iteration: 58 Logisticloss: 0.0026211522255043607
iteration: 59 Logisticloss: 0.002436139264214798
Convergence reached in 60 iterations
[-4.70782838e-04 -5.93143376e-05 -9.54618351e-05 ... 3.34022226e-04
 5.68064715e-05 5.05125637e-05]
```

CROSS VALIDATION 9

```
iteration: 0 Logisticloss: 1859.958448766162
iteration: 1 Logisticloss: 1006.6997136673167
iteration: 2 Logisticloss: 198.23849439967472
iteration: 3 Logisticloss: 160.33390387840015
iteration: 4 Logisticloss: 129.67693691750637
iteration: 5 Logisticloss: 104.88179705934522
iteration: 6 Logisticloss: 84.82766184857851
iteration: 7 Logisticloss: 68.6080179444792
iteration: 8 Logisticloss: 55.48968371511062
iteration: 9 Logisticloss: 44.87966699890339
iteration: 10 Logisticloss: 36.29835989466932
iteration: 11 Logisticloss: 29.357858895769734
iteration: 12 Logisticloss: 23.74443036668716
iteration: 13 Logisticloss: 19.20432874345938
iteration: 14 Logisticloss: 15.532326393657604
iteration: 15 Logisticloss: 12.56243664758559
iteration: 16 Logisticloss: 10.160410650981577
iteration: 17 Logisticloss: 8.217668872135214
iteration: 18 Logisticloss: 6.646392947661146
iteration: 19 Logisticloss: 5.3755560036595895
iteration: 20 Logisticloss: 4.347712018048835
iteration: 21 Logisticloss: 3.516399128047018
iteration: 22 Logisticloss: 2.844039618524858
iteration: 23 Logisticloss: 2.3002419056909313
iteration: 24 Logisticloss: 1.8604275975541735
iteration: 25 Logisticloss: 1.504717995615949
iteration: 26 Logisticloss: 1.2170276789030834
iteration: 27 Logisticloss: 0.9843491793334977
iteration: 28 Logisticloss: 0.7961624342820459
iteration: 29 Logisticloss: 0.6439535251771801
iteration: 30 Logisticloss: 0.5208543252737063
iteration: 31 Logisticloss: 0.42130807983327606
iteration: 32 Logisticloss: 0.3408062295472829
iteration: 33 Logisticloss: 0.2756950890031547
iteration: 34 Logisticloss: 0.2230376930734761
```

Output_logistic_train.txt

```
iteration: 35 Logisticloss: 0.18045513214869993
iteration: 36 Logisticloss: 0.1460163988421858
iteration: 37 Logisticloss: 0.1181639964839521
iteration: 38 Logisticloss: 0.0956391213514899
iteration: 39 Logisticloss: 0.07742404017339141
iteration: 40 Logisticloss: 0.06269641319883348
iteration: 41 Logisticloss: 0.05079425677737358
iteration: 42 Logisticloss: 0.041175149096073164
iteration: 43 Logisticloss: 0.033403426922682875
iteration: 44 Logisticloss: 0.02713568657515167
iteration: 45 Logisticloss: 0.022084734858042226
iteration: 46 Logisticloss: 0.018005923460650015
iteration: 47 Logisticloss: 0.014711897005530487
iteration: 48 Logisticloss: 0.012046393452202672
iteration: 49 Logisticloss: 0.009902923345969013
iteration: 50 Logisticloss: 0.008187921521799748
iteration: 51 Logisticloss: 0.0068111868225503745
iteration: 52 Logisticloss: 0.005716676523084215
iteration: 53 Logisticloss: 0.0048567049373745876
iteration: 54 Logisticloss: 0.004178439881359123
iteration: 55 Logisticloss: 0.003659714458733374
iteration: 56 Logisticloss: 0.003278983638401089
iteration: 57 Logisticloss: 0.002977662101968213
iteration: 58 Logisticloss: 0.0027479813854057516
iteration: 59 Logisticloss: 0.0025758644211692438
iteration: 60 Logisticloss: 0.002375912622762863
iteration: 61 Logisticloss: 0.002209097351928172
iteration: 62 Logisticloss: 0.0020882447575394695
Convergence reached in 63 iterations
[-4.71165628e-04 -1.08549142e-04 -4.28422702e-05 ... 3.21904018e-04
 1.77780374e-04 4.02466463e-05]
CROSS VALIDATION 10
iteration: 0 Logisticloss: 1434.2008328944528
iteration: 1 Logisticloss: 827.3892202912712
iteration: 2 Logisticloss: 186.43413738518535
iteration: 3 Logisticloss: 150.78662271770068
iteration: 4 Logisticloss: 121.95516287682258
iteration: 5 Logisticloss: 98.63648037370885
iteration: 6 Logisticloss: 79.7764935162254
iteration: 7 Logisticloss: 64.5226684248228
iteration: 8 Logisticloss: 52.1854816771671
iteration: 9 Logisticloss: 42.20725156540866
iteration: 10 Logisticloss: 34.13692903566961
iteration: 11 Logisticloss: 27.609708776711745
iteration: 12 Logisticloss: 22.330538811452886
iteration: 13 Logisticloss: 18.060783170245085
iteration: 14 Logisticloss: 14.607434754566292
iteration: 15 Logisticloss: 11.814390776832276
iteration: 16 Logisticloss: 9.555396397308353
iteration: 17 Logisticloss: 7.728337587134954
iteration: 18 Logisticloss: 6.2506252359711025
iteration: 19 Logisticloss: 5.055461850631053
```

Output_logistic_train.txt

```
iteration: 20 Logisticloss: 4.0888220871260215
iteration: 21 Logisticloss: 3.3070106261572714
iteration: 22 Logisticloss: 2.674686999943326
iteration: 23 Logisticloss: 2.1632680860111706
iteration: 24 Logisticloss: 1.7496360553791082
iteration: 25 Logisticloss: 1.4150933701103792
iteration: 26 Logisticloss: 1.1445175926803337
iteration: 27 Logisticloss: 0.9256778018878815
iteration: 28 Logisticloss: 0.7486817161263928
iteration: 29 Logisticloss: 0.6055285382279714
iteration: 30 Logisticloss: 0.4897473355252492
iteration: 31 Logisticloss: 0.3961046992922312
iteration: 32 Logisticloss: 0.32036869727720046
iteration: 33 Logisticloss: 0.2591186819482528
iteration: 34 Logisticloss: 0.2095906516225126
iteration: 35 Logisticloss: 0.16954331031861394
iteration: 36 Logisticloss: 0.13715129791976588
iteration: 37 Logisticloss: 0.11095139174899468
iteration: 38 Logisticloss: 0.08976063661020749
iteration: 39 Logisticloss: 0.07262666337752091
iteration: 40 Logisticloss: 0.05878265180268529
iteration: 41 Logisticloss: 0.047593071744531174
iteration: 42 Logisticloss: 0.03854057127153822
iteration: 43 Logisticloss: 0.031225302803934794
iteration: 44 Logisticloss: 0.025319362068979393
iteration: 45 Logisticloss: 0.020557193245401572
iteration: 46 Logisticloss: 0.016719999943354796
iteration: 47 Logisticloss: 0.013635384943060115
iteration: 48 Logisticloss: 0.011174396051651275
iteration: 49 Logisticloss: 0.009216564385312093
iteration: 50 Logisticloss: 0.007659763185439597
iteration: 51 Logisticloss: 0.006426592683774923
iteration: 52 Logisticloss: 0.005458026464064387
iteration: 53 Logisticloss: 0.0047066119435371576
iteration: 54 Logisticloss: 0.004098712786096308
iteration: 55 Logisticloss: 0.0036057615136942146
iteration: 56 Logisticloss: 0.003204377695206692
iteration: 57 Logisticloss: 0.0028701976175382086
iteration: 58 Logisticloss: 0.0026042889930967756
iteration: 59 Logisticloss: 0.0024215724677323063
Convergence reached in 60 iterations
[-4.63669845e-04 -5.57983142e-05 -1.16606644e-04 ... 3.30356407e-04
 5.65543800e-05 5.80410134e-05]
```

CROSS VALIDATION 11

```
iteration: 0 Logisticloss: 1434.2008328944528
iteration: 1 Logisticloss: 827.3892202912712
iteration: 2 Logisticloss: 186.43413738518535
iteration: 3 Logisticloss: 150.78662271770068
iteration: 4 Logisticloss: 121.95516287682258
iteration: 5 Logisticloss: 98.63648037370885
iteration: 6 Logisticloss: 79.7764935162254
iteration: 7 Logisticloss: 64.5226684248228
```

Output_logistic_train.txt

```

iteration: 8 Logisticloss: 52.1854816771671
iteration: 9 Logisticloss: 42.20725156540866
iteration: 10 Logisticloss: 34.13692903566961
iteration: 11 Logisticloss: 27.609708776711745
iteration: 12 Logisticloss: 22.330538811452886
iteration: 13 Logisticloss: 18.060783170245085
iteration: 14 Logisticloss: 14.607434754566292
iteration: 15 Logisticloss: 11.814390776832276
iteration: 16 Logisticloss: 9.555396397308353
iteration: 17 Logisticloss: 7.728337587134954
iteration: 18 Logisticloss: 6.2506252359711025
iteration: 19 Logisticloss: 5.055461850631053
iteration: 20 Logisticloss: 4.0888220871260215
iteration: 21 Logisticloss: 3.3070106261572714
iteration: 22 Logisticloss: 2.674686999943326
iteration: 23 Logisticloss: 2.1632680860111706
iteration: 24 Logisticloss: 1.7496360553791082
iteration: 25 Logisticloss: 1.4150933701103792
iteration: 26 Logisticloss: 1.1445175926803337
iteration: 27 Logisticloss: 0.9256778018878815
iteration: 28 Logisticloss: 0.7486817161263928
iteration: 29 Logisticloss: 0.6055285382279714
iteration: 30 Logisticloss: 0.4897473355252492
iteration: 31 Logisticloss: 0.3961046992922312
iteration: 32 Logisticloss: 0.3203686972772006
iteration: 33 Logisticloss: 0.25911868194825693
iteration: 34 Logisticloss: 0.20959065162262794
iteration: 35 Logisticloss: 0.16954331032093595
iteration: 36 Logisticloss: 0.13715129795435743
iteration: 37 Logisticloss: 0.11095139214129135
iteration: 38 Logisticloss: 0.08976064008914962
iteration: 39 Logisticloss: 0.07262668818897702
iteration: 40 Logisticloss: 0.05878279805101154
iteration: 41 Logisticloss: 0.047593799671274264
iteration: 42 Logisticloss: 0.038543644867801284
iteration: 43 Logisticloss: 0.031236055644036136
iteration: 44 Logisticloss: 0.02534815516365974
iteration: 45 Logisticloss: 0.020608000725602094
iteration: 46 Logisticloss: 0.01677858936563648
iteration: 47 Logisticloss: 0.01369477517781416
iteration: 48 Logisticloss: 0.011234421539108592
iteration: 49 Logisticloss: 0.009275071660308103
iteration: 50 Logisticloss: 0.0077147982429887334
iteration: 51 Logisticloss: 0.006472077088280804
iteration: 52 Logisticloss: 0.00548641556741695
iteration: 53 Logisticloss: 0.004719673441351225
iteration: 54 Logisticloss: 0.00410736842289605
iteration: 55 Logisticloss: 0.003613544332225793
iteration: 56 Logisticloss: 0.003212338338349166
iteration: 57 Logisticloss: 0.0028796763415551594
iteration: 58 Logisticloss: 0.0026143641157740467
iteration: 59 Logisticloss: 0.0024327845335365868

```


Output_logistic_train.txt

Convergence reached in 60 iterations

[-4.83389466e-04 -5.64506351e-05 -1.03675840e-04 ... 3.33849737e-04
6.68475290e-05 5.15055845e-05]

CROSS VALIDATION 12

iteration: 0 Logisticloss: 1310.2430333876468
iteration: 1 Logisticloss: 441.6142335466087
iteration: 2 Logisticloss: 169.4270490638279
iteration: 3 Logisticloss: 137.03140896657928
iteration: 4 Logisticloss: 110.83004247032517
iteration: 5 Logisticloss: 89.63856101756835
iteration: 6 Logisticloss: 72.49903944999136
iteration: 7 Logisticloss: 58.63671461817927
iteration: 8 Logisticloss: 47.42496352086786
iteration: 9 Logisticloss: 38.35697786960158
iteration: 10 Logisticloss: 31.02285467529616
iteration: 11 Logisticloss: 25.09106727533073
iteration: 12 Logisticloss: 20.293479230217315
iteration: 13 Logisticloss: 16.413223668335686
iteration: 14 Logisticloss: 13.274900184965961
iteration: 15 Logisticloss: 10.736646162982467
iteration: 16 Logisticloss: 8.683724112640608
iteration: 17 Logisticloss: 7.023335156973172
iteration: 18 Logisticloss: 5.680424215155725
iteration: 19 Logisticloss: 4.594287264233828
iteration: 20 Logisticloss: 3.7158273162037974
iteration: 21 Logisticloss: 3.005335071521462
iteration: 22 Logisticloss: 2.43069392722596
iteration: 23 Logisticloss: 1.9659282000998575
iteration: 24 Logisticloss: 1.5900289397434202
iteration: 25 Logisticloss: 1.2860042544245351
iteration: 26 Logisticloss: 1.0401112212868757
iteration: 27 Logisticloss: 0.8412346607134499
iteration: 28 Logisticloss: 0.6803846933889911
iteration: 29 Logisticloss: 0.5502903679768283
iteration: 30 Logisticloss: 0.4450709900464562
iteration: 31 Logisticloss: 0.3599702953527409
iteration: 32 Logisticloss: 0.29114145220807475
iteration: 33 Logisticloss: 0.23547318048959148
iteration: 34 Logisticloss: 0.1904491570886845
iteration: 35 Logisticloss: 0.1540344665819133
iteration: 36 Logisticloss: 0.12458430402871329
iteration: 37 Logisticloss: 0.10077145688265915
iteration: 38 Logisticloss: 0.08152868267043524
iteration: 39 Logisticloss: 0.06599294190258574
iteration: 40 Logisticloss: 0.053440203892622606
iteration: 41 Logisticloss: 0.04328524144407192
iteration: 42 Logisticloss: 0.03508280847593922
iteration: 43 Logisticloss: 0.028473338262120985
iteration: 44 Logisticloss: 0.023157354574882934
iteration: 45 Logisticloss: 0.01885461025029865
iteration: 46 Logisticloss: 0.015376274351557946
iteration: 47 Logisticloss: 0.012591811805728688

Output_logistic_train.txt

```
iteration: 48 Logisticloss: 0.010372735780171978
iteration: 49 Logisticloss: 0.008611364144471882
iteration: 50 Logisticloss: 0.0072197141315049635
iteration: 51 Logisticloss: 0.006119142018377711
iteration: 52 Logisticloss: 0.005242859742804482
iteration: 53 Logisticloss: 0.0045237782472730415
iteration: 54 Logisticloss: 0.003938808413548174
iteration: 55 Logisticloss: 0.0034804977179418795
iteration: 56 Logisticloss: 0.0031128953294916515
iteration: 57 Logisticloss: 0.0028058917328392533
iteration: 58 Logisticloss: 0.0025602153369367587
iteration: 59 Logisticloss: 0.0023876508431410937
Convergence reached in 60 iterations
[-7.92121401e-04 -2.19550915e-04 -2.03490969e-04 ... 2.63768435e-04
 5.90430229e-05 1.91127673e-05]
```

CROSS VALIDATION 13

```
iteration: 0 Logisticloss: 2008.6476802511868
iteration: 1 Logisticloss: 1202.9989715160382
iteration: 2 Logisticloss: 184.673730821932
iteration: 3 Logisticloss: 149.36281823636457
iteration: 4 Logisticloss: 120.80359979850364
iteration: 5 Logisticloss: 97.70510423272161
iteration: 6 Logisticloss: 79.02320302581938
iteration: 7 Logisticloss: 63.91341235956146
iteration: 8 Logisticloss: 51.692719644743676
iteration: 9 Logisticloss: 41.80870908968639
iteration: 10 Logisticloss: 33.81459067657634
iteration: 11 Logisticloss: 27.349003772672575
iteration: 12 Logisticloss: 22.119682432701566
iteration: 13 Logisticloss: 17.89024401000156
iteration: 14 Logisticloss: 14.469503877877614
iteration: 15 Logisticloss: 11.702833251176948
iteration: 16 Logisticloss: 9.465169452993125
iteration: 17 Logisticloss: 7.65536266740058
iteration: 18 Logisticloss: 6.191603632716613
iteration: 19 Logisticloss: 5.007725591880643
iteration: 20 Logisticloss: 4.05021333585811
iteration: 21 Logisticloss: 3.275784138923293
iteration: 22 Logisticloss: 2.649431236082757
iteration: 23 Logisticloss: 2.142841401337948
iteration: 24 Logisticloss: 1.7331150960826631
iteration: 25 Logisticloss: 1.4017313341034843
iteration: 26 Logisticloss: 1.1337104716522683
iteration: 27 Logisticloss: 0.9169370779288921
iteration: 28 Logisticloss: 0.7416122774791282
iteration: 29 Logisticloss: 0.5998108085959142
iteration: 30 Logisticloss: 0.4851227755357587
iteration: 31 Logisticloss: 0.3923639022273425
iteration: 32 Logisticloss: 0.31734119889256057
iteration: 33 Logisticloss: 0.25666348632160796
iteration: 34 Logisticloss: 0.20758833611869712
iteration: 35 Logisticloss: 0.16789880783156347
```

Output_logistic_train.txt

```
iteration: 36 Logisticloss: 0.13580467578467184
iteration: 37 Logisticloss: 0.1098612776303412
iteration: 38 Logisticloss: 0.08889209780970267
iteration: 39 Logisticloss: 0.0719281172496793
iteration: 40 Logisticloss: 0.05820534343495429
iteration: 41 Logisticloss: 0.0471271180621378
iteration: 42 Logisticloss: 0.03820894872303183
iteration: 43 Logisticloss: 0.0310395392798691
iteration: 44 Logisticloss: 0.025269988484460024
iteration: 45 Logisticloss: 0.020612701652982093
iteration: 46 Logisticloss: 0.016851798473467603
iteration: 47 Logisticloss: 0.013819465522826677
iteration: 48 Logisticloss: 0.011383639829019056
iteration: 49 Logisticloss: 0.009422719594004949
iteration: 50 Logisticloss: 0.007831649212012837
iteration: 51 Logisticloss: 0.006549464363336617
iteration: 52 Logisticloss: 0.005523489590515538
iteration: 53 Logisticloss: 0.004713437092360859
iteration: 54 Logisticloss: 0.004096695782372041
iteration: 55 Logisticloss: 0.0036226292513257406
iteration: 56 Logisticloss: 0.0032206591016240237
iteration: 57 Logisticloss: 0.0028793099956712642
iteration: 58 Logisticloss: 0.0026099044087522696
iteration: 59 Logisticloss: 0.002436890725179084
Convergence reached in 60 iterations
[-5.96120745e-04 -2.83452225e-04 -1.55790103e-04 ... 2.80681256e-04
 6.92655642e-05 5.18920241e-05]
CROSS VALIDATION 14
iteration: 0 Logisticloss: 1435.537510461134
iteration: 1 Logisticloss: 828.0767367343354
iteration: 2 Logisticloss: 186.50123132944228
iteration: 3 Logisticloss: 150.84088782923644
iteration: 4 Logisticloss: 121.99905211843166
iteration: 5 Logisticloss: 98.67197768449483
iteration: 6 Logisticloss: 79.80520349222041
iteration: 7 Logisticloss: 64.54588885204343
iteration: 8 Logisticloss: 52.204262195841295
iteration: 9 Logisticloss: 42.22244111719074
iteration: 10 Logisticloss: 34.14921423861551
iteration: 11 Logisticloss: 27.61964496268924
iteration: 12 Logisticloss: 22.338575128981716
iteration: 13 Logisticloss: 18.067282887497807
iteration: 14 Logisticloss: 14.612691680293
iteration: 15 Logisticloss: 11.818642541489362
iteration: 16 Logisticloss: 9.558835194742256
iteration: 17 Logisticloss: 7.731118862380689
iteration: 18 Logisticloss: 6.252874711882729
iteration: 19 Logisticloss: 5.05728121097115
iteration: 20 Logisticloss: 4.090293573008583
iteration: 21 Logisticloss: 3.3082007536184763
iteration: 22 Logisticloss: 2.6756495666867117
iteration: 23 Logisticloss: 2.164046603242029
```

Output_logistic_train.txt

```

iteration: 24 Logisticloss: 1.7502657146550409
iteration: 25 Logisticloss: 1.4156026341149472
iteration: 26 Logisticloss: 1.1449294818119362
iteration: 27 Logisticloss: 0.9260109346589885
iteration: 28 Logisticloss: 0.7489511491626458
iteration: 29 Logisticloss: 0.6057464365633848
iteration: 30 Logisticloss: 0.4899234700194759
iteration: 31 Logisticloss: 0.3962466718329365
iteration: 32 Logisticloss: 0.3204815649443281
iteration: 33 Logisticloss: 0.25920343566721066
iteration: 34 Logisticloss: 0.20964278727920543
iteration: 35 Logisticloss: 0.16956077632197292
iteration: 36 Logisticloss: 0.13714814094041058
iteration: 37 Logisticloss: 0.1109384428003749
iteration: 38 Logisticloss: 0.08973952701214076
iteration: 39 Logisticloss: 0.07259910008136757
iteration: 40 Logisticloss: 0.05875016715144235
iteration: 41 Logisticloss: 0.04755693635441108
iteration: 42 Logisticloss: 0.03850338780260513
iteration: 43 Logisticloss: 0.03119349695617268
iteration: 44 Logisticloss: 0.02530365672262649
iteration: 45 Logisticloss: 0.020560850571310466
iteration: 46 Logisticloss: 0.016730610924616064
iteration: 47 Logisticloss: 0.0136473620097969
iteration: 48 Logisticloss: 0.011184672305731573
iteration: 49 Logisticloss: 0.00922239687604542
iteration: 50 Logisticloss: 0.007665930201697211
iteration: 51 Logisticloss: 0.0064389425591451725
iteration: 52 Logisticloss: 0.00547387039802042
iteration: 53 Logisticloss: 0.004715079841475027
iteration: 54 Logisticloss: 0.004100386413694732
iteration: 55 Logisticloss: 0.0036059753193461346
iteration: 56 Logisticloss: 0.0032068506020464385
iteration: 57 Logisticloss: 0.0028757439991839856
iteration: 58 Logisticloss: 0.0026105362586307983
iteration: 59 Logisticloss: 0.0024269590718230876
Convergence reached in 60 iterations
[-4.43414898e-04 -4.34461191e-05 -9.78559243e-05 ... 3.09298586e-04
 4.40461866e-05 4.80784219e-05]

```

CROSS VALIDATION 15

```

iteration: 0 Logisticloss: 1435.537510461134
iteration: 1 Logisticloss: 828.0767367343354
iteration: 2 Logisticloss: 186.50123132944228
iteration: 3 Logisticloss: 150.84088782923644
iteration: 4 Logisticloss: 121.99905211843166
iteration: 5 Logisticloss: 98.67197768449483
iteration: 6 Logisticloss: 79.80520349222041
iteration: 7 Logisticloss: 64.54588885204343
iteration: 8 Logisticloss: 52.204262195841295
iteration: 9 Logisticloss: 42.22244111719074
iteration: 10 Logisticloss: 34.14921423861551
iteration: 11 Logisticloss: 27.61964496268924

```

Output_logistic_train.txt

```

iteration: 12 Logisticloss: 22.338575128981716
iteration: 13 Logisticloss: 18.067282887497807
iteration: 14 Logisticloss: 14.612691680293
iteration: 15 Logisticloss: 11.818642541489362
iteration: 16 Logisticloss: 9.558835194742256
iteration: 17 Logisticloss: 7.731118862380689
iteration: 18 Logisticloss: 6.252874711882729
iteration: 19 Logisticloss: 5.05728121097115
iteration: 20 Logisticloss: 4.090293573008583
iteration: 21 Logisticloss: 3.3082007536184763
iteration: 22 Logisticloss: 2.6756495666867117
iteration: 23 Logisticloss: 2.1640466032420314
iteration: 24 Logisticloss: 1.7502657146551088
iteration: 25 Logisticloss: 1.4156026341163848
iteration: 26 Logisticloss: 1.1449294818343445
iteration: 27 Logisticloss: 0.9260109349239096
iteration: 28 Logisticloss: 0.7489511516052414
iteration: 29 Logisticloss: 0.6057464545707077
iteration: 30 Logisticloss: 0.48992357854815005
iteration: 31 Logisticloss: 0.39624721659903545
iteration: 32 Logisticloss: 0.32048386754862146
iteration: 33 Logisticloss: 0.2592115507912846
iteration: 34 Logisticloss: 0.20966520556556306
iteration: 35 Logisticloss: 0.16960311276470524
iteration: 36 Logisticloss: 0.13719955665065658
iteration: 37 Logisticloss: 0.11099027077221539
iteration: 38 Logisticloss: 0.0897919272620541
iteration: 39 Logisticloss: 0.07265183090130402
iteration: 40 Logisticloss: 0.05880297316433289
iteration: 41 Logisticloss: 0.04760994523688294
iteration: 42 Logisticloss: 0.038556523494243766
iteration: 43 Logisticloss: 0.0312462443959735
iteration: 44 Logisticloss: 0.025356143049675404
iteration: 45 Logisticloss: 0.020614265219950863
iteration: 46 Logisticloss: 0.01678324495794873
iteration: 47 Logisticloss: 0.013697252985170324
iteration: 48 Logisticloss: 0.011232517559939318
iteration: 49 Logisticloss: 0.009263712593193665
iteration: 50 Logisticloss: 0.007691229131232318
iteration: 51 Logisticloss: 0.0064501224382478295
iteration: 52 Logisticloss: 0.005483166198826488
iteration: 53 Logisticloss: 0.004729481877438655
iteration: 54 Logisticloss: 0.004118314701459218
iteration: 55 Logisticloss: 0.003624650718368701
iteration: 56 Logisticloss: 0.0032237937542739636
iteration: 57 Logisticloss: 0.002890612434233217
iteration: 58 Logisticloss: 0.0026243944418276577
iteration: 59 Logisticloss: 0.002440018723594378
Convergence reached in 60 iterations
[-4.82363098e-04 -4.44104806e-05 -1.15260752e-04 ... 3.34288154e-04
 6.53293869e-05 5.12315537e-05]
CROSS VALIDATION 16

```

Output_logistic_train.txt

```

iteration: 0 Logisticloss: 2057.063796681785
iteration: 1 Logisticloss: 191.6102668721026
iteration: 2 Logisticloss: 154.97303994272423
iteration: 3 Logisticloss: 125.34110776600501
iteration: 4 Logisticloss: 101.37500885196299
iteration: 5 Logisticloss: 81.9913961421273
iteration: 6 Logisticloss: 66.31406613391448
iteration: 7 Logisticloss: 53.63435157989357
iteration: 8 Logisticloss: 43.37908738074577
iteration: 9 Logisticloss: 35.08470162416966
iteration: 10 Logisticloss: 28.376260598865798
iteration: 11 Logisticloss: 22.950520548820545
iteration: 12 Logisticloss: 18.56222005104111
iteration: 13 Logisticloss: 15.01299338680924
iteration: 14 Logisticloss: 12.142403754110033
iteration: 15 Logisticloss: 9.820690992734985
iteration: 16 Logisticloss: 7.942905995212943
iteration: 17 Logisticloss: 6.424166659536778
iteration: 18 Logisticloss: 5.195820937252673
iteration: 19 Logisticloss: 4.202343535496068
iteration: 20 Logisticloss: 3.398826001736199
iteration: 21 Logisticloss: 2.7489467683409528
iteration: 22 Logisticloss: 2.2233295041606533
iteration: 23 Logisticloss: 1.7982158114467557
iteration: 24 Logisticloss: 1.454392379205891
iteration: 25 Logisticloss: 1.1763214801336028
iteration: 26 Logisticloss: 0.9514269267573037
iteration: 27 Logisticloss: 0.7695247717942825
iteration: 28 Logisticloss: 0.6223978677323524
iteration: 29 Logisticloss: 0.503402696933392
iteration: 30 Logisticloss: 0.40716023521063865
iteration: 31 Logisticloss: 0.32932001062415167
iteration: 32 Logisticloss: 0.2663634052915056
iteration: 33 Logisticloss: 0.21544466925766703
iteration: 34 Logisticloss: 0.17426252878111664
iteration: 35 Logisticloss: 0.14095691643126726
iteration: 36 Logisticloss: 0.11402641357877734
iteration: 37 Logisticloss: 0.09225967995938467
iteration: 38 Logisticloss: 0.074666874720643
iteration: 39 Logisticloss: 0.06043590696329087
iteration: 40 Logisticloss: 0.048937024285875964
iteration: 41 Logisticloss: 0.03966090056877631
iteration: 42 Logisticloss: 0.03217969167862404
iteration: 43 Logisticloss: 0.02613518097137947
iteration: 44 Logisticloss: 0.02127318691136402
iteration: 45 Logisticloss: 0.017371259214765605
iteration: 46 Logisticloss: 0.014239772570486163
iteration: 47 Logisticloss: 0.011729852867474716
iteration: 48 Logisticloss: 0.009704477047842679
iteration: 49 Logisticloss: 0.008072689620943435
iteration: 50 Logisticloss: 0.006770216183820109
iteration: 51 Logisticloss: 0.005730119154566351

```

Output_logistic_train.txt

```
iteration: 52 Logisticloss: 0.004894532439874061
iteration: 53 Logisticloss: 0.00423952146370204
iteration: 54 Logisticloss: 0.003739360330511061
iteration: 55 Logisticloss: 0.0033454363506308124
iteration: 56 Logisticloss: 0.0030224747211456985
iteration: 57 Logisticloss: 0.0027580533047861892
iteration: 58 Logisticloss: 0.0025660101623443963
Convergence reached in 59 iterations
[-4.40561594e-04 -4.21836914e-05 -1.82346894e-04 ... 3.07738234e-04
 2.59752925e-05 7.44525473e-05]
```

CROSS VALIDATION 17

```
iteration: 0 Logisticloss: 1438.0380681158224
iteration: 1 Logisticloss: 828.7487201928988
iteration: 2 Logisticloss: 186.53254502816696
iteration: 3 Logisticloss: 150.86621412913905
iteration: 4 Logisticloss: 122.019535852161
iteration: 5 Logisticloss: 98.68854478466764
iteration: 6 Logisticloss: 79.81860284664295
iteration: 7 Logisticloss: 64.55672615592083
iteration: 8 Logisticloss: 52.21302733120736
iteration: 9 Logisticloss: 42.22953029719852
iteration: 10 Logisticloss: 34.154947917684154
iteration: 11 Logisticloss: 27.624282322105458
iteration: 12 Logisticloss: 22.342325792752355
iteration: 13 Logisticloss: 18.070316398049346
iteration: 14 Logisticloss: 14.615145162350855
iteration: 15 Logisticloss: 11.820626900569678
iteration: 16 Logisticloss: 9.560440130448653
iteration: 17 Logisticloss: 7.732416923123427
iteration: 18 Logisticloss: 6.2539245743072005
iteration: 19 Logisticloss: 5.058130332336605
iteration: 20 Logisticloss: 4.0909803364134545
iteration: 21 Logisticloss: 3.308756203043563
iteration: 22 Logisticloss: 2.6760988102859455
iteration: 23 Logisticloss: 2.1644099483142165
iteration: 24 Logisticloss: 1.7505595856010896
iteration: 25 Logisticloss: 1.4158403148764191
iteration: 26 Logisticloss: 1.1451217163668233
iteration: 27 Logisticloss: 0.9261664128737415
iteration: 28 Logisticloss: 0.7490769011472754
iteration: 29 Logisticloss: 0.6058481603481398
iteration: 30 Logisticloss: 0.49000583972335215
iteration: 31 Logisticloss: 0.39631375865957047
iteration: 32 Logisticloss: 0.32053772151532317
iteration: 33 Logisticloss: 0.2592552063661423
iteration: 34 Logisticloss: 0.20970068296608194
iteration: 35 Logisticloss: 0.16963184427868022
iteration: 36 Logisticloss: 0.13722267149672232
iteration: 37 Logisticloss: 0.1110089852143393
iteration: 38 Logisticloss: 0.08980716394690194
iteration: 39 Logisticloss: 0.07266442358269194
iteration: 40 Logisticloss: 0.05881343831701781
```

Output_logistic_train.txt

```
iteration: 41 Logisticloss: 0.047618227436508
iteration: 42 Logisticloss: 0.03856295529328483
iteration: 43 Logisticloss: 0.03125128892926599
iteration: 44 Logisticloss: 0.02535997440566159
iteration: 45 Logisticloss: 0.020617403667303514
iteration: 46 Logisticloss: 0.01678624615250526
iteration: 47 Logisticloss: 0.01370081896083027
iteration: 48 Logisticloss: 0.011239387227871397
iteration: 49 Logisticloss: 0.009280296484266457
iteration: 50 Logisticloss: 0.007723468639671853
iteration: 51 Logisticloss: 0.006490533869718828
iteration: 52 Logisticloss: 0.005520022165558105
iteration: 53 Logisticloss: 0.004760184891134559
iteration: 54 Logisticloss: 0.004143198051241831
iteration: 55 Logisticloss: 0.003644459188251553
iteration: 56 Logisticloss: 0.003239827507875005
iteration: 57 Logisticloss: 0.0029042496682165405
iteration: 58 Logisticloss: 0.002638255046098107
iteration: 59 Logisticloss: 0.0024562226756385044
Convergence reached in 60 iterations
[-4.78423656e-04 -5.83489513e-05 -1.08900248e-04 ... 3.37699771e-04
 6.22259012e-05 5.19824586e-05]
CROSS VALIDATION 18
iteration: 0 Logisticloss: 1842.9401368604247
iteration: 1 Logisticloss: 1612.2498325143326
iteration: 2 Logisticloss: 166.76264821101782
iteration: 3 Logisticloss: 134.8764602442252
iteration: 4 Logisticloss: 109.08713505792223
iteration: 5 Logisticloss: 88.22890972670591
iteration: 6 Logisticloss: 71.35892337286465
iteration: 7 Logisticloss: 57.71459673152133
iteration: 8 Logisticloss: 46.67916104217334
iteration: 9 Logisticloss: 37.75377806022866
iteration: 10 Logisticloss: 30.53499093046466
iteration: 11 Logisticloss: 24.69648666614007
iteration: 12 Logisticloss: 19.97434595299288
iteration: 13 Logisticloss: 16.155113694573185
iteration: 14 Logisticloss: 13.06615036370409
iteration: 15 Logisticloss: 10.567823587105693
iteration: 16 Logisticloss: 8.547191523102358
iteration: 17 Logisticloss: 6.912914830420346
iteration: 18 Logisticloss: 5.591123242561566
iteration: 19 Logisticloss: 4.52206767413734
iteration: 20 Logisticloss: 3.6574238194408535
iteration: 21 Logisticloss: 2.9581085710970454
iteration: 22 Logisticloss: 2.3925133801797442
iteration: 23 Logisticloss: 1.9350694492449578
iteration: 24 Logisticloss: 1.5650877347428171
iteration: 25 Logisticloss: 1.265845148130463
iteration: 26 Logisticloss: 1.023819838997771
iteration: 27 Logisticloss: 0.8280714687927404
iteration: 28 Logisticloss: 0.6697515737303589
```


Output_logistic_train.txt

iteration: 29 Logisticloss: 0.5417036311434861
iteration: 30 Logisticloss: 0.4381397173344307
iteration: 31 Logisticloss: 0.35437936360048294
iteration: 32 Logisticloss: 0.28663903642162264
iteration: 33 Logisticloss: 0.2318612288419028
iteration: 34 Logisticloss: 0.18756806046611904
iteration: 35 Logisticloss: 0.15174266033182032
iteration: 36 Logisticloss: 0.12276693191177039
iteration: 37 Logisticloss: 0.09933954221663228
iteration: 38 Logisticloss: 0.08040515286409108
iteration: 39 Logisticloss: 0.06510229345328133
iteration: 40 Logisticloss: 0.052733148215846765
iteration: 41 Logisticloss: 0.04275297507973332
iteration: 42 Logisticloss: 0.03471704619417305
iteration: 43 Logisticloss: 0.028232579458409707
iteration: 44 Logisticloss: 0.022998262962440893
iteration: 45 Logisticloss: 0.01877199835811766
iteration: 46 Logisticloss: 0.015354010509083449
iteration: 47 Logisticloss: 0.012607415128614177
iteration: 48 Logisticloss: 0.010411600235274257
iteration: 49 Logisticloss: 0.008652313902589213
iteration: 50 Logisticloss: 0.0072293135072902725
iteration: 51 Logisticloss: 0.006074794749600254
iteration: 52 Logisticloss: 0.0051378416436684915
iteration: 53 Logisticloss: 0.004394271376328067
iteration: 54 Logisticloss: 0.0038316578397236786
iteration: 55 Logisticloss: 0.0034209544488625386
iteration: 56 Logisticloss: 0.0030837259450055094
iteration: 57 Logisticloss: 0.0027814110205968247
iteration: 58 Logisticloss: 0.0025410540372762325
iteration: 59 Logisticloss: 0.0023955434400959336

Convergence reached in 60 iterations

[-4.02093692e-04 -2.20869121e-04 -1.33398378e-04 ... 2.72069236e-04
1.18974371e-04 6.21416385e-05]

CROSS VALIDATION 19

iteration: 0 Logisticloss: 1815.0853746700323
iteration: 1 Logisticloss: 472.9213679013386
iteration: 2 Logisticloss: 198.92426636697246
iteration: 3 Logisticloss: 160.88855143572852
iteration: 4 Logisticloss: 130.12553197172315
iteration: 5 Logisticloss: 105.24461759286936
iteration: 6 Logisticloss: 85.12110855136615
iteration: 7 Logisticloss: 68.84535557953673
iteration: 8 Logisticloss: 55.68164072972213
iteration: 9 Logisticloss: 45.03492048598573
iteration: 10 Logisticloss: 36.42392782611487
iteration: 11 Logisticloss: 29.45941735802282
iteration: 12 Logisticloss: 23.826570138653434
iteration: 13 Logisticloss: 19.270762814919195
iteration: 14 Logisticloss: 15.58605780470341
iteration: 15 Logisticloss: 12.605894235981474
iteration: 16 Logisticloss: 10.195558843673547

Output_logistic_train.txt

```

iteration: 17 Logisticloss: 8.246096483826044
iteration: 18 Logisticloss: 6.66938500019171
iteration: 19 Logisticloss: 5.394151810863104
iteration: 20 Logisticloss: 4.3627521514804375
iteration: 21 Logisticloss: 3.528563340934532
iteration: 22 Logisticloss: 2.8538772817433795
iteration: 23 Logisticloss: 2.3081959291380882
iteration: 24 Logisticloss: 1.8668526784147532
iteration: 25 Logisticloss: 1.5098973526938577
iteration: 26 Logisticloss: 1.221194388840481
iteration: 27 Logisticloss: 0.9876934565616554
iteration: 28 Logisticloss: 0.798839540248189
iteration: 29 Logisticloss: 0.646095817309338
iteration: 30 Logisticloss: 0.5225577655606418
iteration: 31 Logisticloss: 0.42264105640780464
iteration: 32 Logisticloss: 0.3418291281139107
iteration: 33 Logisticloss: 0.2764690422664977
iteration: 34 Logisticloss: 0.22360645252255693
iteration: 35 Logisticloss: 0.1808524116809591
iteration: 36 Logisticloss: 0.14627642913975894
iteration: 37 Logisticloss: 0.11832116330043135
iteration: 38 Logisticloss: 0.09573068151709058
iteration: 39 Logisticloss: 0.07747666436283064
iteration: 40 Logisticloss: 0.06271092551559415
iteration: 41 Logisticloss: 0.05077946948649158
iteration: 42 Logisticloss: 0.04116288872045634
iteration: 43 Logisticloss: 0.03340407474224934
iteration: 44 Logisticloss: 0.027130996752727746
iteration: 45 Logisticloss: 0.022065927724980373
iteration: 46 Logisticloss: 0.01799120382228093
iteration: 47 Logisticloss: 0.014717414291541053
iteration: 48 Logisticloss: 0.012077498238294853
iteration: 49 Logisticloss: 0.009943339525082388
iteration: 50 Logisticloss: 0.00822861850802356
iteration: 51 Logisticloss: 0.006866156745572372
iteration: 52 Logisticloss: 0.005786760139411451
iteration: 53 Logisticloss: 0.00493340475252493
iteration: 54 Logisticloss: 0.004266062778284745
iteration: 55 Logisticloss: 0.003749316921270867
iteration: 56 Logisticloss: 0.0033350276409246653
iteration: 57 Logisticloss: 0.0030087403119887623
iteration: 58 Logisticloss: 0.002783401471629902
iteration: 59 Logisticloss: 0.002650215157242641
iteration: 60 Logisticloss: 0.0025041576576019958
iteration: 61 Logisticloss: 0.002363878807597084
iteration: 62 Logisticloss: 0.0022491180583311707
Convergence reached in 63 iterations
[-4.30611516e-04 -1.98506202e-04 -1.28167489e-04 ... 2.86547680e-04
 9.72896256e-05 3.36829017e-05]
Accuracy (Logistic Loss): 0.85
eta = 0.001 lambda = 1
CROSS VALIDATION 0

```

Output_logistic_train.txt

```
iteration: 0 Logisticloss: 111.65420953355402
iteration: 1 Logisticloss: 18.029941638844655
iteration: 2 Logisticloss: 14.556914163077847
iteration: 3 Logisticloss: 11.773530076818574
iteration: 4 Logisticloss: 9.522348550199414
iteration: 5 Logisticloss: 7.701608724199684
iteration: 6 Logisticloss: 6.2290071462987555
iteration: 7 Logisticloss: 5.037977442324263
iteration: 8 Logisticloss: 4.074681521128207
iteration: 9 Logisticloss: 3.295576600161378
iteration: 10 Logisticloss: 2.6654486108995505
iteration: 11 Logisticloss: 2.1558233797589432
iteration: 12 Logisticloss: 1.7436806888174778
iteration: 13 Logisticloss: 1.4103992597823312
iteration: 14 Logisticloss: 1.1408800594217563
iteration: 15 Logisticloss: 0.9228953069868645
iteration: 16 Logisticloss: 0.7466330886133568
iteration: 17 Logisticloss: 0.6042147577119601
iteration: 18 Logisticloss: 0.4892647276969085
iteration: 19 Logisticloss: 0.3965802838397529
iteration: 20 Logisticloss: 0.32190190498151056
iteration: 21 Logisticloss: 0.2617122892737254
iteration: 22 Logisticloss: 0.21312460003630246
iteration: 23 Logisticloss: 0.1738652007623503
iteration: 24 Logisticloss: 0.14215174107857834
iteration: 25 Logisticloss: 0.11658187063849783
iteration: 26 Logisticloss: 0.09597843279468259
iteration: 27 Logisticloss: 0.07936893034143457
iteration: 28 Logisticloss: 0.0659921856171243
iteration: 29 Logisticloss: 0.05525034312482536
iteration: 30 Logisticloss: 0.0466760969168823
iteration: 31 Logisticloss: 0.03991956922355403
iteration: 32 Logisticloss: 0.03464026685388044
iteration: 33 Logisticloss: 0.030525250897090614
iteration: 34 Logisticloss: 0.02738495711245896
iteration: 35 Logisticloss: 0.025020684324557077
iteration: 36 Logisticloss: 0.023168419175101332
iteration: 37 Logisticloss: 0.021669184232709256
iteration: 38 Logisticloss: 0.020485139994225913
iteration: 39 Logisticloss: 0.019653444347127437
iteration: 40 Logisticloss: 0.019126724614349992
iteration: 41 Logisticloss: 0.018620188148335295
iteration: 42 Logisticloss: 0.018087562711225372
iteration: 43 Logisticloss: 0.01777743808216101
Convergence reached in 44 iterations
[-2.77111492e-04 -9.33697146e-05 6.51868160e-06 ... 1.22865840e-04
 8.89002370e-05 3.21742322e-05]
CROSS VALIDATION 1
iteration: 0 Logisticloss: 81.70178944077438
iteration: 1 Logisticloss: 19.640203892784832
iteration: 2 Logisticloss: 15.884859157319708
iteration: 3 Logisticloss: 12.847562674264545
```

Output_logistic_train.txt

```
iteration: 4 Logisticloss: 10.39101858156254
iteration: 5 Logisticloss: 8.404182948980637
iteration: 6 Logisticloss: 6.797244224993514
iteration: 7 Logisticloss: 5.49756345982565
iteration: 8 Logisticloss: 4.4463907998007945
iteration: 9 Logisticloss: 3.5962098716595587
iteration: 10 Logisticloss: 2.908590161224777
iteration: 11 Logisticloss: 2.352450695504141
iteration: 12 Logisticloss: 1.902657272058586
iteration: 13 Logisticloss: 1.5388901149631549
iteration: 14 Logisticloss: 1.2447261945685022
iteration: 15 Logisticloss: 1.006881007329018
iteration: 16 Logisticloss: 0.8145897173364568
iteration: 17 Logisticloss: 0.6591425889305755
iteration: 18 Logisticloss: 0.533460744023463
iteration: 19 Logisticloss: 0.43180779762573107
iteration: 20 Logisticloss: 0.34967003484053555
iteration: 21 Logisticloss: 0.28346845044988145
iteration: 22 Logisticloss: 0.23026850437182558
iteration: 23 Logisticloss: 0.18756413567410374
iteration: 24 Logisticloss: 0.15317361815121644
iteration: 25 Logisticloss: 0.125319141664826
iteration: 26 Logisticloss: 0.10273677993911301
iteration: 27 Logisticloss: 0.08451397530030522
iteration: 28 Logisticloss: 0.06990539127665395
iteration: 29 Logisticloss: 0.05824484253449262
iteration: 30 Logisticloss: 0.04897664186796446
iteration: 31 Logisticloss: 0.041624225628604045
iteration: 32 Logisticloss: 0.035758284106849586
iteration: 33 Logisticloss: 0.031065118997802593
iteration: 34 Logisticloss: 0.02737752337612366
iteration: 35 Logisticloss: 0.024566211162309344
iteration: 36 Logisticloss: 0.022400264936688924
iteration: 37 Logisticloss: 0.020673785892467707
iteration: 38 Logisticloss: 0.019333867407915838
iteration: 39 Logisticloss: 0.01845998074099585
iteration: 40 Logisticloss: 0.01806841762180124
iteration: 41 Logisticloss: 0.01781480099620887
iteration: 42 Logisticloss: 0.017500298702662218
iteration: 43 Logisticloss: 0.017290460063254295
Convergence reached in 44 iterations
[-2.68677775e-04 -9.64273780e-05 -2.41922490e-05 ... 1.09811112e-04
 8.63646262e-05 4.58481867e-05]
```

CROSS VALIDATION 2

```
iteration: 0 Logisticloss: 354.6983519363175
iteration: 1 Logisticloss: 85.20908762278535
iteration: 2 Logisticloss: 19.330232525934203
iteration: 3 Logisticloss: 15.634542229801514
iteration: 4 Logisticloss: 12.645414952674686
iteration: 5 Logisticloss: 10.227789160423255
iteration: 6 Logisticloss: 8.27242636398958
iteration: 7 Logisticloss: 6.690963032858578
```

Output_logistic_train.txt

```
iteration: 8 Logisticloss: 5.411928764664673
iteration: 9 Logisticloss: 4.377500609089751
iteration: 10 Logisticloss: 3.540884538039504
iteration: 11 Logisticloss: 2.8642411925426727
iteration: 12 Logisticloss: 2.3169696909404616
iteration: 13 Logisticloss: 1.8743232075116016
iteration: 14 Logisticloss: 1.5163078784368438
iteration: 15 Logisticloss: 1.2267615047937017
iteration: 16 Logisticloss: 0.9926099593070644
iteration: 17 Logisticloss: 0.803259177586878
iteration: 18 Logisticloss: 0.6501100639091076
iteration: 19 Logisticloss: 0.526225701989599
iteration: 20 Logisticloss: 0.4260308943658624
iteration: 21 Logisticloss: 0.34502264546859324
iteration: 22 Logisticloss: 0.2795663857393163
iteration: 23 Logisticloss: 0.22672306684323124
iteration: 24 Logisticloss: 0.18410045653741927
iteration: 25 Logisticloss: 0.14979628458572236
iteration: 26 Logisticloss: 0.12233175303378548
iteration: 27 Logisticloss: 0.10046576066662172
iteration: 28 Logisticloss: 0.08305557594839003
iteration: 29 Logisticloss: 0.06911880712316215
iteration: 30 Logisticloss: 0.05793883169374393
iteration: 31 Logisticloss: 0.04890809844647845
iteration: 32 Logisticloss: 0.041582331018058714
iteration: 33 Logisticloss: 0.035671988932847024
iteration: 34 Logisticloss: 0.03095077959589996
iteration: 35 Logisticloss: 0.027223038591566082
iteration: 36 Logisticloss: 0.02434456608648488
iteration: 37 Logisticloss: 0.022219119512540325
iteration: 38 Logisticloss: 0.020677135091598978
iteration: 39 Logisticloss: 0.01949131067970045
iteration: 40 Logisticloss: 0.018608884417472684
iteration: 41 Logisticloss: 0.017957756266292597
iteration: 42 Logisticloss: 0.01735230191898782
iteration: 43 Logisticloss: 0.0167870539188776
iteration: 44 Logisticloss: 0.016460787079354677
Convergence reached in 45 iterations
[-3.34277246e-04 -1.70231717e-04 -5.69727596e-05 ... 2.18545587e-04
 6.60008518e-05 2.13055278e-05]
CROSS VALIDATION 3
iteration: 0 Logisticloss: 81.95972266022655
iteration: 1 Logisticloss: 19.665238627714785
iteration: 2 Logisticloss: 15.905107075344091
iteration: 3 Logisticloss: 12.863939048349053
iteration: 4 Logisticloss: 10.404263678060659
iteration: 5 Logisticloss: 8.414895490106407
iteration: 6 Logisticloss: 6.805908452882693
iteration: 7 Logisticloss: 5.50457102474688
iteration: 8 Logisticloss: 4.4520584579413045
iteration: 9 Logisticloss: 3.600793777395873
iteration: 10 Logisticloss: 2.912297355384465
```

Output_logistic_train.txt

```
iteration: 11 Logisticloss: 2.3554482101208056
iteration: 12 Logisticloss: 1.9050791455273948
iteration: 13 Logisticloss: 1.5408429380157393
iteration: 14 Logisticloss: 1.2462957339344727
iteration: 15 Logisticloss: 1.0081434151521904
iteration: 16 Logisticloss: 0.8156146085733178
iteration: 17 Logisticloss: 0.6599787695148661
iteration: 18 Logisticloss: 0.5341442560047878
iteration: 19 Logisticloss: 0.4323778501095315
iteration: 20 Logisticloss: 0.3501808289537335
iteration: 21 Logisticloss: 0.28399135122804836
iteration: 22 Logisticloss: 0.23084365612875707
iteration: 23 Logisticloss: 0.18811808386934045
iteration: 24 Logisticloss: 0.15361265499944546
iteration: 25 Logisticloss: 0.12566002117087832
iteration: 26 Logisticloss: 0.10303594348015312
iteration: 27 Logisticloss: 0.08479184490326483
iteration: 28 Logisticloss: 0.07016156315492998
iteration: 29 Logisticloss: 0.05847694952407271
iteration: 30 Logisticloss: 0.04918706947548541
iteration: 31 Logisticloss: 0.04181890066665374
iteration: 32 Logisticloss: 0.035944516132787416
iteration: 33 Logisticloss: 0.0312520865804279
iteration: 34 Logisticloss: 0.027575614472596405
iteration: 35 Logisticloss: 0.02477966858747513
iteration: 36 Logisticloss: 0.022620803430891685
iteration: 37 Logisticloss: 0.020891448531288572
iteration: 38 Logisticloss: 0.019528708654229322
iteration: 39 Logisticloss: 0.01860645378313698
iteration: 40 Logisticloss: 0.018174132883335352
iteration: 41 Logisticloss: 0.017940037633929436
iteration: 42 Logisticloss: 0.017650680872016808
iteration: 43 Logisticloss: 0.017468591707655308
iteration: 44 Logisticloss: 0.01759580220047285
iteration: 45 Logisticloss: 0.017947843885791723
iteration: 46 Logisticloss: 0.018273940146875133
iteration: 47 Logisticloss: 0.01860166780925865
iteration: 48 Logisticloss: 0.018970746835729406
iteration: 49 Logisticloss: 0.019347348578994755
iteration: 50 Logisticloss: 0.019691199848081604
iteration: 51 Logisticloss: 0.020047795953088084
iteration: 52 Logisticloss: 0.020426098474885662
iteration: 53 Logisticloss: 0.020756801821202875
iteration: 54 Logisticloss: 0.02098563055041602
iteration: 55 Logisticloss: 0.021110490661698057
Convergence reached in 56 iterations
[-2.99386887e-04 -1.67216617e-04 -5.83110040e-05 ... 1.49492021e-04
 7.48484059e-05 2.48778598e-05]
CROSS VALIDATION 4
iteration: 0 Logisticloss: 81.95972266022655
iteration: 1 Logisticloss: 19.665238627714785
iteration: 2 Logisticloss: 15.905107075344091
```

Output_logistic_train.txt

```
iteration: 3 Logisticloss: 12.863939048349053
iteration: 4 Logisticloss: 10.404263678060659
iteration: 5 Logisticloss: 8.414895490106407
iteration: 6 Logisticloss: 6.805908452882693
iteration: 7 Logisticloss: 5.50457102474688
iteration: 8 Logisticloss: 4.4520584579413045
iteration: 9 Logisticloss: 3.600793777395874
iteration: 10 Logisticloss: 2.9122973553844953
iteration: 11 Logisticloss: 2.3554482101214975
iteration: 12 Logisticloss: 1.9050791455389873
iteration: 13 Logisticloss: 1.5408429381615838
iteration: 14 Logisticloss: 1.2462957353471322
iteration: 15 Logisticloss: 1.0081434258848303
iteration: 16 Logisticloss: 0.815614673588795
iteration: 17 Logisticloss: 0.6599790901343682
iteration: 18 Logisticloss: 0.5341455753842134
iteration: 19 Logisticloss: 0.4323824806807915
iteration: 20 Logisticloss: 0.3501948829272457
iteration: 21 Logisticloss: 0.28402824786790626
iteration: 22 Logisticloss: 0.23092622085306602
iteration: 23 Logisticloss: 0.18827075407255756
iteration: 24 Logisticloss: 0.15383655690997056
iteration: 25 Logisticloss: 0.12591515700521844
iteration: 26 Logisticloss: 0.1032646208834196
iteration: 27 Logisticloss: 0.08495102354472255
iteration: 28 Logisticloss: 0.07023868313922262
iteration: 29 Logisticloss: 0.05849386571914754
iteration: 30 Logisticloss: 0.0491746370431418
iteration: 31 Logisticloss: 0.04179067317283461
iteration: 32 Logisticloss: 0.035903355517774085
iteration: 33 Logisticloss: 0.031204803379046523
iteration: 34 Logisticloss: 0.02752717531458234
iteration: 35 Logisticloss: 0.024728725187314712
iteration: 36 Logisticloss: 0.022566031963127613
iteration: 37 Logisticloss: 0.02083406606833651
iteration: 38 Logisticloss: 0.01947455395738667
iteration: 39 Logisticloss: 0.018564347144535982
iteration: 40 Logisticloss: 0.018144524341518677
iteration: 41 Logisticloss: 0.017904973064208213
iteration: 42 Logisticloss: 0.01760274341275816
iteration: 43 Logisticloss: 0.0173977521722974
Convergence reached in 44 iterations
[-2.81984044e-04 -9.13847704e-05 -3.76999279e-05 ... 1.46876340e-04
 9.11455046e-05 4.28701367e-05]
CROSS VALIDATION 5
iteration: 0 Logisticloss: 81.76705981254827
iteration: 1 Logisticloss: 19.647489063876485
iteration: 2 Logisticloss: 15.890751352602384
iteration: 3 Logisticloss: 12.852328240482846
iteration: 4 Logisticloss: 10.394872938094833
iteration: 5 Logisticloss: 8.407300325502264
iteration: 6 Logisticloss: 6.799765537180321
```

Output_logistic_train.txt

```

iteration: 7 Logisticloss: 5.49960267883994
iteration: 8 Logisticloss: 4.448040102213235
iteration: 9 Logisticloss: 3.59754379787374
iteration: 10 Logisticloss: 2.90966895656824
iteration: 11 Logisticloss: 2.3533229547331307
iteration: 12 Logisticloss: 1.903361972268209
iteration: 13 Logisticloss: 1.5394582290690382
iteration: 14 Logisticloss: 1.2451826541404334
iteration: 15 Logisticloss: 1.0072478747681572
iteration: 16 Logisticloss: 0.8148866862380807
iteration: 17 Logisticloss: 0.6593843000543871
iteration: 18 Logisticloss: 0.5336619859735311
iteration: 19 Logisticloss: 0.43198842145394
iteration: 20 Logisticloss: 0.34986208011554853
iteration: 21 Logisticloss: 0.283718804946191
iteration: 22 Logisticloss: 0.23059019487464885
iteration: 23 Logisticloss: 0.1878479769577255
iteration: 24 Logisticloss: 0.15329288704174618
iteration: 25 Logisticloss: 0.12531435804039148
iteration: 26 Logisticloss: 0.10268916699094056
iteration: 27 Logisticloss: 0.08444314205667443
iteration: 28 Logisticloss: 0.06981370874707059
iteration: 29 Logisticloss: 0.058138835919033086
iteration: 30 Logisticloss: 0.04886332150283401
iteration: 31 Logisticloss: 0.041505483939128854
iteration: 32 Logisticloss: 0.0356353740504607
iteration: 33 Logisticloss: 0.030945483699173618
iteration: 34 Logisticloss: 0.027273130721689194
iteration: 35 Logisticloss: 0.024481191213354327
iteration: 36 Logisticloss: 0.022324254763643414
iteration: 37 Logisticloss: 0.020597751506689396
iteration: 38 Logisticloss: 0.019241364149725004
iteration: 39 Logisticloss: 0.018330748817001835
iteration: 40 Logisticloss: 0.01790837204871126
iteration: 41 Logisticloss: 0.01766669632890999
iteration: 42 Logisticloss: 0.017360549528382604
iteration: 43 Logisticloss: 0.01715275095492184
Convergence reached in 44 iterations
[-2.65709562e-04 -8.99301728e-05 -2.74167557e-05 ... 1.22529333e-04
 6.11945706e-05 4.63502301e-05]
CROSS VALIDATION 6
iteration: 0 Logisticloss: 81.96272272137911
iteration: 1 Logisticloss: 19.665514386828868
iteration: 2 Logisticloss: 15.905330107381443
iteration: 3 Logisticloss: 12.864119435096574
iteration: 4 Logisticloss: 10.40440957359686
iteration: 5 Logisticloss: 8.415013489392615
iteration: 6 Logisticloss: 6.806003889875752
iteration: 7 Logisticloss: 5.504648213501597
iteration: 8 Logisticloss: 4.452120887564444
iteration: 9 Logisticloss: 3.6008442695208576
iteration: 10 Logisticloss: 2.912338190849876

```


Output_logistic_train.txt

iteration: 11 Logisticloss: 2.355481229578922
iteration: 12 Logisticloss: 1.905105827197415
iteration: 13 Logisticloss: 1.5408644584554252
iteration: 14 Logisticloss: 1.2463130372391507
iteration: 15 Logisticloss: 1.0081573393632388
iteration: 16 Logisticloss: 0.8156259752405121
iteration: 17 Logisticloss: 0.6599883246098956
iteration: 18 Logisticloss: 0.534153077985714
iteration: 19 Logisticloss: 0.4323885747791281
iteration: 20 Logisticloss: 0.3501999764724116
iteration: 21 Logisticloss: 0.284032915858297
iteration: 22 Logisticloss: 0.23093143023873136
iteration: 23 Logisticloss: 0.18827847049946214
iteration: 24 Logisticloss: 0.15385160706514123
iteration: 25 Logisticloss: 0.12594983881602778
iteration: 26 Logisticloss: 0.10333969735679802
iteration: 27 Logisticloss: 0.08508579384822199
iteration: 28 Logisticloss: 0.0704353978045972
iteration: 29 Logisticloss: 0.05872634319698472
iteration: 30 Logisticloss: 0.04940140911775242
iteration: 31 Logisticloss: 0.04197876421155903
iteration: 32 Logisticloss: 0.036038877497767054
iteration: 33 Logisticloss: 0.031296323743448505
iteration: 34 Logisticloss: 0.027593462430207286
iteration: 35 Logisticloss: 0.024780887050918004
iteration: 36 Logisticloss: 0.022608603334953528
iteration: 37 Logisticloss: 0.020873028372046815
iteration: 38 Logisticloss: 0.019509526260346174
iteration: 39 Logisticloss: 0.01858501143798408
iteration: 40 Logisticloss: 0.018145713045561222
iteration: 41 Logisticloss: 0.017901368024547604
iteration: 42 Logisticloss: 0.01759931782229475
iteration: 43 Logisticloss: 0.017388276106878986

Convergence reached in 44 iterations

[-2.95050206e-04 -9.95630554e-05 -3.61754997e-05 ... 1.38567525e-04
8.40569708e-05 4.01021894e-05]

CROSS VALIDATION 7

iteration: 0 Logisticloss: 81.96272272137911
iteration: 1 Logisticloss: 19.665514386828868
iteration: 2 Logisticloss: 15.905330107381443
iteration: 3 Logisticloss: 12.864119435096574
iteration: 4 Logisticloss: 10.40440957359686
iteration: 5 Logisticloss: 8.415013489392615
iteration: 6 Logisticloss: 6.806003889875752
iteration: 7 Logisticloss: 5.504648213501597
iteration: 8 Logisticloss: 4.452120887564443
iteration: 9 Logisticloss: 3.600844269520826
iteration: 10 Logisticloss: 2.9123381908491437
iteration: 11 Logisticloss: 2.3554812295667085
iteration: 12 Logisticloss: 1.905105827044051
iteration: 13 Logisticloss: 1.5408644569642422
iteration: 14 Logisticloss: 1.24631302574143

Output_logistic_train.txt

```
iteration: 15 Logisticloss: 1.0081572676431054
iteration: 16 Logisticloss: 0.8156256068720448
iteration: 17 Logisticloss: 0.6599867387511809
iteration: 18 Logisticloss: 0.5341472550208061
iteration: 19 Logisticloss: 0.43237011278978843
iteration: 20 Logisticloss: 0.3501494170667206
iteration: 21 Logisticloss: 0.2839157409682663
iteration: 22 Logisticloss: 0.2307111180862537
iteration: 23 Logisticloss: 0.1879539437913207
iteration: 24 Logisticloss: 0.15346705142958544
iteration: 25 Logisticloss: 0.12555034577128488
iteration: 26 Logisticloss: 0.10295063897100977
iteration: 27 Logisticloss: 0.08472105126409805
iteration: 28 Logisticloss: 0.07009755285575753
iteration: 29 Logisticloss: 0.05841264163717692
iteration: 30 Logisticloss: 0.04911501889036964
iteration: 31 Logisticloss: 0.04173468608571469
iteration: 32 Logisticloss: 0.03585130321297483
iteration: 33 Logisticloss: 0.03115904463562845
iteration: 34 Logisticloss: 0.027490985496473858
iteration: 35 Logisticloss: 0.02470234477470836
iteration: 36 Logisticloss: 0.02254326562985762
iteration: 37 Logisticloss: 0.020810682289711536
iteration: 38 Logisticloss: 0.019444244955301483
iteration: 39 Logisticloss: 0.01851584093841299
iteration: 40 Logisticloss: 0.018076957150769582
iteration: 41 Logisticloss: 0.01784229702234367
iteration: 42 Logisticloss: 0.017551342636939977
iteration: 43 Logisticloss: 0.017358149082695448
iteration: 44 Logisticloss: 0.017467510543218247
iteration: 45 Logisticloss: 0.017808945535005567
iteration: 46 Logisticloss: 0.018125257302386427
iteration: 47 Logisticloss: 0.018426820746358978
iteration: 48 Logisticloss: 0.01877665229975913
iteration: 49 Logisticloss: 0.01915018207197559
iteration: 50 Logisticloss: 0.019514924928389774
iteration: 51 Logisticloss: 0.019898502711996717
iteration: 52 Logisticloss: 0.02029904255414542
iteration: 53 Logisticloss: 0.020641432312226326
iteration: 54 Logisticloss: 0.020870481393163026
iteration: 55 Logisticloss: 0.02098900088581737
Convergence reached in 56 iterations
[-3.08713226e-04 -1.72045176e-04 -6.04282426e-05 ... 1.38131629e-04
 7.25301606e-05 2.57117264e-05]
CROSS VALIDATION 8
iteration: 0 Logisticloss: 81.96272272137912
iteration: 1 Logisticloss: 19.665514386828868
iteration: 2 Logisticloss: 15.905330107381443
iteration: 3 Logisticloss: 12.864119435096574
iteration: 4 Logisticloss: 10.40440957359686
iteration: 5 Logisticloss: 8.415013489392615
iteration: 6 Logisticloss: 6.806003889875752
```

Output_logistic_train.txt

```

iteration: 7 Logisticloss: 5.504648213501597
iteration: 8 Logisticloss: 4.452120887564444
iteration: 9 Logisticloss: 3.600844269520858
iteration: 10 Logisticloss: 2.9123381908498773
iteration: 11 Logisticloss: 2.3554812295789254
iteration: 12 Logisticloss: 1.9051058271974515
iteration: 13 Logisticloss: 1.5408644584557951
iteration: 14 Logisticloss: 1.2463130372418427
iteration: 15 Logisticloss: 1.00815733937801
iteration: 16 Logisticloss: 0.8156259753057619
iteration: 17 Logisticloss: 0.6599883248312445
iteration: 18 Logisticloss: 0.5341530782629258
iteration: 19 Logisticloss: 0.432388570576089
iteration: 20 Logisticloss: 0.3501999257096877
iteration: 21 Logisticloss: 0.2840325871024268
iteration: 22 Logisticloss: 0.23093007806594545
iteration: 23 Logisticloss: 0.18827502864672815
iteration: 24 Logisticloss: 0.1538458916885308
iteration: 25 Logisticloss: 0.12594195535848288
iteration: 26 Logisticloss: 0.10332750545598793
iteration: 27 Logisticloss: 0.0850621998652689
iteration: 28 Logisticloss: 0.07038467962238977
iteration: 29 Logisticloss: 0.05862348126232443
iteration: 30 Logisticloss: 0.04922938368453457
iteration: 31 Logisticloss: 0.04176528306799088
iteration: 32 Logisticloss: 0.035843458460724655
iteration: 33 Logisticloss: 0.03114120530475203
iteration: 34 Logisticloss: 0.027466779886646045
iteration: 35 Logisticloss: 0.024672277640344024
iteration: 36 Logisticloss: 0.022510498276448215
iteration: 37 Logisticloss: 0.020778344719027043
iteration: 38 Logisticloss: 0.01941017053405806
iteration: 39 Logisticloss: 0.01847239104181693
iteration: 40 Logisticloss: 0.01801679932262932
iteration: 41 Logisticloss: 0.01776669410282003
iteration: 42 Logisticloss: 0.017463262495148252
iteration: 43 Logisticloss: 0.017254018548726102
Convergence reached in 44 iterations
[-2.79224169e-04 -9.01601498e-05 -1.54115720e-05 ... 1.41576519e-04
 7.70682144e-05 3.94256200e-05]

```

CROSS VALIDATION 9

```

iteration: 0 Logisticloss: 164.83728025522274
iteration: 1 Logisticloss: 185.85058123827633
iteration: 2 Logisticloss: 21.093973847313844
iteration: 3 Logisticloss: 17.060658100187094
iteration: 4 Logisticloss: 13.798540612514564
iteration: 5 Logisticloss: 11.160162868109758
iteration: 6 Logisticloss: 9.026261453324375
iteration: 7 Logisticloss: 7.300376955782366
iteration: 8 Logisticloss: 5.904493680200966
iteration: 9 Logisticloss: 4.775513085789558
iteration: 10 Logisticloss: 3.862401551173533

```

Output_logistic_train.txt

```
iteration: 11 Logisticloss: 3.123883606238856
iteration: 12 Logisticloss: 2.5265765713762556
iteration: 13 Logisticloss: 2.043482802811291
iteration: 14 Logisticloss: 1.6527722702576328
iteration: 15 Logisticloss: 1.3368005066924928
iteration: 16 Logisticloss: 1.0813106542051543
iteration: 17 Logisticloss: 0.874762354001444
iteration: 18 Logisticloss: 0.7077738179562115
iteration: 19 Logisticloss: 0.5727552557343025
iteration: 20 Logisticloss: 0.46362294454003256
iteration: 21 Logisticloss: 0.37546652351863896
iteration: 22 Logisticloss: 0.30427686295484235
iteration: 23 Logisticloss: 0.24677403002483253
iteration: 24 Logisticloss: 0.20029100967004546
iteration: 25 Logisticloss: 0.1627003185727545
iteration: 26 Logisticloss: 0.13240076039409082
iteration: 27 Logisticloss: 0.10808846720248813
iteration: 28 Logisticloss: 0.0885950201871649
iteration: 29 Logisticloss: 0.07295926319026304
iteration: 30 Logisticloss: 0.060443996003726075
iteration: 31 Logisticloss: 0.05049245761251346
iteration: 32 Logisticloss: 0.0426703052013192
iteration: 33 Logisticloss: 0.0365970247532681
iteration: 34 Logisticloss: 0.03188831822405588
iteration: 35 Logisticloss: 0.028160684481892267
iteration: 36 Logisticloss: 0.025143947223745414
iteration: 37 Logisticloss: 0.022669761798359556
iteration: 38 Logisticloss: 0.020654548974261014
iteration: 39 Logisticloss: 0.01911480657992127
iteration: 40 Logisticloss: 0.01808246626751079
iteration: 41 Logisticloss: 0.017350504744258137
iteration: 42 Logisticloss: 0.016620080533688797
iteration: 43 Logisticloss: 0.016084750964544228
iteration: 44 Logisticloss: 0.015932363454244754
Convergence reached in 45 iterations
[-3.76397354e-04 -9.98160737e-05 -6.94165068e-05 ... 2.28698411e-04
 1.15049979e-04 2.45703140e-05]
CROSS VALIDATION 10
iteration: 0 Logisticloss: 82.04851118248563
iteration: 1 Logisticloss: 19.678520728711522
iteration: 2 Logisticloss: 15.915849545473128
iteration: 3 Logisticloss: 12.872627482844551
iteration: 4 Logisticloss: 10.411290822941732
iteration: 5 Logisticloss: 8.420578995592544
iteration: 6 Logisticloss: 6.810505232183721
iteration: 7 Logisticloss: 5.5082888670162955
iteration: 8 Logisticloss: 4.455065418936752
iteration: 9 Logisticloss: 3.6032257668181455
iteration: 10 Logisticloss: 2.914264246878773
iteration: 11 Logisticloss: 2.3570387103460346
iteration: 12 Logisticloss: 1.9063645860915082
iteration: 13 Logisticloss: 1.5418802359468242
```

Output_logistic_train.txt

```

iteration: 14 Logisticloss: 1.2471304915633032
iteration: 15 Logisticloss: 1.008815069251066
iteration: 16 Logisticloss: 0.816159619595952
iteration: 17 Logisticloss: 0.6604237434621133
iteration: 18 Logisticloss: 0.5345065126000645
iteration: 19 Logisticloss: 0.4326746218160542
iteration: 20 Logisticloss: 0.3504333640009864
iteration: 21 Logisticloss: 0.28422387792423576
iteration: 22 Logisticloss: 0.231075562488312
iteration: 23 Logisticloss: 0.18834815096310845
iteration: 24 Logisticloss: 0.15379800885306852
iteration: 25 Logisticloss: 0.12572384425889285
iteration: 26 Logisticloss: 0.10296477340842068
iteration: 27 Logisticloss: 0.084642586111712
iteration: 28 Logisticloss: 0.06997091591541771
iteration: 29 Logisticloss: 0.0582611740872833
iteration: 30 Logisticloss: 0.04895815644924459
iteration: 31 Logisticloss: 0.041580388663840145
iteration: 32 Logisticloss: 0.03569309716422264
iteration: 33 Logisticloss: 0.030993962823299095
iteration: 34 Logisticloss: 0.027321558408721143
iteration: 35 Logisticloss: 0.024530704059480296
iteration: 36 Logisticloss: 0.02237127424243248
iteration: 37 Logisticloss: 0.020640569743303923
iteration: 38 Logisticloss: 0.01927617716810956
iteration: 39 Logisticloss: 0.018350994803506503
iteration: 40 Logisticloss: 0.017914624418230767
iteration: 41 Logisticloss: 0.017675769990322245
iteration: 42 Logisticloss: 0.01738391617378712
iteration: 43 Logisticloss: 0.017211962248618623
iteration: 44 Logisticloss: 0.01736539310130311
iteration: 45 Logisticloss: 0.017742370754422296
iteration: 46 Logisticloss: 0.018084853594028834
iteration: 47 Logisticloss: 0.01841058252033483
iteration: 48 Logisticloss: 0.01875405018431174
iteration: 49 Logisticloss: 0.019108590353800824
iteration: 50 Logisticloss: 0.01943976989944276
iteration: 51 Logisticloss: 0.01979540877488501
iteration: 52 Logisticloss: 0.020182099111822043
iteration: 53 Logisticloss: 0.020525891603106715
iteration: 54 Logisticloss: 0.020761583269224115
iteration: 55 Logisticloss: 0.020884748148846263
Convergence reached in 56 iterations
[-2.80266170e-04 -1.61009889e-04 -5.25460949e-05 ... 1.40439464e-04
 6.67851654e-05 2.83504778e-05]
CROSS VALIDATION 11
iteration: 0 Logisticloss: 82.04840861279132
iteration: 1 Logisticloss: 19.678512283005595
iteration: 2 Logisticloss: 15.915842714645402
iteration: 3 Logisticloss: 12.872621958119002
iteration: 4 Logisticloss: 10.411286354582458
iteration: 5 Logisticloss: 8.420575381614908

```

Output_logistic_train.txt

```
iteration: 6 Logisticloss: 6.810502309224004
iteration: 7 Logisticloss: 5.508286502947394
iteration: 8 Logisticloss: 4.455063506897099
iteration: 9 Logisticloss: 3.6032242203880585
iteration: 10 Logisticloss: 2.914262996198913
iteration: 11 Logisticloss: 2.3570376990329582
iteration: 12 Logisticloss: 1.9063637688563129
iteration: 13 Logisticloss: 1.5418795767659705
iteration: 14 Logisticloss: 1.2471299617192713
iteration: 15 Logisticloss: 1.008814643805212
iteration: 16 Logisticloss: 0.8161592756438852
iteration: 17 Logisticloss: 0.6604234712307973
iteration: 18 Logisticloss: 0.5345063465019226
iteration: 19 Logisticloss: 0.4326747704662842
iteration: 20 Logisticloss: 0.3504347116323626
iteration: 21 Logisticloss: 0.28422954958080465
iteration: 22 Logisticloss: 0.231095043943287
iteration: 23 Logisticloss: 0.18840580293001116
iteration: 24 Logisticloss: 0.15394186202569363
iteration: 25 Logisticloss: 0.12600563120230424
iteration: 26 Logisticloss: 0.10336710344615763
iteration: 27 Logisticloss: 0.08507678279971025
iteration: 28 Logisticloss: 0.07036886877186088
iteration: 29 Logisticloss: 0.05858563168458091
iteration: 30 Logisticloss: 0.04919886374976281
iteration: 31 Logisticloss: 0.041764172896694984
iteration: 32 Logisticloss: 0.0358592592425391
iteration: 33 Logisticloss: 0.031155315880678717
iteration: 34 Logisticloss: 0.027469776628335038
iteration: 35 Logisticloss: 0.024660974436438353
iteration: 36 Logisticloss: 0.022487979996719455
iteration: 37 Logisticloss: 0.02074867220632038
iteration: 38 Logisticloss: 0.019387207227844164
iteration: 39 Logisticloss: 0.018478307586956483
iteration: 40 Logisticloss: 0.018058146610739075
iteration: 41 Logisticloss: 0.01781136693749239
iteration: 42 Logisticloss: 0.017498417018011518
iteration: 43 Logisticloss: 0.01727785300885431
Convergence reached in 44 iterations
[-2.91724258e-04 -8.75704908e-05 -2.20468636e-05 ... 1.42662322e-04
 8.53223246e-05 3.98685954e-05]
```

CROSS VALIDATION 12

```
iteration: 0 Logisticloss: 130.38603302206312
iteration: 1 Logisticloss: 75.37812050954813
iteration: 2 Logisticloss: 16.055681612807003
iteration: 3 Logisticloss: 12.985722678159224
iteration: 4 Logisticloss: 10.502761423691272
iteration: 5 Logisticloss: 8.494559775907218
iteration: 6 Logisticloss: 6.870340368171539
iteration: 7 Logisticloss: 5.556683103037713
iteration: 8 Logisticloss: 4.494206320640095
iteration: 9 Logisticloss: 3.6348825509678955
```

Output_logistic_train.txt

```
iteration: 10 Logisticloss: 2.939867513148267
iteration: 11 Logisticloss: 2.377744225472046
iteration: 12 Logisticloss: 1.9231028553058311
iteration: 13 Logisticloss: 1.5553921203138412
iteration: 14 Logisticloss: 1.2579903522227902
iteration: 15 Logisticloss: 1.017454348618872
iteration: 16 Logisticloss: 0.8229124045534166
iteration: 17 Logisticloss: 0.6655749028284899
iteration: 18 Logisticloss: 0.5383416194971641
iteration: 19 Logisticloss: 0.4354873925314235
iteration: 20 Logisticloss: 0.35239945100535497
iteration: 21 Logisticloss: 0.2853296872638441
iteration: 22 Logisticloss: 0.23120956589360056
iteration: 23 Logisticloss: 0.18762110557318168
iteration: 24 Logisticloss: 0.15267631951715493
iteration: 25 Logisticloss: 0.12469917166467083
iteration: 26 Logisticloss: 0.1022091945562697
iteration: 27 Logisticloss: 0.08414346980427624
iteration: 28 Logisticloss: 0.069719999273636
iteration: 29 Logisticloss: 0.05828109855765596
iteration: 30 Logisticloss: 0.04915045916423093
iteration: 31 Logisticloss: 0.04181907539473841
iteration: 32 Logisticloss: 0.03599137161170639
iteration: 33 Logisticloss: 0.03142338847731248
iteration: 34 Logisticloss: 0.027804591151638774
iteration: 35 Logisticloss: 0.024868349874727785
iteration: 36 Logisticloss: 0.022524123853019808
iteration: 37 Logisticloss: 0.020670124126858244
iteration: 38 Logisticloss: 0.019181745964095144
iteration: 39 Logisticloss: 0.018066666678625526
iteration: 40 Logisticloss: 0.017449491388468352
iteration: 41 Logisticloss: 0.01731779470927155
Convergence reached in 42 iterations
[-5.27756734e-04 -1.77155709e-04 -1.20504268e-04 ... 1.41243734e-04
 5.78458433e-05 2.12886831e-05]
```

CROSS VALIDATION 13

```
iteration: 0 Logisticloss: 240.34096598711423
iteration: 1 Logisticloss: 91.12551925568444
iteration: 2 Logisticloss: 18.66488052699288
iteration: 3 Logisticloss: 15.09602445972577
iteration: 4 Logisticloss: 12.209558703527112
iteration: 5 Logisticloss: 9.875005444817461
iteration: 6 Logisticloss: 7.9868351431238205
iteration: 7 Logisticloss: 6.459696246417509
iteration: 8 Logisticloss: 5.224557019333608
iteration: 9 Logisticloss: 4.225585087099152
iteration: 10 Logisticloss: 3.4176236630569
iteration: 11 Logisticloss: 2.764150459743106
iteration: 12 Logisticloss: 2.2356272562360258
iteration: 13 Logisticloss: 1.8081660133062745
iteration: 14 Logisticloss: 1.4624516516180248
iteration: 15 Logisticloss: 1.1828703708972748
```

Output_logistic_train.txt

```
iteration: 16 Logisticloss: 0.9567934259086588
iteration: 17 Logisticloss: 0.7739872808382104
iteration: 18 Logisticloss: 0.6261791472167051
iteration: 19 Logisticloss: 0.506692474320937
iteration: 20 Logisticloss: 0.41009143285947625
iteration: 21 Logisticloss: 0.33202027102672266
iteration: 22 Logisticloss: 0.26905167753588755
iteration: 23 Logisticloss: 0.21840827215200495
iteration: 24 Logisticloss: 0.17777212715058544
iteration: 25 Logisticloss: 0.1451718868296763
iteration: 26 Logisticloss: 0.11898176919274957
iteration: 27 Logisticloss: 0.09797831897194367
iteration: 28 Logisticloss: 0.08118489504335022
iteration: 29 Logisticloss: 0.06771698441316384
iteration: 30 Logisticloss: 0.05681568568862964
iteration: 31 Logisticloss: 0.047950127885737104
iteration: 32 Logisticloss: 0.04078615679802716
iteration: 33 Logisticloss: 0.03503102180845608
iteration: 34 Logisticloss: 0.03042291342790182
iteration: 35 Logisticloss: 0.02677497955033211
iteration: 36 Logisticloss: 0.023927087963578675
iteration: 37 Logisticloss: 0.021687471755727484
iteration: 38 Logisticloss: 0.019900525643230763
iteration: 39 Logisticloss: 0.01857311051439376
iteration: 40 Logisticloss: 0.017812187576692624
iteration: 41 Logisticloss: 0.017517200108929647
iteration: 42 Logisticloss: 0.017231283267604577
iteration: 43 Logisticloss: 0.016854285453635088
iteration: 44 Logisticloss: 0.01669938412925502
iteration: 45 Logisticloss: 0.016804052190154337
iteration: 46 Logisticloss: 0.01705928977357142
iteration: 47 Logisticloss: 0.017448880684313703
iteration: 48 Logisticloss: 0.01788059763773631
iteration: 49 Logisticloss: 0.018358963881200223
iteration: 50 Logisticloss: 0.018880554574747577
iteration: 51 Logisticloss: 0.01953173182285687
iteration: 52 Logisticloss: 0.02022504124477225
iteration: 53 Logisticloss: 0.020714441394623008
iteration: 54 Logisticloss: 0.02095380468478915
Convergence reached in 55 iterations
[-3.09508551e-04 -1.76598204e-04 -5.08303321e-05 ... 1.39996086e-04
 7.43909119e-05 2.12939759e-05]
CROSS VALIDATION 14
iteration: 0 Logisticloss: 81.81778446125166
iteration: 1 Logisticloss: 19.663944964694135
iteration: 2 Logisticloss: 15.90406076976639
iteration: 3 Logisticloss: 12.863092803736366
iteration: 4 Logisticloss: 10.403579241354132
iteration: 5 Logisticloss: 8.414341922509905
iteration: 6 Logisticloss: 6.805460731403264
iteration: 7 Logisticloss: 5.50420891158031
iteration: 8 Logisticloss: 4.451765588201518
```


Output_logistic_train.txt

```
iteration: 9 Logisticloss: 3.6005569288947674
iteration: 10 Logisticloss: 2.9121058759456924
iteration: 11 Logisticloss: 2.3552935678489
iteration: 12 Logisticloss: 1.904954444627893
iteration: 13 Logisticloss: 1.540741693500102
iteration: 14 Logisticloss: 1.2462075332433427
iteration: 15 Logisticloss: 1.008042961026996
iteration: 16 Logisticloss: 0.8154525886127681
iteration: 17 Logisticloss: 0.6597001877655025
iteration: 18 Logisticloss: 0.5337413565830946
iteration: 19 Logisticloss: 0.4319127262421409
iteration: 20 Logisticloss: 0.3497083150885876
iteration: 21 Logisticloss: 0.28353858272761207
iteration: 22 Logisticloss: 0.23044224414194764
iteration: 23 Logisticloss: 0.18780002201690282
iteration: 24 Logisticloss: 0.15337747395603749
iteration: 25 Logisticloss: 0.12547370997829954
iteration: 26 Logisticloss: 0.10285889745510766
iteration: 27 Logisticloss: 0.08460791186449455
iteration: 28 Logisticloss: 0.06997339047941342
iteration: 29 Logisticloss: 0.05829520984943859
iteration: 30 Logisticloss: 0.049014018588087384
iteration: 31 Logisticloss: 0.04164132951107193
iteration: 32 Logisticloss: 0.03575123810393586
iteration: 33 Logisticloss: 0.031046854833268293
iteration: 34 Logisticloss: 0.027365376492216292
iteration: 35 Logisticloss: 0.024564294659972577
iteration: 36 Logisticloss: 0.022398225321796528
iteration: 37 Logisticloss: 0.02066584739478797
iteration: 38 Logisticloss: 0.019307209667816086
iteration: 39 Logisticloss: 0.0183879800721549
iteration: 40 Logisticloss: 0.01794516060669192
iteration: 41 Logisticloss: 0.01767877333142782
iteration: 42 Logisticloss: 0.017355816752228474
iteration: 43 Logisticloss: 0.01713425382984253
Convergence reached in 44 iterations
[-2.58274832e-04 -7.78779156e-05 -1.78631168e-05 ... 1.22178183e-04
 6.73117758e-05 3.74511309e-05]
```

CROSS VALIDATION 15

```
iteration: 0 Logisticloss: 81.81778446125166
iteration: 1 Logisticloss: 19.663944964694135
iteration: 2 Logisticloss: 15.90406076976639
iteration: 3 Logisticloss: 12.863092803736366
iteration: 4 Logisticloss: 10.403579241354143
iteration: 5 Logisticloss: 8.414341922510182
iteration: 6 Logisticloss: 6.805460731408346
iteration: 7 Logisticloss: 5.504208911650034
iteration: 8 Logisticloss: 4.45176558893684
iteration: 9 Logisticloss: 3.6005569350124254
iteration: 10 Logisticloss: 2.9121059170667607
iteration: 11 Logisticloss: 2.3552937959953995
iteration: 12 Logisticloss: 1.9049555095314221
```

Output_logistic_train.txt

```
iteration: 13 Logisticloss: 1.5407459440214548
iteration: 14 Logisticloss: 1.2462222136878613
iteration: 15 Logisticloss: 1.0080869262951544
iteration: 16 Logisticloss: 0.8155646407611362
iteration: 17 Logisticloss: 0.6599308181232173
iteration: 18 Logisticloss: 0.5340990705003136
iteration: 19 Logisticloss: 0.43233238203310403
iteration: 20 Logisticloss: 0.35012282302432324
iteration: 21 Logisticloss: 0.2839027993660572
iteration: 22 Logisticloss: 0.23071751444142863
iteration: 23 Logisticloss: 0.1879812564345933
iteration: 24 Logisticloss: 0.15350897453243673
iteration: 25 Logisticloss: 0.1256006288047461
iteration: 26 Logisticloss: 0.10299325512658442
iteration: 27 Logisticloss: 0.08474889327505719
iteration: 28 Logisticloss: 0.07011526034107143
iteration: 29 Logisticloss: 0.05842967149964717
iteration: 30 Logisticloss: 0.04913904692500169
iteration: 31 Logisticloss: 0.041765273325173394
iteration: 32 Logisticloss: 0.03588364062371613
iteration: 33 Logisticloss: 0.031189589193893218
iteration: 34 Logisticloss: 0.02751737097473072
iteration: 35 Logisticloss: 0.02472487110658495
iteration: 36 Logisticloss: 0.02256398503574089
iteration: 37 Logisticloss: 0.0208307483749796
iteration: 38 Logisticloss: 0.019463692629313342
iteration: 39 Logisticloss: 0.01853365801992902
iteration: 40 Logisticloss: 0.018093073227283273
iteration: 41 Logisticloss: 0.017858730389516013
iteration: 42 Logisticloss: 0.01756679257665221
iteration: 43 Logisticloss: 0.017366360392899113
Convergence reached in 44 iterations
[-2.90030067e-04 -7.57902163e-05 -3.29247633e-05 ... 1.42820327e-04
 8.34042713e-05 3.96750823e-05]
CROSS VALIDATION 16
iteration: 0 Logisticloss: 196.24131477720238
iteration: 1 Logisticloss: 19.111065053662916
iteration: 2 Logisticloss: 15.456902643503668
iteration: 3 Logisticloss: 12.50145640112838
iteration: 4 Logisticloss: 10.11114650213278
iteration: 5 Logisticloss: 8.177939821002488
iteration: 6 Logisticloss: 6.614430185120453
iteration: 7 Logisticloss: 5.349867266184716
iteration: 8 Logisticloss: 4.327054047900847
iteration: 9 Logisticloss: 3.4997891427096763
iteration: 10 Logisticloss: 2.8306988908897712
iteration: 11 Logisticloss: 2.289542790488298
iteration: 12 Logisticloss: 1.8518596114924533
iteration: 13 Logisticloss: 1.4978652677445308
iteration: 14 Logisticloss: 1.211559996397691
iteration: 15 Logisticloss: 0.9800077027635901
iteration: 16 Logisticloss: 0.7927561571234473
```

Output_logistic_train.txt

```
iteration: 17 Logisticloss: 0.6413689924082706
iteration: 18 Logisticloss: 0.5190305325521606
iteration: 19 Logisticloss: 0.420190107879553
iteration: 20 Logisticloss: 0.3403312727700357
iteration: 21 Logisticloss: 0.275873212591453
iteration: 22 Logisticloss: 0.2239229372699718
iteration: 23 Logisticloss: 0.1820437437820726
iteration: 24 Logisticloss: 0.14830901155051307
iteration: 25 Logisticloss: 0.12122299069314615
iteration: 26 Logisticloss: 0.09951921674713284
iteration: 27 Logisticloss: 0.08215681033797514
iteration: 28 Logisticloss: 0.06823741611546058
iteration: 29 Logisticloss: 0.05704621734896478
iteration: 30 Logisticloss: 0.04808907372645933
iteration: 31 Logisticloss: 0.04095574575810162
iteration: 32 Logisticloss: 0.03526085339282241
iteration: 33 Logisticloss: 0.030744735666083628
iteration: 34 Logisticloss: 0.027257724259044457
iteration: 35 Logisticloss: 0.024613637967302558
iteration: 36 Logisticloss: 0.02254015391461213
iteration: 37 Logisticloss: 0.020856826150188062
iteration: 38 Logisticloss: 0.019539763516478008
iteration: 39 Logisticloss: 0.018685238383650292
iteration: 40 Logisticloss: 0.018292523996070644
iteration: 41 Logisticloss: 0.01802235415628502
iteration: 42 Logisticloss: 0.017695572583553913
iteration: 43 Logisticloss: 0.017506776911462355
Convergence reached in 44 iterations
[-3.16109149e-04 -1.01996907e-04 -8.30785040e-05 ... 1.88217186e-04
 5.59190773e-05 3.98694099e-05]
```

CROSS VALIDATION 17

```
iteration: 0 Logisticloss: 81.83968970554062
iteration: 1 Logisticloss: 19.665827788906505
iteration: 2 Logisticloss: 15.90558358478373
iteration: 3 Logisticloss: 12.86432444584176
iteration: 4 Logisticloss: 10.404575384850416
iteration: 5 Logisticloss: 8.415147596381297
iteration: 6 Logisticloss: 6.806112354764997
iteration: 7 Logisticloss: 5.504735939900779
iteration: 8 Logisticloss: 4.4521918447690805
iteration: 9 Logisticloss: 3.6009016831101888
iteration: 10 Logisticloss: 2.9123847274982997
iteration: 11 Logisticloss: 2.355519227244116
iteration: 12 Logisticloss: 1.905137632639612
iteration: 13 Logisticloss: 1.5408927576147509
iteration: 14 Logisticloss: 1.2463401630863185
iteration: 15 Logisticloss: 1.0081818353448275
iteration: 16 Logisticloss: 0.8156420469601626
iteration: 17 Logisticloss: 0.6599950379071179
iteration: 18 Logisticloss: 0.534154649322939
iteration: 19 Logisticloss: 0.4323876515085939
iteration: 20 Logisticloss: 0.3501945906616997
```

Output_logistic_train.txt

```
iteration: 21 Logisticloss: 0.28401945743650303
iteration: 22 Logisticloss: 0.2309105251072606
iteration: 23 Logisticloss: 0.18825734538830902
iteration: 24 Logisticloss: 0.15383539514675504
iteration: 25 Logisticloss: 0.12593755335042678
iteration: 26 Logisticloss: 0.10332193186105192
iteration: 27 Logisticloss: 0.0850617012513305
iteration: 28 Logisticloss: 0.07040930034825021
iteration: 29 Logisticloss: 0.05870213445409952
iteration: 30 Logisticloss: 0.04938540687650696
iteration: 31 Logisticloss: 0.04197996623530153
iteration: 32 Logisticloss: 0.03606352645709123
iteration: 33 Logisticloss: 0.03134001385155155
iteration: 34 Logisticloss: 0.027646514257310642
iteration: 35 Logisticloss: 0.02483819538056523
iteration: 36 Logisticloss: 0.022668168771425384
iteration: 37 Logisticloss: 0.020933354785140624
iteration: 38 Logisticloss: 0.019569742250093114
iteration: 39 Logisticloss: 0.018646129597223678
iteration: 40 Logisticloss: 0.018208567110729566
iteration: 41 Logisticloss: 0.017963041798192414
iteration: 42 Logisticloss: 0.017657703192763698
iteration: 43 Logisticloss: 0.017444063839416615
Convergence reached in 44 iterations
[-2.85906074e-04 -8.89724119e-05 -2.58239707e-05 ... 1.46314892e-04
 8.00174993e-05 4.03522528e-05]
CROSS VALIDATION 18
iteration: 0 Logisticloss: 134.05621155664946
iteration: 1 Logisticloss: 150.92920660605424
iteration: 2 Logisticloss: 18.038162719257954
iteration: 3 Logisticloss: 14.589315268960016
iteration: 4 Logisticloss: 11.799945322603799
iteration: 5 Logisticloss: 9.543910280609902
iteration: 6 Logisticloss: 7.719255804418121
iteration: 7 Logisticloss: 6.243502017796665
iteration: 8 Logisticloss: 5.049905839379572
iteration: 9 Logisticloss: 4.084534437554599
iteration: 10 Logisticloss: 3.3037942880449065
iteration: 11 Logisticloss: 2.672416460283235
iteration: 12 Logisticloss: 2.161826421519478
iteration: 13 Logisticloss: 1.748857726648039
iteration: 14 Logisticloss: 1.4148054913793942
iteration: 15 Logisticloss: 1.1445967138248643
iteration: 16 Logisticloss: 0.926046059537676
iteration: 17 Logisticloss: 0.7492866136889046
iteration: 18 Logisticloss: 0.6063370251456351
iteration: 19 Logisticloss: 0.49075010015972403
iteration: 20 Logisticloss: 0.39732200376170385
iteration: 21 Logisticloss: 0.32184108413395823
iteration: 22 Logisticloss: 0.2608757067222173
iteration: 23 Logisticloss: 0.2116534722932996
iteration: 24 Logisticloss: 0.17198698648211513
```

Output_logistic_train.txt

```
iteration: 25 Logisticloss: 0.14011512822535302
iteration: 26 Logisticloss: 0.11455380001251673
iteration: 27 Logisticloss: 0.09406074148898283
iteration: 28 Logisticloss: 0.07758029529437473
iteration: 29 Logisticloss: 0.06424448926285133
iteration: 30 Logisticloss: 0.053481588064856894
iteration: 31 Logisticloss: 0.0449328006361726
iteration: 32 Logisticloss: 0.038238154628829166
iteration: 33 Logisticloss: 0.032939947994346186
iteration: 34 Logisticloss: 0.02870892479640072
iteration: 35 Logisticloss: 0.02549782718732699
iteration: 36 Logisticloss: 0.023172735648151664
iteration: 37 Logisticloss: 0.021356235305495772
iteration: 38 Logisticloss: 0.01983533007812014
iteration: 39 Logisticloss: 0.018722153069003142
iteration: 40 Logisticloss: 0.018130699044693235
iteration: 41 Logisticloss: 0.01781024897890622
iteration: 42 Logisticloss: 0.017404293136218458
iteration: 43 Logisticloss: 0.017056211582344133
Convergence reached in 44 iterations
[-3.25715408e-04 -2.05917204e-04 -1.00710806e-04 ... 2.07783187e-04
 8.33284166e-05 3.00421904e-05]
CROSS VALIDATION 19
iteration: 0 Logisticloss: 145.56394588285048
iteration: 1 Logisticloss: 40.350678419692215
iteration: 2 Logisticloss: 19.87153366319287
iteration: 3 Logisticloss: 16.07195705314027
iteration: 4 Logisticloss: 12.998886140149207
iteration: 5 Logisticloss: 10.513407939424805
iteration: 6 Logisticloss: 8.503170603177352
iteration: 7 Logisticloss: 6.877304745072531
iteration: 8 Logisticloss: 5.562315844069384
iteration: 9 Logisticloss: 4.498762055628018
iteration: 10 Logisticloss: 3.638567278693108
iteration: 11 Logisticloss: 2.9428480999285775
iteration: 12 Logisticloss: 2.3801566112813983
iteration: 13 Logisticloss: 1.9250601573969066
iteration: 14 Logisticloss: 1.5569944166428344
iteration: 15 Logisticloss: 1.25933687003234
iteration: 16 Logisticloss: 1.018649624170685
iteration: 17 Logisticloss: 0.824043566820493
iteration: 18 Logisticloss: 0.6666826096643593
iteration: 19 Logisticloss: 0.5394517684772816
iteration: 20 Logisticloss: 0.43660015827135906
iteration: 21 Logisticloss: 0.35345553804854146
iteration: 22 Logisticloss: 0.2862976846870706
iteration: 23 Logisticloss: 0.23209534292967424
iteration: 24 Logisticloss: 0.18832746644365747
iteration: 25 Logisticloss: 0.15302992979634714
iteration: 26 Logisticloss: 0.12466543973787156
iteration: 27 Logisticloss: 0.10192205704928295
iteration: 28 Logisticloss: 0.0837246728634839
```

Output_logistic_train.txt

```
iteration: 29 Logisticloss: 0.06917265507992171
iteration: 30 Logisticloss: 0.057504792989649244
iteration: 31 Logisticloss: 0.04818589013021011
iteration: 32 Logisticloss: 0.040804856121020416
iteration: 33 Logisticloss: 0.035003830993350325
iteration: 34 Logisticloss: 0.03051682302387895
iteration: 35 Logisticloss: 0.027109086098025977
iteration: 36 Logisticloss: 0.024465582069549317
iteration: 37 Logisticloss: 0.022345489766071647
iteration: 38 Logisticloss: 0.02071331198245909
iteration: 39 Logisticloss: 0.01965516956869543
iteration: 40 Logisticloss: 0.01903807922411719
iteration: 41 Logisticloss: 0.018433878292095102
iteration: 42 Logisticloss: 0.017795550307462472
iteration: 43 Logisticloss: 0.017338704239534798
iteration: 44 Logisticloss: 0.017210819070273595
Convergence reached in 45 iterations
[-2.96313519e-04 -1.47978384e-04 -5.63534886e-05 ... 1.93847025e-04
 6.90617326e-05 2.43179929e-05]
Accuracy (Logistic Loss): 0.85
eta = 0.001 lambda = 0.3
CROSS VALIDATION 0
iteration: 0 Logisticloss: 141.32762942374922
iteration: 1 Logisticloss: 50.75503648990955
iteration: 2 Logisticloss: 7.35312290345104
iteration: 3 Logisticloss: 6.899893806905996
iteration: 4 Logisticloss: 6.474600684885299
iteration: 5 Logisticloss: 6.075521633275657
iteration: 6 Logisticloss: 5.70104088395811
iteration: 7 Logisticloss: 5.349642263791857
iteration: 8 Logisticloss: 5.01990305717514
iteration: 9 Logisticloss: 4.710488247440582
iteration: 10 Logisticloss: 4.420145113891287
iteration: 11 Logisticloss: 4.147698162729513
iteration: 12 Logisticloss: 3.892044371463867
iteration: 13 Logisticloss: 3.6521487275873787
iteration: 14 Logisticloss: 3.4270400433638266
iteration: 15 Logisticloss: 3.215807029388851
iteration: 16 Logisticloss: 3.0175946101267583
iteration: 17 Logisticloss: 2.831600464776042
iteration: 18 Logisticloss: 2.6570717765451826
iteration: 19 Logisticloss: 2.493302172868757
iteration: 20 Logisticloss: 2.339628838843829
iteration: 21 Logisticloss: 2.195429787544346
iteration: 22 Logisticloss: 2.0601212759740894
iteration: 23 Logisticloss: 1.9331553660877436
iteration: 24 Logisticloss: 1.814017645292872
iteration: 25 Logisticloss: 1.7022251322455746
iteration: 26 Logisticloss: 1.5973243879314114
iteration: 27 Logisticloss: 1.498889821006361
iteration: 28 Logisticloss: 1.4065221339201046
iteration: 29 Logisticloss: 1.3198468356612554
```

Output_logistic_train.txt

```

iteration: 30 Logisticloss: 1.238512769323503
iteration: 31 Logisticloss: 1.1621906509301636
iteration: 32 Logisticloss: 1.0905716519232345
iteration: 33 Logisticloss: 1.0233660619478409
iteration: 34 Logisticloss: 0.9603020513642159
iteration: 35 Logisticloss: 0.9011245338678521
iteration: 36 Logisticloss: 0.8455941189963918
iteration: 37 Logisticloss: 0.793486141941216
iteration: 38 Logisticloss: 0.744589759930849
iteration: 39 Logisticloss: 0.6987071072806591
iteration: 40 Logisticloss: 0.6556525035517229
iteration: 41 Logisticloss: 0.6152517108279606
iteration: 42 Logisticloss: 0.5773412370539736
iteration: 43 Logisticloss: 0.5417676828997365
iteration: 44 Logisticloss: 0.508387129898003
iteration: 45 Logisticloss: 0.4770645677245124
iteration: 46 Logisticloss: 0.44767335848434714
iteration: 47 Logisticloss: 0.4200947357062837
iteration: 48 Logisticloss: 0.39421733537180165
iteration: 49 Logisticloss: 0.36993675564028083
iteration: 50 Logisticloss: 0.3471551409217072
iteration: 51 Logisticloss: 0.3257807846401158
iteration: 52 Logisticloss: 0.30572774371840084
iteration: 53 Logisticloss: 0.28691545723008505
iteration: 54 Logisticloss: 0.26926836309869134
iteration: 55 Logisticloss: 0.2527155117764431
iteration: 56 Logisticloss: 0.2371901853025296
iteration: 57 Logisticloss: 0.22262954195543705
iteration: 58 Logisticloss: 0.20897431412980833
iteration: 59 Logisticloss: 0.19616858050458
iteration: 60 Logisticloss: 0.184159609022706
iteration: 61 Logisticloss: 0.17289773689327245
iteration: 62 Logisticloss: 0.16233624433063643
iteration: 63 Logisticloss: 0.15243120648883227
iteration: 64 Logisticloss: 0.1431413517955157
iteration: 65 Logisticloss: 0.13442796678045535
iteration: 66 Logisticloss: 0.12625484782038002
iteration: 67 Logisticloss: 0.11858825080859739
iteration: 68 Logisticloss: 0.11139678746786195
iteration: 69 Logisticloss: 0.10465126066692809
iteration: 70 Logisticloss: 0.09832446692873217
iteration: 71 Logisticloss: 0.09239099043936087
iteration: 72 Logisticloss: 0.08682699238083348
iteration: 73 Logisticloss: 0.08160999813190693
iteration: 74 Logisticloss: 0.07671870698555594
iteration: 75 Logisticloss: 0.07213286881657872
iteration: 76 Logisticloss: 0.06783326080834134
iteration: 77 Logisticloss: 0.06380175180787093
iteration: 78 Logisticloss: 0.06002139648288231
iteration: 79 Logisticloss: 0.056476495955593536
iteration: 80 Logisticloss: 0.05315259413910848
iteration: 81 Logisticloss: 0.05003641276211686

```

Output_logistic_train.txt

```
iteration: 82 Logisticloss: 0.047115740144132986
iteration: 83 Logisticloss: 0.04437928794713522
iteration: 84 Logisticloss: 0.041816531627554034
iteration: 85 Logisticloss: 0.03941755562695505
iteration: 86 Logisticloss: 0.03717292682551394
iteration: 87 Logisticloss: 0.035073615883479535
iteration: 88 Logisticloss: 0.03311097516424666
iteration: 89 Logisticloss: 0.03127676250598069
iteration: 90 Logisticloss: 0.029563175357768853
iteration: 91 Logisticloss: 0.027962845789579242
iteration: 92 Logisticloss: 0.026468764664780074
iteration: 93 Logisticloss: 0.02507415344800984
iteration: 94 Logisticloss: 0.023772351279299306
iteration: 95 Logisticloss: 0.02255678981523707
iteration: 96 Logisticloss: 0.0214210793957607
iteration: 97 Logisticloss: 0.020359165644944763
iteration: 98 Logisticloss: 0.019365485243018565
iteration: 99 Logisticloss: 0.018435065598546338
[-6.32928115e-04 2.01992053e-04 1.13705757e-04 ... 2.76204191e-04
 1.13276809e-04 7.59265711e-05]
```

CROSS VALIDATION 1

```
iteration: 0 Logisticloss: 66.65616684470245
iteration: 1 Logisticloss: 7.319264280166966
iteration: 2 Logisticloss: 6.868122142129386
iteration: 3 Logisticloss: 6.444787338397882
iteration: 4 Logisticloss: 6.047545890658275
iteration: 5 Logisticloss: 5.674789466165602
iteration: 6 Logisticloss: 5.3250088660011405
iteration: 7 Logisticloss: 4.996787914697823
iteration: 8 Logisticloss: 4.688797726494686
iteration: 9 Logisticloss: 4.3997913250058875
iteration: 10 Logisticloss: 4.128598594520539
iteration: 11 Logisticloss: 3.874121542492511
iteration: 12 Logisticloss: 3.63532985403914
iteration: 13 Logisticloss: 3.4112567204501416
iteration: 14 Logisticloss: 3.2009949248173486
iteration: 15 Logisticloss: 3.0036931689369855
iteration: 16 Logisticloss: 2.818552626613007
iteration: 17 Logisticloss: 2.644823709406671
iteration: 18 Logisticloss: 2.481803031737685
iteration: 19 Logisticloss: 2.328830563049405
iteration: 20 Logisticloss: 2.185286955507949
iteration: 21 Logisticloss: 2.050591036415865
iteration: 22 Logisticloss: 1.9241974551879804
iteration: 23 Logisticloss: 1.8055944753630389
iteration: 24 Logisticloss: 1.6943019027122717
iteration: 25 Logisticloss: 1.5898691410577026
iteration: 26 Logisticloss: 1.491873367930955
iteration: 27 Logisticloss: 1.399917822690148
iteration: 28 Logisticloss: 1.3136302001701883
iteration: 29 Logisticloss: 1.232661143372831
iteration: 30 Logisticloss: 1.1566828291093894
```


Output_logistic_train.txt

```

iteration: 31 Logisticloss: 1.085387640893434
iteration: 32 Logisticloss: 1.0184869237454819
iteration: 33 Logisticloss: 0.9557098159189614
iteration: 34 Logisticloss: 0.8968021528891719
iteration: 35 Logisticloss: 0.8415254392665917
iteration: 36 Logisticloss: 0.7896558846047894
iteration: 37 Logisticloss: 0.7409834993722048
iteration: 38 Logisticloss: 0.6953112476455381
iteration: 39 Logisticloss: 0.6524542533564935
iteration: 40 Logisticloss: 0.6122390571731675
iteration: 41 Logisticloss: 0.574502921302121
iteration: 42 Logisticloss: 0.5390931796190057
iteration: 43 Logisticloss: 0.5058666305087114
iteration: 44 Logisticloss: 0.4746889695159156
iteration: 45 Logisticloss: 0.4454342582267604
iteration: 46 Logisticloss: 0.4179844245569537
iteration: 47 Logisticloss: 0.39222878772123454
iteration: 48 Logisticloss: 0.36806359881144723
iteration: 49 Logisticloss: 0.34539158599741165
iteration: 50 Logisticloss: 0.32412149382261257
iteration: 51 Logisticloss: 0.3041676117157581
iteration: 52 Logisticloss: 0.285449299745344
iteration: 53 Logisticloss: 0.26789053779984495
iteration: 54 Logisticloss: 0.25141953927905913
iteration: 55 Logisticloss: 0.2359684705470287
iteration: 56 Logisticloss: 0.22147329796208967
iteration: 57 Logisticloss: 0.20787375197580193
iteration: 58 Logisticloss: 0.19511336383011438
iteration: 59 Logisticloss: 0.18313950502148443
iteration: 60 Logisticloss: 0.171903356749234
iteration: 61 Logisticloss: 0.1613597669520101
iteration: 62 Logisticloss: 0.15146700349668735
iteration: 63 Logisticloss: 0.1421864495893679
iteration: 64 Logisticloss: 0.13348228887655292
iteration: 65 Logisticloss: 0.12532120113237327
iteration: 66 Logisticloss: 0.11767205975815227
iteration: 67 Logisticloss: 0.11050560902750799
iteration: 68 Logisticloss: 0.10379410809038349
iteration: 69 Logisticloss: 0.0975109549779224
iteration: 70 Logisticloss: 0.09163033427644504
iteration: 71 Logisticloss: 0.08612695194774138
iteration: 72 Logisticloss: 0.08097592300489995
iteration: 73 Logisticloss: 0.0761528646606693
iteration: 74 Logisticloss: 0.07163421492558722
iteration: 75 Logisticloss: 0.06739772886943095
iteration: 76 Logisticloss: 0.06342301080727386
iteration: 77 Logisticloss: 0.05969188355283649
iteration: 78 Logisticloss: 0.05618844282345124
iteration: 79 Logisticloss: 0.05289878283595502
iteration: 80 Logisticloss: 0.04981051612778977
iteration: 81 Logisticloss: 0.046912267023340386
iteration: 82 Logisticloss: 0.04419328847053799

```

Output_logistic_train.txt

```
iteration: 83 Logisticloss: 0.04164327679312445
iteration: 84 Logisticloss: 0.03925237303312721
iteration: 85 Logisticloss: 0.037011266665525074
iteration: 86 Logisticloss: 0.03491128777487052
iteration: 87 Logisticloss: 0.032944407722333105
iteration: 88 Logisticloss: 0.03110314247830262
iteration: 89 Logisticloss: 0.029380412697400177
iteration: 90 Logisticloss: 0.027769427159697237
iteration: 91 Logisticloss: 0.02626363034220843
iteration: 92 Logisticloss: 0.02485671624872818
iteration: 93 Logisticloss: 0.0235426781171753
iteration: 94 Logisticloss: 0.022315849051981924
iteration: 95 Logisticloss: 0.021170898362101346
iteration: 96 Logisticloss: 0.02010277640706101
iteration: 97 Logisticloss: 0.019106629238577953
iteration: 98 Logisticloss: 0.018177718279238184
iteration: 99 Logisticloss: 0.017311377859740917
[-3.84987135e-04 2.57403158e-04 -1.70809442e-04 ... 1.53757410e-04
 8.49699087e-06 2.08334574e-04]
```

CROSS VALIDATION 2

```
iteration: 0 Logisticloss: 306.0133614218426
iteration: 1 Logisticloss: 68.56426065530077
iteration: 2 Logisticloss: 17.41475162799971
iteration: 3 Logisticloss: 7.88337060810294
iteration: 4 Logisticloss: 7.352965907940392
iteration: 5 Logisticloss: 6.8997464812815625
iteration: 6 Logisticloss: 6.474462428086758
iteration: 7 Logisticloss: 6.075391878011841
iteration: 8 Logisticloss: 5.700919092728971
iteration: 9 Logisticloss: 5.349527924201194
iteration: 10 Logisticloss: 5.019795676174407
iteration: 11 Logisticloss: 4.710387344034232
iteration: 12 Logisticloss: 4.420050209707445
iteration: 13 Logisticloss: 4.147608769726165
iteration: 14 Logisticloss: 3.8919599759229397
iteration: 15 Logisticloss: 3.6520687694925904
iteration: 16 Logisticloss: 3.4269638903470985
iteration: 17 Logisticloss: 3.215733944808355
iteration: 18 Logisticloss: 3.017523715734914
iteration: 19 Logisticloss: 2.831530700167797
iteration: 20 Logisticloss: 2.6570018605112
iteration: 21 Logisticloss: 2.4932305761409195
iteration: 22 Logisticloss: 2.3395537831601394
iteration: 23 Logisticloss: 2.195349290802413
iteration: 24 Logisticloss: 2.0600332637181964
iteration: 25 Logisticloss: 1.9330578600758574
iteration: 26 Logisticloss: 1.8139090160619928
iteration: 27 Logisticloss: 1.7021043679772763
iteration: 28 Logisticloss: 1.597191303688949
iteration: 29 Logisticloss: 1.4987451357091717
iteration: 30 Logisticloss: 1.4063673886017216
iteration: 31 Logisticloss: 1.3196841937467128
```

Output_logistic_train.txt

```

iteration: 32 Logisticloss: 1.2383447846657478
iteration: 33 Logisticloss: 1.1620200860587522
iteration: 34 Logisticloss: 1.0904013893433873
iteration: 35 Logisticloss: 1.0231991067423114
iteration: 36 Logisticloss: 0.9601415948331335
iteration: 37 Logisticloss: 0.9009740371762741
iteration: 38 Logisticloss: 0.845457374816683
iteration: 39 Logisticloss: 0.7933672744309652
iteration: 40 Logisticloss: 0.7444931286216003
iteration: 41 Logisticloss: 0.6986370931546318
iteration: 42 Logisticloss: 0.6556131813598577
iteration: 43 Logisticloss: 0.6152464508619587
iteration: 44 Logisticloss: 0.5773723206712525
iteration: 45 Logisticloss: 0.5418360356508083
iteration: 46 Logisticloss: 0.5084922514666729
iteration: 47 Logisticloss: 0.47720466887676877
iteration: 48 Logisticloss: 0.4478456343030848
iteration: 49 Logisticloss: 0.4202956580357747
iteration: 50 Logisticloss: 0.39444286098302045
iteration: 51 Logisticloss: 0.37018240655000345
iteration: 52 Logisticloss: 0.3474159810661708
iteration: 53 Logisticloss: 0.32605135767658266
iteration: 54 Logisticloss: 0.30600203781363683
iteration: 55 Logisticloss: 0.2871869367188751
iteration: 56 Logisticloss: 0.26953007794930706
iteration: 57 Logisticloss: 0.25296028033317225
iteration: 58 Logisticloss: 0.2374108418075581
iteration: 59 Logisticloss: 0.2228192343684755
iteration: 60 Logisticloss: 0.2091268218251208
iteration: 61 Logisticloss: 0.19627860404254685
iteration: 62 Logisticloss: 0.18422298441753146
iteration: 63 Logisticloss: 0.17291155403480538
iteration: 64 Logisticloss: 0.1622988861052214
iteration: 65 Logisticloss: 0.1523423370937361
iteration: 66 Logisticloss: 0.14300185575356344
iteration: 67 Logisticloss: 0.13423980685828918
iteration: 68 Logisticloss: 0.12602081984915123
iteration: 69 Logisticloss: 0.1183116697605987
iteration: 70 Logisticloss: 0.11108118687914925
iteration: 71 Logisticloss: 0.10430017790636383
iteration: 72 Logisticloss: 0.09794133645699707
iteration: 73 Logisticloss: 0.09197913192056467
iteration: 74 Logisticloss: 0.0863896851491892
iteration: 75 Logisticloss: 0.08115064799591211
iteration: 76 Logisticloss: 0.07624109170214925
iteration: 77 Logisticloss: 0.07164139095199792
iteration: 78 Logisticloss: 0.06733309058364854
iteration: 79 Logisticloss: 0.06329876314128985
iteration: 80 Logisticloss: 0.05952188183097056
iteration: 81 Logisticloss: 0.055986725733079806
iteration: 82 Logisticloss: 0.05267831761750322
iteration: 83 Logisticloss: 0.049582394093177336

```

Output_logistic_train.txt

```
iteration: 84 Logisticloss: 0.04668541785914364
iteration: 85 Logisticloss: 0.043974638774959336
iteration: 86 Logisticloss: 0.04143819079430459
iteration: 87 Logisticloss: 0.039065191975992106
iteration: 88 Logisticloss: 0.03684580338927782
iteration: 89 Logisticloss: 0.03477119723997084
iteration: 90 Logisticloss: 0.032833387954697056
iteration: 91 Logisticloss: 0.031024905491931067
iteration: 92 Logisticloss: 0.029338355484563913
iteration: 93 Logisticloss: 0.027766016501934703
iteration: 94 Logisticloss: 0.02629969932535146
iteration: 95 Logisticloss: 0.024930996711160707
iteration: 96 Logisticloss: 0.023651774355939674
iteration: 97 Logisticloss: 0.022454571373616925
iteration: 98 Logisticloss: 0.02133272636823626
iteration: 99 Logisticloss: 0.020280320103953704
[-1.02643710e-03 -2.73314744e-04 -3.79123328e-04 ... 9.98046124e-04
 2.39958188e-04 8.78955321e-05]
```

CROSS VALIDATION 3

```
iteration: 0 Logisticloss: 66.70040907516145
iteration: 1 Logisticloss: 7.320664762931749
iteration: 2 Logisticloss: 6.869436302449099
iteration: 3 Logisticloss: 6.4460204969838575
iteration: 4 Logisticloss: 6.048703040265787
iteration: 5 Logisticloss: 5.675875291808306
iteration: 6 Logisticloss: 5.326027763919526
iteration: 7 Logisticloss: 4.997744010158506
iteration: 8 Logisticloss: 4.689694890492618
iteration: 9 Logisticloss: 4.40063318993704
iteration: 10 Logisticloss: 4.129388568888593
iteration: 11 Logisticloss: 3.874862824709036
iteration: 12 Logisticloss: 3.636025445373189
iteration: 13 Logisticloss: 3.4119094371796352
iteration: 14 Logisticloss: 3.2016074096314995
iteration: 15 Logisticloss: 3.004267901635895
iteration: 16 Logisticloss: 2.819091934147763
iteration: 17 Logisticloss: 2.645329775300588
iteration: 18 Logisticloss: 2.4822779049268635
iteration: 19 Logisticloss: 2.3292761661783437
iteration: 20 Logisticloss: 2.1857050927138366
iteration: 21 Logisticloss: 2.0509834006330405
iteration: 22 Logisticloss: 1.9245656350021005
iteration: 23 Logisticloss: 1.8059399614426779
iteration: 24 Logisticloss: 1.6946260938439106
iteration: 25 Logisticloss: 1.5901733498083988
iteration: 26 Logisticloss: 1.4921588259614247
iteration: 27 Logisticloss: 1.4001856857393893
iteration: 28 Logisticloss: 1.3138815527312873
iteration: 29 Logisticloss: 1.2328970030779993
iteration: 30 Logisticloss: 1.1569041508406999
iteration: 31 Logisticloss: 1.0855953206340048
iteration: 32 Logisticloss: 1.0186818021840134
```

Output_logistic_train.txt

```

iteration: 33 Logisticloss: 0.9558926818185547
iteration: 34 Logisticloss: 0.8969737462291676
iteration: 35 Logisticloss: 0.8416864541639308
iteration: 36 Logisticloss: 0.7898069720191666
iteration: 37 Logisticloss: 0.7411252695974612
iteration: 38 Logisticloss: 0.6954442725889357
iteration: 39 Logisticloss: 0.6525790686088261
iteration: 40 Logisticloss: 0.6123561638781189
iteration: 41 Logisticloss: 0.5746127878461094
iteration: 42 Logisticloss: 0.5391962431882996
iteration: 43 Logisticloss: 0.5059632986070336
iteration: 44 Logisticloss: 0.4747796216144563
iteration: 45 Logisticloss: 0.4455192478429625
iteration: 46 Logisticloss: 0.4180640822384488
iteration: 47 Logisticloss: 0.3923034256383255
iteration: 48 Logisticloss: 0.3681335178810853
iteration: 49 Logisticloss: 0.34545708653885593
iteration: 50 Logisticloss: 0.324182890460736
iteration: 51 Logisticloss: 0.3042252524079567
iteration: 52 Logisticloss: 0.2855035875395073
iteration: 53 Logisticloss: 0.2679419530228161
iteration: 54 Logisticloss: 0.25146866057233647
iteration: 55 Logisticloss: 0.23601599599732243
iteration: 56 Logisticloss: 0.22152007075036312
iteration: 57 Logisticloss: 0.20792079504199393
iteration: 58 Logisticloss: 0.19516192287727754
iteration: 59 Logisticloss: 0.1831910897822532
iteration: 60 Logisticloss: 0.1719597595871501
iteration: 61 Logisticloss: 0.1614230285946272
iteration: 62 Logisticloss: 0.15153929250400522
iteration: 63 Logisticloss: 0.1422698327429677
iteration: 64 Logisticloss: 0.13357840219623093
iteration: 65 Logisticloss: 0.12543088399709837
iteration: 66 Logisticloss: 0.11779506358123866
iteration: 67 Logisticloss: 0.11064049550705835
iteration: 68 Logisticloss: 0.10393838740669326
iteration: 69 Logisticloss: 0.09766141505297248
iteration: 70 Logisticloss: 0.09178344883425509
iteration: 71 Logisticloss: 0.08627926505841603
iteration: 72 Logisticloss: 0.081124361526871
iteration: 73 Logisticloss: 0.07629497201432872
iteration: 74 Logisticloss: 0.07176830518316543
iteration: 75 Logisticloss: 0.06752294807507946
iteration: 76 Logisticloss: 0.06353929446140334
iteration: 77 Logisticloss: 0.05979982282081909
iteration: 78 Logisticloss: 0.05628909608889568
iteration: 79 Logisticloss: 0.05299347318401489
iteration: 80 Logisticloss: 0.04990064237136803
iteration: 81 Logisticloss: 0.04699914349892387
iteration: 82 Logisticloss: 0.044278026189379954
iteration: 83 Logisticloss: 0.04172671883435347
iteration: 84 Logisticloss: 0.03933508860569012

```

Output_logistic_train.txt

```

iteration: 85 Logisticloss: 0.037093589838604016
iteration: 86 Logisticloss: 0.034993371919234795
iteration: 87 Logisticloss: 0.03302626958854975
iteration: 88 Logisticloss: 0.031184688518733926
iteration: 89 Logisticloss: 0.029461457990316107
iteration: 90 Logisticloss: 0.027849720790722954
iteration: 91 Logisticloss: 0.026342891541447554
iteration: 92 Logisticloss: 0.02493467393549799
iteration: 93 Logisticloss: 0.023619102329814477
iteration: 94 Logisticloss: 0.022390567214734168
iteration: 95 Logisticloss: 0.021243797199179848
iteration: 96 Logisticloss: 0.02017379687358206
iteration: 97 Logisticloss: 0.01917576542649084
iteration: 98 Logisticloss: 0.01824502963019976
iteration: 99 Logisticloss: 0.01737701457415461
[-4.06344444e-04  2.59466445e-04 -1.85631524e-04 ... 1.86310040e-04
 7.09430228e-06  2.05456146e-04]

```

CROSS VALIDATION 4

```

iteration: 0 Logisticloss: 66.70040907516145
iteration: 1 Logisticloss: 7.320664762931749
iteration: 2 Logisticloss: 6.869436302449099
iteration: 3 Logisticloss: 6.4460204969838575
iteration: 4 Logisticloss: 6.048703040265787
iteration: 5 Logisticloss: 5.675875291808306
iteration: 6 Logisticloss: 5.326027763919526
iteration: 7 Logisticloss: 4.997744010158506
iteration: 8 Logisticloss: 4.689694890492618
iteration: 9 Logisticloss: 4.40063318993704
iteration: 10 Logisticloss: 4.129388568888593
iteration: 11 Logisticloss: 3.874862824709036
iteration: 12 Logisticloss: 3.636025445373189
iteration: 13 Logisticloss: 3.4119094371796352
iteration: 14 Logisticloss: 3.2016074096314995
iteration: 15 Logisticloss: 3.004267901635895
iteration: 16 Logisticloss: 2.819091934147763
iteration: 17 Logisticloss: 2.645329775300588
iteration: 18 Logisticloss: 2.4822779049268635
iteration: 19 Logisticloss: 2.3292761661783437
iteration: 20 Logisticloss: 2.1857050927138366
iteration: 21 Logisticloss: 2.0509834006330405
iteration: 22 Logisticloss: 1.9245656350021005
iteration: 23 Logisticloss: 1.8059399614426779
iteration: 24 Logisticloss: 1.6946260938439106
iteration: 25 Logisticloss: 1.5901733498083988
iteration: 26 Logisticloss: 1.4921588259614247
iteration: 27 Logisticloss: 1.4001856857393893
iteration: 28 Logisticloss: 1.3138815527312873
iteration: 29 Logisticloss: 1.2328970030779993
iteration: 30 Logisticloss: 1.1569041508406999
iteration: 31 Logisticloss: 1.085595320634005
iteration: 32 Logisticloss: 1.0186818021840143
iteration: 33 Logisticloss: 0.9558926818185569

```

Output_logistic_train.txt

```

iteration: 34 Logisticloss: 0.8969737462291744
iteration: 35 Logisticloss: 0.8416864541639488
iteration: 36 Logisticloss: 0.789806972019215
iteration: 37 Logisticloss: 0.7411252695975885
iteration: 38 Logisticloss: 0.695444272589258
iteration: 39 Logisticloss: 0.6525790686096204
iteration: 40 Logisticloss: 0.6123561638800207
iteration: 41 Logisticloss: 0.5746127878505373
iteration: 42 Logisticloss: 0.5391962431983405
iteration: 43 Logisticloss: 0.5059632986292222
iteration: 44 Logisticloss: 0.47477962166227367
iteration: 45 Logisticloss: 0.44551924794353154
iteration: 46 Logisticloss: 0.41806408244499793
iteration: 47 Logisticloss: 0.3923034260528111
iteration: 48 Logisticloss: 0.3681335186941767
iteration: 49 Logisticloss: 0.3454570880987719
iteration: 50 Logisticloss: 0.3241828933886668
iteration: 51 Logisticloss: 0.30422525778656423
iteration: 52 Logisticloss: 0.2855035972128992
iteration: 53 Logisticloss: 0.26794197006210646
iteration: 54 Logisticloss: 0.2514686899811915
iteration: 55 Logisticloss: 0.23601604575759036
iteration: 56 Logisticloss: 0.22152015333980385
iteration: 57 Logisticloss: 0.20792092959493721
iteration: 58 Logisticloss: 0.19516213820431225
iteration: 59 Logisticloss: 0.18319142851342118
iteration: 60 Logisticloss: 0.17196028374581365
iteration: 61 Logisticloss: 0.16142382692942625
iteration: 62 Logisticloss: 0.1515404898746729
iteration: 63 Logisticloss: 0.14227160172377204
iteration: 64 Logisticloss: 0.13358097676071326
iteration: 65 Logisticloss: 0.12543457460936036
iteration: 66 Logisticloss: 0.11780027220592945
iteration: 67 Logisticloss: 0.11064772800222122
iteration: 68 Logisticloss: 0.10394825962682001
iteration: 69 Logisticloss: 0.09767464803015105
iteration: 70 Logisticloss: 0.0918008479980186
iteration: 71 Logisticloss: 0.0863016790191934
iteration: 72 Logisticloss: 0.08115261787805503
iteration: 73 Logisticloss: 0.07632979128614199
iteration: 74 Logisticloss: 0.07181019977107281
iteration: 75 Logisticloss: 0.06757212012883378
iteration: 76 Logisticloss: 0.0635955529807358
iteration: 77 Logisticloss: 0.059862541437451594
iteration: 78 Logisticloss: 0.05635722590814194
iteration: 79 Logisticloss: 0.053065610693573406
iteration: 80 Logisticloss: 0.04997513695392547
iteration: 81 Logisticloss: 0.0470742198925364
iteration: 82 Logisticloss: 0.044351898162883686
iteration: 83 Logisticloss: 0.041797680081314396
iteration: 84 Logisticloss: 0.03940158034819669
iteration: 85 Logisticloss: 0.03715425526188978

```

Output_logistic_train.txt

```

iteration: 86 Logisticloss: 0.03504710980677231
iteration: 87 Logisticloss: 0.03307229208223172
iteration: 88 Logisticloss: 0.031222575300050785
iteration: 89 Logisticloss: 0.029491189398606166
iteration: 90 Logisticloss: 0.027871671789402332
iteration: 91 Logisticloss: 0.02635777754751503
iteration: 92 Logisticloss: 0.024943453265526112
iteration: 93 Logisticloss: 0.023622851729569766
iteration: 94 Logisticloss: 0.02239035274404079
iteration: 95 Logisticloss: 0.021240562577964292
iteration: 96 Logisticloss: 0.020168286835441352
iteration: 97 Logisticloss: 0.019168493896795178
iteration: 98 Logisticloss: 0.01823629286269235
iteration: 99 Logisticloss: 0.017366940022384664
[-4.01064256e-04 2.61061569e-04 -1.81423983e-04 ... 1.83669768e-04
 9.98821835e-06 2.05048880e-04]

```

CROSS VALIDATION 5

```

iteration: 0 Logisticloss: 66.60451640330638
iteration: 1 Logisticloss: 7.318925673616292
iteration: 2 Logisticloss: 6.867804406485597
iteration: 3 Logisticloss: 6.444489187227634
iteration: 4 Logisticloss: 6.047266116820945
iteration: 5 Logisticloss: 5.6745269369258615
iteration: 6 Logisticloss: 5.324762518442782
iteration: 7 Logisticloss: 4.996556751420274
iteration: 8 Logisticloss: 4.688580811574796
iteration: 9 Logisticloss: 4.399587780208594
iteration: 10 Logisticloss: 4.128407595743108
iteration: 11 Logisticloss: 3.873942316427952
iteration: 12 Logisticloss: 3.635161675045282
iteration: 13 Logisticloss: 3.411098907611671
iteration: 14 Logisticloss: 3.2008468391889684
iteration: 15 Logisticloss: 3.003554210956474
iteration: 16 Logisticloss: 2.8184222336737417
iteration: 17 Logisticloss: 2.6447013535797708
iteration: 18 Logisticloss: 2.4816882176345634
iteration: 19 Logisticloss: 2.3287228258160684
iteration: 20 Logisticloss: 2.1851858589429267
iteration: 21 Logisticloss: 2.0504961712041667
iteration: 22 Logisticloss: 1.9241084372439285
iteration: 23 Logisticloss: 1.8055109442752888
iteration: 24 Logisticloss: 1.6942235202847769
iteration: 25 Logisticloss: 1.5897955899407519
iteration: 26 Logisticloss: 1.4918043503368632
iteration: 27 Logisticloss: 1.3998530591885445
iteration: 28 Logisticloss: 1.3135694285582933
iteration: 29 Logisticloss: 1.2326041176165285
iteration: 30 Logisticloss: 1.1566293183513936
iteration: 31 Logisticloss: 1.0853374285254023
iteration: 32 Logisticloss: 1.0184398065415508
iteration: 33 Logisticloss: 0.9556656032289659
iteration: 34 Logisticloss: 0.8967606658907442

```


Output_logistic_train.txt

iteration: 35 Logisticloss: 0.8414865102765332
iteration: 36 Logisticloss: 0.7896193564515955
iteration: 37 Logisticloss: 0.7409492248335331
iteration: 38 Logisticloss: 0.6952790889568267
iteration: 39 Logisticloss: 0.6524240817999051
iteration: 40 Logisticloss: 0.6122107527595382
iteration: 41 Logisticloss: 0.5744763725623415
iteration: 42 Logisticloss: 0.5390682835245103
iteration: 43 Logisticloss: 0.5058432925421953
iteration: 44 Logisticloss: 0.47466710391120176
iteration: 45 Logisticloss: 0.44541378838960716
iteration: 46 Logisticloss: 0.4179652836693178
iteration: 47 Logisticloss: 0.3922109195346583
iteration: 48 Logisticloss: 0.3680469586905697
iteration: 49 Logisticloss: 0.3453761424606035
iteration: 50 Logisticloss: 0.3241072312529784
iteration: 51 Logisticloss: 0.30415453564986716
iteration: 52 Logisticloss: 0.2854374470453756
iteration: 53 Logisticloss: 0.26787999454580896
iteration: 54 Logisticloss: 0.2514104685800783
iteration: 55 Logisticloss: 0.23596115025423997
iteration: 56 Logisticloss: 0.22146816518015897
iteration: 57 Logisticloss: 0.20787144878089409
iteration: 58 Logisticloss: 0.1951147772970774
iteration: 59 Logisticloss: 0.18314579310125828
iteration: 60 Logisticloss: 0.17191594719607323
iteration: 61 Logisticloss: 0.16138030850468948
iteration: 62 Logisticloss: 0.15149724066114992
iteration: 63 Logisticloss: 0.14222799419226667
iteration: 64 Logisticloss: 0.13353628483913318
iteration: 65 Logisticloss: 0.1253879278873127
iteration: 66 Logisticloss: 0.11775057793430745
iteration: 67 Logisticloss: 0.11059358003461418
iteration: 68 Logisticloss: 0.10388788175786325
iteration: 69 Logisticloss: 0.09760592813219443
iteration: 70 Logisticloss: 0.09172149847361716
iteration: 71 Logisticloss: 0.08620951848755455
iteration: 72 Logisticloss: 0.08104592356801453
iteration: 73 Logisticloss: 0.07620763163267313
iteration: 74 Logisticloss: 0.07167263974169205
iteration: 75 Logisticloss: 0.06742022180079918
iteration: 76 Logisticloss: 0.06343117064388937
iteration: 77 Logisticloss: 0.05968799155608348
iteration: 78 Logisticloss: 0.0561749465898273
iteration: 79 Logisticloss: 0.05287790176839836
iteration: 80 Logisticloss: 0.04978402044470781
iteration: 81 Logisticloss: 0.04688141482232801
iteration: 82 Logisticloss: 0.04415887531808223
iteration: 83 Logisticloss: 0.04160574889305326
iteration: 84 Logisticloss: 0.03921195999842017
iteration: 85 Logisticloss: 0.03696809796510577
iteration: 86 Logisticloss: 0.0348654717673935

Output_logistic_train.txt

```
iteration: 87 Logisticloss: 0.032896071749501696
iteration: 88 Logisticloss: 0.031052446514736404
iteration: 89 Logisticloss: 0.02932755089723518
iteration: 90 Logisticloss: 0.027714624946422153
iteration: 91 Logisticloss: 0.026207137510652543
iteration: 92 Logisticloss: 0.024798793849337194
iteration: 93 Logisticloss: 0.023483578720377152
iteration: 94 Logisticloss: 0.022255793377346858
iteration: 95 Logisticloss: 0.021110053558381827
iteration: 96 Logisticloss: 0.02004124253078847
iteration: 97 Logisticloss: 0.019044441333792014
iteration: 98 Logisticloss: 0.018114869292311004
iteration: 99 Logisticloss: 0.01724785913342063
[-3.87751826e-04  2.62766800e-04 -1.76535296e-04 ... 1.67649361e-04
 -9.80757908e-06  2.08313677e-04]
```

CROSS VALIDATION 6

```
iteration: 0 Logisticloss: 66.70079065353893
iteration: 1 Logisticloss: 7.320667532697837
iteration: 2 Logisticloss: 6.8694389014933535
iteration: 3 Logisticloss: 6.446022935829174
iteration: 4 Logisticloss: 6.048705328786448
iteration: 5 Logisticloss: 5.675877439269962
iteration: 6 Logisticloss: 5.326029779016727
iteration: 7 Logisticloss: 4.997745901049879
iteration: 8 Logisticloss: 4.689696664833918
iteration: 9 Logisticloss: 4.40063485491214
iteration: 10 Logisticloss: 4.1293901312385675
iteration: 11 Logisticloss: 3.8748642907594535
iteration: 12 Logisticloss: 3.636026821059725
iteration: 13 Logisticloss: 3.411910728072108
iteration: 14 Logisticloss: 3.2016086209564154
iteration: 15 Logisticloss: 3.0042690382976085
iteration: 16 Logisticloss: 2.819093000748335
iteration: 17 Logisticloss: 2.6453307761584246
iteration: 18 Logisticloss: 2.48227884409419
iteration: 19 Logisticloss: 2.3292770474576168
iteration: 20 Logisticloss: 2.185705919673139
iteration: 21 Logisticloss: 2.050984176620526
iteration: 22 Logisticloss: 1.9245663631595504
iteration: 23 Logisticloss: 1.8059406447182187
iteration: 24 Logisticloss: 1.6946267350039483
iteration: 25 Logisticloss: 1.5901739514488238
iteration: 26 Logisticloss: 1.4921593905181052
iteration: 27 Logisticloss: 1.4001862154980351
iteration: 28 Logisticloss: 1.313882049836685
iteration: 29 Logisticloss: 1.232897469542673
iteration: 30 Logisticloss: 1.1569045885530203
iteration: 31 Logisticloss: 1.0855957313657747
iteration: 32 Logisticloss: 1.0186821875975454
iteration: 33 Logisticloss: 0.9558930434732584
iteration: 34 Logisticloss: 0.8969740855876523
iteration: 35 Logisticloss: 0.8416867725976203
```

Output_logistic_train.txt

iteration: 36 Logisticloss: 0.7898072708134198
iteration: 37 Logisticloss: 0.7411255499561878
iteration: 38 Logisticloss: 0.6954445356386856
iteration: 39 Logisticloss: 0.6525793154023609
iteration: 40 Logisticloss: 0.6123563953974944
iteration: 41 Logisticloss: 0.5746130050053965
iteration: 42 Logisticloss: 0.5391964468362441
iteration: 43 Logisticloss: 0.5059634895302875
iteration: 44 Logisticloss: 0.47477980054261315
iteration: 45 Logisticloss: 0.4455194154576572
iteration: 46 Logisticloss: 0.41806423919039665
iteration: 47 Logisticloss: 0.3923035725786558
iteration: 48 Logisticloss: 0.3681336555166946
iteration: 49 Logisticloss: 0.3454572157257283
iteration: 50 Logisticloss: 0.3241830123538047
iteration: 51 Logisticloss: 0.3042253686907904
iteration: 52 Logisticloss: 0.28550370076267856
iteration: 53 Logisticloss: 0.2679420670897833
iteration: 54 Logisticloss: 0.2514687814324324
iteration: 55 Logisticloss: 0.2360161326424925
iteration: 56 Logisticloss: 0.22152023666385925
iteration: 57 Logisticloss: 0.20792101030218585
iteration: 58 Logisticloss: 0.19516221716398574
iteration: 59 Logisticloss: 0.18319150655940258
iteration: 60 Logisticloss: 0.1719603617484363
iteration: 61 Logisticloss: 0.1614239058659446
iteration: 62 Logisticloss: 0.15154057088537395
iteration: 63 Logisticloss: 0.14227168619028674
iteration: 64 Logisticloss: 0.13358106649723872
iteration: 65 Logisticloss: 0.12543467228176935
iteration: 66 Logisticloss: 0.11780038205708548
iteration: 67 Logisticloss: 0.11064785687304486
iteration: 68 Logisticloss: 0.10394841820603286
iteration: 69 Logisticloss: 0.09767485235850917
iteration: 70 Logisticloss: 0.09180112152701198
iteration: 71 Logisticloss: 0.08630205585721651
iteration: 72 Logisticloss: 0.08115314800592266
iteration: 73 Logisticloss: 0.07633054821631062
iteration: 74 Logisticloss: 0.07181129027954876
iteration: 75 Logisticloss: 0.06757369472177904
iteration: 76 Logisticloss: 0.06359781545224787
iteration: 77 Logisticloss: 0.05986575654123085
iteration: 78 Logisticloss: 0.05636172508767758
iteration: 79 Logisticloss: 0.053071795976601485
iteration: 80 Logisticloss: 0.049983482282348515
iteration: 81 Logisticloss: 0.04708526790091064
iteration: 82 Logisticloss: 0.04436624942703422
iteration: 83 Logisticloss: 0.0418159715874293
iteration: 84 Logisticloss: 0.039424450670951725
iteration: 85 Logisticloss: 0.037182295872442275
iteration: 86 Logisticloss: 0.035080805043802996
iteration: 87 Logisticloss: 0.03311195420464444

Output_logistic_train.txt

```

iteration: 88 Logisticloss: 0.03126828467096576
iteration: 89 Logisticloss: 0.029542751622728482
iteration: 90 Logisticloss: 0.027928602052561112
iteration: 91 Logisticloss: 0.026419317199225273
iteration: 92 Logisticloss: 0.02500861630239368
iteration: 93 Logisticloss: 0.023690491925756372
iteration: 94 Logisticloss: 0.02245923832849748
iteration: 95 Logisticloss: 0.021309446063653058
iteration: 96 Logisticloss: 0.020235962668086548
iteration: 97 Logisticloss: 0.019233843892659083
iteration: 98 Logisticloss: 0.01829832533358374
iteration: 99 Logisticloss: 0.0174248295760257
[-4.04078110e-04  2.60148903e-04 -1.79540746e-04 ... 1.81862020e-04
 7.78285199e-06  2.04226597e-04]

```

CROSS VALIDATION 7

```

iteration: 0 Logisticloss: 66.70079065353893
iteration: 1 Logisticloss: 7.320667532697837
iteration: 2 Logisticloss: 6.8694389014933535
iteration: 3 Logisticloss: 6.446022935829174
iteration: 4 Logisticloss: 6.048705328786448
iteration: 5 Logisticloss: 5.675877439269962
iteration: 6 Logisticloss: 5.326029779016727
iteration: 7 Logisticloss: 4.997745901049879
iteration: 8 Logisticloss: 4.689696664833918
iteration: 9 Logisticloss: 4.40063485491214
iteration: 10 Logisticloss: 4.1293901312385675
iteration: 11 Logisticloss: 3.8748642907594535
iteration: 12 Logisticloss: 3.636026821059725
iteration: 13 Logisticloss: 3.411910728072108
iteration: 14 Logisticloss: 3.2016086209564154
iteration: 15 Logisticloss: 3.0042690382976085
iteration: 16 Logisticloss: 2.819093000748335
iteration: 17 Logisticloss: 2.6453307761584246
iteration: 18 Logisticloss: 2.48227884409419
iteration: 19 Logisticloss: 2.3292770474576168
iteration: 20 Logisticloss: 2.185705919673139
iteration: 21 Logisticloss: 2.050984176620526
iteration: 22 Logisticloss: 1.9245663631595504
iteration: 23 Logisticloss: 1.8059406447182187
iteration: 24 Logisticloss: 1.6946267350039483
iteration: 25 Logisticloss: 1.5901739514488236
iteration: 26 Logisticloss: 1.492159390518105
iteration: 27 Logisticloss: 1.400186215498035
iteration: 28 Logisticloss: 1.313882049836684
iteration: 29 Logisticloss: 1.2328974695426707
iteration: 30 Logisticloss: 1.1569045885530131
iteration: 31 Logisticloss: 1.0855957313657547
iteration: 32 Logisticloss: 1.018682187597492
iteration: 33 Logisticloss: 0.9558930434731195
iteration: 34 Logisticloss: 0.8969740855873
iteration: 35 Logisticloss: 0.8416867725967552
iteration: 36 Logisticloss: 0.7898072708113554

```

Output_logistic_train.txt

iteration: 37 Logisticloss: 0.741125549951392
iteration: 38 Logisticloss: 0.6954445356278347
iteration: 39 Logisticloss: 0.6525793153784308
iteration: 40 Logisticloss: 0.6123563953460118
iteration: 41 Logisticloss: 0.5746130048972662
iteration: 42 Logisticloss: 0.5391964466143634
iteration: 43 Logisticloss: 0.5059634890851623
iteration: 44 Logisticloss: 0.47477979966898776
iteration: 45 Logisticloss: 0.44551941377914334
iteration: 46 Logisticloss: 0.4180642360314707
iteration: 47 Logisticloss: 0.3923035667521284
iteration: 48 Logisticloss: 0.368133644978692
iteration: 49 Logisticloss: 0.34545719702797656
iteration: 50 Logisticloss: 0.3241829797932813
iteration: 51 Logisticloss: 0.30422531301830813
iteration: 52 Logisticloss: 0.2855036072636469
iteration: 53 Logisticloss: 0.2679419127915482
iteration: 54 Logisticloss: 0.25146853112342527
iteration: 55 Logisticloss: 0.23601573331147946
iteration: 56 Logisticloss: 0.22151960989003422
iteration: 57 Logisticloss: 0.20792004206456743
iteration: 58 Logisticloss: 0.1951607445225044
iteration: 59 Logisticloss: 0.18318930074439663
iteration: 60 Logisticloss: 0.17195710746403903
iteration: 61 Logisticloss: 0.16141917718313628
iteration: 62 Logisticloss: 0.15153380511913553
iteration: 63 Logisticloss: 0.14226215877433754
iteration: 64 Logisticloss: 0.13356787217375474
iteration: 65 Logisticloss: 0.12541672076960292
iteration: 66 Logisticloss: 0.11777641907765841
iteration: 67 Logisticloss: 0.11061652236587799
iteration: 68 Logisticloss: 0.10390835000582734
iteration: 69 Logisticloss: 0.09762483274565602
iteration: 70 Logisticloss: 0.09174024609575122
iteration: 71 Logisticloss: 0.08622988567556944
iteration: 72 Logisticloss: 0.08106979939634018
iteration: 73 Logisticloss: 0.07623668922373249
iteration: 74 Logisticloss: 0.07170804463303808
iteration: 75 Logisticloss: 0.06746248456718949
iteration: 76 Logisticloss: 0.0634801869325284
iteration: 77 Logisticloss: 0.05974322663758796
iteration: 78 Logisticloss: 0.05623567398140805
iteration: 79 Logisticloss: 0.05294341437456921
iteration: 80 Logisticloss: 0.04985377009231925
iteration: 81 Logisticloss: 0.046955070148944546
iteration: 82 Logisticloss: 0.04423630813015259
iteration: 83 Logisticloss: 0.04168696972864596
iteration: 84 Logisticloss: 0.03929702920283984
iteration: 85 Logisticloss: 0.03705703784078096
iteration: 86 Logisticloss: 0.03495819702403067
iteration: 87 Logisticloss: 0.032992345139306364
iteration: 88 Logisticloss: 0.031151861746433303

Output_logistic_train.txt

```
iteration: 89 Logisticloss: 0.029429544965940822
iteration: 90 Logisticloss: 0.02781851936412277
iteration: 91 Logisticloss: 0.026312199621673273
iteration: 92 Logisticloss: 0.02490430168748497
iteration: 93 Logisticloss: 0.023588873528304813
iteration: 94 Logisticloss: 0.02236031307391698
iteration: 95 Logisticloss: 0.021213350409300148
iteration: 96 Logisticloss: 0.02014299193053655
iteration: 97 Logisticloss: 0.019144445988946816
iteration: 98 Logisticloss: 0.018213059429474057
iteration: 99 Logisticloss: 0.017344288378327733
[-4.14964258e-04 2.55972412e-04 -1.88891505e-04 ... 1.77177547e-04
 5.51441818e-06 2.06197872e-04]
```

CROSS VALIDATION 8

```
iteration: 0 Logisticloss: 66.70079065353893
iteration: 1 Logisticloss: 7.320667532697837
iteration: 2 Logisticloss: 6.869438901493354
iteration: 3 Logisticloss: 6.446022935829173
iteration: 4 Logisticloss: 6.048705328786448
iteration: 5 Logisticloss: 5.675877439269963
iteration: 6 Logisticloss: 5.326029779016727
iteration: 7 Logisticloss: 4.997745901049879
iteration: 8 Logisticloss: 4.689696664833919
iteration: 9 Logisticloss: 4.40063485491214
iteration: 10 Logisticloss: 4.1293901312385675
iteration: 11 Logisticloss: 3.8748642907594535
iteration: 12 Logisticloss: 3.636026821059725
iteration: 13 Logisticloss: 3.411910728072108
iteration: 14 Logisticloss: 3.2016086209564154
iteration: 15 Logisticloss: 3.0042690382976085
iteration: 16 Logisticloss: 2.819093000748335
iteration: 17 Logisticloss: 2.6453307761584246
iteration: 18 Logisticloss: 2.48227884409419
iteration: 19 Logisticloss: 2.329277047457617
iteration: 20 Logisticloss: 2.185705919673139
iteration: 21 Logisticloss: 2.050984176620526
iteration: 22 Logisticloss: 1.9245663631595504
iteration: 23 Logisticloss: 1.8059406447182187
iteration: 24 Logisticloss: 1.6946267350039488
iteration: 25 Logisticloss: 1.5901739514488238
iteration: 26 Logisticloss: 1.4921593905181052
iteration: 27 Logisticloss: 1.4001862154980351
iteration: 28 Logisticloss: 1.313882049836685
iteration: 29 Logisticloss: 1.232897469542673
iteration: 30 Logisticloss: 1.1569045885530205
iteration: 31 Logisticloss: 1.0855957313657747
iteration: 32 Logisticloss: 1.0186821875975454
iteration: 33 Logisticloss: 0.9558930434732582
iteration: 34 Logisticloss: 0.8969740855876525
iteration: 35 Logisticloss: 0.8416867725976204
iteration: 36 Logisticloss: 0.7898072708134202
iteration: 37 Logisticloss: 0.7411255499561892
```

Output_logistic_train.txt

```

iteration: 38 Logisticloss: 0.695444535638688
iteration: 39 Logisticloss: 0.6525793154023657
iteration: 40 Logisticloss: 0.6123563953975046
iteration: 41 Logisticloss: 0.5746130050054166
iteration: 42 Logisticloss: 0.5391964468362846
iteration: 43 Logisticloss: 0.5059634895303661
iteration: 44 Logisticloss: 0.4747798005427637
iteration: 45 Logisticloss: 0.4455194154579362
iteration: 46 Logisticloss: 0.41806423919090135
iteration: 47 Logisticloss: 0.39230357257954357
iteration: 48 Logisticloss: 0.36813365551821015
iteration: 49 Logisticloss: 0.34545721572823046
iteration: 50 Logisticloss: 0.3241830123577841
iteration: 51 Logisticloss: 0.30422536869685696
iteration: 52 Logisticloss: 0.285503700771479
iteration: 53 Logisticloss: 0.2679420671018032
iteration: 54 Logisticloss: 0.25146878144758766
iteration: 55 Logisticloss: 0.236016132659344
iteration: 56 Logisticloss: 0.22152023667807233
iteration: 57 Logisticloss: 0.2079210103034217
iteration: 58 Logisticloss: 0.19516221712955384
iteration: 59 Logisticloss: 0.18319150644144763
iteration: 60 Logisticloss: 0.17196036144887142
iteration: 61 Logisticloss: 0.16142390518945013
iteration: 62 Logisticloss: 0.1515405694555121
iteration: 63 Logisticloss: 0.1422716833077295
iteration: 64 Logisticloss: 0.1335810609145669
iteration: 65 Logisticloss: 0.125434661871712
iteration: 66 Logisticloss: 0.11780036337053564
iteration: 67 Logisticloss: 0.11064782463333937
iteration: 68 Logisticloss: 0.10394836487445151
iteration: 69 Logisticloss: 0.09767476801094287
iteration: 70 Logisticloss: 0.09180099432714253
iteration: 71 Logisticloss: 0.08630187328478697
iteration: 72 Logisticloss: 0.08115289865342944
iteration: 73 Logisticloss: 0.07633022355248752
iteration: 74 Logisticloss: 0.0718108856038323
iteration: 75 Logisticloss: 0.06757320879091652
iteration: 76 Logisticloss: 0.06359724877160738
iteration: 77 Logisticloss: 0.05986510868650405
iteration: 78 Logisticloss: 0.05636099144143656
iteration: 79 Logisticloss: 0.053070964027180575
iteration: 80 Logisticloss: 0.04998252735112439
iteration: 81 Logisticloss: 0.04708414796091413
iteration: 82 Logisticloss: 0.04436489856702233
iteration: 83 Logisticloss: 0.04181429163839635
iteration: 84 Logisticloss: 0.039422300537693175
iteration: 85 Logisticloss: 0.03717947823413901
iteration: 86 Logisticloss: 0.03507705038696142
iteration: 87 Logisticloss: 0.033106902747495656
iteration: 88 Logisticloss: 0.03126146776978891
iteration: 89 Logisticloss: 0.029533575864130166

```

Output_logistic_train.txt

```
iteration: 90 Logisticloss: 0.027916341521794803
iteration: 91 Logisticloss: 0.026403122213762887
iteration: 92 Logisticloss: 0.024987549438160048
iteration: 93 Logisticloss: 0.023663602617529755
iteration: 94 Logisticloss: 0.022425682753893204
iteration: 95 Logisticloss: 0.021268646471895507
iteration: 96 Logisticloss: 0.02018777975141022
iteration: 97 Logisticloss: 0.01917871382333039
iteration: 98 Logisticloss: 0.018237303598705575
iteration: 99 Logisticloss: 0.017359500758859697
[-4.02807244e-04 2.60677621e-04 -1.77542709e-04 ... 1.81975426e-04
 6.67925334e-06 2.03983982e-04]
```

CROSS VALIDATION 9

```
iteration: 0 Logisticloss: 162.42733134397957
iteration: 1 Logisticloss: 78.17096074660547
iteration: 2 Logisticloss: 8.193141492736162
iteration: 3 Logisticloss: 7.6881359432684055
iteration: 4 Logisticloss: 7.214257903378542
iteration: 5 Logisticloss: 6.769588819957741
iteration: 6 Logisticloss: 6.3523284219971865
iteration: 7 Logisticloss: 5.960787436715061
iteration: 8 Logisticloss: 5.593380754215013
iteration: 9 Logisticloss: 5.248621011117033
iteration: 10 Logisticloss: 4.925112564130769
iteration: 11 Logisticloss: 4.621545824905981
iteration: 12 Logisticloss: 4.33669192846833
iteration: 13 Logisticloss: 4.069397710651901
iteration: 14 Logisticloss: 3.8185809771550976
iteration: 15 Logisticloss: 3.5832260590143665
iteration: 16 Logisticloss: 3.362379662956623
iteration: 17 Logisticloss: 3.155147030359312
iteration: 18 Logisticloss: 2.960688403861989
iteration: 19 Logisticloss: 2.7782157666546254
iteration: 20 Logisticloss: 2.60698978829336
iteration: 21 Logisticloss: 2.4463169108880134
iteration: 22 Logisticloss: 2.2955465438617604
iteration: 23 Logisticloss: 2.154068376117752
iteration: 24 Logisticloss: 2.021309832656422
iteration: 25 Logisticloss: 1.8967336954212262
iteration: 26 Logisticloss: 1.779835891071254
iteration: 27 Logisticloss: 1.6701434353727056
iteration: 28 Logisticloss: 1.5672125186514347
iteration: 29 Logisticloss: 1.4706267166195972
iteration: 30 Logisticloss: 1.3799953124457538
iteration: 31 Logisticloss: 1.2949517172760487
iteration: 32 Logisticloss: 1.215151977232898
iteration: 33 Logisticloss: 1.1402733560631546
iteration: 34 Logisticloss: 1.0700129856548504
iteration: 35 Logisticloss: 1.004086583115338
iteration: 36 Logisticloss: 0.9422272427292457
iteration: 37 Logisticloss: 0.8841843195569179
iteration: 38 Logisticloss: 0.8297224204891398
```


Output_logistic_train.txt

```

iteration: 39 Logisticloss: 0.778620502778421
iteration: 40 Logisticloss: 0.7306710570854178
iteration: 41 Logisticloss: 0.6856793424200732
iteration: 42 Logisticloss: 0.6434626563390701
iteration: 43 Logisticloss: 0.603849648561454
iteration: 44 Logisticloss: 0.5666796880222843
iteration: 45 Logisticloss: 0.5318022661067096
iteration: 46 Logisticloss: 0.4990763936853752
iteration: 47 Logisticloss: 0.46836995774226836
iteration: 48 Logisticloss: 0.4395590396604115
iteration: 49 Logisticloss: 0.4125272326343211
iteration: 50 Logisticloss: 0.3871650121901095
iteration: 51 Logisticloss: 0.3633692119469261
iteration: 52 Logisticloss: 0.34104263919351485
iteration: 53 Logisticloss: 0.32009383036232675
iteration: 54 Logisticloss: 0.30043690234152054
iteration: 55 Logisticloss: 0.28199142448205056
iteration: 56 Logisticloss: 0.2646822400180045
iteration: 57 Logisticloss: 0.2484392022778513
iteration: 58 Logisticloss: 0.23319683472056946
iteration: 59 Logisticloss: 0.21889394944088666
iteration: 60 Logisticloss: 0.20547326093257082
iteration: 61 Logisticloss: 0.19288102146887418
iteration: 62 Logisticloss: 0.18106669447687326
iteration: 63 Logisticloss: 0.16998267819729193
iteration: 64 Logisticloss: 0.15958409026268774
iteration: 65 Logisticloss: 0.1498286171269088
iteration: 66 Logisticloss: 0.14067641753002436
iteration: 67 Logisticloss: 0.13209005371715823
iteration: 68 Logisticloss: 0.12403442071896936
iteration: 69 Logisticloss: 0.11647665707698983
iteration: 70 Logisticloss: 0.10938603956405861
iteration: 71 Logisticloss: 0.10273387501315737
iteration: 72 Logisticloss: 0.09649339960467444
iteration: 73 Logisticloss: 0.09063968613863864
iteration: 74 Logisticloss: 0.08514955077478882
iteration: 75 Logisticloss: 0.08000144563174344
iteration: 76 Logisticloss: 0.07517532253194348
iteration: 77 Logisticloss: 0.07065245697224831
iteration: 78 Logisticloss: 0.06641523289282103
iteration: 79 Logisticloss: 0.0624469088727072
iteration: 80 Logisticloss: 0.05873140684696136
iteration: 81 Logisticloss: 0.0552531662920559
iteration: 82 Logisticloss: 0.05199707723228481
iteration: 83 Logisticloss: 0.048948466760723904
iteration: 84 Logisticloss: 0.04609311565130475
iteration: 85 Logisticloss: 0.043417331793261696
iteration: 86 Logisticloss: 0.040908133739418574
iteration: 87 Logisticloss: 0.03855353577155976
iteration: 88 Logisticloss: 0.0363428221450787
iteration: 89 Logisticloss: 0.03426666576666544
iteration: 90 Logisticloss: 0.032317026054202794

```

Output_logistic_train.txt

```
iteration: 91 Logisticloss: 0.030486877514936964
iteration: 92 Logisticloss: 0.028769880340123514
iteration: 93 Logisticloss: 0.027160087912130672
iteration: 94 Logisticloss: 0.02565173951533187
iteration: 95 Logisticloss: 0.024239153612124524
iteration: 96 Logisticloss: 0.022916724512062756
iteration: 97 Logisticloss: 0.021679015387319242
iteration: 98 Logisticloss: 0.0205209190186151
iteration: 99 Logisticloss: 0.019437830392812685
[-0.00078222 0.00023042 -0.00014788 ... 0.00091274 0.00036272
 0.00015132]
```

CROSS VALIDATION 10

```
iteration: 0 Logisticloss: 66.70272311379787
iteration: 1 Logisticloss: 7.320893593027679
iteration: 2 Logisticloss: 6.869651027999164
iteration: 3 Logisticloss: 6.446221987358909
iteration: 4 Logisticloss: 6.048892111250703
iteration: 5 Logisticloss: 5.676052708904919
iteration: 6 Logisticloss: 5.326194245445945
iteration: 7 Logisticloss: 4.997900230157413
iteration: 8 Logisticloss: 4.689841481460301
iteration: 9 Logisticloss: 4.400770745384205
iteration: 10 Logisticloss: 4.12951764574335
iteration: 11 Logisticloss: 3.8749839455717723
iteration: 12 Logisticloss: 3.6361391006324326
iteration: 13 Logisticloss: 3.4120160869975256
iteration: 14 Logisticloss: 3.2017074858068737
iteration: 15 Logisticloss: 3.0043618093525293
iteration: 16 Logisticloss: 2.819180053614861
iteration: 17 Logisticloss: 2.6454124632921614
iteration: 18 Logisticloss: 2.4823554962262144
iteration: 19 Logisticloss: 2.3293489749335197
iteration: 20 Logisticloss: 2.1857734137095397
iteration: 21 Logisticloss: 2.0510475104841275
iteration: 22 Logisticloss: 1.924625793273522
iteration: 23 Logisticloss: 1.8059964117003626
iteration: 24 Logisticloss: 1.6946790646408696
iteration: 25 Logisticloss: 1.5902230556100045
iteration: 26 Logisticloss: 1.4922054680135852
iteration: 27 Logisticloss: 1.4002294528831125
iteration: 28 Logisticloss: 1.3139226221668439
iteration: 29 Logisticloss: 1.2329355410816958
iteration: 30 Logisticloss: 1.1569403134369967
iteration: 31 Logisticloss: 1.0856292542255022
iteration: 32 Logisticloss: 1.0187136441415214
iteration: 33 Logisticloss: 0.9559225610332271
iteration: 34 Logisticloss: 0.8970017836283425
iteration: 35 Logisticloss: 0.8417127631920324
iteration: 36 Logisticloss: 0.7898316590846749
iteration: 37 Logisticloss: 0.7411484344866566
iteration: 38 Logisticloss: 0.6954660088468548
iteration: 39 Logisticloss: 0.6525994638877731
```

Output_logistic_train.txt

```

iteration: 40 Logisticloss: 0.6123753002542481
iteration: 41 Logisticloss: 0.574630742105371
iteration: 42 Logisticloss: 0.539213087084843
iteration: 43 Logisticloss: 0.5059790991007364
iteration: 44 Logisticloss: 0.4747944411006834
iteration: 45 Logisticloss: 0.44553314439827396
iteration: 46 Logisticloss: 0.4180771099218985
iteration: 47 Logisticloss: 0.39231563490877885
iteration: 48 Logisticloss: 0.36814495621185617
iteration: 49 Logisticloss: 0.3454677993189202
iteration: 50 Logisticloss: 0.32419292224321733
iteration: 51 Logisticloss: 0.3042346484740698
iteration: 52 Logisticloss: 0.2855123955841414
iteration: 53 Logisticloss: 0.2679502245946305
iteration: 54 Logisticloss: 0.25147645185735173
iteration: 55 Logisticloss: 0.2360233677771318
iteration: 56 Logisticloss: 0.2215270879096472
iteration: 57 Logisticloss: 0.2079275265914337
iteration: 58 Logisticloss: 0.1951684436368596
iteration: 59 Logisticloss: 0.18319748429872887
iteration: 60 Logisticloss: 0.17196612777434564
iteration: 61 Logisticloss: 0.16142949184420663
iteration: 62 Logisticloss: 0.15154599938993082
iteration: 63 Logisticloss: 0.14227696485336946
iteration: 64 Logisticloss: 0.13358618211532045
iteration: 65 Logisticloss: 0.12543958761268226
iteration: 66 Logisticloss: 0.11780503644488928
iteration: 67 Logisticloss: 0.1106521681422164
iteration: 68 Logisticloss: 0.10395228004256553
iteration: 69 Logisticloss: 0.0976781218165409
iteration: 70 Logisticloss: 0.0918035953719292
iteration: 71 Logisticloss: 0.08630343860231324
iteration: 72 Logisticloss: 0.08115301560161266
iteration: 73 Logisticloss: 0.07632830957634873
iteration: 74 Logisticloss: 0.07180614660664868
iteration: 75 Logisticloss: 0.06756459680614146
iteration: 76 Logisticloss: 0.06358342399575237
iteration: 77 Logisticloss: 0.059844420127534416
iteration: 78 Logisticloss: 0.05633150114491912
iteration: 79 Logisticloss: 0.053030545450245964
iteration: 80 Logisticloss: 0.049929060787185
iteration: 81 Logisticloss: 0.04701580791711523
iteration: 82 Logisticloss: 0.04428048106150495
iteration: 83 Logisticloss: 0.041713484039814334
iteration: 84 Logisticloss: 0.03930579020812675
iteration: 85 Logisticloss: 0.03704885265139045
iteration: 86 Logisticloss: 0.0349345346596227
iteration: 87 Logisticloss: 0.03295504599851432
iteration: 88 Logisticloss: 0.03110288590017777
iteration: 89 Logisticloss: 0.02937080269553144
iteration: 90 Logisticloss: 0.027751781102370476
iteration: 91 Logisticloss: 0.026239061850179466

```

Output_logistic_train.txt

```

iteration: 92 Logisticloss: 0.02482618558244694
iteration: 93 Logisticloss: 0.02350703789579998
iteration: 94 Logisticloss: 0.022275864998085135
iteration: 95 Logisticloss: 0.02112724052156244
iteration: 96 Logisticloss: 0.020055991657597687
iteration: 97 Logisticloss: 0.019057118352257825
iteration: 98 Logisticloss: 0.0181257433993918
iteration: 99 Logisticloss: 0.017257113150601345
[-3.96503433e-04  2.62303991e-04 -1.81622151e-04 ...  1.80023707e-04
 3.51591582e-06  2.06642727e-04]

```

CROSS VALIDATION 11

```

iteration: 0 Logisticloss: 66.70268246988607
iteration: 1 Logisticloss: 7.320893659993936
iteration: 2 Logisticloss: 6.869651090837778
iteration: 3 Logisticloss: 6.446222046324296
iteration: 4 Logisticloss: 6.048892166581601
iteration: 5 Logisticloss: 5.676052760825355
iteration: 6 Logisticloss: 5.326194294166129
iteration: 7 Logisticloss: 4.997900275874598
iteration: 8 Logisticloss: 4.6898415243595855
iteration: 9 Logisticloss: 4.4007707856392795
iteration: 10 Logisticloss: 4.129517683517199
iteration: 11 Logisticloss: 3.8749839810173303
iteration: 12 Logisticloss: 3.6361391338932085
iteration: 13 Logisticloss: 3.4120161182081867
iteration: 14 Logisticloss: 3.201707515093784
iteration: 15 Logisticloss: 3.0043618368342626
iteration: 16 Logisticloss: 2.819180079402687
iteration: 17 Logisticloss: 2.6454124874904865
iteration: 18 Logisticloss: 2.4823555189330104
iteration: 19 Logisticloss: 2.3293489962407237
iteration: 20 Logisticloss: 2.1857734337034187
iteration: 21 Logisticloss: 2.0510475292456305
iteration: 22 Logisticloss: 1.9246258108786103
iteration: 23 Logisticloss: 1.8059964282203167
iteration: 24 Logisticloss: 1.6946790801425742
iteration: 25 Logisticloss: 1.5902230701562223
iteration: 26 Logisticloss: 1.4922054816632138
iteration: 27 Logisticloss: 1.4002294656914185
iteration: 28 Logisticloss: 1.3139226341856935
iteration: 29 Logisticloss: 1.232935552359762
iteration: 30 Logisticloss: 1.1569403240199643
iteration: 31 Logisticloss: 1.0856292641562548
iteration: 32 Logisticloss: 1.018713653460329
iteration: 33 Logisticloss: 0.9559225697779171
iteration: 34 Logisticloss: 0.8970017918344791
iteration: 35 Logisticloss: 0.8417127708930872
iteration: 36 Logisticloss: 0.7898316663122072
iteration: 37 Logisticloss: 0.7411484412705001
iteration: 38 Logisticloss: 0.6954660152153196
iteration: 39 Logisticloss: 0.6525994698678684
iteration: 40 Logisticloss: 0.6123753058719312

```

Output_logistic_train.txt

iteration: 41 Logisticloss: 0.5746307473858187
iteration: 42 Logisticloss: 0.5392130920527543
iteration: 43 Logisticloss: 0.5059791037806446
iteration: 44 Logisticloss: 0.4747944455172462
iteration: 45 Logisticloss: 0.4455331485764784
iteration: 46 Logisticloss: 0.4180771138870775
iteration: 47 Logisticloss: 0.39231563868627795
iteration: 48 Logisticloss: 0.3681449598261659
iteration: 49 Logisticloss: 0.3454678027921326
iteration: 50 Logisticloss: 0.3241929255929034
iteration: 51 Logisticloss: 0.30423465171122455
iteration: 52 Logisticloss: 0.2855123987128095
iteration: 53 Logisticloss: 0.2679502276160911
iteration: 54 Logisticloss: 0.25147645478303454
iteration: 55 Logisticloss: 0.23602337065554238
iteration: 56 Logisticloss: 0.22152709087397549
iteration: 57 Logisticloss: 0.20792752993767974
iteration: 58 Logisticloss: 0.19516844794949462
iteration: 59 Logisticloss: 0.18319749065415653
iteration: 60 Logisticloss: 0.17196613807269023
iteration: 61 Logisticloss: 0.1614295093471187
iteration: 62 Logisticloss: 0.15154602957701513
iteration: 63 Logisticloss: 0.14227701675628707
iteration: 64 Logisticloss: 0.1335862703532578
iteration: 65 Logisticloss: 0.1254397354438772
iteration: 66 Logisticloss: 0.11780528027404481
iteration: 67 Logisticloss: 0.11065256408599178
iteration: 68 Logisticloss: 0.10395291334693338
iteration: 69 Logisticloss: 0.09767912011799045
iteration: 70 Logisticloss: 0.09180514695841227
iteration: 71 Logisticloss: 0.08630581688380488
iteration: 72 Logisticloss: 0.0811566108017305
iteration: 73 Logisticloss: 0.07633366796318593
iteration: 74 Logisticloss: 0.07181401602093111
iteration: 75 Logisticloss: 0.06757597430024712
iteration: 76 Logisticloss: 0.06359959650738968
iteration: 77 Logisticloss: 0.05986698214127677
iteration: 78 Logisticloss: 0.05636232556747394
iteration: 79 Logisticloss: 0.0530716796213423
iteration: 80 Logisticloss: 0.049982526328912265
iteration: 81 Logisticloss: 0.04708330935727968
iteration: 82 Logisticloss: 0.04436307399162157
iteration: 83 Logisticloss: 0.04181129940214196
iteration: 84 Logisticloss: 0.039417919833417754
iteration: 85 Logisticloss: 0.037173447452450895
iteration: 86 Logisticloss: 0.03506907502305859
iteration: 87 Logisticloss: 0.033096677540922624
iteration: 88 Logisticloss: 0.031248715543729943
iteration: 89 Logisticloss: 0.029518102945242396
iteration: 90 Logisticloss: 0.027898106154470803
iteration: 91 Logisticloss: 0.026382306759413287
iteration: 92 Logisticloss: 0.024964619286039814

Output_logistic_train.txt

iteration: 93 Logisticloss: 0.023639327424426496
iteration: 94 Logisticloss: 0.02240109470705657
iteration: 95 Logisticloss: 0.021244922037181018
iteration: 96 Logisticloss: 0.020166057331615337
iteration: 97 Logisticloss: 0.019159891584973585
iteration: 98 Logisticloss: 0.018221881789731165
iteration: 99 Logisticloss: 0.017347524034235045
[-4.04299081e-04 2.61270936e-04 -1.77499162e-04 ... 1.82183102e-04
7.81066261e-06 2.04089773e-04]

CROSS VALIDATION 12

iteration: 0 Logisticloss: 133.0369942935266
iteration: 1 Logisticloss: 7.297263467268663
iteration: 2 Logisticloss: 6.5289547305785085
iteration: 3 Logisticloss: 6.123567797486036
iteration: 4 Logisticloss: 5.746133987606699
iteration: 5 Logisticloss: 5.391966524048991
iteration: 6 Logisticloss: 5.059631468049971
iteration: 7 Logisticloss: 4.747783060645923
iteration: 8 Logisticloss: 4.455158235524333
iteration: 9 Logisticloss: 4.180571530342603
iteration: 10 Logisticloss: 3.922910390251306
iteration: 11 Logisticloss: 3.681130819395062
iteration: 12 Logisticloss: 3.4542533028905127
iteration: 13 Logisticloss: 3.241358923905802
iteration: 14 Logisticloss: 3.041585639872057
iteration: 15 Logisticloss: 2.8541247266322256
iteration: 16 Logisticloss: 2.678217418452853
iteration: 17 Logisticloss: 2.5131517630665967
iteration: 18 Logisticloss: 2.3582596920276746
iteration: 19 Logisticloss: 2.2129142927969045
iteration: 20 Logisticloss: 2.0765272639366725
iteration: 21 Logisticloss: 1.9485465356110996
iteration: 22 Logisticloss: 1.8284540405057053
iteration: 23 Logisticloss: 1.7157636231612095
iteration: 24 Logisticloss: 1.6100190778656578
iteration: 25 Logisticloss: 1.5107923066838458
iteration: 26 Logisticloss: 1.4176815901389872
iteration: 27 Logisticloss: 1.330309963699696
iteration: 28 Logisticloss: 1.2483236937008129
iteration: 29 Logisticloss: 1.171390846717327
iteration: 30 Logisticloss: 1.0991999467567097
iteration: 31 Logisticloss: 1.0314587149557055
iteration: 32 Logisticloss: 0.9678928867711171
iteration: 33 Logisticloss: 0.9082451019437052
iteration: 34 Logisticloss: 0.8522738627908488
iteration: 35 Logisticloss: 0.7997525566474951
iteration: 36 Logisticloss: 0.7504685385262932
iteration: 37 Logisticloss: 0.7042222703069817
iteration: 38 Logisticloss: 0.6608265129926901
iteration: 39 Logisticloss: 0.6201055687875936
iteration: 40 Logisticloss: 0.5818945699573081
iteration: 41 Logisticloss: 0.5460388116317709

Output_logistic_train.txt

```

iteration: 42 Logisticloss: 0.5123931259013089
iteration: 43 Logisticloss: 0.4808212947414695
iteration: 44 Logisticloss: 0.4511954994819646
iteration: 45 Logisticloss: 0.42339580471013727
iteration: 46 Logisticloss: 0.3973096746687338
iteration: 47 Logisticloss: 0.37283152036748013
iteration: 48 Logisticloss: 0.3498622757688454
iteration: 49 Logisticloss: 0.3283090015113056
iteration: 50 Logisticloss: 0.30808451466302983
iteration: 51 Logisticloss: 0.2891070428950166
iteration: 52 Logisticloss: 0.27129990113389363
iteration: 53 Logisticloss: 0.2545911880858642
iteration: 54 Logisticloss: 0.2389134989264033
iteration: 55 Logisticloss: 0.22420364900777928
iteration: 56 Logisticloss: 0.21040240219374837
iteration: 57 Logisticloss: 0.19745419779553655
iteration: 58 Logisticloss: 0.18530687445007735
iteration: 59 Logisticloss: 0.17391139990524324
iteration: 60 Logisticloss: 0.16322163121114083
iteration: 61 Logisticloss: 0.15319414080801916
iteration: 62 Logisticloss: 0.14378813414467964
iteration: 63 Logisticloss: 0.13496544539047234
iteration: 64 Logisticloss: 0.12669054841187544
iteration: 65 Logisticloss: 0.11893050004654702
iteration: 66 Logisticloss: 0.1116547618163941
iteration: 67 Logisticloss: 0.10483490085281799
iteration: 68 Logisticloss: 0.09844421413270511
iteration: 69 Logisticloss: 0.09245734250137105
iteration: 70 Logisticloss: 0.08684995329335785
iteration: 71 Logisticloss: 0.08159857056467489
iteration: 72 Logisticloss: 0.07668059838956996
iteration: 73 Logisticloss: 0.07207450708736263
iteration: 74 Logisticloss: 0.06776007178200058
iteration: 75 Logisticloss: 0.06371852990239799
iteration: 76 Logisticloss: 0.05993258211314712
iteration: 77 Logisticloss: 0.05638625129403319
iteration: 78 Logisticloss: 0.05306466608243146
iteration: 79 Logisticloss: 0.04995382900008969
iteration: 80 Logisticloss: 0.04704040257804333
iteration: 81 Logisticloss: 0.04431154188725979
iteration: 82 Logisticloss: 0.04175481863539005
iteration: 83 Logisticloss: 0.03935828441726643
iteration: 84 Logisticloss: 0.03711067531956198
iteration: 85 Logisticloss: 0.0350016789036916
iteration: 86 Logisticloss: 0.03302213184434155
iteration: 87 Logisticloss: 0.031164048650560994
iteration: 88 Logisticloss: 0.0294204781194123
iteration: 89 Logisticloss: 0.027785264976692602
iteration: 90 Logisticloss: 0.02625280796809626
iteration: 91 Logisticloss: 0.024817868345069275
iteration: 92 Logisticloss: 0.02347543858127929
iteration: 93 Logisticloss: 0.02222065649603853

```

Output_logistic_train.txt

```
iteration: 94 Logisticloss: 0.021048745958815965
iteration: 95 Logisticloss: 0.019954974009835504
iteration: 96 Logisticloss: 0.018934628809287916
iteration: 97 Logisticloss: 0.017983036535772347
iteration: 98 Logisticloss: 0.017095637242165135
iteration: 99 Logisticloss: 0.016268118721472446
[-1.30521456e-03 -3.47435987e-04 -4.42805234e-04 ... 1.25882827e-04
 2.47979270e-04 4.90167193e-05]
```

CROSS VALIDATION 13

```
iteration: 0 Logisticloss: 224.59587278485995
iteration: 1 Logisticloss: 66.83736007605116
iteration: 2 Logisticloss: 7.815303545288832
iteration: 3 Logisticloss: 7.33358672022648
iteration: 4 Logisticloss: 6.8815617808603795
iteration: 5 Logisticloss: 6.4573985895861545
iteration: 6 Logisticloss: 6.059379814152584
iteration: 7 Logisticloss: 5.685893974606407
iteration: 8 Logisticloss: 5.335428918807071
iteration: 9 Logisticloss: 5.006565700095296
iteration: 10 Logisticloss: 4.697972832327682
iteration: 11 Logisticloss: 4.40840089901742
iteration: 12 Logisticloss: 4.136677494754824
iteration: 13 Logisticloss: 3.8817024784268743
iteration: 14 Logisticloss: 3.64244351901718
iteration: 15 Logisticloss: 3.417931915952654
iteration: 16 Logisticloss: 3.207258677074706
iteration: 17 Logisticloss: 3.0095708383561206
iteration: 18 Logisticloss: 2.824068010463896
iteration: 19 Logisticloss: 2.64999913818726
iteration: 20 Logisticloss: 2.4866594596129064
iteration: 21 Logisticloss: 2.3333876527395523
iteration: 22 Logisticloss: 2.189563157984869
iteration: 23 Logisticloss: 2.0546036657531084
iteration: 24 Logisticloss: 1.9279627589042343
iteration: 25 Logisticloss: 1.809127700598652
iteration: 26 Logisticloss: 1.6976173585881904
iteration: 27 Logisticloss: 1.5929802575870742
iteration: 28 Logisticloss: 1.4947927518884725
iteration: 29 Logisticloss: 1.4026573108952205
iteration: 30 Logisticloss: 1.3162009107087786
iteration: 31 Logisticloss: 1.2350735253684373
iteration: 32 Logisticloss: 1.1589467117509464
iteration: 33 Logisticloss: 1.0875122825219203
iteration: 34 Logisticloss: 1.0204810618601732
iteration: 35 Logisticloss: 0.9575817189270394
iteration: 36 Logisticloss: 0.8985596741791958
iteration: 37 Logisticloss: 0.8431760735577684
iteration: 38 Logisticloss: 0.7912068252467664
iteration: 39 Logisticloss: 0.7424416930255315
iteration: 40 Logisticloss: 0.6966834393252768
iteration: 41 Logisticloss: 0.6537470103729235
iteration: 42 Logisticloss: 0.6134587563295553
```


Output_logistic_train.txt

```

iteration: 43 Logisticloss: 0.5756556828539449
iteration: 44 Logisticloss: 0.5401847386206866
iteration: 45 Logisticloss: 0.506902154926076
iteration: 46 Logisticloss: 0.4756728618022334
iteration: 47 Logisticloss: 0.44636999848370995
iteration: 48 Logisticloss: 0.4188745087539839
iteration: 49 Logisticloss: 0.3930747769516748
iteration: 50 Logisticloss: 0.36886624645892657
iteration: 51 Logisticloss: 0.3461509842719415
iteration: 52 Logisticloss: 0.32483719584910076
iteration: 53 Logisticloss: 0.30483872487445135
iteration: 54 Logisticloss: 0.2860745821553562
iteration: 55 Logisticloss: 0.2684685443285288
iteration: 56 Logisticloss: 0.2519488517849542
iteration: 57 Logisticloss: 0.23644801193860582
iteration: 58 Logisticloss: 0.22190267890793478
iteration: 59 Logisticloss: 0.2082535518751126
iteration: 60 Logisticloss: 0.1954452357877744
iteration: 61 Logisticloss: 0.18342604167372747
iteration: 62 Logisticloss: 0.17214774348085485
iteration: 63 Logisticloss: 0.16156532651326558
iteration: 64 Logisticloss: 0.15163675486155648
iteration: 65 Logisticloss: 0.14232276587607962
iteration: 66 Logisticloss: 0.1335866829682603
iteration: 67 Logisticloss: 0.12539422962966448
iteration: 68 Logisticloss: 0.11771332793904468
iteration: 69 Logisticloss: 0.11051387374364834
iteration: 70 Logisticloss: 0.10376749732189354
iteration: 71 Logisticloss: 0.09744733707659432
iteration: 72 Logisticloss: 0.09152786193691279
iteration: 73 Logisticloss: 0.08598476375224387
iteration: 74 Logisticloss: 0.0807949102796756
iteration: 75 Logisticloss: 0.07593633095976227
iteration: 76 Logisticloss: 0.0713882228013563
iteration: 77 Logisticloss: 0.06713099122914098
iteration: 78 Logisticloss: 0.06314633392690723
iteration: 79 Logisticloss: 0.05941732439448356
iteration: 80 Logisticloss: 0.055928408315227184
iteration: 81 Logisticloss: 0.0526652495256979
iteration: 82 Logisticloss: 0.04961444907014737
iteration: 83 Logisticloss: 0.04676324293841208
iteration: 84 Logisticloss: 0.04409929776023188
iteration: 85 Logisticloss: 0.04161066106985418
iteration: 86 Logisticloss: 0.03928582805330575
iteration: 87 Logisticloss: 0.03711382264698126
iteration: 88 Logisticloss: 0.035084202823513544
iteration: 89 Logisticloss: 0.033186982912003546
iteration: 90 Logisticloss: 0.03141255290781669
iteration: 91 Logisticloss: 0.029751684867507303
iteration: 92 Logisticloss: 0.02819564141273047
iteration: 93 Logisticloss: 0.02673632326155183
iteration: 94 Logisticloss: 0.025366386425398502

```

Output_logistic_train.txt

iteration: 95 Logisticloss: 0.024079304881894553
iteration: 96 Logisticloss: 0.022869381452150214
iteration: 97 Logisticloss: 0.02173170136209725
iteration: 98 Logisticloss: 0.02066202019496496
iteration: 99 Logisticloss: 0.01965660255189903
[-1.14880263e-03 -4.52604310e-04 -5.89561226e-04 ... 5.17512751e-04
-5.15599550e-05 1.33104391e-04]

CROSS VALIDATION 14

iteration: 0 Logisticloss: 66.67751153493646
iteration: 1 Logisticloss: 7.321777569448592
iteration: 2 Logisticloss: 6.870480518204355
iteration: 3 Logisticloss: 6.447000349749836
iteration: 4 Logisticloss: 6.049622497224905
iteration: 5 Logisticloss: 5.676738075615249
iteration: 6 Logisticloss: 5.326837367773342
iteration: 7 Logisticloss: 4.998503711945723
iteration: 8 Logisticloss: 4.690407766058586
iteration: 9 Logisticloss: 4.401302125539281
iteration: 10 Logisticloss: 4.13001627288254
iteration: 11 Logisticloss: 3.8754518385134977
iteration: 12 Logisticloss: 3.6365781537599324
iteration: 13 Logisticloss: 3.4124280779287344
iteration: 14 Logisticloss: 3.2020940825915623
iteration: 15 Logisticloss: 3.0047245772258186
iteration: 16 Logisticloss: 2.819520461334485
iteration: 17 Logisticloss: 2.645731889085093
iteration: 18 Logisticloss: 2.482655233368748
iteration: 19 Logisticloss: 2.329630236987418
iteration: 20 Logisticloss: 2.1860373394353645
iteration: 21 Logisticloss: 2.0512951684516607
iteration: 22 Logisticloss: 1.9248581861878236
iteration: 23 Logisticloss: 1.8062144804608107
iteration: 24 Logisticloss: 1.6948836921492514
iteration: 25 Logisticloss: 1.5904150703424302
iteration: 26 Logisticloss: 1.492385647369463
iteration: 27 Logisticloss: 1.4003985263225658
iteration: 28 Logisticloss: 1.3140812741454928
iteration: 29 Logisticloss: 1.2330844137882728
iteration: 30 Logisticloss: 1.1570800093342548
iteration: 31 Logisticloss: 1.0857603383875618
iteration: 32 Logisticloss: 1.0188366463700802
iteration: 33 Logisticloss: 0.9560379777195076
iteration: 34 Logisticloss: 0.8971100793055324
iteration: 35 Logisticloss: 0.8418143716919503
iteration: 36 Logisticloss: 0.7899269841699481
iteration: 37 Logisticloss: 0.7412378497728572
iteration: 38 Logisticloss: 0.6955498567549102
iteration: 39 Logisticloss: 0.6526780532730954
iteration: 40 Logisticloss: 0.6124489022445161
iteration: 41 Logisticloss: 0.5746995835462009
iteration: 42 Logisticloss: 0.5392773408510452
iteration: 43 Logisticloss: 0.5060388704026931

Output_logistic_train.txt

iteration: 44 Logisticloss: 0.4748497488463123
iteration: 45 Logisticloss: 0.44558389674697735
iteration: 46 Logisticloss: 0.41812307353830513
iteration: 47 Logisticloss: 0.3923563983344371
iteration: 48 Logisticloss: 0.36817988957382164
iteration: 49 Logisticloss: 0.3454960156977669
iteration: 50 Logisticloss: 0.3242132506896744
iteration: 51 Logisticloss: 0.3042456344732332
iteration: 52 Logisticloss: 0.2855123497162193
iteration: 53 Logisticloss: 0.26793733980111756
iteration: 54 Logisticloss: 0.2514489978850192
iteration: 55 Logisticloss: 0.23597994425286148
iteration: 56 Logisticloss: 0.22146688124184458
iteration: 57 Logisticloss: 0.20785049077489925
iteration: 58 Logisticloss: 0.19507533571481453
iteration: 59 Logisticloss: 0.18308973736237075
iteration: 60 Logisticloss: 0.17184561043309027
iteration: 61 Logisticloss: 0.16129824100142612
iteration: 62 Logisticloss: 0.15140600321613862
iteration: 63 Logisticloss: 0.14213003141340372
iteration: 64 Logisticloss: 0.13343388746993282
iteration: 65 Logisticloss: 0.125283275569757
iteration: 66 Logisticloss: 0.11764584241783485
iteration: 67 Logisticloss: 0.11049105201896484
iteration: 68 Logisticloss: 0.10379006458956015
iteration: 69 Logisticloss: 0.09751553573157726
iteration: 70 Logisticloss: 0.0916413153864519
iteration: 71 Logisticloss: 0.08614212133364679
iteration: 72 Logisticloss: 0.08099331382628665
iteration: 73 Logisticloss: 0.07617088002904658
iteration: 74 Logisticloss: 0.07165167103850027
iteration: 75 Logisticloss: 0.06741384136426848
iteration: 76 Logisticloss: 0.0634373420741899
iteration: 77 Logisticloss: 0.05970426670269167
iteration: 78 Logisticloss: 0.056198897815193646
iteration: 79 Logisticloss: 0.05290743694174886
iteration: 80 Logisticloss: 0.049817534828795876
iteration: 81 Logisticloss: 0.04691779703479803
iteration: 82 Logisticloss: 0.044197415233804
iteration: 83 Logisticloss: 0.04164600220510932
iteration: 84 Logisticloss: 0.039253618794976027
iteration: 85 Logisticloss: 0.037010901191918036
iteration: 86 Logisticloss: 0.03490916579193154
iteration: 87 Logisticloss: 0.03294040998643468
iteration: 88 Logisticloss: 0.031097208826770733
iteration: 89 Logisticloss: 0.02937256713122125
iteration: 90 Logisticloss: 0.027759793142226003
iteration: 91 Logisticloss: 0.026252430079479586
iteration: 92 Logisticloss: 0.024844245863279782
iteration: 93 Logisticloss: 0.023529255682674343
iteration: 94 Logisticloss: 0.022301743065290935
iteration: 95 Logisticloss: 0.021156255244177895

Output_logistic_train.txt

iteration: 96 Logisticloss: 0.02008757240603773
iteration: 97 Logisticloss: 0.01909067073824868
iteration: 98 Logisticloss: 0.018160700361298403
iteration: 99 Logisticloss: 0.01729298491331902
[-3.77466439e-04 2.73264991e-04 -1.68064364e-04 ... 1.64821399e-04
-8.50862229e-06 2.00885349e-04]

CROSS VALIDATION 15

iteration: 0 Logisticloss: 66.67751153493646
iteration: 1 Logisticloss: 7.321777569448592
iteration: 2 Logisticloss: 6.870480518204355
iteration: 3 Logisticloss: 6.447000349749836
iteration: 4 Logisticloss: 6.049622497224905
iteration: 5 Logisticloss: 5.676738075615249
iteration: 6 Logisticloss: 5.326837367773342
iteration: 7 Logisticloss: 4.998503711945723
iteration: 8 Logisticloss: 4.690407766058586
iteration: 9 Logisticloss: 4.401302125539281
iteration: 10 Logisticloss: 4.13001627288254
iteration: 11 Logisticloss: 3.8754518385134977
iteration: 12 Logisticloss: 3.6365781537599324
iteration: 13 Logisticloss: 3.4124280779287353
iteration: 14 Logisticloss: 3.2020940825915636
iteration: 15 Logisticloss: 3.0047245772258235
iteration: 16 Logisticloss: 2.819520461334499
iteration: 17 Logisticloss: 2.645731889085131
iteration: 18 Logisticloss: 2.4826552333688503
iteration: 19 Logisticloss: 2.3296302369876765
iteration: 20 Logisticloss: 2.1860373394360044
iteration: 21 Logisticloss: 2.0512951684532017
iteration: 22 Logisticloss: 1.92485818619144
iteration: 23 Logisticloss: 1.806214480469065
iteration: 24 Logisticloss: 1.6948836921676111
iteration: 25 Logisticloss: 1.5904150703822628
iteration: 26 Logisticloss: 1.4923856474538104
iteration: 27 Logisticloss: 1.4003985264970231
iteration: 28 Logisticloss: 1.3140812744982118
iteration: 29 Logisticloss: 1.2330844144858508
iteration: 30 Logisticloss: 1.1570800106847219
iteration: 31 Logisticloss: 1.0857603409484524
iteration: 32 Logisticloss: 1.0188366511299465
iteration: 33 Logisticloss: 0.9560379863964545
iteration: 34 Logisticloss: 0.897110094828335
iteration: 35 Logisticloss: 0.841814398960235
iteration: 36 Logisticloss: 0.7899270312323515
iteration: 37 Logisticloss: 0.7412379296188513
iteration: 38 Logisticloss: 0.6955499899898847
iteration: 39 Logisticloss: 0.6526782720393705
iteration: 40 Logisticloss: 0.6124492558636394
iteration: 41 Logisticloss: 0.5747001464866581
iteration: 42 Logisticloss: 0.539278223759381
iteration: 43 Logisticloss: 0.5060402350501861
iteration: 44 Logisticloss: 0.4748518278884016

Output_logistic_train.txt

```

iteration: 45 Logisticloss: 0.44558701907850107
iteration: 46 Logisticloss: 0.4181276956014381
iteration: 47 Logisticloss: 0.3923631407596197
iteration: 48 Logisticloss: 0.36818957667893776
iteration: 49 Logisticloss: 0.3455097122801164
iteration: 50 Logisticloss: 0.32423228604745297
iteration: 51 Logisticloss: 0.3042715981882267
iteration: 52 Logisticloss: 0.285547039371449
iteration: 53 Logisticloss: 0.2679826415973408
iteration: 54 Logisticloss: 0.25150669268389625
iteration: 55 Logisticloss: 0.23605145731894125
iteration: 56 Logisticloss: 0.2215530282103309
iteration: 57 Logisticloss: 0.2079512962093868
iteration: 58 Logisticloss: 0.19518999058903208
iteration: 59 Logisticloss: 0.18321671219148863
iteration: 60 Logisticloss: 0.17198287767513742
iteration: 61 Logisticloss: 0.16144352395015352
iteration: 62 Logisticloss: 0.15155697766601475
iteration: 63 Logisticloss: 0.14228444525980982
iteration: 64 Logisticloss: 0.13358960279147722
iteration: 65 Logisticloss: 0.12543825996275618
iteration: 66 Logisticloss: 0.1177981415389895
iteration: 67 Logisticloss: 0.11063877205067761
iteration: 68 Logisticloss: 0.10393138788837773
iteration: 69 Logisticloss: 0.09764878489634415
iteration: 70 Logisticloss: 0.09176506738229478
iteration: 71 Logisticloss: 0.08625535493636595
iteration: 72 Logisticloss: 0.08109555614671446
iteration: 73 Logisticloss: 0.07626230761522582
iteration: 74 Logisticloss: 0.07173312311528428
iteration: 75 Logisticloss: 0.06748672157635283
iteration: 76 Logisticloss: 0.06350342047627296
iteration: 77 Logisticloss: 0.059765432569402734
iteration: 78 Logisticloss: 0.056256932262180405
iteration: 79 Logisticloss: 0.05296385842184415
iteration: 80 Logisticloss: 0.04987353298913568
iteration: 81 Logisticloss: 0.04697423812069574
iteration: 82 Logisticloss: 0.0442548898356488
iteration: 83 Logisticloss: 0.04170488837218845
iteration: 84 Logisticloss: 0.03931413918949416
iteration: 85 Logisticloss: 0.03707315847942493
iteration: 86 Logisticloss: 0.03497314948746561
iteration: 87 Logisticloss: 0.033005981894957424
iteration: 88 Logisticloss: 0.031164086884695345
iteration: 89 Logisticloss: 0.029440330020713185
iteration: 90 Logisticloss: 0.027827917503910577
iteration: 91 Logisticloss: 0.02632035473796417
iteration: 92 Logisticloss: 0.024911444711523924
iteration: 93 Logisticloss: 0.023595300784166006
iteration: 94 Logisticloss: 0.022366349407608833
iteration: 95 Logisticloss: 0.02121930719591307
iteration: 96 Logisticloss: 0.020149131699505315

```

Output_logistic_train.txt

iteration: 97 Logisticloss: 0.0191509616000012
iteration: 98 Logisticloss: 0.018220069942060477
iteration: 99 Logisticloss: 0.01735184810834577
[-4.05360838e-04 2.73346220e-04 -1.81326878e-04 ... 1.82371710e-04
6.47902967e-06 2.03435893e-04]

CROSS VALIDATION 16

iteration: 0 Logisticloss: 105.7268569749397
iteration: 1 Logisticloss: 6.822045226323577
iteration: 2 Logisticloss: 6.401552094265917
iteration: 3 Logisticloss: 6.006977843659364
iteration: 4 Logisticloss: 5.636725129119834
iteration: 5 Logisticloss: 5.2892951108359245
iteration: 6 Logisticloss: 4.963281373708786
iteration: 7 Logisticloss: 4.657364205823922
iteration: 8 Logisticloss: 4.370305208752197
iteration: 9 Logisticloss: 4.100942218334488
iteration: 10 Logisticloss: 3.848184526232623
iteration: 11 Logisticloss: 3.6110084079081175
iteration: 12 Logisticloss: 3.388452973357824
iteration: 13 Logisticloss: 3.179616349421989
iteration: 14 Logisticloss: 2.983652170561093
iteration: 15 Logisticloss: 2.799766314776231
iteration: 16 Logisticloss: 2.62721380581239
iteration: 17 Logisticloss: 2.4652958292571894
iteration: 18 Logisticloss: 2.313356857930935
iteration: 19 Logisticloss: 2.1707819141329727
iteration: 20 Logisticloss: 2.036993997448949
iteration: 21 Logisticloss: 1.9114516893348366
iteration: 22 Logisticloss: 1.7936469282028185
iteration: 23 Logisticloss: 1.6831029398457122
iteration: 24 Logisticloss: 1.5793723067371703
iteration: 25 Logisticloss: 1.48203516204525
iteration: 26 Logisticloss: 1.3906974971663881
iteration: 27 Logisticloss: 1.3049895739927238
iteration: 28 Logisticloss: 1.224564434762958
iteration: 29 Logisticloss: 1.1490965033876452
iteration: 30 Logisticloss: 1.0782802728019862
iteration: 31 Logisticloss: 1.0118290733405093
iteration: 32 Logisticloss: 0.9494739174334803
iteration: 33 Logisticloss: 0.8909624161217666
iteration: 34 Logisticloss: 0.8360577629566468
iteration: 35 Logisticloss: 0.7845377807387195
iteration: 36 Logisticloss: 0.736194026175171
iteration: 37 Logisticloss: 0.6908309468269066
iteration: 38 Logisticloss: 0.6482650837091676
iteration: 39 Logisticloss: 0.6083243119290139
iteration: 40 Logisticloss: 0.5708471116994245
iteration: 41 Logisticloss: 0.5356818646402128
iteration: 42 Logisticloss: 0.5026861774214195
iteration: 43 Logisticloss: 0.4717262467716213
iteration: 44 Logisticloss: 0.44267629182465174
iteration: 45 Logisticloss: 0.4154180805267002

Output_logistic_train.txt

```

iteration: 46 Logisticloss: 0.38984055596650846
iteration: 47 Logisticloss: 0.36583953143299097
iteration: 48 Logisticloss: 0.34331739623154434
iteration: 49 Logisticloss: 0.3221827831862895
iteration: 50 Logisticloss: 0.3023501876339512
iteration: 51 Logisticloss: 0.28373956410049866
iteration: 52 Logisticloss: 0.26627593685194145
iteration: 53 Logisticloss: 0.24988904786912822
iteration: 54 Logisticloss: 0.23451304786068283
iteration: 55 Logisticloss: 0.2200862242569377
iteration: 56 Logisticloss: 0.2065507562119575
iteration: 57 Logisticloss: 0.1938524874058438
iteration: 58 Logisticloss: 0.18194071002342505
iteration: 59 Logisticloss: 0.17076795610053708
iteration: 60 Logisticloss: 0.16028979415310485
iteration: 61 Logisticloss: 0.15046462760302629
iteration: 62 Logisticloss: 0.14125348506974628
iteration: 63 Logisticloss: 0.13261978294004037
iteration: 64 Logisticloss: 0.12452903762427373
iteration: 65 Logisticloss: 0.11694852422524446
iteration: 66 Logisticloss: 0.1098469261376108
iteration: 67 Logisticloss: 0.10319407257127074
iteration: 68 Logisticloss: 0.09696086725810427
iteration: 69 Logisticloss: 0.09111943969328691
iteration: 70 Logisticloss: 0.0856434380041872
iteration: 71 Logisticloss: 0.08050831696616007
iteration: 72 Logisticloss: 0.07569150479877607
iteration: 73 Logisticloss: 0.07117242107900769
iteration: 74 Logisticloss: 0.06693238537607377
iteration: 75 Logisticloss: 0.06295445844882325
iteration: 76 Logisticloss: 0.0592232265040568
iteration: 77 Logisticloss: 0.055724532965980664
iteration: 78 Logisticloss: 0.05244518869192935
iteration: 79 Logisticloss: 0.049372708924752755
iteration: 80 Logisticloss: 0.04649511205375815
iteration: 81 Logisticloss: 0.043800793633843794
iteration: 82 Logisticloss: 0.0412784850199366
iteration: 83 Logisticloss: 0.038917312823384696
iteration: 84 Logisticloss: 0.03670696045680544
iteration: 85 Logisticloss: 0.034637879088561314
iteration: 86 Logisticloss: 0.03270143701428113
iteration: 87 Logisticloss: 0.0308898988014978
iteration: 88 Logisticloss: 0.029196212081200157
iteration: 89 Logisticloss: 0.027613696535755156
iteration: 90 Logisticloss: 0.02613579081782999
iteration: 91 Logisticloss: 0.024755971411654122
iteration: 92 Logisticloss: 0.023467839485309373
iteration: 93 Logisticloss: 0.022265266517565514
iteration: 94 Logisticloss: 0.02114247861485001
iteration: 95 Logisticloss: 0.020094037546401784
iteration: 96 Logisticloss: 0.019114762631282863
iteration: 97 Logisticloss: 0.018199667593581523

```

Output_logistic_train.txt

iteration: 98 Logisticloss: 0.017343960947921996
iteration: 99 Logisticloss: 0.016543110919650283
[-0.00056131 0.00022846 -0.00042014 ... 0.00045656 -0.00011222
0.00017509]

CROSS VALIDATION 17

iteration: 0 Logisticloss: 66.68228396460412
iteration: 1 Logisticloss: 7.321816942156752
iteration: 2 Logisticloss: 6.870517464071909
iteration: 3 Logisticloss: 6.447035018361504
iteration: 4 Logisticloss: 6.049655028945352
iteration: 5 Logisticloss: 5.676768602157394
iteration: 6 Logisticloss: 5.326866012731634
iteration: 7 Logisticloss: 4.998530591296538
iteration: 8 Logisticloss: 4.6904329886297935
iteration: 9 Logisticloss: 4.40132579345086
iteration: 10 Logisticloss: 4.13003848196003
iteration: 11 Logisticloss: 3.8754726786759828
iteration: 12 Logisticloss: 3.636597709384095
iteration: 13 Logisticloss: 3.412446428190481
iteration: 14 Logisticloss: 3.2021113017865774
iteration: 15 Logisticloss: 3.0047407350703867
iteration: 16 Logisticloss: 2.819535623247741
iteration: 17 Logisticloss: 2.6457461164539
iteration: 18 Logisticloss: 2.4826685837962588
iteration: 19 Logisticloss: 2.3296427645263127
iteration: 20 Logisticloss: 2.1860490948067794
iteration: 21 Logisticloss: 2.0513061992507047
iteration: 22 Logisticloss: 1.924868537076624
iteration: 23 Logisticloss: 1.8062241933500642
iteration: 24 Logisticloss: 1.6948928063693873
iteration: 25 Logisticloss: 1.5904236228057775
iteration: 26 Logisticloss: 1.492393672725351
iteration: 27 Logisticloss: 1.4004060571082608
iteration: 28 Logisticloss: 1.3140883409375204
iteration: 29 Logisticloss: 1.2330910453613586
iteration: 30 Logisticloss: 1.1570862328395224
iteration: 31 Logisticloss: 1.085766179568293
iteration: 32 Logisticloss: 1.0188421298436672
iteration: 33 Logisticloss: 0.9560431273693318
iteration: 34 Logisticloss: 0.8971149188483741
iteration: 35 Logisticloss: 0.8418189255173277
iteration: 36 Logisticloss: 0.7899312785900909
iteration: 37 Logisticloss: 0.7412419148786813
iteration: 38 Logisticloss: 0.6955537291471946
iteration: 39 Logisticloss: 0.6526817800312392
iteration: 40 Logisticloss: 0.6124525466082934
iteration: 41 Logisticloss: 0.574703232915587
iteration: 42 Logisticloss: 0.539281117844889
iteration: 43 Logisticloss: 0.5060429478345685
iteration: 44 Logisticloss: 0.47485436952683086
iteration: 45 Logisticloss: 0.4455893989172889
iteration: 46 Logisticloss: 0.4181299223275339

Output_logistic_train.txt

```

iteration: 47 Logisticloss: 0.39236522267601914
iteration: 48 Logisticloss: 0.3681915221810267
iteration: 49 Logisticloss: 0.3455115306216189
iteration: 50 Logisticloss: 0.3242339884775726
iteration: 51 Logisticloss: 0.3042731995009725
iteration: 52 Logisticloss: 0.28554855984192823
iteration: 53 Logisticloss: 0.2679841092409252
iteration: 54 Logisticloss: 0.2515081458537607
iteration: 55 Logisticloss: 0.23605294790975265
iteration: 56 Logisticloss: 0.22155462607751272
iteration: 57 Logisticloss: 0.20795309563492773
iteration: 58 Logisticloss: 0.19519211955687354
iteration: 59 Logisticloss: 0.18321934489075495
iteration: 60 Logisticloss: 0.1719862501854891
iteration: 61 Logisticloss: 0.16144795263427394
iteration: 62 Logisticloss: 0.1515628794076266
iteration: 63 Logisticloss: 0.1422923581444057
iteration: 64 Logisticloss: 0.13360020479316317
iteration: 65 Logisticloss: 0.125452381343803
iteration: 66 Logisticloss: 0.11781676396635779
iteration: 67 Logisticloss: 0.11066300477993994
iteration: 68 Logisticloss: 0.10396241104404072
iteration: 69 Logisticloss: 0.09768775473712232
iteration: 70 Logisticloss: 0.09181298950471922
iteration: 71 Logisticloss: 0.08631294568905983
iteration: 72 Logisticloss: 0.08116312346463858
iteration: 73 Logisticloss: 0.07633968312630836
iteration: 74 Logisticloss: 0.07181966551006778
iteration: 75 Logisticloss: 0.06758139164140661
iteration: 76 Logisticloss: 0.06360490912046096
iteration: 77 Logisticloss: 0.05987231090367612
iteration: 78 Logisticloss: 0.05636779028899943
iteration: 79 Logisticloss: 0.05307740666117832
iteration: 80 Logisticloss: 0.04998865629578017
iteration: 81 Logisticloss: 0.047090006345219905
iteration: 82 Logisticloss: 0.04437054005663807
iteration: 83 Logisticloss: 0.041819796789176654
iteration: 84 Logisticloss: 0.03942779869094591
iteration: 85 Logisticloss: 0.03718517142511996
iteration: 86 Logisticloss: 0.03508323550916494
iteration: 87 Logisticloss: 0.033113990538292296
iteration: 88 Logisticloss: 0.03126999930717833
iteration: 89 Logisticloss: 0.029544236636400333
iteration: 90 Logisticloss: 0.027929969757981243
iteration: 91 Logisticloss: 0.026420703702401325
iteration: 92 Logisticloss: 0.025010187262709902
iteration: 93 Logisticloss: 0.023692448985845327
iteration: 94 Logisticloss: 0.02246182410591751
iteration: 95 Logisticloss: 0.02131294515831675
iteration: 96 Logisticloss: 0.02024069585562594
iteration: 97 Logisticloss: 0.019240152690656164
iteration: 98 Logisticloss: 0.018306544874685488

```

Output_logistic_train.txt

iteration: 99 Logisticloss: 0.017435249987380552
[-4.03483719e-04 2.60723246e-04 -1.79141818e-04 ... 1.82141881e-04
7.72581506e-06 2.04357705e-04]

CROSS VALIDATION 18

iteration: 0 Logisticloss: 137.93969650726825
iteration: 1 Logisticloss: 135.205236772742
iteration: 2 Logisticloss: 6.878233985431989
iteration: 3 Logisticloss: 6.454248669694835
iteration: 4 Logisticloss: 6.056416736210536
iteration: 5 Logisticloss: 5.683113878142011
iteration: 6 Logisticloss: 5.332824386963912
iteration: 7 Logisticloss: 5.004128233892039
iteration: 8 Logisticloss: 4.695693768987788
iteration: 9 Logisticloss: 4.406271823793325
iteration: 10 Logisticloss: 4.134690450488003
iteration: 11 Logisticloss: 3.879850078683453
iteration: 12 Logisticloss: 3.6407190019768874
iteration: 13 Logisticloss: 3.4163291466400953
iteration: 14 Logisticloss: 3.205772091562149
iteration: 15 Logisticloss: 3.008195320888146
iteration: 16 Logisticloss: 2.8227987049575956
iteration: 17 Logisticloss: 2.6488312197330353
iteration: 18 Logisticloss: 2.485587920804169
iteration: 19 Logisticloss: 2.3324071737921135
iteration: 20 Logisticloss: 2.1886681090996234
iteration: 21 Logisticloss: 2.0537882379029333
iteration: 22 Logisticloss: 1.9272211667116033
iteration: 23 Logisticloss: 1.8084543825011272
iteration: 24 Logisticloss: 1.697007120469268
iteration: 25 Logisticloss: 1.5924283433331932
iteration: 26 Logisticloss: 1.4942948527809847
iteration: 27 Logisticloss: 1.4022095365305296
iteration: 28 Logisticloss: 1.3157997420789254
iteration: 29 Logisticloss: 1.2347157638315966
iteration: 30 Logisticloss: 1.1586294310354235
iteration: 31 Logisticloss: 1.0872327864287372
iteration: 32 Logisticloss: 1.020236847901247
iteration: 33 Logisticloss: 0.9573704471584222
iteration: 34 Logisticloss: 0.898379140435305
iteration: 35 Logisticloss: 0.8430241868760651
iteration: 36 Logisticloss: 0.7910815904187176
iteration: 37 Logisticloss: 0.7423412009461781
iteration: 38 Logisticloss: 0.6966058700637688
iteration: 39 Logisticloss: 0.6536906561002226
iteration: 40 Logisticloss: 0.6134220718509692
iteration: 41 Logisticloss: 0.5756373675172883
iteration: 42 Logisticloss: 0.540183841131631
iteration: 43 Logisticloss: 0.5069181711339666
iteration: 44 Logisticloss: 0.47570577261741603
iteration: 45 Logisticloss: 0.44642019047705817
iteration: 46 Logisticloss: 0.41894255486506143
iteration: 47 Logisticloss: 0.3931611262565871

Output_logistic_train.txt

```

iteration: 48 Logisticloss: 0.36897093823053995
iteration: 49 Logisticloss: 0.34627350933556883
iteration: 50 Logisticloss: 0.3249765663412499
iteration: 51 Logisticloss: 0.30499372743188524
iteration: 52 Logisticloss: 0.2862441338238045
iteration: 53 Logisticloss: 0.26865205865770936
iteration: 54 Logisticloss: 0.2521465324908492
iteration: 55 Logisticloss: 0.23666100517459843
iteration: 56 Logisticloss: 0.2221330370387533
iteration: 57 Logisticloss: 0.20850400009636447
iteration: 58 Logisticloss: 0.19571877917319888
iteration: 59 Logisticloss: 0.1837254847718783
iteration: 60 Logisticloss: 0.172475208394858
iteration: 61 Logisticloss: 0.16192185363428097
iteration: 62 Logisticloss: 0.15202205750324993
iteration: 63 Logisticloss: 0.14273518233699575
iteration: 64 Logisticloss: 0.13402332611506645
iteration: 65 Logisticloss: 0.1258512879227412
iteration: 66 Logisticloss: 0.11818644301878517
iteration: 67 Logisticloss: 0.1109985168461998
iteration: 68 Logisticloss: 0.10425927994131055
iteration: 69 Logisticloss: 0.09794220744949905
iteration: 70 Logisticloss: 0.09202216165340643
iteration: 71 Logisticloss: 0.08647516208273684
iteration: 72 Logisticloss: 0.0812782875740101
iteration: 73 Logisticloss: 0.07640969595631666
iteration: 74 Logisticloss: 0.0718486807548255
iteration: 75 Logisticloss: 0.06757567302048831
iteration: 76 Logisticloss: 0.06357216168262554
iteration: 77 Logisticloss: 0.059820591811317436
iteration: 78 Logisticloss: 0.05630433258322732
iteration: 79 Logisticloss: 0.053007762291284115
iteration: 80 Logisticloss: 0.0499164319247436
iteration: 81 Logisticloss: 0.0470172066752977
iteration: 82 Logisticloss: 0.04429829411105318
iteration: 83 Logisticloss: 0.041749135199259886
iteration: 84 Logisticloss: 0.03936019884221921
iteration: 85 Logisticloss: 0.03712273984245541
iteration: 86 Logisticloss: 0.035028563916421826
iteration: 87 Logisticloss: 0.033069822957405015
iteration: 88 Logisticloss: 0.031238854379271454
iteration: 89 Logisticloss: 0.029528075115095618
iteration: 90 Logisticloss: 0.02792993608710966
iteration: 91 Logisticloss: 0.02643693735864848
iteration: 92 Logisticloss: 0.025041701186516302
iteration: 93 Logisticloss: 0.02373709550056675
iteration: 94 Logisticloss: 0.02251638480691858
iteration: 95 Logisticloss: 0.021373362433964274
iteration: 96 Logisticloss: 0.020302409584567065
iteration: 97 Logisticloss: 0.019298453370133216
iteration: 98 Logisticloss: 0.018356851333301574
iteration: 99 Logisticloss: 0.017473279286485566

```

Output_logistic_train.txt

[-5.24113399e-04 -2.41364522e-04 -4.20278747e-04 ... 4.76112141e-04
4.09398972e-05 1.71129853e-04]

CROSS VALIDATION 19

iteration: 0 Logisticloss: 121.78136777710307
iteration: 1 Logisticloss: 19.148927940822674
iteration: 2 Logisticloss: 7.931210441994558
iteration: 3 Logisticloss: 7.442349389972841
iteration: 4 Logisticloss: 6.983620576898959
iteration: 5 Logisticloss: 6.553166722835702
iteration: 6 Logisticloss: 6.149245026188155
iteration: 7 Logisticloss: 5.770220107529502
iteration: 8 Logisticloss: 5.414557388352635
iteration: 9 Logisticloss: 5.08081687793991
iteration: 10 Logisticloss: 4.767647343195508
iteration: 11 Logisticloss: 4.473780837835595
iteration: 12 Logisticloss: 4.198027568786215
iteration: 13 Logisticloss: 3.9392710790043037
iteration: 14 Logisticloss: 3.6964637272182315
iteration: 15 Logisticloss: 3.4686224462865063
iteration: 16 Logisticloss: 3.2548247630012477
iteration: 17 Logisticloss: 3.0542050632217363
iteration: 18 Logisticloss: 2.865951087216596
iteration: 19 Logisticloss: 2.68930064102534
iteration: 20 Logisticloss: 2.523538510524881
iteration: 21 Logisticloss: 2.367993565707569
iteration: 22 Logisticloss: 2.2220360434480444
iteration: 23 Logisticloss: 2.0850749977596945
iteration: 24 Logisticloss: 1.956555907220988
iteration: 25 Logisticloss: 1.835958429890368
iteration: 26 Logisticloss: 1.7227942966285177
iteration: 27 Logisticloss: 1.6166053343115612
iteration: 28 Logisticloss: 1.5169616109506783
iteration: 29 Logisticloss: 1.4234596952354506
iteration: 30 Logisticloss: 1.335721023492418
iteration: 31 Logisticloss: 1.2533903674992835
iteration: 32 Logisticloss: 1.176134397020862
iteration: 33 Logisticloss: 1.1036403313369751
iteration: 34 Logisticloss: 1.0356146744154358
iteration: 35 Logisticloss: 0.9717820287440191
iteration: 36 Logisticloss: 0.9118839831694141
iteration: 37 Logisticloss: 0.8556780703886004
iteration: 38 Logisticloss: 0.8029367899794768
iteration: 39 Logisticloss: 0.7534466930084126
iteration: 40 Logisticloss: 0.7070075242575009
iteration: 41 Logisticloss: 0.6634314178949925
iteration: 42 Logisticloss: 0.6225421418793532
iteration: 43 Logisticloss: 0.5841743854919055
iteration: 44 Logisticloss: 0.5481730832550126
iteration: 45 Logisticloss: 0.5143927676352739
iteration: 46 Logisticloss: 0.4826969435601487
iteration: 47 Logisticloss: 0.4529574817798139
iteration: 48 Logisticloss: 0.4250540370495955

Output_logistic_train.txt

```

iteration: 49 Logisticloss: 0.39887350956700446
iteration: 50 Logisticloss: 0.3743095765132947
iteration: 51 Logisticloss: 0.3512623126059373
iteration: 52 Logisticloss: 0.32963788840867747
iteration: 53 Logisticloss: 0.30934829797680496
iteration: 54 Logisticloss: 0.29031105563195986
iteration: 55 Logisticloss: 0.2724488340200133
iteration: 56 Logisticloss: 0.25568907209754344
iteration: 57 Logisticloss: 0.23996361909209818
iteration: 58 Logisticloss: 0.22520847050258544
iteration: 59 Logisticloss: 0.21136360160633907
iteration: 60 Logisticloss: 0.19837284796162144
iteration: 61 Logisticloss: 0.1861837605529597
iteration: 62 Logisticloss: 0.1747473879498066
iteration: 63 Logisticloss: 0.16401798416099328
iteration: 64 Logisticloss: 0.1539526741704446
iteration: 65 Logisticloss: 0.1445111180470833
iteration: 66 Logisticloss: 0.13565521021636695
iteration: 67 Logisticloss: 0.1273488439654776
iteration: 68 Logisticloss: 0.11955776239312552
iteration: 69 Logisticloss: 0.11224950304573937
iteration: 70 Logisticloss: 0.10539342738823688
iteration: 71 Logisticloss: 0.0989608103487107
iteration: 72 Logisticloss: 0.09292494574395131
iteration: 73 Logisticloss: 0.08726120608798771
iteration: 74 Logisticloss: 0.0819470032983848
iteration: 75 Logisticloss: 0.07696163947316159
iteration: 76 Logisticloss: 0.0722860846883179
iteration: 77 Logisticloss: 0.06790273549982109
iteration: 78 Logisticloss: 0.06379519181810589
iteration: 79 Logisticloss: 0.05994806479448846
iteration: 80 Logisticloss: 0.056346811098163495
iteration: 81 Logisticloss: 0.05297758050886456
iteration: 82 Logisticloss: 0.049827063172434176
iteration: 83 Logisticloss: 0.046882335547930004
iteration: 84 Logisticloss: 0.04413072984085418
iteration: 85 Logisticloss: 0.04155977068517594
iteration: 86 Logisticloss: 0.03915721042691387
iteration: 87 Logisticloss: 0.03691115559235234
iteration: 88 Logisticloss: 0.03481024627904642
iteration: 89 Logisticloss: 0.032843846798527594
iteration: 90 Logisticloss: 0.03100221342214826
iteration: 91 Logisticloss: 0.029276605350379806
iteration: 92 Logisticloss: 0.027659308482971455
iteration: 93 Logisticloss: 0.02614356523359643
iteration: 94 Logisticloss: 0.024723437009392626
iteration: 95 Logisticloss: 0.023393640473424616
iteration: 96 Logisticloss: 0.02214938499322905
iteration: 97 Logisticloss: 0.020986217168868226
iteration: 98 Logisticloss: 0.019899872707070016
iteration: 99 Logisticloss: 0.01888614865503591
[-5.36148909e-04 -7.87668444e-05 -3.49968941e-04 ... 6.08472837e-04

```

Output_logistic_train.txt

1.22357854e-05 9.14094665e-05]

Accuracy (Logistic Loss): 0.9

eta = 0.001 lambda = 0.1

CROSS VALIDATION 0

iteration: 0 Logisticloss: 84.67713842372713
iteration: 1 Logisticloss: 8.17347281838675
iteration: 2 Logisticloss: 4.868846889925431
iteration: 3 Logisticloss: 2.8677541481751025
iteration: 4 Logisticloss: 2.807591719031351
iteration: 5 Logisticloss: 2.7486914336048027
iteration: 6 Logisticloss: 2.6910268134639064
iteration: 7 Logisticloss: 2.634571935666425
iteration: 8 Logisticloss: 2.5793014211058507
iteration: 9 Logisticloss: 2.525190423102327
iteration: 10 Logisticloss: 2.4722146162328937
iteration: 11 Logisticloss: 2.420350185396084
iteration: 12 Logisticloss: 2.369573815105916
iteration: 13 Logisticloss: 2.3198626790105066
iteration: 14 Logisticloss: 2.2711944296305555
iteration: 15 Logisticloss: 2.2235471883131166
iteration: 16 Logisticloss: 2.1768995353961285
iteration: 17 Logisticloss: 2.13123050057928
iteration: 18 Logisticloss: 2.0865195534968977
iteration: 19 Logisticloss: 2.0427465944885936
iteration: 20 Logisticloss: 1.9998919455635396
iteration: 21 Logisticloss: 1.9579363415543207
iteration: 22 Logisticloss: 1.9168609214563619
iteration: 23 Logisticloss: 1.8766472199490492
iteration: 24 Logisticloss: 1.8372771590947388
iteration: 25 Logisticloss: 1.7987330402119288
iteration: 26 Logisticloss: 1.7609975359189214
iteration: 27 Logisticloss: 1.7240536823444095
iteration: 28 Logisticloss: 1.6878848715015087
iteration: 29 Logisticloss: 1.6524748438217696
iteration: 30 Logisticloss: 1.6178076808458515
iteration: 31 Logisticloss: 1.5838677980675566
iteration: 32 Logisticloss: 1.5506399379280111
iteration: 33 Logisticloss: 1.518109162956861
iteration: 34 Logisticloss: 1.4862608490573879
iteration: 35 Logisticloss: 1.4550806789325426
iteration: 36 Logisticloss: 1.4245546356489425
iteration: 37 Logisticloss: 1.3946689963359458
iteration: 38 Logisticloss: 1.3654103260169856
iteration: 39 Logisticloss: 1.3367654715703854
iteration: 40 Logisticloss: 1.308721555816967
iteration: 41 Logisticloss: 1.2812659717317938
iteration: 42 Logisticloss: 1.2543863767774672
iteration: 43 Logisticloss: 1.2280706873564393
iteration: 44 Logisticloss: 1.2023070733798624
iteration: 45 Logisticloss: 1.17708395295056
iteration: 46 Logisticloss: 1.152389987157744
iteration: 47 Logisticloss: 1.1282140749811633

Output_logistic_train.txt

```

iteration: 48 Logisticloss: 1.10454534830241
iteration: 49 Logisticloss: 1.0813731670211881
iteration: 50 Logisticloss: 1.0586871142743566
iteration: 51 Logisticloss: 1.0364769917556538
iteration: 52 Logisticloss: 1.0147328151340156
iteration: 53 Logisticloss: 0.9934448095684876
iteration: 54 Logisticloss: 0.9726034053177451
iteration: 55 Logisticloss: 0.9521992334423077
iteration: 56 Logisticloss: 0.9322231215975548
iteration: 57 Logisticloss: 0.9126660899157228
iteration: 58 Logisticloss: 0.8935193469750803
iteration: 59 Logisticloss: 0.874774285854538
iteration: 60 Logisticloss: 0.8564224802719916
iteration: 61 Logisticloss: 0.8384556808047282
iteration: 62 Logisticloss: 0.8208658111902714
iteration: 63 Logisticloss: 0.803644964706087
iteration: 64 Logisticloss: 0.7867854006265904
iteration: 65 Logisticloss: 0.7702795407559528
iteration: 66 Logisticloss: 0.7541199660352186
iteration: 67 Logisticloss: 0.73829941322229
iteration: 68 Logisticloss: 0.7228107716433548
iteration: 69 Logisticloss: 0.7076470800143588
iteration: 70 Logisticloss: 0.6928015233311482
iteration: 71 Logisticloss: 0.6782674298269159
iteration: 72 Logisticloss: 0.6640382679955898
iteration: 73 Logisticloss: 0.6501076436798201
iteration: 74 Logisticloss: 0.636469297222185
iteration: 75 Logisticloss: 0.6231171006782441
iteration: 76 Logisticloss: 0.6100450550900123
iteration: 77 Logisticloss: 0.597247287818402
iteration: 78 Logisticloss: 0.5847180499331045
iteration: 79 Logisticloss: 0.5724517136583017
iteration: 80 Logisticloss: 0.5604427698725103
iteration: 81 Logisticloss: 0.5486858256607237
iteration: 82 Logisticloss: 0.5371756019168671
iteration: 83 Logisticloss: 0.5259069309944225
iteration: 84 Logisticloss: 0.5148747544028651
iteration: 85 Logisticloss: 0.504074120547342
iteration: 86 Logisticloss: 0.4935001825087788
iteration: 87 Logisticloss: 0.4831481958613482
iteration: 88 Logisticloss: 0.47301351652397594
iteration: 89 Logisticloss: 0.46309159864232247
iteration: 90 Logisticloss: 0.4533779924974638
iteration: 91 Logisticloss: 0.4438683424373415
iteration: 92 Logisticloss: 0.4345583848269999
iteration: 93 Logisticloss: 0.4254439460136872
iteration: 94 Logisticloss: 0.4165209403031468
iteration: 95 Logisticloss: 0.40778536794388204
iteration: 96 Logisticloss: 0.3992333131169079
iteration: 97 Logisticloss: 0.39086094192954884
iteration: 98 Logisticloss: 0.38266450041320377
iteration: 99 Logisticloss: 0.3746403125267435

```

Output_logistic_train.txt

[-0.00404072 0.00220376 0.00327653 ... 0.00310454 0.00337861
0.00062006]

CROSS VALIDATION 1

iteration: 0 Logisticloss: 61.768446365717466
iteration: 1 Logisticloss: 2.5940139927415014
iteration: 2 Logisticloss: 2.5395943406469015
iteration: 3 Logisticloss: 2.4863163549204828
iteration: 4 Logisticloss: 2.434156084617203
iteration: 5 Logisticloss: 2.383090081257359
iteration: 6 Logisticloss: 2.3330953882853858
iteration: 7 Logisticloss: 2.284149530749815
iteration: 8 Logisticloss: 2.236230505199735
iteration: 9 Logisticloss: 2.1893167697932094
iteration: 10 Logisticloss: 2.143387234613216
iteration: 11 Logisticloss: 2.098421252186737
iteration: 12 Logisticloss: 2.0543986082027588
iteration: 13 Logisticloss: 2.0112995124249973
iteration: 14 Logisticloss: 1.9691045897952517
iteration: 15 Logisticloss: 1.9277948717234215
iteration: 16 Logisticloss: 1.8873517875602304
iteration: 17 Logisticloss: 1.847757156248855
iteration: 18 Logisticloss: 1.8089931781516921
iteration: 19 Logisticloss: 1.7710424270485814
iteration: 20 Logisticloss: 1.7338878423029156
iteration: 21 Logisticloss: 1.697512721192078
iteration: 22 Logisticloss: 1.6619007113987934
iteration: 23 Logisticloss: 1.627035803659994
iteration: 24 Logisticloss: 1.5929023245699079
iteration: 25 Logisticloss: 1.5594849295341326
iteration: 26 Logisticloss: 1.5267685958715196
iteration: 27 Logisticloss: 1.4947386160607792
iteration: 28 Logisticloss: 1.463380591128762
iteration: 29 Logisticloss: 1.4326804241774456
iteration: 30 Logisticloss: 1.4026243140467214
iteration: 31 Logisticloss: 1.3731987491101276
iteration: 32 Logisticloss: 1.3443905012007422
iteration: 33 Logisticloss: 1.3161866196645031
iteration: 34 Logisticloss: 1.2885744255382838
iteration: 35 Logisticloss: 1.2615415058501063
iteration: 36 Logisticloss: 1.2350757080389303
iteration: 37 Logisticloss: 1.2091651344915089
iteration: 38 Logisticloss: 1.1837981371938564
iteration: 39 Logisticloss: 1.1589633124949204
iteration: 40 Logisticloss: 1.1346494959801068
iteration: 41 Logisticloss: 1.1108457574523554
iteration: 42 Logisticloss: 1.087541396018504
iteration: 43 Logisticloss: 1.0647259352787382
iteration: 44 Logisticloss: 1.0423891186169585
iteration: 45 Logisticloss: 1.0205209045899517
iteration: 46 Logisticloss: 0.9991114624132948
iteration: 47 Logisticloss: 0.9781511675419562
iteration: 48 Logisticloss: 0.9576305973436139

Output_logistic_train.txt

```

iteration: 49 Logisticloss: 0.9375405268627399
iteration: 50 Logisticloss: 0.9178719246735548
iteration: 51 Logisticloss: 0.8986159488199776
iteration: 52 Logisticloss: 0.8797639428407528
iteration: 53 Logisticloss: 0.8613074318779685
iteration: 54 Logisticloss: 0.8432381188672108
iteration: 55 Logisticloss: 0.8255478808076454
iteration: 56 Logisticloss: 0.8082287651103507
iteration: 57 Logisticloss: 0.7912729860232564
iteration: 58 Logisticloss: 0.7746729211310863
iteration: 59 Logisticloss: 0.7584211079287257
iteration: 60 Logisticloss: 0.7425102404664782
iteration: 61 Logisticloss: 0.7269331660657024
iteration: 62 Logisticloss: 0.7116828821033486
iteration: 63 Logisticloss: 0.6967525328639567
iteration: 64 Logisticloss: 0.6821354064576918
iteration: 65 Logisticloss: 0.6678249318030438
iteration: 66 Logisticloss: 0.6538146756728201
iteration: 67 Logisticloss: 0.6400983398021185
iteration: 68 Logisticloss: 0.6266697580569673
iteration: 69 Logisticloss: 0.6135228936623728
iteration: 70 Logisticloss: 0.6006518364885159
iteration: 71 Logisticloss: 0.5880508003938885
iteration: 72 Logisticloss: 0.5757141206241706
iteration: 73 Logisticloss: 0.56363625126568
iteration: 74 Logisticloss: 0.5518117627522542
iteration: 75 Logisticloss: 0.5402353394244401
iteration: 76 Logisticloss: 0.5289017771398971
iteration: 77 Logisticloss: 0.5178059809339445
iteration: 78 Logisticloss: 0.5069429627291973
iteration: 79 Logisticloss: 0.4963078390932682
iteration: 80 Logisticloss: 0.48589582904352735
iteration: 81 Logisticloss: 0.47570225189793747
iteration: 82 Logisticloss: 0.46572252517099916
iteration: 83 Logisticloss: 0.45595216251387066
iteration: 84 Logisticloss: 0.4463867716977333
iteration: 85 Logisticloss: 0.4370220526395084
iteration: 86 Logisticloss: 0.4278537954690388
iteration: 87 Logisticloss: 0.4188778786368789
iteration: 88 Logisticloss: 0.4100902670618484
iteration: 89 Logisticloss: 0.40148701031752687
iteration: 90 Logisticloss: 0.3930642408568874
iteration: 91 Logisticloss: 0.38481817227428267
iteration: 92 Logisticloss: 0.3767450976040161
iteration: 93 Logisticloss: 0.3688413876547555
iteration: 94 Logisticloss: 0.3611034893790532
iteration: 95 Logisticloss: 0.3535279242772635
iteration: 96 Logisticloss: 0.3461112868351714
iteration: 97 Logisticloss: 0.3388502429946445
iteration: 98 Logisticloss: 0.33174152865666606
iteration: 99 Logisticloss: 0.32478194821610123
[-0.00199199  0.0029073 -0.0011481 ... 0.00067383 -0.00022959

```

0.0017726]

CROSS VALIDATION 2

| | | | |
|------------|----|---------------|--------------------|
| iteration: | 0 | Logisticloss: | 355.2642287257059 |
| iteration: | 1 | Logisticloss: | 65.16201348101787 |
| iteration: | 2 | Logisticloss: | 2.830815565981377 |
| iteration: | 3 | Logisticloss: | 2.771425193955262 |
| iteration: | 4 | Logisticloss: | 2.7132816601402094 |
| iteration: | 5 | Logisticloss: | 2.6563585745431992 |
| iteration: | 6 | Logisticloss: | 2.600630174455089 |
| iteration: | 7 | Logisticloss: | 2.546071284266758 |
| iteration: | 8 | Logisticloss: | 2.492657287230997 |
| iteration: | 9 | Logisticloss: | 2.440364103931004 |
| iteration: | 10 | Logisticloss: | 2.389168174737192 |
| iteration: | 11 | Logisticloss: | 2.339046444763917 |
| iteration: | 12 | Logisticloss: | 2.28997635047294 |
| iteration: | 13 | Logisticloss: | 2.241935807414841 |
| iteration: | 14 | Logisticloss: | 2.1949031987940346 |
| iteration: | 15 | Logisticloss: | 2.1488573646570512 |
| iteration: | 16 | Logisticloss: | 2.1037775915724968 |
| iteration: | 17 | Logisticloss: | 2.059643602714008 |
| iteration: | 18 | Logisticloss: | 2.016435548284788 |
| iteration: | 19 | Logisticloss: | 1.9741339962400752 |
| iteration: | 20 | Logisticloss: | 1.932719923275807 |
| iteration: | 21 | Logisticloss: | 1.8921747060597809 |
| iteration: | 22 | Logisticloss: | 1.852480112687138 |
| iteration: | 23 | Logisticloss: | 1.8136182943459476 |
| iteration: | 24 | Logisticloss: | 1.7755717771814539 |
| iteration: | 25 | Logisticloss: | 1.7383234543495354 |
| iteration: | 26 | Logisticloss: | 1.7018565782514687 |
| iteration: | 27 | Logisticloss: | 1.6661547529431682 |
| iteration: | 28 | Logisticloss: | 1.6312019267128952 |
| iteration: | 29 | Logisticloss: | 1.5969823848221338 |
| iteration: | 30 | Logisticloss: | 1.5634807424047976 |
| iteration: | 31 | Logisticloss: | 1.530681937520318 |
| iteration: | 32 | Logisticloss: | 1.4985712243565352 |
| iteration: | 33 | Logisticloss: | 1.4671341665785285 |
| iteration: | 34 | Logisticloss: | 1.4363566308197697 |
| iteration: | 35 | Logisticloss: | 1.406224780312154 |
| iteration: | 36 | Logisticloss: | 1.3767250686516213 |
| iteration: | 37 | Logisticloss: | 1.3478442336962229 |
| iteration: | 38 | Logisticloss: | 1.3195692915936037 |
| iteration: | 39 | Logisticloss: | 1.2918875309349718 |
| iteration: | 40 | Logisticloss: | 1.2647865070327386 |
| iteration: | 41 | Logisticloss: | 1.2382540363190855 |
| iteration: | 42 | Logisticloss: | 1.212278190862792 |
| iteration: | 43 | Logisticloss: | 1.1868472930017613 |
| iteration: | 44 | Logisticloss: | 1.1619499100887059 |
| iteration: | 45 | Logisticloss: | 1.1375748493475744 |
| iteration: | 46 | Logisticloss: | 1.1137111528383017 |
| iteration: | 47 | Logisticloss: | 1.0903480925275886 |
| iteration: | 48 | Logisticloss: | 1.067475165463419 |
| iteration: | 49 | Logisticloss: | 1.0450820890511177 |

Output_logistic_train.txt

```

iteration: 50 Logisticloss: 1.023158796428772
iteration: 51 Logisticloss: 1.001695431939918
iteration: 52 Logisticloss: 0.9806823467014172
iteration: 53 Logisticloss: 0.9601100942645235
iteration: 54 Logisticloss: 0.9399694263671537
iteration: 55 Logisticloss: 0.9202512887754525
iteration: 56 Logisticloss: 0.9009468172127557
iteration: 57 Logisticloss: 0.8820473333741305
iteration: 58 Logisticloss: 0.8635443410246771
iteration: 59 Logisticloss: 0.845429522179846
iteration: 60 Logisticloss: 0.827694733366052
iteration: 61 Logisticloss: 0.8103320019599016
iteration: 62 Logisticloss: 0.7933335226043947
iteration: 63 Logisticloss: 0.7766916537004984
iteration: 64 Logisticloss: 0.760398913972523
iteration: 65 Logisticloss: 0.74444797910577
iteration: 66 Logisticloss: 0.7288316784549507
iteration: 67 Logisticloss: 0.7135429918219234
iteration: 68 Logisticloss: 0.6985750463013044
iteration: 69 Logisticloss: 0.6839211131925753
iteration: 70 Logisticloss: 0.6695746049773122
iteration: 71 Logisticloss: 0.6555290723602116
iteration: 72 Logisticloss: 0.6417782013726121
iteration: 73 Logisticloss: 0.6283158105372466
iteration: 74 Logisticloss: 0.6151358480929906
iteration: 75 Logisticloss: 0.6022323892783957
iteration: 76 Logisticloss: 0.5895996336728316
iteration: 77 Logisticloss: 0.5772319025940966
iteration: 78 Logisticloss: 0.5651236365513654
iteration: 79 Logisticloss: 0.5532693927523923
iteration: 80 Logisticloss: 0.5416638426638993
iteration: 81 Logisticloss: 0.5303017696241102
iteration: 82 Logisticloss: 0.5191780665064165
iteration: 83 Logisticloss: 0.5082877334331848
iteration: 84 Logisticloss: 0.497625875538732
iteration: 85 Logisticloss: 0.4871877007805214
iteration: 86 Logisticloss: 0.4769685177976447
iteration: 87 Logisticloss: 0.4669637338156729
iteration: 88 Logisticloss: 0.45716885259696804
iteration: 89 Logisticloss: 0.4475794724355568
iteration: 90 Logisticloss: 0.43819128419566966
iteration: 91 Logisticloss: 0.42900006939304375
iteration: 92 Logisticloss: 0.42000169831807876
iteration: 93 Logisticloss: 0.411192128199924
iteration: 94 Logisticloss: 0.4025674014105309
iteration: 95 Logisticloss: 0.39412364370768554
iteration: 96 Logisticloss: 0.3858570625159775
iteration: 97 Logisticloss: 0.3777639452445871
iteration: 98 Logisticloss: 0.36984065764071206
iteration: 99 Logisticloss: 0.36208364217733596
[-0.00639262 -0.00016253 -0.00330075 ... 0.00635582 0.00034165
0.00035797]

```

CROSS VALIDATION 3

```
iteration: 0 Logisticloss: 61.77926088174665
iteration: 1 Logisticloss: 2.5940927220101764
iteration: 2 Logisticloss: 2.5396714182593327
iteration: 3 Logisticloss: 2.486391815526658
iteration: 4 Logisticloss: 2.434229962140194
iteration: 5 Logisticloss: 2.3831624089085643
iteration: 6 Logisticloss: 2.333166198579464
iteration: 7 Logisticloss: 2.284218855519305
iteration: 8 Logisticloss: 2.2362983756093606
iteration: 9 Logisticloss: 2.1893832163538955
iteration: 10 Logisticloss: 2.143452287195794
iteration: 11 Logisticloss: 2.0984849400353838
iteration: 12 Logisticloss: 2.0544609599481416
iteration: 13 Logisticloss: 2.0113605560971375
iteration: 14 Logisticloss: 1.9691643528361356
iteration: 15 Logisticloss: 1.9278533809993286
iteration: 16 Logisticloss: 1.887409069373815
iteration: 17 Logisticloss: 1.8478132363509712
iteration: 18 Logisticloss: 1.809048081752965
iteration: 19 Logisticloss: 1.7710961788307475
iteration: 20 Logisticloss: 1.7339404664299154
iteration: 21 Logisticloss: 1.6975642413209138
iteration: 22 Logisticloss: 1.661951150690172
iteration: 23 Logisticloss: 1.627085184788735
iteration: 24 Logisticloss: 1.5929506697351365
iteration: 25 Logisticloss: 1.5595322604692603
iteration: 26 Logisticloss: 1.526814933854015
iteration: 27 Logisticloss: 1.494783981921732
iteration: 28 Logisticloss: 1.4634250052622466
iteration: 29 Logisticloss: 1.432723906549691
iteration: 30 Logisticloss: 1.4026668842050862
iteration: 31 Logisticloss: 1.373240426191889
iteration: 32 Logisticloss: 1.3444313039416955
iteration: 33 Logisticloss: 1.3162265664073873
iteration: 34 Logisticloss: 1.2886135342410285
iteration: 35 Logisticloss: 1.2615797940939002
iteration: 36 Logisticloss: 1.2351131930361294
iteration: 37 Logisticloss: 1.209201833093372
iteration: 38 Logisticloss: 1.1838340658981206
iteration: 39 Logisticloss: 1.1589984874532164
iteration: 40 Logisticloss: 1.134683933005224
iteration: 41 Logisticloss: 1.1108794720253452
iteration: 42 Logisticloss: 1.087574403295644
iteration: 43 Logisticloss: 1.064758250098342
iteration: 44 Logisticloss: 1.0424207555060478
iteration: 45 Logisticloss: 1.020551877770787
iteration: 46 Logisticloss: 0.9991417858097692
iteration: 47 Logisticloss: 0.978180854785853
iteration: 48 Logisticloss: 0.9576596617807368
iteration: 49 Logisticloss: 0.9375689815589129
iteration: 50 Logisticloss: 0.9178997824204935
```

Output_logistic_train.txt

```

iteration: 51 Logisticloss: 0.8986432221410406
iteration: 52 Logisticloss: 0.8797906439965743
iteration: 53 Logisticloss: 0.8613335728719648
iteration: 54 Logisticloss: 0.8432637114509807
iteration: 55 Logisticloss: 0.8255729364862516
iteration: 56 Logisticloss: 0.808253295147491
iteration: 57 Logisticloss: 0.7912970014463289
iteration: 58 Logisticloss: 0.7746964327361455
iteration: 59 Logisticloss: 0.7584441262853362
iteration: 60 Logisticloss: 0.7425327759224662
iteration: 61 Logisticloss: 0.7269552287518076
iteration: 62 Logisticloss: 0.7117044819377776
iteration: 63 Logisticloss: 0.6967736795568417
iteration: 64 Logisticloss: 0.682156109515457
iteration: 65 Logisticloss: 0.667845200532677
iteration: 66 Logisticloss: 0.6538345191860577
iteration: 67 Logisticloss: 0.6401177670195399
iteration: 68 Logisticloss: 0.6266887777120069
iteration: 69 Logisticloss: 0.6135415143052435
iteration: 70 Logisticloss: 0.6006700664900534
iteration: 71 Logisticloss: 0.588068647949313
iteration: 72 Logisticloss: 0.5757315937567703
iteration: 73 Logisticloss: 0.5636533578304181
iteration: 74 Logisticloss: 0.5518285104392968
iteration: 75 Logisticloss: 0.5402517357626128
iteration: 76 Logisticloss: 0.5289178295000673
iteration: 77 Logisticloss: 0.517821696532333
iteration: 78 Logisticloss: 0.5069583486306201
iteration: 79 Logisticloss: 0.49632290221430814
iteration: 80 Logisticloss: 0.4859105761556397
iteration: 81 Logisticloss: 0.4757166896304896
iteration: 82 Logisticloss: 0.4657366600142456
iteration: 83 Logisticloss: 0.4559660008218643
iteration: 84 Logisticloss: 0.44640031969117455
iteration: 85 Logisticloss: 0.43703531640853216
iteration: 86 Logisticloss: 0.4278667809759421
iteration: 87 Logisticloss: 0.4188905917187901
iteration: 88 Logisticloss: 0.41010271343333726
iteration: 89 Logisticloss: 0.40149919557315805
iteration: 90 Logisticloss: 0.393076170473718
iteration: 91 Logisticloss: 0.38482985161430344
iteration: 92 Logisticloss: 0.37675653191654085
iteration: 93 Logisticloss: 0.36885258207875476
iteration: 94 Logisticloss: 0.36111444894543593
iteration: 95 Logisticloss: 0.35353865391111067
iteration: 96 Logisticloss: 0.34612179135791377
iteration: 97 Logisticloss: 0.3388605271261968
iteration: 98 Logisticloss: 0.3317515970175097
iteration: 99 Logisticloss: 0.32479180532932345
[-0.00199228 0.0029065 -0.00114889 ... 0.00067359 -0.00022944
 0.00177238]

```

CROSS VALIDATION 4

Output_logistic_train.txt

```

iteration: 0 Logisticloss: 61.77926088174665
iteration: 1 Logisticloss: 2.5940927220101764
iteration: 2 Logisticloss: 2.5396714182593327
iteration: 3 Logisticloss: 2.486391815526658
iteration: 4 Logisticloss: 2.434229962140194
iteration: 5 Logisticloss: 2.3831624089085643
iteration: 6 Logisticloss: 2.333166198579464
iteration: 7 Logisticloss: 2.284218855519305
iteration: 8 Logisticloss: 2.2362983756093606
iteration: 9 Logisticloss: 2.1893832163538955
iteration: 10 Logisticloss: 2.143452287195794
iteration: 11 Logisticloss: 2.0984849400353838
iteration: 12 Logisticloss: 2.0544609599481416
iteration: 13 Logisticloss: 2.0113605560971375
iteration: 14 Logisticloss: 1.9691643528361356
iteration: 15 Logisticloss: 1.9278533809993286
iteration: 16 Logisticloss: 1.887409069373815
iteration: 17 Logisticloss: 1.8478132363509712
iteration: 18 Logisticloss: 1.809048081752965
iteration: 19 Logisticloss: 1.7710961788307475
iteration: 20 Logisticloss: 1.7339404664299154
iteration: 21 Logisticloss: 1.6975642413209138
iteration: 22 Logisticloss: 1.661951150690172
iteration: 23 Logisticloss: 1.627085184788735
iteration: 24 Logisticloss: 1.5929506697351365
iteration: 25 Logisticloss: 1.5595322604692603
iteration: 26 Logisticloss: 1.526814933854015
iteration: 27 Logisticloss: 1.494783981921732
iteration: 28 Logisticloss: 1.4634250052622466
iteration: 29 Logisticloss: 1.432723906549691
iteration: 30 Logisticloss: 1.4026668842050862
iteration: 31 Logisticloss: 1.373240426191889
iteration: 32 Logisticloss: 1.3444313039416955
iteration: 33 Logisticloss: 1.3162265664073873
iteration: 34 Logisticloss: 1.2886135342410285
iteration: 35 Logisticloss: 1.2615797940939002
iteration: 36 Logisticloss: 1.2351131930361294
iteration: 37 Logisticloss: 1.209201833093372
iteration: 38 Logisticloss: 1.1838340658981206
iteration: 39 Logisticloss: 1.1589984874532164
iteration: 40 Logisticloss: 1.134683933005224
iteration: 41 Logisticloss: 1.1108794720253452
iteration: 42 Logisticloss: 1.087574403295644
iteration: 43 Logisticloss: 1.064758250098342
iteration: 44 Logisticloss: 1.0424207555060478
iteration: 45 Logisticloss: 1.020551877770787
iteration: 46 Logisticloss: 0.9991417858097692
iteration: 47 Logisticloss: 0.978180854785853
iteration: 48 Logisticloss: 0.9576596617807368
iteration: 49 Logisticloss: 0.9375689815589129
iteration: 50 Logisticloss: 0.9178997824204935
iteration: 51 Logisticloss: 0.8986432221410406

```

Output_logistic_train.txt

```
iteration: 52 Logisticloss: 0.8797906439965743
iteration: 53 Logisticloss: 0.8613335728719648
iteration: 54 Logisticloss: 0.8432637114509807
iteration: 55 Logisticloss: 0.8255729364862516
iteration: 56 Logisticloss: 0.808253295147491
iteration: 57 Logisticloss: 0.7912970014463289
iteration: 58 Logisticloss: 0.7746964327361455
iteration: 59 Logisticloss: 0.7584441262853362
iteration: 60 Logisticloss: 0.7425327759224662
iteration: 61 Logisticloss: 0.7269552287518076
iteration: 62 Logisticloss: 0.7117044819377776
iteration: 63 Logisticloss: 0.6967736795568417
iteration: 64 Logisticloss: 0.682156109515457
iteration: 65 Logisticloss: 0.667845200532677
iteration: 66 Logisticloss: 0.6538345191860577
iteration: 67 Logisticloss: 0.6401177670195399
iteration: 68 Logisticloss: 0.6266887777120069
iteration: 69 Logisticloss: 0.6135415143052435
iteration: 70 Logisticloss: 0.6006700664900534
iteration: 71 Logisticloss: 0.588068647949313
iteration: 72 Logisticloss: 0.5757315937567703
iteration: 73 Logisticloss: 0.5636533578304181
iteration: 74 Logisticloss: 0.5518285104392968
iteration: 75 Logisticloss: 0.5402517357626128
iteration: 76 Logisticloss: 0.5289178295000673
iteration: 77 Logisticloss: 0.517821696532333
iteration: 78 Logisticloss: 0.5069583486306201
iteration: 79 Logisticloss: 0.49632290221430814
iteration: 80 Logisticloss: 0.4859105761556397
iteration: 81 Logisticloss: 0.4757166896304896
iteration: 82 Logisticloss: 0.4657366600142456
iteration: 83 Logisticloss: 0.4559660008218643
iteration: 84 Logisticloss: 0.4464003196911746
iteration: 85 Logisticloss: 0.43703531640853216
iteration: 86 Logisticloss: 0.4278667809759421
iteration: 87 Logisticloss: 0.4188905917187901
iteration: 88 Logisticloss: 0.4101027134333373
iteration: 89 Logisticloss: 0.4014991955731581
iteration: 90 Logisticloss: 0.39307617047371807
iteration: 91 Logisticloss: 0.38482985161430355
iteration: 92 Logisticloss: 0.37675653191654096
iteration: 93 Logisticloss: 0.36885258207875493
iteration: 94 Logisticloss: 0.3611144489454362
iteration: 95 Logisticloss: 0.353538653911111
iteration: 96 Logisticloss: 0.34612179135791427
iteration: 97 Logisticloss: 0.3388605271261975
iteration: 98 Logisticloss: 0.33175159701751084
iteration: 99 Logisticloss: 0.324791805329325
[-0.00199228 0.0029065 -0.00114889 ... 0.00067359 -0.00022944
 0.00177238]
CROSS VALIDATION 5
iteration: 0 Logisticloss: 61.72761582136499
```

Output_logistic_train.txt

```

iteration: 1 Logisticloss: 2.5946541916047576
iteration: 2 Logisticloss: 2.540221108819536
iteration: 3 Logisticloss: 2.4869299741640827
iteration: 4 Logisticloss: 2.4347568307823066
iteration: 5 Logisticloss: 2.3836782244074466
iteration: 6 Logisticloss: 2.333671192818295
iteration: 7 Logisticloss: 2.2847132555165994
iteration: 8 Logisticloss: 2.236782403621029
iteration: 9 Logisticloss: 2.1898570899731533
iteration: 10 Logisticloss: 2.1439162194509844
iteration: 11 Logisticloss: 2.098939139485743
iteration: 12 Logisticloss: 2.054905630777552
iteration: 13 Logisticloss: 2.0117958982059245
iteration: 14 Logisticloss: 1.969590561930926
iteration: 15 Logisticloss: 1.928270648681033
iteration: 16 Logisticloss: 1.8878175832237631
iteration: 17 Logisticloss: 1.8482131800152328
iteration: 18 Logisticloss: 1.8094396350249136
iteration: 19 Logisticloss: 1.7714795177318814
iteration: 20 Logisticloss: 1.7343157632889878
iteration: 21 Logisticloss: 1.6979316648514091
iteration: 22 Logisticloss: 1.6623108660661394
iteration: 23 Logisticloss: 1.6274373537190514
iteration: 24 Logisticloss: 1.593295450536199
iteration: 25 Logisticloss: 1.559869808136155
iteration: 26 Logisticloss: 1.527145400130196
iteration: 27 Logisticloss: 1.4951075153672384
iteration: 28 Logisticloss: 1.4637417513204858
iteration: 29 Logisticloss: 1.4330340076128223
iteration: 30 Logisticloss: 1.4029704796780331
iteration: 31 Logisticloss: 1.373537652555008
iteration: 32 Logisticloss: 1.3447222948121298
iteration: 33 Logisticloss: 1.3165114525991377
iteration: 34 Logisticloss: 1.288892443823752
iteration: 35 Logisticloss: 1.2618528524504935
iteration: 36 Logisticloss: 1.2353805229190873
iteration: 37 Logisticloss: 1.2094635546799726
iteration: 38 Logisticloss: 1.1840902968444513
iteration: 39 Logisticloss: 1.1592493429470663
iteration: 40 Logisticloss: 1.1349295258178616
iteration: 41 Logisticloss: 1.1111199125622218
iteration: 42 Logisticloss: 1.0878097996460192
iteration: 43 Logisticloss: 1.0649887080838787
iteration: 44 Logisticloss: 1.042646378728383
iteration: 45 Logisticloss: 1.0207727676581062
iteration: 46 Logisticloss: 0.9993580416624014
iteration: 47 Logisticloss: 0.9783925738209137
iteration: 48 Logisticloss: 0.9578669391758288
iteration: 49 Logisticloss: 0.9377719104949142
iteration: 50 Logisticloss: 0.9180984541234465
iteration: 51 Logisticloss: 0.8988377259231625
iteration: 52 Logisticloss: 0.879981067296406

```


Output_logistic_train.txt

```

iteration: 53 Logisticloss: 0.8615200012936821
iteration: 54 Logisticloss: 0.8434462288028728
iteration: 55 Logisticloss: 0.8257516248183994
iteration: 56 Logisticloss: 0.8084282347886522
iteration: 57 Logisticloss: 0.7914682710400496
iteration: 58 Logisticloss: 0.7748641092761126
iteration: 59 Logisticloss: 0.7586082851499918
iteration: 60 Logisticloss: 0.7426934909088929
iteration: 61 Logisticloss: 0.7271125721089025
iteration: 62 Logisticloss: 0.7118585243987331
iteration: 63 Logisticloss: 0.6969244903709418
iteration: 64 Logisticloss: 0.6823037564792097
iteration: 65 Logisticloss: 0.66798975002029
iteration: 66 Logisticloss: 0.6539760361792779
iteration: 67 Logisticloss: 0.6402563151368647
iteration: 68 Logisticloss: 0.626824419237284
iteration: 69 Logisticloss: 0.613674310215669
iteration: 70 Logisticloss: 0.600800076483584
iteration: 71 Logisticloss: 0.5881959304715031
iteration: 72 Logisticloss: 0.5758562060270448
iteration: 73 Logisticloss: 0.5637753558677928
iteration: 74 Logisticloss: 0.5519479490875628
iteration: 75 Logisticloss: 0.540368668714988
iteration: 76 Logisticloss: 0.5290323093233346
iteration: 77 Logisticloss: 0.5179337746904673
iteration: 78 Logisticloss: 0.5070680755079219
iteration: 79 Logisticloss: 0.49643032713805174
iteration: 80 Logisticloss: 0.4860157474182433
iteration: 81 Logisticloss: 0.4758196545112213
iteration: 82 Logisticloss: 0.46583746480047244
iteration: 83 Logisticloss: 0.45606469082985335
iteration: 84 Logisticloss: 0.44649693928645806
iteration: 85 Logisticloss: 0.437129909025843
iteration: 86 Logisticloss: 0.42795938913872783
iteration: 87 Logisticloss: 0.418981257058318
iteration: 88 Logisticloss: 0.4101914767073919
iteration: 89 Logisticloss: 0.40158609668434725
iteration: 90 Logisticloss: 0.39316124848738765
iteration: 91 Logisticloss: 0.3849131447760738
iteration: 92 Logisticloss: 0.3768380776694689
iteration: 93 Logisticloss: 0.36893241708013025
iteration: 94 Logisticloss: 0.36119260908321754
iteration: 95 Logisticloss: 0.35361517432000744
iteration: 96 Logisticloss: 0.346196706435122
iteration: 97 Logisticloss: 0.33893387054679136
iteration: 98 Logisticloss: 0.33182340174950165
iteration: 99 Logisticloss: 0.3248621036483826
[-0.00199345 0.00291651 -0.00114188 ... 0.0006718 -0.00023105
 0.00177547]
CROSS VALIDATION 6
iteration: 0 Logisticloss: 61.77931034099035
iteration: 1 Logisticloss: 2.5940909094426976

```

Output_logistic_train.txt

```

iteration: 2 Logisticloss: 2.53966964371759
iteration: 3 Logisticloss: 2.4863900782129096
iteration: 4 Logisticloss: 2.4342282612734394
iteration: 5 Logisticloss: 2.3831607437241837
iteration: 6 Logisticloss: 2.3331645683288804
iteration: 7 Logisticloss: 2.2842172594696435
iteration: 8 Logisticloss: 2.236296813043123
iteration: 9 Logisticloss: 2.189381686568632
iteration: 10 Logisticloss: 2.143450789503797
iteration: 11 Logisticloss: 2.098483473763371
iteration: 12 Logisticloss: 2.054459524436955
iteration: 13 Logisticloss: 2.0113591507014474
iteration: 14 Logisticloss: 1.9691629769241505
iteration: 15 Logisticloss: 1.9278520339525116
iteration: 16 Logisticloss: 1.887407750586607
iteration: 17 Logisticloss: 1.8478119452305142
iteration: 18 Logisticloss: 1.8090468177188423
iteration: 19 Logisticloss: 1.7710949413147146
iteration: 20 Logisticloss: 1.7339392548756498
iteration: 21 Logisticloss: 1.697563055183768
iteration: 22 Logisticloss: 1.6619499894369207
iteration: 23 Logisticloss: 1.6270840478973398
iteration: 24 Logisticloss: 1.5929495566945129
iteration: 25 Logisticloss: 1.5595311707790451
iteration: 26 Logisticloss: 1.5268138670243403
iteration: 27 Logisticloss: 1.4947829374730084
iteration: 28 Logisticloss: 1.4634239827249447
iteration: 29 Logisticloss: 1.432722905464133
iteration: 30 Logisticloss: 1.4026659041212377
iteration: 31 Logisticloss: 1.3732394666691552
iteration: 32 Logisticloss: 1.3444303645487279
iteration: 33 Logisticloss: 1.3162256467218854
iteration: 34 Logisticloss: 1.2886126338495487
iteration: 35 Logisticloss: 1.261578912591675
iteration: 36 Logisticloss: 1.2351123300268823
iteration: 37 Logisticloss: 1.2092009881891397
iteration: 38 Logisticloss: 1.1838332387190795
iteration: 39 Logisticloss: 1.158997677627512
iteration: 40 Logisticloss: 1.1346831401688
iteration: 41 Logisticloss: 1.110878695821786
iteration: 42 Logisticloss: 1.0875736433760088
iteration: 43 Logisticloss: 1.064757506121012
iteration: 44 Logisticloss: 1.04242002713657
iteration: 45 Logisticloss: 1.0205511646817256
iteration: 46 Logisticloss: 0.9991410876805573
iteration: 47 Logisticloss: 0.9781801713026486
iteration: 48 Logisticloss: 0.9576589926362825
iteration: 49 Logisticloss: 0.9375683264523972
iteration: 50 Logisticloss: 0.9178991410574148
iteration: 51 Logisticloss: 0.8986425942330769
iteration: 52 Logisticloss: 0.8797900292614506
iteration: 53 Logisticloss: 0.8613329710333297

```

Output_logistic_train.txt

```

iteration: 54 Logisticloss: 0.8432631222382795
iteration: 55 Logisticloss: 0.8255723596346054
iteration: 56 Logisticloss: 0.8082527303975785
iteration: 57 Logisticloss: 0.7912964485442684
iteration: 58 Logisticloss: 0.7746958914333817
iteration: 59 Logisticloss: 0.7584435963385283
iteration: 60 Logisticloss: 0.7425322570933783
iteration: 61 Logisticloss: 0.7269547208072014
iteration: 62 Logisticloss: 0.7117039846493086
iteration: 63 Logisticloss: 0.6967731927009556
iteration: 64 Logisticloss: 0.6821556328732892
iteration: 65 Logisticloss: 0.6678447338899549
iteration: 66 Logisticloss: 0.6538340623330032
iteration: 67 Logisticloss: 0.6401173197507766
iteration: 68 Logisticloss: 0.6266883398264661
iteration: 69 Logisticloss: 0.6135410856060759
iteration: 70 Logisticloss: 0.6006696467845386
iteration: 71 Logisticloss: 0.5880682370487738
iteration: 72 Logisticloss: 0.5757311914764879
iteration: 73 Logisticloss: 0.563652963989549
iteration: 74 Logisticloss: 0.5518281248607914
iteration: 75 Logisticloss: 0.5402513582731359
iteration: 76 Logisticloss: 0.5289174599299201
iteration: 77 Logisticloss: 0.5178213347153778
iteration: 78 Logisticloss: 0.5069579944042029
iteration: 79 Logisticloss: 0.49632255541918885
iteration: 80 Logisticloss: 0.4859102366359186
iteration: 81 Logisticloss: 0.4757163572335382
iteration: 82 Logisticloss: 0.465736334590638
iteration: 83 Logisticloss: 0.4559656822253089
iteration: 84 Logisticloss: 0.4464000077784497
iteration: 85 Logisticloss: 0.43703501103942133
iteration: 86 Logisticloss: 0.4278664820131715
iteration: 87 Logisticloss: 0.4188902990279662
iteration: 88 Logisticloss: 0.41010242688288695
iteration: 89 Logisticloss: 0.40149891503427004
iteration: 90 Logisticloss: 0.393075895820284
iteration: 91 Logisticloss: 0.3848295827228631
iteration: 92 Logisticloss: 0.3767562686662256
iteration: 93 Logisticloss: 0.36885232435123433
iteration: 94 Logisticloss: 0.36111419662486516
iteration: 95 Logisticloss: 0.3535384068840779
iteration: 96 Logisticloss: 0.34612154951339047
iteration: 97 Logisticloss: 0.33886029035548837
iteration: 98 Logisticloss: 0.33175136521420734
iteration: 99 Logisticloss: 0.3247915783892565
[-0.00199227 0.00290648 -0.00114891 ... 0.0006736 -0.00022944
 0.00177237]
CROSS VALIDATION 7
iteration: 0 Logisticloss: 61.77931034099035
iteration: 1 Logisticloss: 2.5940909094426976
iteration: 2 Logisticloss: 2.53966964371759

```

Output_logistic_train.txt

```

iteration: 3 Logisticloss: 2.4863900782129096
iteration: 4 Logisticloss: 2.4342282612734394
iteration: 5 Logisticloss: 2.3831607437241837
iteration: 6 Logisticloss: 2.3331645683288804
iteration: 7 Logisticloss: 2.2842172594696435
iteration: 8 Logisticloss: 2.236296813043123
iteration: 9 Logisticloss: 2.189381686568632
iteration: 10 Logisticloss: 2.143450789503797
iteration: 11 Logisticloss: 2.098483473763371
iteration: 12 Logisticloss: 2.054459524436955
iteration: 13 Logisticloss: 2.0113591507014474
iteration: 14 Logisticloss: 1.9691629769241505
iteration: 15 Logisticloss: 1.9278520339525116
iteration: 16 Logisticloss: 1.887407750586607
iteration: 17 Logisticloss: 1.8478119452305142
iteration: 18 Logisticloss: 1.8090468177188423
iteration: 19 Logisticloss: 1.7710949413147146
iteration: 20 Logisticloss: 1.7339392548756498
iteration: 21 Logisticloss: 1.697563055183768
iteration: 22 Logisticloss: 1.6619499894369207
iteration: 23 Logisticloss: 1.6270840478973398
iteration: 24 Logisticloss: 1.5929495566945129
iteration: 25 Logisticloss: 1.5595311707790451
iteration: 26 Logisticloss: 1.5268138670243403
iteration: 27 Logisticloss: 1.4947829374730084
iteration: 28 Logisticloss: 1.4634239827249447
iteration: 29 Logisticloss: 1.432722905464133
iteration: 30 Logisticloss: 1.4026659041212377
iteration: 31 Logisticloss: 1.3732394666691552
iteration: 32 Logisticloss: 1.3444303645487279
iteration: 33 Logisticloss: 1.3162256467218854
iteration: 34 Logisticloss: 1.2886126338495487
iteration: 35 Logisticloss: 1.261578912591675
iteration: 36 Logisticloss: 1.2351123300268823
iteration: 37 Logisticloss: 1.2092009881891397
iteration: 38 Logisticloss: 1.1838332387190795
iteration: 39 Logisticloss: 1.158997677627512
iteration: 40 Logisticloss: 1.1346831401688
iteration: 41 Logisticloss: 1.110878695821786
iteration: 42 Logisticloss: 1.0875736433760088
iteration: 43 Logisticloss: 1.064757506121012
iteration: 44 Logisticloss: 1.04242002713657
iteration: 45 Logisticloss: 1.0205511646817256
iteration: 46 Logisticloss: 0.9991410876805573
iteration: 47 Logisticloss: 0.9781801713026486
iteration: 48 Logisticloss: 0.9576589926362825
iteration: 49 Logisticloss: 0.9375683264523972
iteration: 50 Logisticloss: 0.9178991410574148
iteration: 51 Logisticloss: 0.8986425942330769
iteration: 52 Logisticloss: 0.8797900292614506
iteration: 53 Logisticloss: 0.8613329710333297
iteration: 54 Logisticloss: 0.8432631222382795

```

Output_logistic_train.txt

```

iteration: 55 Logisticloss: 0.8255723596346054
iteration: 56 Logisticloss: 0.8082527303975785
iteration: 57 Logisticloss: 0.7912964485442684
iteration: 58 Logisticloss: 0.7746958914333817
iteration: 59 Logisticloss: 0.7584435963385283
iteration: 60 Logisticloss: 0.7425322570933783
iteration: 61 Logisticloss: 0.7269547208072014
iteration: 62 Logisticloss: 0.7117039846493086
iteration: 63 Logisticloss: 0.6967731927009556
iteration: 64 Logisticloss: 0.6821556328732892
iteration: 65 Logisticloss: 0.6678447338899549
iteration: 66 Logisticloss: 0.6538340623330032
iteration: 67 Logisticloss: 0.6401173197507766
iteration: 68 Logisticloss: 0.6266883398264661
iteration: 69 Logisticloss: 0.6135410856060759
iteration: 70 Logisticloss: 0.6006696467845386
iteration: 71 Logisticloss: 0.5880682370487738
iteration: 72 Logisticloss: 0.5757311914764879
iteration: 73 Logisticloss: 0.563652963989549
iteration: 74 Logisticloss: 0.5518281248607914
iteration: 75 Logisticloss: 0.5402513582731359
iteration: 76 Logisticloss: 0.5289174599299203
iteration: 77 Logisticloss: 0.5178213347153778
iteration: 78 Logisticloss: 0.5069579944042027
iteration: 79 Logisticloss: 0.49632255541918874
iteration: 80 Logisticloss: 0.4859102366359186
iteration: 81 Logisticloss: 0.47571635723353806
iteration: 82 Logisticloss: 0.4657363345906376
iteration: 83 Logisticloss: 0.4559656822253086
iteration: 84 Logisticloss: 0.44640000777844924
iteration: 85 Logisticloss: 0.43703501103942044
iteration: 86 Logisticloss: 0.42786648201317035
iteration: 87 Logisticloss: 0.4188902990279646
iteration: 88 Logisticloss: 0.4101024268828846
iteration: 89 Logisticloss: 0.4014989150342667
iteration: 90 Logisticloss: 0.39307589582027924
iteration: 91 Logisticloss: 0.3848295827228563
iteration: 92 Logisticloss: 0.3767562686662161
iteration: 93 Logisticloss: 0.36885232435122084
iteration: 94 Logisticloss: 0.36111419662484634
iteration: 95 Logisticloss: 0.3535384068840515
iteration: 96 Logisticloss: 0.3461215495133538
iteration: 97 Logisticloss: 0.33886029035543763
iteration: 98 Logisticloss: 0.33175136521413706
iteration: 99 Logisticloss: 0.32479157838915973
[-0.00199227 0.00290648 -0.00114891 ... 0.0006736 -0.00022944
 0.00177237]
CROSS VALIDATION 8
iteration: 0 Logisticloss: 61.77931034099035
iteration: 1 Logisticloss: 2.5940909094426976
iteration: 2 Logisticloss: 2.53966964371759
iteration: 3 Logisticloss: 2.4863900782129096

```

Output_logistic_train.txt

```

iteration: 4 Logisticloss: 2.4342282612734394
iteration: 5 Logisticloss: 2.3831607437241833
iteration: 6 Logisticloss: 2.3331645683288813
iteration: 7 Logisticloss: 2.2842172594696435
iteration: 8 Logisticloss: 2.236296813043123
iteration: 9 Logisticloss: 2.1893816865686317
iteration: 10 Logisticloss: 2.143450789503797
iteration: 11 Logisticloss: 2.098483473763371
iteration: 12 Logisticloss: 2.054459524436955
iteration: 13 Logisticloss: 2.0113591507014474
iteration: 14 Logisticloss: 1.9691629769241505
iteration: 15 Logisticloss: 1.9278520339525116
iteration: 16 Logisticloss: 1.8874077505866067
iteration: 17 Logisticloss: 1.8478119452305142
iteration: 18 Logisticloss: 1.8090468177188423
iteration: 19 Logisticloss: 1.7710949413147146
iteration: 20 Logisticloss: 1.7339392548756498
iteration: 21 Logisticloss: 1.697563055183768
iteration: 22 Logisticloss: 1.6619499894369207
iteration: 23 Logisticloss: 1.6270840478973398
iteration: 24 Logisticloss: 1.5929495566945129
iteration: 25 Logisticloss: 1.5595311707790451
iteration: 26 Logisticloss: 1.52681386702434
iteration: 27 Logisticloss: 1.4947829374730084
iteration: 28 Logisticloss: 1.4634239827249447
iteration: 29 Logisticloss: 1.432722905464133
iteration: 30 Logisticloss: 1.4026659041212377
iteration: 31 Logisticloss: 1.3732394666691552
iteration: 32 Logisticloss: 1.3444303645487279
iteration: 33 Logisticloss: 1.3162256467218854
iteration: 34 Logisticloss: 1.2886126338495487
iteration: 35 Logisticloss: 1.2615789125916752
iteration: 36 Logisticloss: 1.2351123300268823
iteration: 37 Logisticloss: 1.2092009881891397
iteration: 38 Logisticloss: 1.1838332387190795
iteration: 39 Logisticloss: 1.1589976776275117
iteration: 40 Logisticloss: 1.1346831401688
iteration: 41 Logisticloss: 1.110878695821786
iteration: 42 Logisticloss: 1.0875736433760088
iteration: 43 Logisticloss: 1.0647575061210122
iteration: 44 Logisticloss: 1.04242002713657
iteration: 45 Logisticloss: 1.0205511646817256
iteration: 46 Logisticloss: 0.9991410876805573
iteration: 47 Logisticloss: 0.9781801713026486
iteration: 48 Logisticloss: 0.9576589926362825
iteration: 49 Logisticloss: 0.9375683264523972
iteration: 50 Logisticloss: 0.9178991410574148
iteration: 51 Logisticloss: 0.8986425942330769
iteration: 52 Logisticloss: 0.8797900292614506
iteration: 53 Logisticloss: 0.8613329710333297
iteration: 54 Logisticloss: 0.8432631222382795
iteration: 55 Logisticloss: 0.8255723596346054

```

Output_logistic_train.txt

```

iteration: 56 Logisticloss: 0.8082527303975785
iteration: 57 Logisticloss: 0.7912964485442684
iteration: 58 Logisticloss: 0.7746958914333817
iteration: 59 Logisticloss: 0.7584435963385283
iteration: 60 Logisticloss: 0.7425322570933783
iteration: 61 Logisticloss: 0.7269547208072014
iteration: 62 Logisticloss: 0.7117039846493086
iteration: 63 Logisticloss: 0.6967731927009557
iteration: 64 Logisticloss: 0.6821556328732892
iteration: 65 Logisticloss: 0.6678447338899549
iteration: 66 Logisticloss: 0.6538340623330032
iteration: 67 Logisticloss: 0.6401173197507766
iteration: 68 Logisticloss: 0.6266883398264661
iteration: 69 Logisticloss: 0.6135410856060759
iteration: 70 Logisticloss: 0.6006696467845385
iteration: 71 Logisticloss: 0.5880682370487739
iteration: 72 Logisticloss: 0.5757311914764879
iteration: 73 Logisticloss: 0.563652963989549
iteration: 74 Logisticloss: 0.5518281248607914
iteration: 75 Logisticloss: 0.5402513582731359
iteration: 76 Logisticloss: 0.5289174599299201
iteration: 77 Logisticloss: 0.5178213347153778
iteration: 78 Logisticloss: 0.5069579944042029
iteration: 79 Logisticloss: 0.49632255541918885
iteration: 80 Logisticloss: 0.4859102366359186
iteration: 81 Logisticloss: 0.4757163572335382
iteration: 82 Logisticloss: 0.4657363345906379
iteration: 83 Logisticloss: 0.4559656822253089
iteration: 84 Logisticloss: 0.4464000077784498
iteration: 85 Logisticloss: 0.43703501103942133
iteration: 86 Logisticloss: 0.4278664820131715
iteration: 87 Logisticloss: 0.4188902990279662
iteration: 88 Logisticloss: 0.41010242688288706
iteration: 89 Logisticloss: 0.40149891503427004
iteration: 90 Logisticloss: 0.393075895820284
iteration: 91 Logisticloss: 0.3848295827228631
iteration: 92 Logisticloss: 0.3767562686662256
iteration: 93 Logisticloss: 0.3688523243512343
iteration: 94 Logisticloss: 0.3611141966248652
iteration: 95 Logisticloss: 0.35353840688407795
iteration: 96 Logisticloss: 0.3461215495133905
iteration: 97 Logisticloss: 0.3388602903554885
iteration: 98 Logisticloss: 0.3317513652142073
iteration: 99 Logisticloss: 0.3247915783892565
[-0.00199227 0.00290648 -0.00114891 ... 0.0006736 -0.00022944
 0.00177237]
CROSS VALIDATION 9
iteration: 0 Logisticloss: 158.46162911064766
iteration: 1 Logisticloss: 68.34673557391747
iteration: 2 Logisticloss: 3.0027405059016656
iteration: 3 Logisticloss: 2.9397462287645286
iteration: 4 Logisticloss: 2.8780735082981597

```

Output_logistic_train.txt

```

iteration: 5 Logisticloss: 2.8176946202476407
iteration: 6 Logisticloss: 2.7585824220675574
iteration: 7 Logisticloss: 2.700710340728546
iteration: 8 Logisticloss: 2.6440523607805706
iteration: 9 Logisticloss: 2.5885830126675837
iteration: 10 Logisticloss: 2.5342773612882867
iteration: 11 Logisticloss: 2.4811109947978403
iteration: 12 Logisticloss: 2.429060013645399
iteration: 13 Logisticloss: 2.3781010198424557
iteration: 14 Logisticloss: 2.3282111064570183
iteration: 15 Logisticloss: 2.2793678473286962
iteration: 16 Logisticloss: 2.2315492869997984
iteration: 17 Logisticloss: 2.184733930857561
iteration: 18 Logisticloss: 2.138900735482613
iteration: 19 Logisticloss: 2.094029099198799
iteration: 20 Logisticloss: 2.0500988528193713
iteration: 21 Logisticloss: 2.007090250584597
iteration: 22 Logisticloss: 1.9649839612856752
iteration: 23 Logisticloss: 1.9237610595698125
iteration: 24 Logisticloss: 1.8834030174212553
iteration: 25 Logisticloss: 1.8438916958129108
iteration: 26 Logisticloss: 1.8052093365232735
iteration: 27 Logisticloss: 1.7673385541132436
iteration: 28 Logisticloss: 1.7302623280576148
iteration: 29 Logisticloss: 1.6939639950261207
iteration: 30 Logisticloss: 1.658427241309296
iteration: 31 Logisticloss: 1.623636095384931
iteration: 32 Logisticloss: 1.589574920621603
iteration: 33 Logisticloss: 1.5562284081168014
iteration: 34 Logisticloss: 1.523581569668343
iteration: 35 Logisticloss: 1.4916197308793278
iteration: 36 Logisticloss: 1.4603285243984745
iteration: 37 Logisticloss: 1.4296938832994983
iteration: 38 Logisticloss: 1.399702034604838
iteration: 39 Logisticloss: 1.370339492960465
iteration: 40 Logisticloss: 1.3415930544694916
iteration: 41 Logisticloss: 1.3134497906924032
iteration: 42 Logisticloss: 1.2858970428210654
iteration: 43 Logisticloss: 1.2589224160317556
iteration: 44 Logisticloss: 1.2325137740195395
iteration: 45 Logisticloss: 1.2066592337123863
iteration: 46 Logisticloss: 1.1813471601588434
iteration: 47 Logisticloss: 1.1565661615783092
iteration: 48 Logisticloss: 1.1323050845585845
iteration: 49 Logisticloss: 1.1085530093818894
iteration: 50 Logisticloss: 1.0852992454585542
iteration: 51 Logisticloss: 1.0625333268473023
iteration: 52 Logisticloss: 1.0402450078425807
iteration: 53 Logisticloss: 1.018424258612514
iteration: 54 Logisticloss: 0.9970612608753974
iteration: 55 Logisticloss: 0.9761464036075543
iteration: 56 Logisticloss: 0.9556702787803731

```


Output_logistic_train.txt

```
iteration: 57 Logisticloss: 0.9356236771287509
iteration: 58 Logisticloss: 0.9159975839566851
iteration: 59 Logisticloss: 0.8967831749881012
iteration: 60 Logisticloss: 0.8779718122721848
iteration: 61 Logisticloss: 0.8595550401525401
iteration: 62 Logisticloss: 0.8415245813087358
iteration: 63 Logisticloss: 0.8238723328774012
iteration: 64 Logisticloss: 0.8065903626583264
iteration: 65 Logisticloss: 0.7896709054091909
iteration: 66 Logisticloss: 0.7731063592308275
iteration: 67 Logisticloss: 0.7568892820433907
iteration: 68 Logisticloss: 0.7410123881525399
iteration: 69 Logisticloss: 0.7254685449037822
iteration: 70 Logisticloss: 0.7102507694224333
iteration: 71 Logisticloss: 0.6953522254362013
iteration: 72 Logisticloss: 0.6807662201771693
iteration: 73 Logisticloss: 0.6664862013598416
iteration: 74 Logisticloss: 0.6525057542319556
iteration: 75 Logisticloss: 0.6388185986948266
iteration: 76 Logisticloss: 0.6254185864901379
iteration: 77 Logisticloss: 0.6122996984501895
iteration: 78 Logisticloss: 0.5994560418087888
iteration: 79 Logisticloss: 0.586881847570031
iteration: 80 Logisticloss: 0.5745714679323333
iteration: 81 Logisticloss: 0.5625193737651227
iteration: 82 Logisticloss: 0.5507201521356136
iteration: 83 Logisticloss: 0.5391685038831248
iteration: 84 Logisticloss: 0.5278592412383759
iteration: 85 Logisticloss: 0.5167872854852165
iteration: 86 Logisticloss: 0.5059476646622656
iteration: 87 Logisticloss: 0.4953355113020043
iteration: 88 Logisticloss: 0.48494606020500974
iteration: 89 Logisticloss: 0.47477464624726085
iteration: 90 Logisticloss: 0.46481670221880067
iteration: 91 Logisticloss: 0.4550677566925788
iteration: 92 Logisticloss: 0.44552343192298327
iteration: 93 Logisticloss: 0.4361794417744706
iteration: 94 Logisticloss: 0.427031589681759
iteration: 95 Logisticloss: 0.4180757666442698
iteration: 96 Logisticloss: 0.4093079492587813
iteration: 97 Logisticloss: 0.4007241977955301
iteration: 98 Logisticloss: 0.3923206543240892
iteration: 99 Logisticloss: 0.3840935408961222
[-0.00526566 0.00260645 -0.00075184 ... 0.00708569 0.00279972
0.00138353]
```

CROSS VALIDATION 10

```
iteration: 0 Logisticloss: 61.776699507866574
iteration: 1 Logisticloss: 2.594031391585278
iteration: 2 Logisticloss: 2.5396113744814595
iteration: 3 Logisticloss: 2.486333031403324
iteration: 4 Logisticloss: 2.4341724112451883
iteration: 5 Logisticloss: 2.38310606537007
```

Output_logistic_train.txt

```

iteration: 6 Logisticloss: 2.3331110370684276
iteration: 7 Logisticloss: 2.2841648512380477
iteration: 8 Logisticloss: 2.236245504280434
iteration: 9 Logisticloss: 2.1893314542091638
iteration: 10 Logisticloss: 2.1434016109657548
iteration: 11 Logisticloss: 2.0984353269387035
iteration: 12 Logisticloss: 2.054412387681413
iteration: 13 Logisticloss: 2.011313002824858
iteration: 14 Logisticloss: 1.9691177971808842
iteration: 15 Logisticloss: 1.927807802032164
iteration: 16 Logisticloss: 1.88736444660486
iteration: 17 Logisticloss: 1.8477695497202054
iteration: 18 Logisticloss: 1.8090053116212061
iteration: 19 Logisticloss: 1.771054305970823
iteration: 20 Logisticloss: 1.733899472018014
iteration: 21 Logisticloss: 1.6975241069281346
iteration: 22 Logisticloss: 1.6619118582742276
iteration: 23 Logisticloss: 1.6270467166858478
iteration: 24 Logisticloss: 1.5929130086520962
iteration: 25 Logisticloss: 1.5594953894756507
iteration: 26 Logisticloss: 1.5267788363746004
iteration: 27 Logisticloss: 1.4947486417290072
iteration: 28 Logisticloss: 1.4633904064691434
iteration: 29 Logisticloss: 1.4326900336024337
iteration: 30 Logisticloss: 1.402633721876204
iteration: 31 Logisticloss: 1.3732079595733624
iteration: 32 Logisticloss: 1.344399518438264
iteration: 33 Logisticloss: 1.3161954477299818
iteration: 34 Logisticloss: 1.2885830684003459
iteration: 35 Logisticloss: 1.261549967394123
iteration: 36 Logisticloss: 1.235083992068761
iteration: 37 Logisticloss: 1.2091732447312127
iteration: 38 Logisticloss: 1.1838060772893655
iteration: 39 Logisticloss: 1.1589710860156774
iteration: 40 Logisticloss: 1.1346571064206743
iteration: 41 Logisticloss: 1.1108532082339815
iteration: 42 Logisticloss: 1.0875486904906635
iteration: 43 Logisticloss: 1.0647330767206376
iteration: 44 Logisticloss: 1.0423961102390087
iteration: 45 Logisticloss: 1.020527749535214
iteration: 46 Logisticloss: 0.9991181637588926
iteration: 47 Logisticloss: 0.9781577283004571
iteration: 48 Logisticloss: 0.9576370204643851
iteration: 49 Logisticloss: 0.9375468152332753
iteration: 50 Logisticloss: 0.9178780811207711
iteration: 51 Logisticloss: 0.8986219761114848
iteration: 52 Logisticloss: 0.8797698436860998
iteration: 53 Logisticloss: 0.861313208929862
iteration: 54 Logisticloss: 0.8432437747227048
iteration: 55 Logisticloss: 0.8255534180093118
iteration: 56 Logisticloss: 0.8082341861474203
iteration: 57 Logisticloss: 0.7912782933327379

```

Output_logistic_train.txt

```

iteration: 58 Logisticloss: 0.7746781170988631
iteration: 59 Logisticloss: 0.7584261948906278
iteration: 60 Logisticloss: 0.7425152207093323
iteration: 61 Logisticloss: 0.72693804182836
iteration: 62 Logisticloss: 0.7116876555776916
iteration: 63 Logisticloss: 0.6967572061958834
iteration: 64 Logisticloss: 0.6821399817480819
iteration: 65 Logisticloss: 0.6678294111087019
iteration: 66 Logisticloss: 0.6538190610074007
iteration: 67 Logisticloss: 0.6401026331370303
iteration: 68 Logisticloss: 0.626673961322261
iteration: 69 Logisticloss: 0.6135270087476067
iteration: 70 Logisticloss: 0.6006558652436064
iteration: 71 Logisticloss: 0.5880547446299388
iteration: 72 Logisticloss: 0.5757179821142879
iteration: 73 Logisticloss: 0.5636400317457704
iteration: 74 Logisticloss: 0.5518154639218018
iteration: 75 Logisticloss: 0.5402389629472703
iteration: 76 Logisticloss: 0.5289053246449249
iteration: 77 Logisticloss: 0.5178094540159045
iteration: 78 Logisticloss: 0.5069463629493591
iteration: 79 Logisticloss: 0.49631116798013725
iteration: 80 Logisticloss: 0.48589908809352983
iteration: 81 Logisticloss: 0.4757054425760898
iteration: 82 Logisticloss: 0.46572564891156504
iteration: 83 Logisticloss: 0.4559552207210027
iteration: 84 Logisticloss: 0.4463897657461001
iteration: 85 Logisticloss: 0.4370249838749083
iteration: 86 Logisticloss: 0.4278566652090004
iteration: 87 Logisticloss: 0.41888068817124857
iteration: 88 Logisticloss: 0.41009301765336265
iteration: 89 Logisticloss: 0.40148970320237515
iteration: 90 Logisticloss: 0.39306687724526
iteration: 91 Logisticloss: 0.3848207533509063
iteration: 92 Logisticloss: 0.3767476245286798
iteration: 93 Logisticloss: 0.368843861562823
iteration: 94 Logisticloss: 0.3611059113819647
iteration: 95 Logisticloss: 0.35353029546302867
iteration: 96 Logisticloss: 0.3461136082688503
iteration: 97 Logisticloss: 0.3388525157188225
iteration: 98 Logisticloss: 0.33174375369191905
iteration: 99 Logisticloss: 0.3247841265614562
[-0.00199188 0.00290549 -0.00114959 ... 0.00067362 -0.00022945
 0.0017722 ]

```

CROSS VALIDATION 11

```

iteration: 0 Logisticloss: 61.77668013651903
iteration: 1 Logisticloss: 2.594031968358643
iteration: 2 Logisticloss: 2.5396119391547325
iteration: 3 Logisticloss: 2.486333584230353
iteration: 4 Logisticloss: 2.4341729524744964
iteration: 5 Logisticloss: 2.383106595244962
iteration: 6 Logisticloss: 2.3331115558271085

```

Output_logistic_train.txt

```

iteration: 7 Logisticloss: 2.284165359113724
iteration: 8 Logisticloss: 2.2362460015014185
iteration: 9 Logisticloss: 2.189331940998981
iteration: 10 Logisticloss: 2.1434020875432402
iteration: 11 Logisticloss: 2.098435793518102
iteration: 12 Logisticloss: 2.054412844472473
iteration: 13 Logisticloss: 2.011313450032927
iteration: 14 Logisticloss: 1.9691182350070044
iteration: 15 Logisticloss: 1.9278082306731563
iteration: 16 Logisticloss: 1.8873648662534224
iteration: 17 Logisticloss: 1.847769960564987
iteration: 18 Logisticloss: 1.809005713846903
iteration: 19 Logisticloss: 1.7710546997582508
iteration: 20 Logisticloss: 1.733899857544201
iteration: 21 Logisticloss: 1.6975244843663924
iteration: 22 Logisticloss: 1.6619122277942335
iteration: 23 Logisticloss: 1.6270470784537172
iteration: 24 Logisticloss: 1.5929133628304606
iteration: 25 Logisticloss: 1.5594957362237305
iteration: 26 Logisticloss: 1.5267791758482734
iteration: 27 Logisticloss: 1.4947489740808853
iteration: 28 Logisticloss: 1.463390731848632
iteration: 29 Logisticloss: 1.4326903521558088
iteration: 30 Logisticloss: 1.4026340337466676
iteration: 31 Logisticloss: 1.3732082649011152
iteration: 32 Logisticloss: 1.344399817360566
iteration: 33 Logisticloss: 1.316195740381211
iteration: 34 Logisticloss: 1.2885833549120649
iteration: 35 Logisticloss: 1.2615502478951306
iteration: 36 Logisticloss: 1.2350842666851558
iteration: 37 Logisticloss: 1.2091735135864479
iteration: 38 Logisticloss: 1.1838063405043047
iteration: 39 Logisticloss: 1.1589713437086477
iteration: 40 Logisticloss: 1.1346573587075202
iteration: 41 Logisticloss: 1.110853455228118
iteration: 42 Logisticloss: 1.0875489323031258
iteration: 43 Logisticloss: 1.0647333134601316
iteration: 44 Logisticloss: 1.0423963420119602
iteration: 45 Logisticloss: 1.0205279764458157
iteration: 46 Logisticloss: 0.9991183859091514
iteration: 47 Logisticloss: 0.9781579457902401
iteration: 48 Logisticloss: 0.957637233391464
iteration: 49 Logisticloss: 0.9375470236933707
iteration: 50 Logisticloss: 0.9178782852075956
iteration: 51 Logisticloss: 0.8986221759167847
iteration: 52 Logisticloss: 0.8797700392996977
iteration: 53 Logisticloss: 0.8613134004396948
iteration: 54 Logisticloss: 0.8432439622148653
iteration: 55 Logisticloss: 0.8255536015680868
iteration: 56 Logisticloss: 0.8082343658553265
iteration: 57 Logisticloss: 0.7912784692705641
iteration: 58 Logisticloss: 0.7746782893457009

```

Output_logistic_train.txt

```

iteration: 59 Logisticloss: 0.7584263635239102
iteration: 60 Logisticloss: 0.7425153858048682
iteration: 61 Logisticloss: 0.7269382034603671
iteration: 62 Logisticloss: 0.7116878138188315
iteration: 63 Logisticloss: 0.6967573611172926
iteration: 64 Logisticloss: 0.6821401334194049
iteration: 65 Logisticloss: 0.6678295595981216
iteration: 66 Logisticloss: 0.6538192063816701
iteration: 67 Logisticloss: 0.6401027754615024
iteration: 68 Logisticloss: 0.6266741006609173
iteration: 69 Logisticloss: 0.6135271451630862
iteration: 70 Logisticloss: 0.6006559987972337
iteration: 71 Logisticloss: 0.5880548753817535
iteration: 72 Logisticloss: 0.5757181101230683
iteration: 73 Logisticloss: 0.5636401570690626
iteration: 74 Logisticloss: 0.551815586615944
iteration: 75 Logisticloss: 0.54023908306742
iteration: 76 Logisticloss: 0.5289054422450813
iteration: 77 Logisticloss: 0.5178095691489337
iteration: 78 Logisticloss: 0.5069464756670189
iteration: 79 Logisticloss: 0.49631127833309946
iteration: 80 Logisticloss: 0.4858991961314027
iteration: 81 Logisticloss: 0.47570554834744105
iteration: 82 Logisticloss: 0.4657257524639439
iteration: 83 Logisticloss: 0.4559553221009598
iteration: 84 Logisticloss: 0.44638986499921024
iteration: 85 Logisticloss: 0.43702508104578947
iteration: 86 Logisticloss: 0.42785676034133446
iteration: 87 Logisticloss: 0.4188807813078009
iteration: 88 Logisticloss: 0.41009310883600136
iteration: 89 Logisticloss: 0.4014897924720894
iteration: 90 Logisticloss: 0.39306696464217866
iteration: 91 Logisticloss: 0.38482083891431634
iteration: 92 Logisticloss: 0.37674770829704324
iteration: 93 Logisticloss: 0.3688439435737945
iteration: 94 Logisticloss: 0.3611059916724078
iteration: 95 Logisticloss: 0.3535303740690334
iteration: 96 Logisticloss: 0.34611368522574837
iteration: 97 Logisticloss: 0.33885259106120313
iteration: 98 Logisticloss: 0.3317438274536444
iteration: 99 Logisticloss: 0.324784198775677
[-0.00199188 0.0029055 -0.00114959 ... 0.00067362 -0.00022945
 0.0017722 ]

```

CROSS VALIDATION 12

```

iteration: 0 Logisticloss: 165.70703168154236
iteration: 1 Logisticloss: 36.40392499875585
iteration: 2 Logisticloss: 2.9032708494029866
iteration: 3 Logisticloss: 2.842365024391453
iteration: 4 Logisticloss: 2.782736903525779
iteration: 5 Logisticloss: 2.7243596846928178
iteration: 6 Logisticloss: 2.667207127969076
iteration: 7 Logisticloss: 2.6112535437994713

```

Output_logistic_train.txt

iteration: 8 Logisticloss: 2.556473781432526
iteration: 9 Logisticloss: 2.502843217605168
iteration: 10 Logisticloss: 2.450337745470556
iteration: 11 Logisticloss: 2.3989337637626473
iteration: 12 Logisticloss: 2.3486081661915055
iteration: 13 Logisticloss: 2.299338331063633
iteration: 14 Logisticloss: 2.251102111121899
iteration: 15 Logisticloss: 2.2038778235998553
iteration: 16 Logisticloss: 2.157644240485459
iteration: 17 Logisticloss: 2.1123805789894647
iteration: 18 Logisticloss: 2.0680664922138967
iteration: 19 Logisticloss: 2.0246820600161755
iteration: 20 Logisticloss: 1.9822077800646583
iteration: 21 Logisticloss: 1.940624559081467
iteration: 22 Logisticloss: 1.8999137042685859
iteration: 23 Logisticloss: 1.8600569149133623
iteration: 24 Logisticloss: 1.8210362741696162
iteration: 25 Logisticloss: 1.7828342410106652
iteration: 26 Logisticloss: 1.7454336423506691
iteration: 27 Logisticloss: 1.7088176653307918
iteration: 28 Logisticloss: 1.67296984976673
iteration: 29 Logisticloss: 1.637874080754246
iteration: 30 Logisticloss: 1.6035145814294358
iteration: 31 Logisticloss: 1.5698759058805094
iteration: 32 Logisticloss: 1.5369429322079216
iteration: 33 Logisticloss: 1.504700855729782
iteration: 34 Logisticloss: 1.4731351823295236
iteration: 35 Logisticloss: 1.4422317219428682
iteration: 36 Logisticloss: 1.4119765821811896
iteration: 37 Logisticloss: 1.3823561620884375
iteration: 38 Logisticloss: 1.3533571460288518
iteration: 39 Logisticloss: 1.3249664977027178
iteration: 40 Logisticloss: 1.2971714542875252
iteration: 41 Logisticloss: 1.269959520701891
iteration: 42 Logisticloss: 1.2433184639897052
iteration: 43 Logisticloss: 1.2172363078219721
iteration: 44 Logisticloss: 1.1917013271139185
iteration: 45 Logisticloss: 1.1667020427549253
iteration: 46 Logisticloss: 1.1422272164489637
iteration: 47 Logisticloss: 1.118265845663203
iteration: 48 Logisticloss: 1.0948071586825394
iteration: 49 Logisticloss: 1.0718406097678324
iteration: 50 Logisticloss: 1.049355874415681
iteration: 51 Logisticloss: 1.0273428447176167
iteration: 52 Logisticloss: 1.005791624816638
iteration: 53 Logisticloss: 0.9846925264590471
iteration: 54 Logisticloss: 0.9640360646396036
iteration: 55 Logisticloss: 0.9438129533380443
iteration: 56 Logisticloss: 0.9240141013450509
iteration: 57 Logisticloss: 0.9046306081758152
iteration: 58 Logisticloss: 0.8856537600693544
iteration: 59 Logisticloss: 0.8670750260717984

Output_logistic_train.txt

```
iteration: 60 Logisticloss: 0.8488860542018967
iteration: 61 Logisticloss: 0.831078667697023
iteration: 62 Logisticloss: 0.8136448613380084
iteration: 63 Logisticloss: 0.7965767978511575
iteration: 64 Logisticloss: 0.779866804385842
iteration: 65 Logisticloss: 0.7635073690661012
iteration: 66 Logisticloss: 0.7474911376147148
iteration: 67 Logisticloss: 0.7318109100482383
iteration: 68 Logisticloss: 0.7164596374415371
iteration: 69 Logisticloss: 0.7014304187603795
iteration: 70 Logisticloss: 0.6867164977606813
iteration: 71 Logisticloss: 0.6723112599530261
iteration: 72 Logisticloss: 0.6582082296311226
iteration: 73 Logisticloss: 0.6444010669628749
iteration: 74 Logisticloss: 0.6308835651427915
iteration: 75 Logisticloss: 0.6176496476044676
iteration: 76 Logisticloss: 0.6046933652919173
iteration: 77 Logisticloss: 0.5920088939885515
iteration: 78 Logisticloss: 0.5795905317026282
iteration: 79 Logisticloss: 0.5674326961080252
iteration: 80 Logisticloss: 0.5555299220392065
iteration: 81 Logisticloss: 0.5438768590392835
iteration: 82 Logisticloss: 0.5324682689600874
iteration: 83 Logisticloss: 0.5212990236131916
iteration: 84 Logisticloss: 0.5103641024708422
iteration: 85 Logisticloss: 0.49965859041576377
iteration: 86 Logisticloss: 0.4891776755388321
iteration: 87 Logisticloss: 0.47891664698359865
iteration: 88 Logisticloss: 0.4688708928366791
iteration: 89 Logisticloss: 0.4590358980629926
iteration: 90 Logisticloss: 0.4494072424848656
iteration: 91 Logisticloss: 0.43998059880397383
iteration: 92 Logisticloss: 0.4307517306651091
iteration: 93 Logisticloss: 0.4217164907607123
iteration: 94 Logisticloss: 0.41287081897509903
iteration: 95 Logisticloss: 0.4042107405672562
iteration: 96 Logisticloss: 0.39573236439104914
iteration: 97 Logisticloss: 0.3874318811516167
iteration: 98 Logisticloss: 0.3793055616966826
iteration: 99 Logisticloss: 0.37134975534142867
[-0.0139635 -0.00262841 -0.00501502 ... 0.00452852 0.00294831
0.00035248]
```

CROSS VALIDATION 13

```
iteration: 0 Logisticloss: 233.3208481798582
iteration: 1 Logisticloss: 65.43909681190696
iteration: 2 Logisticloss: 2.873360747335075
iteration: 3 Logisticloss: 2.813080697709364
iteration: 4 Logisticloss: 2.754065259353311
iteration: 5 Logisticloss: 2.696287902068729
iteration: 6 Logisticloss: 2.6397226522327486
iteration: 7 Logisticloss: 2.5843440811214493
iteration: 8 Logisticloss: 2.5301272934784778
```

Output_logistic_train.txt

iteration: 9 Logisticloss: 2.477047916323449
iteration: 10 Logisticloss: 2.4250820879951647
iteration: 11 Logisticloss: 2.3742064474246747
iteration: 12 Logisticloss: 2.3243981236333853
iteration: 13 Logisticloss: 2.2756347254514897
iteration: 14 Logisticloss: 2.227894331452082
iteration: 15 Logisticloss: 2.18115548009646
iteration: 16 Logisticloss: 2.1353971600861557
iteration: 17 Logisticloss: 2.0905988009173746
iteration: 18 Logisticloss: 2.0467402636335943
iteration: 19 Logisticloss: 2.003801831772161
iteration: 20 Logisticloss: 1.9617642025008164
iteration: 21 Logisticloss: 1.9206084779401795
iteration: 22 Logisticloss: 1.880316156668253
iteration: 23 Logisticloss: 1.8408691254031848
iteration: 24 Logisticloss: 1.8022496508604902
iteration: 25 Logisticloss: 1.7644403717811168
iteration: 26 Logisticloss: 1.7274242911267443
iteration: 27 Logisticloss: 1.691184768438826
iteration: 28 Logisticloss: 1.6557055123579174
iteration: 29 Logisticloss: 1.6209705732999575
iteration: 30 Logisticloss: 1.5869643362861794
iteration: 31 Logisticloss: 1.5536715139234532
iteration: 32 Logisticloss: 1.5210771395318825
iteration: 33 Logisticloss: 1.4891665604165876
iteration: 34 Logisticloss: 1.4579254312806353
iteration: 35 Logisticloss: 1.4273397077761587
iteration: 36 Logisticloss: 1.3973956401907648
iteration: 37 Logisticloss: 1.368079767266403
iteration: 38 Logisticloss: 1.3393789101479006
iteration: 39 Logisticloss: 1.3112801664584537
iteration: 40 Logisticloss: 1.2837709044994168
iteration: 41 Logisticloss: 1.256838757571759
iteration: 42 Logisticloss: 1.2304716184166735
iteration: 43 Logisticloss: 1.2046576337727979
iteration: 44 Logisticloss: 1.1793851990476336
iteration: 45 Logisticloss: 1.1546429531007538
iteration: 46 Logisticloss: 1.1304197731364525
iteration: 47 Logisticloss: 1.1067047697035512
iteration: 48 Logisticloss: 1.0834872818001013
iteration: 49 Logisticloss: 1.0607568720807996
iteration: 50 Logisticloss: 1.038503322164944
iteration: 51 Logisticloss: 1.0167166280428404
iteration: 52 Logisticloss: 0.9953869955785826
iteration: 53 Logisticloss: 0.9745048361071907
iteration: 54 Logisticloss: 0.9540607621241363
iteration: 55 Logisticloss: 0.9340455830653047
iteration: 56 Logisticloss: 0.9144503011755175
iteration: 57 Logisticloss: 0.895266107463742
iteration: 58 Logisticloss: 0.8764843777431914
iteration: 59 Logisticloss: 0.8580966687545252
iteration: 60 Logisticloss: 0.8400947143704203

Output_logistic_train.txt

```

iteration: 61 Logisticloss: 0.822470421879804
iteration: 62 Logisticloss: 0.8052158683500926
iteration: 63 Logisticloss: 0.7883232970658066
iteration: 64 Logisticloss: 0.7717851140419543
iteration: 65 Logisticloss: 0.7555938846106497
iteration: 66 Logisticloss: 0.7397423300794174
iteration: 67 Logisticloss: 0.7242233244597096
iteration: 68 Logisticloss: 0.7090298912641614
iteration: 69 Logisticloss: 0.6941552003711755
iteration: 70 Logisticloss: 0.6795925649554295
iteration: 71 Logisticloss: 0.665335438482944
iteration: 72 Logisticloss: 0.6513774117693881
iteration: 73 Logisticloss: 0.6377122101003109
iteration: 74 Logisticloss: 0.624333690412031
iteration: 75 Logisticloss: 0.6112358385319443
iteration: 76 Logisticloss: 0.5984127664770347
iteration: 77 Logisticloss: 0.585858709809395
iteration: 78 Logisticloss: 0.573568025047621
iteration: 79 Logisticloss: 0.5615351871329266
iteration: 80 Logisticloss: 0.549754786948887
iteration: 81 Logisticloss: 0.5382215288937409
iteration: 82 Logisticloss: 0.526930228504185
iteration: 83 Logisticloss: 0.5158758101296399
iteration: 84 Logisticloss: 0.5050533046559906
iteration: 85 Logisticloss: 0.4944578472778019
iteration: 86 Logisticloss: 0.4840846753180616
iteration: 87 Logisticloss: 0.47392912609449767
iteration: 88 Logisticloss: 0.4639866348315398
iteration: 89 Logisticloss: 0.45425273261700977
iteration: 90 Logisticloss: 0.44472304440262733
iteration: 91 Logisticloss: 0.43539328704742564
iteration: 92 Logisticloss: 0.42625926740316594
iteration: 93 Logisticloss: 0.4173168804408342
iteration: 94 Logisticloss: 0.4085621074172749
iteration: 95 Logisticloss: 0.39999101408100984
iteration: 96 Logisticloss: 0.3915997489162264
iteration: 97 Logisticloss: 0.3833845414238876
iteration: 98 Logisticloss: 0.37534170043884124
iteration: 99 Logisticloss: 0.3674676124817279
[-0.00872243 -0.00331092 -0.00477011 ... 0.00374864 -0.00105407
0.00104626]

```

CROSS VALIDATION 14

```

iteration: 0 Logisticloss: 61.774698438862714
iteration: 1 Logisticloss: 2.5943198062617197
iteration: 2 Logisticloss: 2.5398937385250235
iteration: 3 Logisticloss: 2.486609471749846
iteration: 4 Logisticloss: 2.4344430521675258
iteration: 5 Logisticloss: 2.3833710285339693
iteration: 6 Logisticloss: 2.3333704415872165
iteration: 7 Logisticloss: 2.2844188137261834
iteration: 8 Logisticloss: 2.236494138905925
iteration: 9 Logisticloss: 2.1895748727448985

```

Output_logistic_train.txt

iteration: 10 Logisticloss: 2.1436399228397423
iteration: 11 Logisticloss: 2.098668639283272
iteration: 12 Logisticloss: 2.0546408053813656
iteration: 13 Logisticloss: 2.011536628564629
iteration: 14 Logisticloss: 1.9693367314906984
iteration: 15 Logisticloss: 1.928022143333224
iteration: 16 Logisticloss: 1.8875742912536027
iteration: 17 Logisticloss: 1.8479749920516104
iteration: 18 Logisticloss: 1.8092064439912012
iteration: 19 Logisticloss: 1.7712512187978124
iteration: 20 Logisticloss: 1.7340922538235184
iteration: 21 Logisticloss: 1.6977128443765868
iteration: 22 Logisticloss: 1.6620966362119327
iteration: 23 Logisticloss: 1.627227618179126
iteration: 24 Logisticloss: 1.593090115024626
iteration: 25 Logisticloss: 1.5596687803450238
iteration: 26 Logisticloss: 1.5269485896881179
iteration: 27 Logisticloss: 1.494914833798719
iteration: 28 Logisticloss: 1.4635531120061538
iteration: 29 Logisticloss: 1.432849325750488
iteration: 30 Logisticloss: 1.4027896722445663
iteration: 31 Logisticloss: 1.3733606382690149
iteration: 32 Logisticloss: 1.344548994097416
iteration: 33 Logisticloss: 1.3163417875489287
iteration: 34 Logisticloss: 1.2887263381656793
iteration: 35 Logisticloss: 1.2616902315122982
iteration: 36 Logisticloss: 1.2352213135950563
iteration: 37 Logisticloss: 1.2093076853980729
iteration: 38 Logisticloss: 1.183937697534154
iteration: 39 Logisticloss: 1.1590999450078483
iteration: 40 Logisticloss: 1.1347832620883667
iteration: 41 Logisticloss: 1.110976717290065
iteration: 42 Logisticloss: 1.0876696084582327
iteration: 43 Logisticloss: 1.0648514579579704
iteration: 44 Logisticloss: 1.0425120079640053
iteration: 45 Logisticloss: 1.0206412158493197
iteration: 46 Logisticloss: 0.9992292496705182
iteration: 47 Logisticloss: 0.9782664837479134
iteration: 48 Logisticloss: 0.9577434943383284
iteration: 49 Logisticloss: 0.9376510553986886
iteration: 50 Logisticloss: 0.91798013443848
iteration: 51 Logisticloss: 0.8987218884592253
iteration: 52 Logisticloss: 0.8798676599791416
iteration: 53 Logisticloss: 0.8614089731411972
iteration: 54 Logisticloss: 0.8433375299028217
iteration: 55 Logisticloss: 0.8256452063055411
iteration: 56 Logisticloss: 0.8083240488228862
iteration: 57 Logisticloss: 0.7913662707849074
iteration: 58 Logisticloss: 0.7747642488777028
iteration: 59 Logisticloss: 0.7585105197163848
iteration: 60 Logisticloss: 0.7425977764899399
iteration: 61 Logisticloss: 0.7270188656764763

Output_logistic_train.txt

iteration: 62 Logisticloss: 0.7117667838273837
iteration: 63 Logisticloss: 0.6968346744189555
iteration: 64 Logisticloss: 0.6822158247700667
iteration: 65 Logisticloss: 0.6679036630245099
iteration: 66 Logisticloss: 0.6538917551966444
iteration: 67 Logisticloss: 0.6401738022790213
iteration: 68 Logisticloss: 0.6267436374106932
iteration: 69 Logisticloss: 0.6135952231049284
iteration: 70 Logisticloss: 0.6007226485350865
iteration: 71 Logisticloss: 0.5881201268774376
iteration: 72 Logisticloss: 0.5757819927097284
iteration: 73 Logisticloss: 0.5637026994643252
iteration: 74 Logisticloss: 0.5518768169347952
iteration: 75 Logisticloss: 0.5402990288347992
iteration: 76 Logisticloss: 0.5289641304082031
iteration: 77 Logisticloss: 0.5178670260893348
iteration: 78 Logisticloss: 0.5070027272123346
iteration: 79 Logisticloss: 0.49636634976857325
iteration: 80 Logisticloss: 0.48595311221112797
iteration: 81 Logisticloss: 0.47575833330533285
iteration: 82 Logisticloss: 0.465777430024445
iteration: 83 Logisticloss: 0.4560059154894739
iteration: 84 Logisticloss: 0.4464393969522602
iteration: 85 Logisticloss: 0.4370735738208938
iteration: 86 Logisticloss: 0.4279042357265976
iteration: 87 Logisticloss: 0.4189272606312011
iteration: 88 Logisticloss: 0.4101386129743709
iteration: 89 Logisticloss: 0.40153434185976494
iteration: 90 Logisticloss: 0.39311057927930637
iteration: 91 Logisticloss: 0.384863538374787
iteration: 92 Logisticloss: 0.37678951173603015
iteration: 93 Logisticloss: 0.36888486973485834
iteration: 94 Logisticloss: 0.36114605889413504
iteration: 95 Logisticloss: 0.35356960029115575
iteration: 96 Logisticloss: 0.3461520879946927
iteration: 97 Logisticloss: 0.3388901875350112
iteration: 98 Logisticloss: 0.3317806344061877
iteration: 99 Logisticloss: 0.3248202326000825
[-0.0019921 0.00290748 -0.00114857 ... 0.00067367 -0.00022937
0.00177268]

CROSS VALIDATION 15

iteration: 0 Logisticloss: 61.774698438862714
iteration: 1 Logisticloss: 2.5943198062617197
iteration: 2 Logisticloss: 2.5398937385250235
iteration: 3 Logisticloss: 2.486609471749846
iteration: 4 Logisticloss: 2.4344430521675258
iteration: 5 Logisticloss: 2.3833710285339693
iteration: 6 Logisticloss: 2.3333704415872165
iteration: 7 Logisticloss: 2.2844188137261834
iteration: 8 Logisticloss: 2.236494138905925
iteration: 9 Logisticloss: 2.1895748727448985
iteration: 10 Logisticloss: 2.1436399228397423

Output_logistic_train.txt

```

iteration: 11 Logisticloss: 2.098668639283272
iteration: 12 Logisticloss: 2.0546408053813656
iteration: 13 Logisticloss: 2.011536628564629
iteration: 14 Logisticloss: 1.9693367314906984
iteration: 15 Logisticloss: 1.928022143333224
iteration: 16 Logisticloss: 1.8875742912536027
iteration: 17 Logisticloss: 1.8479749920516104
iteration: 18 Logisticloss: 1.8092064439912012
iteration: 19 Logisticloss: 1.7712512187978124
iteration: 20 Logisticloss: 1.7340922538235184
iteration: 21 Logisticloss: 1.6977128443765868
iteration: 22 Logisticloss: 1.6620966362119327
iteration: 23 Logisticloss: 1.627227618179126
iteration: 24 Logisticloss: 1.593090115024626
iteration: 25 Logisticloss: 1.5596687803450238
iteration: 26 Logisticloss: 1.5269485896881179
iteration: 27 Logisticloss: 1.494914833798719
iteration: 28 Logisticloss: 1.4635531120061538
iteration: 29 Logisticloss: 1.432849325750488
iteration: 30 Logisticloss: 1.4027896722445663
iteration: 31 Logisticloss: 1.3733606382690149
iteration: 32 Logisticloss: 1.344548994097416
iteration: 33 Logisticloss: 1.316341787548929
iteration: 34 Logisticloss: 1.2887263381656793
iteration: 35 Logisticloss: 1.2616902315122982
iteration: 36 Logisticloss: 1.2352213135950563
iteration: 37 Logisticloss: 1.209307685398073
iteration: 38 Logisticloss: 1.1839376975341542
iteration: 39 Logisticloss: 1.1590999450078483
iteration: 40 Logisticloss: 1.1347832620883669
iteration: 41 Logisticloss: 1.1109767172900653
iteration: 42 Logisticloss: 1.0876696084582331
iteration: 43 Logisticloss: 1.0648514579579709
iteration: 44 Logisticloss: 1.0425120079640067
iteration: 45 Logisticloss: 1.0206412158493214
iteration: 46 Logisticloss: 0.9992292496705207
iteration: 47 Logisticloss: 0.9782664837479168
iteration: 48 Logisticloss: 0.9577434943383332
iteration: 49 Logisticloss: 0.9376510553986954
iteration: 50 Logisticloss: 0.9179801344384897
iteration: 51 Logisticloss: 0.898721888459239
iteration: 52 Logisticloss: 0.8798676599791605
iteration: 53 Logisticloss: 0.8614089731412239
iteration: 54 Logisticloss: 0.8433375299028586
iteration: 55 Logisticloss: 0.8256452063055921
iteration: 56 Logisticloss: 0.8083240488229567
iteration: 57 Logisticloss: 0.7913662707850043
iteration: 58 Logisticloss: 0.7747642488778357
iteration: 59 Logisticloss: 0.758510519716567
iteration: 60 Logisticloss: 0.7425977764901883
iteration: 61 Logisticloss: 0.7270188656768134
iteration: 62 Logisticloss: 0.7117667838278396

```

Output_logistic_train.txt

```
iteration: 63 Logisticloss: 0.6968346744195709
iteration: 64 Logisticloss: 0.6822158247708945
iteration: 65 Logisticloss: 0.6679036630256208
iteration: 66 Logisticloss: 0.6538917551981293
iteration: 67 Logisticloss: 0.6401738022810003
iteration: 68 Logisticloss: 0.6267436374133236
iteration: 69 Logisticloss: 0.6135952231084135
iteration: 70 Logisticloss: 0.6007226485396902
iteration: 71 Logisticloss: 0.5881201268835015
iteration: 72 Logisticloss: 0.5757819927176917
iteration: 73 Logisticloss: 0.5637026994747536
iteration: 74 Logisticloss: 0.551876816948413
iteration: 75 Logisticloss: 0.5402990288525312
iteration: 76 Logisticloss: 0.5289641304312281
iteration: 77 Logisticloss: 0.5178670261191508
iteration: 78 Logisticloss: 0.5070027272508396
iteration: 79 Logisticloss: 0.4963663498181655
iteration: 80 Logisticloss: 0.48595311227482935
iteration: 81 Logisticloss: 0.4757583333869418
iteration: 82 Logisticloss: 0.4657774301287227
iteration: 83 Logisticloss: 0.45600591562237375
iteration: 84 Logisticloss: 0.4464393971212048
iteration: 85 Logisticloss: 0.4370735740351173
iteration: 86 Logisticloss: 0.42790423599755517
iteration: 87 Logisticloss: 0.4189272609730697
iteration: 88 Logisticloss: 0.4101386134046523
iteration: 89 Logisticloss: 0.40153434240001185
iteration: 90 Logisticloss: 0.3931105799559959
iteration: 91 Logisticloss: 0.3848635392203681
iteration: 92 Logisticloss: 0.37678951279017486
iteration: 93 Logisticloss: 0.36888487104595735
iteration: 94 Logisticloss: 0.3611460605210743
iteration: 95 Logisticloss: 0.3535696023054285
iteration: 96 Logisticloss: 0.34615209048290146
iteration: 97 Logisticloss: 0.3388901906018234
iteration: 98 Logisticloss: 0.3317806381778208
iteration: 99 Logisticloss: 0.3248202372284055
[-0.0019921 0.00290748 -0.00114857 ... 0.00067367 -0.00022937
0.00177268]
```

CROSS VALIDATION 16

```
iteration: 0 Logisticloss: 134.62377183760597
iteration: 1 Logisticloss: 2.523605857151765
iteration: 2 Logisticloss: 2.4633161838752944
iteration: 3 Logisticloss: 2.411638442780044
iteration: 4 Logisticloss: 2.3610448475221535
iteration: 5 Logisticloss: 2.3115126541856337
iteration: 6 Logisticloss: 2.263019596044815
iteration: 7 Logisticloss: 2.215543873559759
iteration: 8 Logisticloss: 2.1690641445822743
iteration: 9 Logisticloss: 2.1235595147681727
iteration: 10 Logisticloss: 2.0790095281914986
iteration: 11 Logisticloss: 2.035394158156538
```

Output_logistic_train.txt

iteration: 12 Logisticloss: 1.9926937982035093
iteration: 13 Logisticloss: 1.9508892533039115
iteration: 14 Logisticloss: 1.9099617312415864
iteration: 15 Logisticloss: 1.8698928341755985
iteration: 16 Logisticloss: 1.8306645503811054
iteration: 17 Logisticloss: 1.7922592461644735
iteration: 18 Logisticloss: 1.7546596579488811
iteration: 19 Logisticloss: 1.7178488845267104
iteration: 20 Logisticloss: 1.681810379475072
iteration: 21 Logisticloss: 1.6465279437307732
iteration: 22 Logisticloss: 1.6119857183210349
iteration: 23 Logisticloss: 1.5781681772462715
iteration: 24 Logisticloss: 1.5450601205111614
iteration: 25 Logisticloss: 1.5126466673001882
iteration: 26 Logisticloss: 1.4809132492937624
iteration: 27 Logisticloss: 1.4498456041209207
iteration: 28 Logisticloss: 1.4194297689444997
iteration: 29 Logisticloss: 1.389652074174579
iteration: 30 Logisticloss: 1.3604991373058666
iteration: 31 Logisticloss: 1.3319578568746404
iteration: 32 Logisticloss: 1.3040154065308092
iteration: 33 Logisticloss: 1.276659229220697
iteration: 34 Logisticloss: 1.2498770314763046
iteration: 35 Logisticloss: 1.2236567778070426
iteration: 36 Logisticloss: 1.1979866851904541
iteration: 37 Logisticloss: 1.172855217659055
iteration: 38 Logisticloss: 1.1482510809813935
iteration: 39 Logisticloss: 1.1241632174366107
iteration: 40 Logisticloss: 1.1005808006832363
iteration: 41 Logisticloss: 1.07749323072462
iteration: 42 Logisticloss: 1.0548901289752226
iteration: 43 Logisticloss: 1.0327613334337202
iteration: 44 Logisticloss: 1.011096893970519
iteration: 45 Logisticloss: 0.9898870677383853
iteration: 46 Logisticloss: 0.9691223147153321
iteration: 47 Logisticloss: 0.9487932933884926
iteration: 48 Logisticloss: 0.9288908565860741
iteration: 49 Logisticloss: 0.909406047461784
iteration: 50 Logisticloss: 0.8903300956323041
iteration: 51 Logisticloss: 0.8716544134637622
iteration: 52 Logisticloss: 0.853370592498156
iteration: 53 Logisticloss: 0.8354704000058966
iteration: 54 Logisticloss: 0.8179457756466089
iteration: 55 Logisticloss: 0.8007888282176862
iteration: 56 Logisticloss: 0.7839918324691346
iteration: 57 Logisticloss: 0.7675472259642556
iteration: 58 Logisticloss: 0.7514476059683741
iteration: 59 Logisticloss: 0.7356857263520356
iteration: 60 Logisticloss: 0.7202544945000174
iteration: 61 Logisticloss: 0.7051469682227519
iteration: 62 Logisticloss: 0.6903563526715776
iteration: 63 Logisticloss: 0.6758759972632132

Output_logistic_train.txt

```

iteration: 64 Logisticloss: 0.6616993926216646
iteration: 65 Logisticloss: 0.6478201675473166
iteration: 66 Logisticloss: 0.6342320860233079
iteration: 67 Logisticloss: 0.6209290442685985
iteration: 68 Logisticloss: 0.6079050678457104
iteration: 69 Logisticloss: 0.5951543088292476
iteration: 70 Logisticloss: 0.5826710430391622
iteration: 71 Logisticloss: 0.5704496673406513
iteration: 72 Logisticloss: 0.558484697010625
iteration: 73 Logisticloss: 0.546770763168982
iteration: 74 Logisticloss: 0.5353026102715526
iteration: 75 Logisticloss: 0.5240750936604957
iteration: 76 Logisticloss: 0.5130831771671956
iteration: 77 Logisticloss: 0.5023219307622513
iteration: 78 Logisticloss: 0.49178652824703606
iteration: 79 Logisticloss: 0.4814722449814578
iteration: 80 Logisticloss: 0.47137445564305214
iteration: 81 Logisticloss: 0.46148863201336277
iteration: 82 Logisticloss: 0.4518103407887497
iteration: 83 Logisticloss: 0.4423352414143118
iteration: 84 Logisticloss: 0.4330590839414974
iteration: 85 Logisticloss: 0.42397770691214837
iteration: 86 Logisticloss: 0.41508703527405555
iteration: 87 Logisticloss: 0.40638307833541354
iteration: 88 Logisticloss: 0.3978619277675986
iteration: 89 Logisticloss: 0.38951975566715563
iteration: 90 Logisticloss: 0.38135281268846427
iteration: 91 Logisticloss: 0.37335742625793833
iteration: 92 Logisticloss: 0.3655299988786906
iteration: 93 Logisticloss: 0.35786700653126263
iteration: 94 Logisticloss: 0.35036499717157565
iteration: 95 Logisticloss: 0.3430205893220579
iteration: 96 Logisticloss: 0.335830470746651
iteration: 97 Logisticloss: 0.32879139719578654
iteration: 98 Logisticloss: 0.3219001912041986
iteration: 99 Logisticloss: 0.31515374092312914
[-0.00539114 0.00194729 -0.00301885 ... 0.00361488 -0.00202585
 0.00122987]

```

CROSS VALIDATION 17

```

iteration: 0 Logisticloss: 61.77552720352866
iteration: 1 Logisticloss: 2.594297686221651
iteration: 2 Logisticloss: 2.5398720825398486
iteration: 3 Logisticloss: 2.486588270084184
iteration: 4 Logisticloss: 2.4344222952902417
iteration: 5 Logisticloss: 2.3833507071138733
iteration: 6 Logisticloss: 2.33335054648888
iteration: 7 Logisticloss: 2.2843993360058303
iteration: 8 Logisticloss: 2.2364750698074105
iteration: 9 Logisticloss: 2.189556203695769
iteration: 10 Logisticloss: 2.1436216454473906
iteration: 11 Logisticloss: 2.098650745331154
iteration: 12 Logisticloss: 2.0546232868253145

```

Output_logistic_train.txt

```

iteration: 13 Logisticloss: 2.0115194775292347
iteration: 14 Logisticloss: 1.9693199402657666
iteration: 15 Logisticloss: 1.9280057043703183
iteration: 16 Logisticloss: 1.887558197162639
iteration: 17 Logisticloss: 1.8479592355975396
iteration: 18 Logisticloss: 1.809191018090765
iteration: 19 Logisticloss: 1.7712361165163448
iteration: 20 Logisticloss: 1.734077468371838
iteration: 21 Logisticloss: 1.697698369107943
iteration: 22 Logisticloss: 1.6620824646190155
iteration: 23 Logisticloss: 1.6272137438911418
iteration: 24 Logisticloss: 1.593076531804434
iteration: 25 Logisticloss: 1.5596554820863313
iteration: 26 Logisticloss: 1.526935570412736
iteration: 27 Logisticloss: 1.494902087653875
iteration: 28 Logisticloss: 1.4635406332618595
iteration: 29 Logisticloss: 1.4328371087969642
iteration: 30 Logisticloss: 1.4027777115897218
iteration: 31 Logisticloss: 1.3733489285359768
iteration: 32 Logisticloss: 1.3445375300221114
iteration: 33 Logisticloss: 1.316330563977721
iteration: 34 Logisticloss: 1.2887153500530468
iteration: 35 Logisticloss: 1.2616794739185708
iteration: 36 Logisticloss: 1.235210781684193
iteration: 37 Logisticloss: 1.2092973744354882
iteration: 38 Logisticloss: 1.1839276028845878
iteration: 39 Logisticloss: 1.1590900621332834
iteration: 40 Logisticloss: 1.1347735865459896
iteration: 41 Logisticloss: 1.1109672447302668
iteration: 42 Logisticloss: 1.087660334622655
iteration: 43 Logisticloss: 1.0648423786775914
iteration: 44 Logisticloss: 1.0425031191572638
iteration: 45 Logisticloss: 1.0206325135202807
iteration: 46 Logisticloss: 0.9992207299070797
iteration: 47 Logisticloss: 0.978258142720043
iteration: 48 Logisticloss: 0.9577353282963451
iteration: 49 Logisticloss: 0.9376430606715744
iteration: 50 Logisticloss: 0.9179723074322328
iteration: 51 Logisticloss: 0.8987142256552411
iteration: 52 Logisticloss: 0.8798601579326333
iteration: 53 Logisticloss: 0.8614016284796464
iteration: 54 Logisticloss: 0.8433303393244626
iteration: 55 Logisticloss: 0.8256381665778763
iteration: 56 Logisticloss: 0.8083171567812338
iteration: 57 Logisticloss: 0.7913595233309804
iteration: 58 Logisticloss: 0.7747576429782143
iteration: 59 Logisticloss: 0.758504052401687
iteration: 60 Logisticloss: 0.7425914448526899
iteration: 61 Logisticloss: 0.7270126668703301
iteration: 62 Logisticloss: 0.711760715065718
iteration: 63 Logisticloss: 0.6968287329736191
iteration: 64 Logisticloss: 0.6822100079701551

```


Output_logistic_train.txt

```
iteration: 65 Logisticloss: 0.6678979682551699
iteration: 66 Logisticloss: 0.6538861798979019
iteration: 67 Logisticloss: 0.640168343944639
iteration: 68 Logisticloss: 0.6267382935870509
iteration: 69 Logisticloss: 0.6135899913899311
iteration: 70 Logisticloss: 0.6007175265770974
iteration: 71 Logisticloss: 0.5881151123742371
iteration: 72 Logisticloss: 0.5757770834075016
iteration: 73 Logisticloss: 0.5636978931566746
iteration: 74 Logisticloss: 0.5518721114617829
iteration: 75 Logisticloss: 0.5402944220820171
iteration: 76 Logisticloss: 0.5289596203058751
iteration: 77 Logisticloss: 0.5178626106114511
iteration: 78 Logisticloss: 0.506998404375822
iteration: 79 Logisticloss: 0.4963621176325021
iteration: 80 Logisticloss: 0.4859489688759638
iteration: 81 Logisticloss: 0.47575427691223265
iteration: 82 Logisticloss: 0.4657734587546081
iteration: 83 Logisticloss: 0.4560020275635509
iteration: 84 Logisticloss: 0.4464355906298286
iteration: 85 Logisticloss: 0.4370698474000147
iteration: 86 Logisticloss: 0.4279005875434579
iteration: 87 Logisticloss: 0.41892368905986144
iteration: 88 Logisticloss: 0.410135116426632
iteration: 89 Logisticloss: 0.40153091878517355
iteration: 90 Logisticloss: 0.39310722816532456
iteration: 91 Logisticloss: 0.3848602577471481
iteration: 92 Logisticloss: 0.37678630015931647
iteration: 93 Logisticloss: 0.36888172581333456
iteration: 94 Logisticloss: 0.3611429812728805
iteration: 95 Logisticloss: 0.3535665876575427
iteration: 96 Logisticloss: 0.34614913908027084
iteration: 97 Logisticloss: 0.3388873011178597
iteration: 98 Logisticloss: 0.331777809313808
iteration: 99 Logisticloss: 0.3248174677129236
[-0.00199199 0.00290725 -0.0011487 ... 0.00067367 -0.00022937
 0.00177263]
```

CROSS VALIDATION 18

```
iteration: 0 Logisticloss: 129.72406955017448
iteration: 1 Logisticloss: 117.62672590715678
iteration: 2 Logisticloss: 2.8411284461588258
iteration: 3 Logisticloss: 2.7815247176940647
iteration: 4 Logisticloss: 2.723171429948012
iteration: 5 Logisticloss: 2.6660423523395584
iteration: 6 Logisticloss: 2.610111804825015
iteration: 7 Logisticloss: 2.555354646363771
iteration: 8 Logisticloss: 2.5017462636243257
iteration: 9 Logisticloss: 2.449262559924807
iteration: 10 Logisticloss: 2.397879944402084
iteration: 11 Logisticloss: 2.3475753214035047
iteration: 12 Logisticloss: 2.298326080095216
iteration: 13 Logisticloss: 2.2501100842809976
```

Output_logistic_train.txt

iteration: 14 Logisticloss: 2.202905662425472
iteration: 15 Logisticloss: 2.156691597875592
iteration: 16 Logisticloss: 2.1114471192743602
iteration: 17 Logisticloss: 2.0671518911609077
iteration: 18 Logisticloss: 2.0237860047513885
iteration: 19 Logisticloss: 1.981329968895601
iteration: 20 Logisticloss: 1.939764701204927
iteration: 21 Logisticloss: 1.8990715193481547
iteration: 22 Logisticloss: 1.859232132512859
iteration: 23 Logisticloss: 1.8202286330314896
iteration: 24 Logisticloss: 1.7820434881729075
iteration: 25 Logisticloss: 1.744659532101823
iteration: 26 Logisticloss: 1.7080599580103553
iteration: 27 Logisticloss: 1.6722283104273123
iteration: 28 Logisticloss: 1.637148477711951
iteration: 29 Logisticloss: 1.6028046847392798
iteration: 30 Logisticloss: 1.5691814857834585
iteration: 31 Logisticloss: 1.5362637576043021
iteration: 32 Logisticloss: 1.5040366927391797
iteration: 33 Logisticloss: 1.47248579299897
iteration: 34 Logisticloss: 1.441596863162343
iteration: 35 Logisticloss: 1.4113560048579685
iteration: 36 Logisticloss: 1.3817496106198273
iteration: 37 Logisticloss: 1.3527643580972442
iteration: 38 Logisticloss: 1.324387204398964
iteration: 39 Logisticloss: 1.2966053805500426
iteration: 40 Logisticloss: 1.2694063860414895
iteration: 41 Logisticloss: 1.2427779834554247
iteration: 42 Logisticloss: 1.2167081931525852
iteration: 43 Logisticloss: 1.191185288013814
iteration: 44 Logisticloss: 1.16619778823203
iteration: 45 Logisticloss: 1.1417344561556948
iteration: 46 Logisticloss: 1.1177842911883855
iteration: 47 Logisticloss: 1.0943365247515977
iteration: 48 Logisticloss: 1.0713806153192356
iteration: 49 Logisticloss: 1.0489062435325098
iteration: 50 Logisticloss: 1.0269033074032947
iteration: 51 Logisticloss: 1.0053619176127597
iteration: 52 Logisticloss: 0.9842723929104221
iteration: 53 Logisticloss: 0.9636252556170112
iteration: 54 Logisticloss: 0.9434112272328526
iteration: 55 Logisticloss: 0.9236212241519117
iteration: 56 Logisticloss: 0.9042463534804263
iteration: 57 Logisticloss: 0.8852779089580702
iteration: 58 Logisticloss: 0.8667073669788912
iteration: 59 Logisticloss: 0.8485263827088538
iteration: 60 Logisticloss: 0.8307267862965698
iteration: 61 Logisticloss: 0.8133005791737341
iteration: 62 Logisticloss: 0.7962399304418531
iteration: 63 Logisticloss: 0.779537173341973
iteration: 64 Logisticloss: 0.7631848018043111
iteration: 65 Logisticloss: 0.747175467074897

Output_logistic_train.txt

```
iteration: 66 Logisticloss: 0.731501974416562
iteration: 67 Logisticloss: 0.7161572798818152
iteration: 68 Logisticloss: 0.7011344871553578
iteration: 69 Logisticloss: 0.686426844464162
iteration: 70 Logisticloss: 0.6720277415532102
iteration: 71 Logisticloss: 0.6579307067251335
iteration: 72 Logisticloss: 0.644129403942111
iteration: 73 Logisticloss: 0.6306176299884997
iteration: 74 Logisticloss: 0.6173893116927615
iteration: 75 Logisticloss: 0.6044385032073257
iteration: 76 Logisticloss: 0.591759383345093
iteration: 77 Logisticloss: 0.5793462529713479
iteration: 78 Logisticloss: 0.5671935324498988
iteration: 79 Logisticloss: 0.5552957591422911
iteration: 80 Logisticloss: 0.5436475849589937
iteration: 81 Logisticloss: 0.5322437739614843
iteration: 82 Logisticloss: 0.5210792000141828
iteration: 83 Logisticloss: 0.5101488444852206
iteration: 84 Logisticloss: 0.49944779399504174
iteration: 85 Logisticloss: 0.48897123821186833
iteration: 86 Logisticloss: 0.47871446769307546
iteration: 87 Logisticloss: 0.4686728717715401
iteration: 88 Logisticloss: 0.4588419364860535
iteration: 89 Logisticloss: 0.4492172425548951
iteration: 90 Logisticloss: 0.4397944633916956
iteration: 91 Logisticloss: 0.4305693631627196
iteration: 92 Logisticloss: 0.4215377948847298
iteration: 93 Logisticloss: 0.41269569856259974
iteration: 94 Logisticloss: 0.40403909936586285
iteration: 95 Logisticloss: 0.39556410584340385
iteration: 96 Logisticloss: 0.3872669081755095
iteration: 97 Logisticloss: 0.37914377646251624
iteration: 98 Logisticloss: 0.37119105904930183
iteration: 99 Logisticloss: 0.3634051808848926
[-0.00343158 -0.00136791 -0.00269135 ... 0.00447703 0.00175876
0.00135852]
```

CROSS VALIDATION 19

```
iteration: 0 Logisticloss: 115.66374572720507
iteration: 1 Logisticloss: 2.56791344916058
iteration: 2 Logisticloss: 2.4612347070255205
iteration: 3 Logisticloss: 2.4096006253419286
iteration: 4 Logisticloss: 2.359049772198374
iteration: 5 Logisticloss: 2.3095594227019185
iteration: 6 Logisticloss: 2.261107328718937
iteration: 7 Logisticloss: 2.2136717088755584
iteration: 8 Logisticloss: 2.1672312387682564
iteration: 9 Logisticloss: 2.1217650413801428
iteration: 10 Logisticloss: 2.0772526776987297
iteration: 11 Logisticloss: 2.033674137530961
iteration: 12 Logisticloss: 1.9910098305114259
iteration: 13 Logisticloss: 1.9492405772997576
iteration: 14 Logisticloss: 1.9083476009632827
```

Output_logistic_train.txt

iteration: 15 Logisticloss: 1.8683125185411007
iteration: 16 Logisticloss: 1.8291173327858377
iteration: 17 Logisticloss: 1.790744424079407
iteration: 18 Logisticloss: 1.7531765425191732
iteration: 19 Logisticloss: 1.7163968001709993
iteration: 20 Logisticloss: 1.6803886634857192
iteration: 21 Logisticloss: 1.6451359458756576
iteration: 22 Logisticloss: 1.610622800447859
iteration: 23 Logisticloss: 1.5768337128907433
iteration: 24 Logisticloss: 1.5437534945109768
iteration: 25 Logisticloss: 1.5113672754173697
iteration: 26 Logisticloss: 1.4796604978486285
iteration: 27 Logisticloss: 1.4486189096418454
iteration: 28 Logisticloss: 1.4182285578385976
iteration: 29 Logisticloss: 1.3884757824255103
iteration: 30 Logisticloss: 1.3593472102061617
iteration: 31 Logisticloss: 1.3308297488011134
iteration: 32 Logisticloss: 1.3029105807728625
iteration: 33 Logisticloss: 1.2755771578723727
iteration: 34 Logisticloss: 1.24881719540382
iteration: 35 Logisticloss: 1.2226186667040329
iteration: 36 Logisticloss: 1.196969797733021
iteration: 37 Logisticloss: 1.1718590617718636
iteration: 38 Logisticloss: 1.147275174224111
iteration: 39 Logisticloss: 1.1232070875167717
iteration: 40 Logisticloss: 1.0996439860969032
iteration: 41 Logisticloss: 1.076575281519841
iteration: 42 Logisticloss: 1.05399060762524
iteration: 43 Logisticloss: 1.031879815797315
iteration: 44 Logisticloss: 1.0102329703061437
iteration: 45 Logisticloss: 0.9890403437274937
iteration: 46 Logisticloss: 0.9682924124395375
iteration: 47 Logisticloss: 0.9479798521959572
iteration: 48 Logisticloss: 0.9280935337763349
iteration: 49 Logisticloss: 0.9086245187163373
iteration: 50 Logisticloss: 0.889564055121942
iteration: 51 Logisticloss: 0.8709035735736926
iteration: 52 Logisticloss: 0.8526346831285248
iteration: 53 Logisticloss: 0.8347491674278417
iteration: 54 Logisticloss: 0.8172389809210117
iteration: 55 Logisticloss: 0.8000962452130445
iteration: 56 Logisticloss: 0.7833132455437434
iteration: 57 Logisticloss: 0.766882427403026
iteration: 58 Logisticloss: 0.7507963932834408
iteration: 59 Logisticloss: 0.7350478995664321
iteration: 60 Logisticloss: 0.7196298535340537
iteration: 61 Logisticloss: 0.7045353104930956
iteration: 62 Logisticloss: 0.6897574709946087
iteration: 63 Logisticloss: 0.6752896781291086
iteration: 64 Logisticloss: 0.6611254148766832
iteration: 65 Logisticloss: 0.6472583014920583
iteration: 66 Logisticloss: 0.6336820929071862

Output_logistic_train.txt

```

iteration: 67 Logisticloss: 0.6203906761379017
iteration: 68 Logisticloss: 0.6073780676859889
iteration: 69 Logisticloss: 0.5946384109331411
iteration: 70 Logisticloss: 0.5821659735280283
iteration: 71 Logisticloss: 0.5699551447717385
iteration: 72 Logisticloss: 0.558000433009709
iteration: 73 Logisticloss: 0.5462964630399681
iteration: 74 Logisticloss: 0.5348379735480181
iteration: 75 Logisticloss: 0.5236198145782263
iteration: 76 Logisticloss: 0.5126369450503918
iteration: 77 Logisticloss: 0.501884430328513
iteration: 78 Logisticloss: 0.4913574398469358
iteration: 79 Logisticloss: 0.4810512447972264
iteration: 80 Logisticloss: 0.47096121587744866
iteration: 81 Logisticloss: 0.4610828211041095
iteration: 82 Logisticloss: 0.4514116236859184
iteration: 83 Logisticloss: 0.4419432799576874
iteration: 84 Logisticloss: 0.4326735373721405
iteration: 85 Logisticloss: 0.4235982325470981
iteration: 86 Logisticloss: 0.41471328936534524
iteration: 87 Logisticloss: 0.4060147171245223
iteration: 88 Logisticloss: 0.39749860873445925
iteration: 89 Logisticloss: 0.38916113895954374
iteration: 90 Logisticloss: 0.3809985627039195
iteration: 91 Logisticloss: 0.37300721333750675
iteration: 92 Logisticloss: 0.36518350106106107
iteration: 93 Logisticloss: 0.3575239113086717
iteration: 94 Logisticloss: 0.35002500318628893
iteration: 95 Logisticloss: 0.3426834079450197
iteration: 96 Logisticloss: 0.33549582748807144
iteration: 97 Logisticloss: 0.32845903291032913
iteration: 98 Logisticloss: 0.32156986306964574
iteration: 99 Logisticloss: 0.31482522318898876
[-0.00389047 0.00016309 -0.00236424 ... 0.00057896 0.000639
0.00175967]

```

Accuracy (Logistic Loss): 0.85

eta = 0.0001 lambda = 1

CROSS VALIDATION 0

```

iteration: 0 Logisticloss: 6.110186641736839
iteration: 1 Logisticloss: 0.2074252701890304
iteration: 2 Logisticloss: 0.20121563535764114
iteration: 3 Logisticloss: 0.1965193960105427
iteration: 4 Logisticloss: 0.19220225664654314
iteration: 5 Logisticloss: 0.18809381989438176
iteration: 6 Logisticloss: 0.18413544043664967
iteration: 7 Logisticloss: 0.18030000179806022
iteration: 8 Logisticloss: 0.17657251927252973
iteration: 9 Logisticloss: 0.1729435920212367
iteration: 10 Logisticloss: 0.1694067191549583
iteration: 11 Logisticloss: 0.165957045627058
iteration: 12 Logisticloss: 0.16259071741738948
iteration: 13 Logisticloss: 0.15930452477110715

```

Output_logistic_train.txt

```

iteration: 14 Logisticloss: 0.15609569300373
iteration: 15 Logisticloss: 0.1529617539100391
iteration: 16 Logisticloss: 0.14990046356969322
iteration: 17 Logisticloss: 0.14690974804417622
iteration: 18 Logisticloss: 0.14398766645760155
iteration: 19 Logisticloss: 0.1411323852429195
iteration: 20 Logisticloss: 0.1383421597401061
iteration: 21 Logisticloss: 0.1356153207358519
iteration: 22 Logisticloss: 0.13295026438227056
iteration: 23 Logisticloss: 0.13034544446150498
iteration: 24 Logisticloss: 0.12779936630321218
iteration: 25 Logisticloss: 0.1253105818859221
iteration: 26 Logisticloss: 0.12287768580374907
iteration: 27 Logisticloss: 0.12049931188239059
iteration: 28 Logisticloss: 0.11817413029852633
iteration: 29 Logisticloss: 0.11590084510473164
iteration: 30 Logisticloss: 0.11367819209457439
iteration: 31 Logisticloss: 0.11150493696438772
iteration: 32 Logisticloss: 0.10937987374268342
iteration: 33 Logisticloss: 0.1073018234677725
iteration: 34 Logisticloss: 0.10526963310064102
iteration: 35 Logisticloss: 0.1032821746646333
iteration: 36 Logisticloss: 0.10133834460661252
iteration: 37 Logisticloss: 0.09943706337614733
iteration: 38 Logisticloss: 0.0975772752197206
iteration: 39 Logisticloss: 0.09575794818562042
iteration: 40 Logisticloss: 0.09397807433172395
iteration: 41 Logisticloss: 0.09223667012268658
iteration: 42 Logisticloss: 0.09053277699530615
iteration: 43 Logisticloss: 0.08886546206165676
iteration: 44 Logisticloss: 0.08723381890994386
iteration: 45 Logisticloss: 0.08563696845417314
iteration: 46 Logisticloss: 0.08407405977694937
iteration: 47 Logisticloss: 0.08254427090621132
iteration: 48 Logisticloss: 0.08104680946729853
iteration: 49 Logisticloss: 0.0795809131567902
iteration: 50 Logisticloss: 0.07814584999385141
iteration: 51 Logisticloss: 0.07674091831764174
iteration: 52 Logisticloss: 0.07536544651452835
iteration: 53 Logisticloss: 0.07401879247498958
iteration: 54 Logisticloss: 0.0727003427957141
iteration: 55 Logisticloss: 0.07140951175613795
iteration: 56 Logisticloss: 0.07014574010941736
iteration: 57 Logisticloss: 0.06890849373489041
iteration: 58 Logisticloss: 0.06769726220210981
iteration: 59 Logisticloss: 0.06651155729560929
iteration: 60 Logisticloss: 0.0653509115451046
iteration: 61 Logisticloss: 0.06421487679849669
iteration: 62 Logisticloss: 0.06310302286565608
iteration: 63 Logisticloss: 0.06201493625042597
iteration: 64 Logisticloss: 0.06095021897745327
iteration: 65 Logisticloss: 0.059908487510146755

```

Output_logistic_train.txt

```

iteration: 66 Logisticloss: 0.058889371746935294
iteration: 67 Logisticloss: 0.05789251407557455
iteration: 68 Logisticloss: 0.05691756845988488
iteration: 69 Logisticloss: 0.05596419953019498
iteration: 70 Logisticloss: 0.05503208164797655
iteration: 71 Logisticloss: 0.05412089791663221
iteration: 72 Logisticloss: 0.05323033911399857
iteration: 73 Logisticloss: 0.05236010252763836
iteration: 74 Logisticloss: 0.05150989068116156
iteration: 75 Logisticloss: 0.050679409948330534
iteration: 76 Logisticloss: 0.04986836906122501
iteration: 77 Logisticloss: 0.04907647752886855
iteration: 78 Logisticloss: 0.048303443992992474
iteration: 79 Logisticloss: 0.0475489745574983
iteration: 80 Logisticloss: 0.04681277113708069
iteration: 81 Logisticloss: 0.04609452987772991
iteration: 82 Logisticloss: 0.04539393970678063
iteration: 83 Logisticloss: 0.044710681072183844
iteration: 84 Logisticloss: 0.04404442492924871
iteration: 85 Logisticloss: 0.04339483202792198
iteration: 86 Logisticloss: 0.0427615525447294
iteration: 87 Logisticloss: 0.04214422609110703
iteration: 88 Logisticloss: 0.0415424821146817
iteration: 89 Logisticloss: 0.04095594069312074
iteration: 90 Logisticloss: 0.040384213702718115
iteration: 91 Logisticloss: 0.03982690632728988
iteration: 92 Logisticloss: 0.03928361885855192
iteration: 93 Logisticloss: 0.03875394872807596
iteration: 94 Logisticloss: 0.038237492703949494
iteration: 95 Logisticloss: 0.03773384918273809
iteration: 96 Logisticloss: 0.037242620509126245
iteration: 97 Logisticloss: 0.03676341526112877
iteration: 98 Logisticloss: 0.036295850447107696
iteration: 99 Logisticloss: 0.03583955357091392
[-1.75691859e-04 2.42480868e-04 8.49903325e-05 ... 2.24590483e-04
 1.86298667e-05 1.09732468e-04]

```

CROSS VALIDATION 1

```

iteration: 0 Logisticloss: 9.183734929984514
iteration: 1 Logisticloss: 0.2130077504603474
iteration: 2 Logisticloss: 0.20113167565213905
iteration: 3 Logisticloss: 0.19545626136351082
iteration: 4 Logisticloss: 0.19061416989334554
iteration: 5 Logisticloss: 0.1861758897362077
iteration: 6 Logisticloss: 0.18199329256485494
iteration: 7 Logisticloss: 0.17799788019671725
iteration: 8 Logisticloss: 0.1741523689139574
iteration: 9 Logisticloss: 0.17043413007222397
iteration: 10 Logisticloss: 0.16682828127034233
iteration: 11 Logisticloss: 0.163324398610881
iteration: 12 Logisticloss: 0.1599147963937702
iteration: 13 Logisticloss: 0.15659355948899487
iteration: 14 Logisticloss: 0.15335596702383347

```

Output_logistic_train.txt

iteration: 15 Logisticloss: 0.15019813275344915
iteration: 16 Logisticloss: 0.14711677174913124
iteration: 17 Logisticloss: 0.14410904395035182
iteration: 18 Logisticloss: 0.14117244622060388
iteration: 19 Logisticloss: 0.13830473598473117
iteration: 20 Logisticloss: 0.13550387599926247
iteration: 21 Logisticloss: 0.1327679936095924
iteration: 22 Logisticloss: 0.13009535015440335
iteration: 23 Logisticloss: 0.12748431761720733
iteration: 24 Logisticloss: 0.12493336054610593
iteration: 25 Logisticloss: 0.12244102186561831
iteration: 26 Logisticloss: 0.12000591160646741
iteration: 27 Logisticloss: 0.11762669785173668
iteration: 28 Logisticloss: 0.11530209938489994
iteration: 29 Logisticloss: 0.11303087965489399
iteration: 30 Logisticloss: 0.11081184176399934
iteration: 31 Logisticloss: 0.10864382424829344
iteration: 32 Logisticloss: 0.10652569746674265
iteration: 33 Logisticloss: 0.10445636045018464
iteration: 34 Logisticloss: 0.10243473809049573
iteration: 35 Logisticloss: 0.1004597785767734
iteration: 36 Logisticloss: 0.09853045101173925
iteration: 37 Logisticloss: 0.09664574316882109
iteration: 38 Logisticloss: 0.09480465937825303
iteration: 39 Logisticloss: 0.09300621855760134
iteration: 40 Logisticloss: 0.0912494524261028
iteration: 41 Logisticloss: 0.08953340396039196
iteration: 42 Logisticloss: 0.08785712615905718
iteration: 43 Logisticloss: 0.0862196811831859
iteration: 44 Logisticloss: 0.084620139928999
iteration: 45 Logisticloss: 0.08305758206764162
iteration: 46 Logisticloss: 0.0815310965584527
iteration: 47 Logisticloss: 0.08003978260901537
iteration: 48 Logisticloss: 0.07858275102211834
iteration: 49 Logisticloss: 0.07715912584061936
iteration: 50 Logisticloss: 0.07576804617967631
iteration: 51 Logisticloss: 0.07440866812437828
iteration: 52 Logisticloss: 0.07308016657047835
iteration: 53 Logisticloss: 0.07178173689621431
iteration: 54 Logisticloss: 0.07051259637229863
iteration: 55 Logisticloss: 0.06927198524233728
iteration: 56 Logisticloss: 0.06805916743404439
iteration: 57 Logisticloss: 0.06687343088957964
iteration: 58 Logisticloss: 0.06571408752854412
iteration: 59 Logisticloss: 0.06458047287776467
iteration: 60 Logisticloss: 0.06347194541694991
iteration: 61 Logisticloss: 0.06238788569836928
iteration: 62 Logisticloss: 0.061327695302293525
iteration: 63 Logisticloss: 0.06029079568887205
iteration: 64 Logisticloss: 0.05927662700248809
iteration: 65 Logisticloss: 0.05828464687755268
iteration: 66 Logisticloss: 0.05731432928622928

Output_logistic_train.txt

```
iteration: 67 Logisticloss: 0.056365163459623266
iteration: 68 Logisticloss: 0.055436652905226216
iteration: 69 Logisticloss: 0.054528314535378666
iteration: 70 Logisticloss: 0.053639677914518
iteration: 71 Logisticloss: 0.052770284627167756
iteration: 72 Logisticloss: 0.05191968776402167
iteration: 73 Logisticloss: 0.0510874515200115
iteration: 74 Logisticloss: 0.050273150895779606
iteration: 75 Logisticloss: 0.04947637149233401
iteration: 76 Logisticloss: 0.04869670938765738
iteration: 77 Logisticloss: 0.04793377108349417
iteration: 78 Logisticloss: 0.047187173510306046
iteration: 79 Logisticloss: 0.046456544078347324
iteration: 80 Logisticloss: 0.04574152076290171
iteration: 81 Logisticloss: 0.04504175221190567
iteration: 82 Logisticloss: 0.04435689786446351
iteration: 83 Logisticloss: 0.04368662806915989
iteration: 84 Logisticloss: 0.04303062419163451
iteration: 85 Logisticloss: 0.042388578701631666
iteration: 86 Logisticloss: 0.041760195230706704
iteration: 87 Logisticloss: 0.04114518859296454
iteration: 88 Logisticloss: 0.04054328476261565
iteration: 89 Logisticloss: 0.03995422080373137
iteration: 90 Logisticloss: 0.03937774474931607
iteration: 91 Logisticloss: 0.03881361542863373
iteration: 92 Logisticloss: 0.03826160224356956
iteration: 93 Logisticloss: 0.03772148489661167
iteration: 94 Logisticloss: 0.03719305307475029
iteration: 95 Logisticloss: 0.03667610609516109
iteration: 96 Logisticloss: 0.03617045251992679
iteration: 97 Logisticloss: 0.03567590974822128
iteration: 98 Logisticloss: 0.03519230359530433
iteration: 99 Logisticloss: 0.03471946786832245
[-4.18643517e-04 1.47717833e-04 -1.68762327e-04 ... 1.22388490e-04
-4.88964670e-05 1.45264756e-04]
```

CROSS VALIDATION 2

```
iteration: 0 Logisticloss: 2.7743113329247406
iteration: 1 Logisticloss: 0.20799684411962846
iteration: 2 Logisticloss: 0.2026854136979425
iteration: 3 Logisticloss: 0.197997770506485
iteration: 4 Logisticloss: 0.1936043626636682
iteration: 5 Logisticloss: 0.1894015538111398
iteration: 6 Logisticloss: 0.18534436464969045
iteration: 7 Logisticloss: 0.1814093531182739
iteration: 8 Logisticloss: 0.17758265754718938
iteration: 9 Logisticloss: 0.1738552534729586
iteration: 10 Logisticloss: 0.17022079335038298
iteration: 11 Logisticloss: 0.16667451925977023
iteration: 12 Logisticloss: 0.16321267224816216
iteration: 13 Logisticloss: 0.15983215139888143
iteration: 14 Logisticloss: 0.15653030702602272
iteration: 15 Logisticloss: 0.1533048098845898
```

Output_logistic_train.txt

iteration: 16 Logisticloss: 0.15015356543533512
iteration: 17 Logisticloss: 0.14707465584397403
iteration: 18 Logisticloss: 0.1440662996152087
iteration: 19 Logisticloss: 0.1411268227586982
iteration: 20 Logisticloss: 0.13825463768351345
iteration: 21 Logisticloss: 0.13544822738626894
iteration: 22 Logisticloss: 0.13270613333773967
iteration: 23 Logisticloss: 0.13002694600204945
iteration: 24 Logisticloss: 0.12740929726454148
iteration: 25 Logisticloss: 0.12485185427064374
iteration: 26 Logisticloss: 0.12235331433101337
iteration: 27 Logisticloss: 0.1199124006539834
iteration: 28 Logisticloss: 0.11752785874102098
iteration: 29 Logisticloss: 0.11519845333470839
iteration: 30 Logisticloss: 0.11292296584807766
iteration: 31 Logisticloss: 0.11070019223293703
iteration: 32 Logisticloss: 0.10852894126551747
iteration: 33 Logisticloss: 0.1064080332417534
iteration: 34 Logisticloss: 0.10433629908262099
iteration: 35 Logisticloss: 0.10231257985277181
iteration: 36 Logisticloss: 0.10033572669375376
iteration: 37 Logisticloss: 0.09840460116706025
iteration: 38 Logisticloss: 0.09651807599293956
iteration: 39 Logisticloss: 0.09467503615936071
iteration: 40 Logisticloss: 0.09287438036296129
iteration: 41 Logisticloss: 0.09111502273143324
iteration: 42 Logisticloss: 0.08939589476582743
iteration: 43 Logisticloss: 0.08771594743271377
iteration: 44 Logisticloss: 0.08607415333081647
iteration: 45 Logisticloss: 0.08446950885515457
iteration: 46 Logisticloss: 0.0829010362840191
iteration: 47 Logisticloss: 0.08136778572016919
iteration: 48 Logisticloss: 0.07986883682697464
iteration: 49 Logisticloss: 0.07840330031218531
iteration: 50 Logisticloss: 0.0769703191256861
iteration: 51 Logisticloss: 0.0755690693520063
iteration: 52 Logisticloss: 0.07419876079246591
iteration: 53 Logisticloss: 0.07285863724466284
iteration: 54 Logisticloss: 0.07154797649767419
iteration: 55 Logisticloss: 0.07026609006917016
iteration: 56 Logisticloss: 0.06901232271519252
iteration: 57 Logisticloss: 0.06778605174446789
iteration: 58 Logisticloss: 0.06658668616694631
iteration: 59 Logisticloss: 0.06541366570118728
iteration: 60 Logisticloss: 0.06426645965791926
iteration: 61 Logisticloss: 0.06314456570842795
iteration: 62 Logisticloss: 0.06204750853736779
iteration: 63 Logisticloss: 0.060974838371201864
iteration: 64 Logisticloss: 0.059926129366811125
iteration: 65 Logisticloss: 0.058900977840871914
iteration: 66 Logisticloss: 0.05789900032024593
iteration: 67 Logisticloss: 0.056919831397523095

Output_logistic_train.txt

```
iteration: 68 Logisticloss: 0.05596312138439015
iteration: 69 Logisticloss: 0.0550285337686877
iteration: 70 Logisticloss: 0.05411574249842152
iteration: 71 Logisticloss: 0.053224429136628074
iteration: 72 Logisticloss: 0.05235427995326583
iteration: 73 Logisticloss: 0.05150498304203075
iteration: 74 Logisticloss: 0.05067622556848607
iteration: 75 Logisticloss: 0.049867691268201376
iteration: 76 Logisticloss: 0.049079058316851436
iteration: 77 Logisticloss: 0.048309997686150526
iteration: 78 Logisticloss: 0.04756017207892987
iteration: 79 Logisticloss: 0.046829235504034526
iteration: 80 Logisticloss: 0.046116833509340344
iteration: 81 Logisticloss: 0.0454226040432503
iteration: 82 Logisticloss: 0.04474617886712784
iteration: 83 Logisticloss: 0.04408718539950855
iteration: 84 Logisticloss: 0.043445248843396095
iteration: 85 Logisticloss: 0.04281999443479262
iteration: 86 Logisticloss: 0.042211049655725086
iteration: 87 Logisticloss: 0.0416180462775193
iteration: 88 Logisticloss: 0.041040622136386026
iteration: 89 Logisticloss: 0.04047842258799443
iteration: 90 Logisticloss: 0.03993110163412554
iteration: 91 Logisticloss: 0.03939832275640254
iteration: 92 Logisticloss: 0.038879759524297605
iteration: 93 Logisticloss: 0.03837509606372637
iteration: 94 Logisticloss: 0.03788402747722169
iteration: 95 Logisticloss: 0.03740626029754079
iteration: 96 Logisticloss: 0.03694151303581902
iteration: 97 Logisticloss: 0.03648951685636022
iteration: 98 Logisticloss: 0.0360500163767421
iteration: 99 Logisticloss: 0.035622770558117786
[-0.00060005 -0.00022885 -0.00028811 ... 0.00032985 0.00020163
0.0001104 ]
```

CROSS VALIDATION 3

```
iteration: 0 Logisticloss: 8.161881621594532
iteration: 1 Logisticloss: 0.2133841985680071
iteration: 2 Logisticloss: 0.19538342190985045
iteration: 3 Logisticloss: 0.19091222493999668
iteration: 4 Logisticloss: 0.1866839540110794
iteration: 5 Logisticloss: 0.18263252808039507
iteration: 6 Logisticloss: 0.17872340134680187
iteration: 7 Logisticloss: 0.17493615985043304
iteration: 8 Logisticloss: 0.17125759649562952
iteration: 9 Logisticloss: 0.16767853364806426
iteration: 10 Logisticloss: 0.1641922089418659
iteration: 11 Logisticloss: 0.16079338962843023
iteration: 12 Logisticloss: 0.157477856426723
iteration: 13 Logisticloss: 0.15424208777194548
iteration: 14 Logisticloss: 0.15108305886374446
iteration: 15 Logisticloss: 0.14799810954981324
iteration: 16 Logisticloss: 0.14498485510831435
```

Output_logistic_train.txt

```

iteration: 17 Logisticloss: 0.1420411246544012
iteration: 18 Logisticloss: 0.13916491782843504
iteration: 19 Logisticloss: 0.13635437385254578
iteration: 20 Logisticloss: 0.13360774909238118
iteration: 21 Logisticloss: 0.130923400525499
iteration: 22 Logisticloss: 0.1282997733220042
iteration: 23 Logisticloss: 0.12573539127074107
iteration: 24 Logisticloss: 0.12322884914260629
iteration: 25 Logisticloss: 0.12077880633481271
iteration: 26 Logisticloss: 0.11838398132436641
iteration: 27 Logisticloss: 0.11604314659870049
iteration: 28 Logisticloss: 0.11375512384028559
iteration: 29 Logisticloss: 0.11151877922850315
iteration: 30 Logisticloss: 0.1093330187911402
iteration: 31 Logisticloss: 0.1071967837925697
iteration: 32 Logisticloss: 0.1051090461878841
iteration: 33 Logisticloss: 0.10306880420319732
iteration: 34 Logisticloss: 0.10107507812293491
iteration: 35 Logisticloss: 0.09912690637599118
iteration: 36 Logisticloss: 0.09722334201488439
iteration: 37 Logisticloss: 0.0953634496762998
iteration: 38 Logisticloss: 0.09354630309856354
iteration: 39 Logisticloss: 0.09177098325271099
iteration: 40 Logisticloss: 0.09003657712014927
iteration: 41 Logisticloss: 0.08834217712296527
iteration: 42 Logisticloss: 0.0866868811844001
iteration: 43 Logisticloss: 0.08506979336877418
iteration: 44 Logisticloss: 0.083490025024157
iteration: 45 Logisticloss: 0.08194669632919432
iteration: 46 Logisticloss: 0.08043893812936356
iteration: 47 Logisticloss: 0.07896589393873957
iteration: 48 Logisticloss: 0.0775267219817707
iteration: 49 Logisticloss: 0.07612059715560315
iteration: 50 Logisticloss: 0.07474671280650873
iteration: 51 Logisticloss: 0.07340428223273718
iteration: 52 Logisticloss: 0.0720925398489597
iteration: 53 Logisticloss: 0.07081074197246963
iteration: 54 Logisticloss: 0.06955816721648735
iteration: 55 Logisticloss: 0.06833411649946965
iteration: 56 Logisticloss: 0.06713791269973945
iteration: 57 Logisticloss: 0.06596890000094982
iteration: 58 Logisticloss: 0.06482644298524642
iteration: 59 Logisticloss: 0.06370992553732065
iteration: 60 Logisticloss: 0.06261874962406967
iteration: 61 Logisticloss: 0.06155233401184651
iteration: 62 Logisticloss: 0.06051011297705736
iteration: 63 Logisticloss: 0.05949153505707057
iteration: 64 Logisticloss: 0.05849606187801443
iteration: 65 Logisticloss: 0.057523167085040634
iteration: 66 Logisticloss: 0.056572335389920674
iteration: 67 Logisticloss: 0.05564306174121875
iteration: 68 Logisticloss: 0.05473485061437483

```

Output_logistic_train.txt

```
iteration: 69 Logisticloss: 0.05384721541326901
iteration: 70 Logisticloss: 0.05297967797143523
iteration: 71 Logisticloss: 0.05213176814003005
iteration: 72 Logisticloss: 0.05130302345069686
iteration: 73 Logisticloss: 0.05049298884416203
iteration: 74 Logisticloss: 0.04970121645918224
iteration: 75 Logisticloss: 0.04892726548066338
iteration: 76 Logisticloss: 0.0481707020497367
iteration: 77 Logisticloss: 0.047431099241703724
iteration: 78 Logisticloss: 0.046708037119591685
iteration: 79 Logisticloss: 0.04600110287131155
iteration: 80 Logisticloss: 0.04530989103700624
iteration: 81 Logisticloss: 0.04463400383024362
iteration: 82 Logisticloss: 0.04397305155255029
iteration: 83 Logisticloss: 0.04332665309583186
iteration: 84 Logisticloss: 0.042694436521996476
iteration: 85 Logisticloss: 0.042076039704105346
iteration: 86 Logisticloss: 0.04147111100910021
iteration: 87 Logisticloss: 0.04087930999898026
iteration: 88 Logisticloss: 0.04030030812547937
iteration: 89 Logisticloss: 0.039733789392945376
iteration: 90 Logisticloss: 0.03917945096522449
iteration: 91 Logisticloss: 0.038637003694760225
iteration: 92 Logisticloss: 0.038106172555593947
iteration: 93 Logisticloss: 0.03758669696619825
iteration: 94 Logisticloss: 0.03707833099276543
iteration: 95 Logisticloss: 0.03658084342838741
iteration: 96 Logisticloss: 0.03609401774821307
iteration: 97 Logisticloss: 0.03561765194491584
iteration: 98 Logisticloss: 0.035151558252467074
iteration: 99 Logisticloss: 0.034695562769170345
[-4.26604455e-04 1.69986916e-04 -1.66226111e-04 ... 1.36020105e-04
-4.30481278e-05 1.47888934e-04]
```

CROSS VALIDATION 4

```
iteration: 0 Logisticloss: 8.019999622284407
iteration: 1 Logisticloss: 0.2116094837495488
iteration: 2 Logisticloss: 0.19502622931573244
iteration: 3 Logisticloss: 0.19050811321020147
iteration: 4 Logisticloss: 0.1862597794959522
iteration: 5 Logisticloss: 0.182200587498997
iteration: 6 Logisticloss: 0.17829017360014476
iteration: 7 Logisticloss: 0.17450536714999784
iteration: 8 Logisticloss: 0.17083149212112703
iteration: 9 Logisticloss: 0.16725851646719667
iteration: 10 Logisticloss: 0.16377914536876997
iteration: 11 Logisticloss: 0.16038779510656923
iteration: 12 Logisticloss: 0.1570800040721939
iteration: 13 Logisticloss: 0.15385207687120311
iteration: 14 Logisticloss: 0.15070086011505274
iteration: 15 Logisticloss: 0.14762359625278587
iteration: 16 Logisticloss: 0.14461782553785354
iteration: 17 Logisticloss: 0.1416813187007284
```

Output_logistic_train.txt

```

iteration: 18 Logisticloss: 0.13881202976510446
iteration: 19 Logisticloss: 0.1360080623806079
iteration: 20 Logisticloss: 0.13326764538157265
iteration: 21 Logisticloss: 0.13058911471492546
iteration: 22 Logisticloss: 0.1279708997875734
iteration: 23 Logisticloss: 0.1254115128762906
iteration: 24 Logisticloss: 0.12290954064278253
iteration: 25 Logisticloss: 0.1204636370751786
iteration: 26 Logisticloss: 0.11807251737764812
iteration: 27 Logisticloss: 0.11573495247818086
iteration: 28 Logisticloss: 0.11344976393670138
iteration: 29 Logisticloss: 0.11121581912134146
iteration: 30 Logisticloss: 0.10903202658599061
iteration: 31 Logisticloss: 0.1068973316310968
iteration: 32 Logisticloss: 0.10481071206480197
iteration: 33 Logisticloss: 0.10277117420486793
iteration: 34 Logisticloss: 0.10077774917512072
iteration: 35 Logisticloss: 0.09882948955475844
iteration: 36 Logisticloss: 0.09692546643619347
iteration: 37 Logisticloss: 0.09506476693841612
iteration: 38 Logisticloss: 0.09324649220947473
iteration: 39 Logisticloss: 0.09146975593480815
iteration: 40 Logisticloss: 0.08973368334912564
iteration: 41 Logisticloss: 0.08803741072957212
iteration: 42 Logisticloss: 0.08638008532832052
iteration: 43 Logisticloss: 0.08476086568474307
iteration: 44 Logisticloss: 0.0831789222421082
iteration: 45 Logisticloss: 0.08163343818236461
iteration: 46 Logisticloss: 0.08012361038583224
iteration: 47 Logisticloss: 0.07864865042104416
iteration: 48 Logisticloss: 0.07720778547373276
iteration: 49 Logisticloss: 0.0758002591327955
iteration: 50 Logisticloss: 0.07442533196437871
iteration: 51 Logisticloss: 0.07308228182202232
iteration: 52 Logisticloss: 0.07177040385990426
iteration: 53 Logisticloss: 0.07048901023628704
iteration: 54 Logisticloss: 0.06923742951397482
iteration: 55 Logisticloss: 0.06801500578274178
iteration: 56 Logisticloss: 0.06682109754430833
iteration: 57 Logisticloss: 0.06565507641279689
iteration: 58 Logisticloss: 0.06451632569225624
iteration: 59 Logisticloss: 0.06340423889762561
iteration: 60 Logisticloss: 0.06231821828647003
iteration: 61 Logisticloss: 0.061257673466200285
iteration: 62 Logisticloss: 0.060222020135679795
iteration: 63 Logisticloss: 0.059210679011622316
iteration: 64 Logisticloss: 0.05822307497959089
iteration: 65 Logisticloss: 0.05725863649738342
iteration: 66 Logisticloss: 0.056316795265847874
iteration: 67 Logisticloss: 0.055396986169444634
iteration: 68 Logisticloss: 0.05449864747688658
iteration: 69 Logisticloss: 0.05362122128159772

```

Output_logistic_train.txt

```
iteration: 70 Logisticloss: 0.052764154153082124
iteration: 71 Logisticloss: 0.051926897963979604
iteration: 72 Logisticloss: 0.05110891085378482
iteration: 73 Logisticloss: 0.050309658288911256
iteration: 74 Logisticloss: 0.04952861417976733
iteration: 75 Logisticloss: 0.04876526201838835
iteration: 76 Logisticloss: 0.0480190960044415
iteration: 77 Logisticloss: 0.047289622132531975
iteration: 78 Logisticloss: 0.04657635921915715
iteration: 79 Logisticloss: 0.04587883985291081
iteration: 80 Logisticloss: 0.04519661125627834
iteration: 81 Logisticloss: 0.04452923605135225
iteration: 82 Logisticloss: 0.04387629292493973
iteration: 83 Logisticloss: 0.043237377190836375
iteration: 84 Logisticloss: 0.04261210124860359
iteration: 85 Logisticloss: 0.04200009493915936
iteration: 86 Logisticloss: 0.04140100579805175
iteration: 87 Logisticloss: 0.040814499207606075
iteration: 88 Logisticloss: 0.04024025844937772
iteration: 89 Logisticloss: 0.03967798465862744
iteration: 90 Logisticloss: 0.039127396682955055
iteration: 91 Logisticloss: 0.03858823084783162
iteration: 92 Logisticloss: 0.038060240632573974
iteration: 93 Logisticloss: 0.037543196261294993
iteration: 94 Logisticloss: 0.0370368842144948
iteration: 95 Logisticloss: 0.03654110666817082
iteration: 96 Logisticloss: 0.036055680868540926
iteration: 97 Logisticloss: 0.035580438451614654
iteration: 98 Logisticloss: 0.03511522471782297
iteration: 99 Logisticloss: 0.034659897872659676
[-4.15718609e-04 1.75806337e-04 -1.62317958e-04 ... 1.33254841e-04
-3.95627398e-05 1.48965165e-04]
```

CROSS VALIDATION 5

```
iteration: 0 Logisticloss: 6.86613587708508
iteration: 1 Logisticloss: 0.20292590784941159
iteration: 2 Logisticloss: 0.19845311823893105
iteration: 3 Logisticloss: 0.19417684847968392
iteration: 4 Logisticloss: 0.19005011875667993
iteration: 5 Logisticloss: 0.18604881346439048
iteration: 6 Logisticloss: 0.18215866052232177
iteration: 7 Logisticloss: 0.17837029520905368
iteration: 8 Logisticloss: 0.1746770600772329
iteration: 9 Logisticloss: 0.17107390781896525
iteration: 10 Logisticloss: 0.167556806698807
iteration: 11 Logisticloss: 0.16412239692781133
iteration: 12 Logisticloss: 0.1607677816042317
iteration: 13 Logisticloss: 0.15749039408102808
iteration: 14 Logisticloss: 0.15428791084530158
iteration: 15 Logisticloss: 0.1511581926014808
iteration: 16 Logisticloss: 0.14809924343813913
iteration: 17 Logisticloss: 0.14510918193782735
iteration: 18 Logisticloss: 0.14218622038278064
```

Output_logistic_train.txt

iteration: 19 Logisticloss: 0.13932864957778027
iteration: 20 Logisticloss: 0.13653482765270267
iteration: 21 Logisticloss: 0.13380317173778122
iteration: 22 Logisticloss: 0.13113215174630555
iteration: 23 Logisticloss: 0.12852028572343802
iteration: 24 Logisticloss: 0.12596613636878262
iteration: 25 Logisticloss: 0.12346830844083123
iteration: 26 Logisticloss: 0.12102544682044715
iteration: 27 Logisticloss: 0.11863623505929966
iteration: 28 Logisticloss: 0.11629939427511417
iteration: 29 Logisticloss: 0.11401368228371705
iteration: 30 Logisticloss: 0.11177789288132675
iteration: 31 Logisticloss: 0.10959085521123355
iteration: 32 Logisticloss: 0.10745143316779354
iteration: 33 Logisticloss: 0.10535852480767585
iteration: 34 Logisticloss: 0.10331106175324382
iteration: 35 Logisticloss: 0.10130800858526837
iteration: 36 Logisticloss: 0.09934836223132153
iteration: 37 Logisticloss: 0.09743115136179493
iteration: 38 Logisticloss: 0.09555543580741924
iteration: 39 Logisticloss: 0.09372030601066862
iteration: 40 Logisticloss: 0.09192488251906944
iteration: 41 Logisticloss: 0.09016831552201536
iteration: 42 Logisticloss: 0.0884497844252102
iteration: 43 Logisticloss: 0.08676849744932132
iteration: 44 Logisticloss: 0.08512369123277987
iteration: 45 Logisticloss: 0.08351463041364598
iteration: 46 Logisticloss: 0.08194060716257404
iteration: 47 Logisticloss: 0.08040094063836667
iteration: 48 Logisticloss: 0.07889497633932646
iteration: 49 Logisticloss: 0.07742208532729128
iteration: 50 Logisticloss: 0.07598166330639103
iteration: 51 Logisticloss: 0.07457312954461008
iteration: 52 Logisticloss: 0.07319592563259054
iteration: 53 Logisticloss: 0.07184951408023894
iteration: 54 Logisticloss: 0.0705333767571721
iteration: 55 Logisticloss: 0.06924701318759632
iteration: 56 Logisticloss: 0.06798993871374001
iteration: 57 Logisticloss: 0.06676168254449857
iteration: 58 Logisticloss: 0.06556178570767715
iteration: 59 Logisticloss: 0.06438979892539942
iteration: 60 Logisticloss: 0.06324528043320908
iteration: 61 Logisticloss: 0.06212779376445786
iteration: 62 Logisticloss: 0.06103690552303237
iteration: 63 Logisticloss: 0.05997218316954672
iteration: 64 Logisticloss: 0.05893319284891356
iteration: 65 Logisticloss: 0.057919497290681694
iteration: 66 Logisticloss: 0.05693065381751505
iteration: 67 Logisticloss: 0.05596621250135908
iteration: 68 Logisticloss: 0.055025714510738497
iteration: 69 Logisticloss: 0.0541086906956833
iteration: 70 Logisticloss: 0.05321466045835389

Output_logistic_train.txt

```

iteration: 71 Logisticloss: 0.052343130956902975
iteration: 72 Logisticloss: 0.05149359668691171
iteration: 73 Logisticloss: 0.05066553947847164
iteration: 74 Logisticloss: 0.049858428937492066
iteration: 75 Logisticloss: 0.04907172334722611
iteration: 76 Logisticloss: 0.0483048710307898
iteration: 77 Logisticloss: 0.0475573121583692
iteration: 78 Logisticloss: 0.04682848096490081
iteration: 79 Logisticloss: 0.04611780832645375
iteration: 80 Logisticloss: 0.045424724627553474
iteration: 81 Logisticloss: 0.044748662838383184
iteration: 82 Logisticloss: 0.04408906171107509
iteration: 83 Logisticloss: 0.043445368998771314
iteration: 84 Logisticloss: 0.042817044600067945
iteration: 85 Logisticloss: 0.04220356353481969
iteration: 86 Logisticloss: 0.04160441866476833
iteration: 87 Logisticloss: 0.041019123083541775
iteration: 88 Logisticloss: 0.0404472121145917
iteration: 89 Logisticloss: 0.039888244871833865
iteration: 90 Logisticloss: 0.039341805355323035
iteration: 91 Logisticloss: 0.03880750307240901
iteration: 92 Logisticloss: 0.038284973192659756
iteration: 93 Logisticloss: 0.03777387626162032
iteration: 94 Logisticloss: 0.0372738975134785
iteration: 95 Logisticloss: 0.03678474583531065
iteration: 96 Logisticloss: 0.03630615244530166
iteration: 97 Logisticloss: 0.035837869353856175
iteration: 98 Logisticloss: 0.035379667679712394
iteration: 99 Logisticloss: 0.034931335893100476
[-3.21742332e-04 2.17931071e-04 -1.63539347e-04 ... 6.68397546e-05
-3.95099203e-05 1.78657037e-04]

```

CROSS VALIDATION 6

```

iteration: 0 Logisticloss: 8.015056760046075
iteration: 1 Logisticloss: 0.211537345759594
iteration: 2 Logisticloss: 0.19500476737155634
iteration: 3 Logisticloss: 0.19048582535614414
iteration: 4 Logisticloss: 0.1862375528401833
iteration: 5 Logisticloss: 0.18217882017336043
iteration: 6 Logisticloss: 0.17826908985060147
iteration: 7 Logisticloss: 0.17448511737186287
iteration: 8 Logisticloss: 0.1708121923577404
iteration: 9 Logisticloss: 0.16724026657832375
iteration: 10 Logisticloss: 0.16376203844485304
iteration: 11 Logisticloss: 0.1603719228643063
iteration: 12 Logisticloss: 0.15706546023699983
iteration: 13 Logisticloss: 0.15383895947482118
iteration: 14 Logisticloss: 0.15068927316726974
iteration: 15 Logisticloss: 0.14761365102426421
iteration: 16 Logisticloss: 0.14460964157839018
iteration: 17 Logisticloss: 0.1416750246561847
iteration: 18 Logisticloss: 0.1388077640211352
iteration: 19 Logisticloss: 0.13600597353997856

```

Output_logistic_train.txt

iteration: 20 Logisticloss: 0.13326789256831553
iteration: 21 Logisticloss: 0.13059186768975475
iteration: 22 Logisticloss: 0.127976338853277
iteration: 23 Logisticloss: 0.12541982854839198
iteration: 24 Logisticloss: 0.12292093305921754
iteration: 25 Logisticloss: 0.1204783151188585
iteration: 26 Logisticloss: 0.11809069748754876
iteration: 27 Logisticloss: 0.11575685712802941
iteration: 28 Logisticloss: 0.113475619765494
iteration: 29 Logisticloss: 0.11124585470689421
iteration: 30 Logisticloss: 0.10906646986153862
iteration: 31 Logisticloss: 0.10693640695559431
iteration: 32 Logisticloss: 0.10485463696991475
iteration: 33 Logisticloss: 0.10282015585543788
iteration: 34 Logisticloss: 0.10083198059469671
iteration: 35 Logisticloss: 0.09888914568304927
iteration: 36 Logisticloss: 0.0969907001002309
iteration: 37 Logisticloss: 0.09513570483292833
iteration: 38 Logisticloss: 0.09332323099343501
iteration: 39 Logisticloss: 0.09155235855932847
iteration: 40 Logisticloss: 0.08982217573582553
iteration: 41 Logisticloss: 0.08813177891747742
iteration: 42 Logisticloss: 0.08648027320069382
iteration: 43 Logisticloss: 0.08486677337483488
iteration: 44 Logisticloss: 0.08329040529886876
iteration: 45 Logisticloss: 0.08175030755432212
iteration: 46 Logisticloss: 0.08024563325467715
iteration: 47 Logisticloss: 0.07877555188734187
iteration: 48 Logisticloss: 0.07733925106722712
iteration: 49 Logisticloss: 0.0759359380906531
iteration: 50 Logisticloss: 0.07456484119410675
iteration: 51 Logisticloss: 0.07322521044312466
iteration: 52 Logisticloss: 0.07191631820078197
iteration: 53 Logisticloss: 0.07063745915122
iteration: 54 Logisticloss: 0.06938794987960176
iteration: 55 Logisticloss: 0.06816712803422462
iteration: 56 Logisticloss: 0.06697435111787248
iteration: 57 Logisticloss: 0.0658089949728029
iteration: 58 Logisticloss: 0.06467045203636815
iteration: 59 Logisticloss: 0.06355812945182811
iteration: 60 Logisticloss: 0.062471447121454825
iteration: 61 Logisticloss: 0.06140983578683137
iteration: 62 Logisticloss: 0.06037273521483365
iteration: 63 Logisticloss: 0.0593595925578457
iteration: 64 Logisticloss: 0.05836986094410322
iteration: 65 Logisticloss: 0.057402998339583816
iteration: 66 Logisticloss: 0.056458466707495145
iteration: 67 Logisticloss: 0.055535731476066934
iteration: 68 Logisticloss: 0.05463426131089826
iteration: 69 Logisticloss: 0.05375352817529844
iteration: 70 Logisticloss: 0.052893007651488036
iteration: 71 Logisticloss: 0.052052179487602886

Output_logistic_train.txt

```
iteration: 72 Logisticloss: 0.05123052833034959
iteration: 73 Logisticloss: 0.0504275446008537
iteration: 74 Logisticloss: 0.04964272547147394
iteration: 75 Logisticloss: 0.04887557590369959
iteration: 76 Logisticloss: 0.048125609711175604
iteration: 77 Logisticloss: 0.047392350616821816
iteration: 78 Logisticloss: 0.04667533327836399
iteration: 79 Logisticloss: 0.04597410426188076
iteration: 80 Logisticloss: 0.045288222947808356
iteration: 81 Logisticloss: 0.0446172623579916
iteration: 82 Logisticloss: 0.04396080989571066
iteration: 83 Logisticloss: 0.043318467993160734
iteration: 84 Logisticloss: 0.04268985466271823
iteration: 85 Logisticloss: 0.0420746039496489
iteration: 86 Logisticloss: 0.04147236628488682
iteration: 87 Logisticloss: 0.040882808737310095
iteration: 88 Logisticloss: 0.04030561516570649
iteration: 89 Logisticloss: 0.03974048627145768
iteration: 90 Logisticloss: 0.03918713955393172
iteration: 91 Logisticloss: 0.03864530917165883
iteration: 92 Logisticloss: 0.03811474571355231
iteration: 93 Logisticloss: 0.037595215885660754
iteration: 94 Logisticloss: 0.037086502120132814
iteration: 95 Logisticloss: 0.03658840211416514
iteration: 96 Logisticloss: 0.03610072830762068
iteration: 97 Logisticloss: 0.03562330730869459
iteration: 98 Logisticloss: 0.03515597927742821
iteration: 99 Logisticloss: 0.03469859727700992
[-4.24501365e-04 1.71308011e-04 -1.61583775e-04 ... 1.28532682e-04
-4.38321682e-05 1.47171415e-04]
```

CROSS VALIDATION 7

```
iteration: 0 Logisticloss: 8.034280441666375
iteration: 1 Logisticloss: 0.21176609458960982
iteration: 2 Logisticloss: 0.19499318523580592
iteration: 3 Logisticloss: 0.1904780656629893
iteration: 4 Logisticloss: 0.1862263117794158
iteration: 5 Logisticloss: 0.18216063389144221
iteration: 6 Logisticloss: 0.17824194840500054
iteration: 7 Logisticloss: 0.1744476702092921
iteration: 8 Logisticloss: 0.17076343098743238
iteration: 9 Logisticloss: 0.16717938272144578
iteration: 10 Logisticloss: 0.1636883563900563
iteration: 11 Logisticloss: 0.16028486657765767
iteration: 12 Logisticloss: 0.1569645380204723
iteration: 13 Logisticloss: 0.1537237579443864
iteration: 14 Logisticloss: 0.15055945628277373
iteration: 15 Logisticloss: 0.14746896178468835
iteration: 16 Logisticloss: 0.1444499049505497
iteration: 17 Logisticloss: 0.1415001508224935
iteration: 18 Logisticloss: 0.13861775133493218
iteration: 19 Logisticloss: 0.13580091077080308
iteration: 20 Logisticloss: 0.13304796015628403
```

Output_logistic_train.txt

```

iteration: 21 Logisticloss: 0.1303573378333544
iteration: 22 Logisticloss: 0.12772757434057863
iteration: 23 Logisticloss: 0.12515728031312195
iteration: 24 Logisticloss: 0.12264513650208388
iteration: 25 Logisticloss: 0.12018988528136418
iteration: 26 Logisticloss: 0.11779032320026031
iteration: 27 Logisticloss: 0.11544529427829993
iteration: 28 Logisticloss: 0.11315368384197912
iteration: 29 Logisticloss: 0.11091441278151969
iteration: 30 Logisticloss: 0.10872643216605292
iteration: 31 Logisticloss: 0.10658871820188602
iteration: 32 Logisticloss: 0.10450026755322984
iteration: 33 Logisticloss: 0.10246009306947147
iteration: 34 Logisticloss: 0.1004672199786308
iteration: 35 Logisticloss: 0.09852068261359273
iteration: 36 Logisticloss: 0.09661952173644983
iteration: 37 Logisticloss: 0.0947627825173145
iteration: 38 Logisticloss: 0.09294951320791221
iteration: 39 Logisticloss: 0.09117876452817655
iteration: 40 Logisticloss: 0.08944958975729543
iteration: 41 Logisticloss: 0.08776104549103048
iteration: 42 Logisticloss: 0.08611219299680652
iteration: 43 Logisticloss: 0.08450210006944385
iteration: 44 Logisticloss: 0.08292984326594442
iteration: 45 Logisticloss: 0.08139451037968425
iteration: 46 Logisticloss: 0.0798952030045087
iteration: 47 Logisticloss: 0.07843103903868093
iteration: 48 Logisticloss: 0.07700115498763102
iteration: 49 Logisticloss: 0.07560470794232761
iteration: 50 Logisticloss: 0.07424087713531198
iteration: 51 Logisticloss: 0.07290886500680654
iteration: 52 Logisticloss: 0.07160789774624368
iteration: 53 Logisticloss: 0.07033722530739868
iteration: 54 Logisticloss: 0.06909612092561393
iteration: 55 Logisticloss: 0.06788388019140586
iteration: 56 Logisticloss: 0.06669981975470653
iteration: 57 Logisticloss: 0.0655432757474269
iteration: 58 Logisticloss: 0.0644136020188804
iteration: 59 Logisticloss: 0.06331016827932057
iteration: 60 Logisticloss: 0.062232358242238495
iteration: 61 Logisticloss: 0.06117956784715339
iteration: 62 Logisticloss: 0.06015120363252617
iteration: 63 Logisticloss: 0.05914668131422348
iteration: 64 Logisticloss: 0.058165424609683894
iteration: 65 Logisticloss: 0.05720686433251128
iteration: 66 Logisticloss: 0.05627043776743828
iteration: 67 Logisticloss: 0.05535558832214416
iteration: 68 Logisticloss: 0.054461765440815234
iteration: 69 Logisticloss: 0.05358842475499539
iteration: 70 Logisticloss: 0.052735028440430036
iteration: 71 Logisticloss: 0.051901045744319904
iteration: 72 Logisticloss: 0.05108595364557358

```

Output_logistic_train.txt

```

iteration: 73 Logisticloss: 0.05028923761101316
iteration: 74 Logisticloss: 0.0495103924126583
iteration: 75 Logisticloss: 0.04874892297471047
iteration: 76 Logisticloss: 0.048004345223174635
iteration: 77 Logisticloss: 0.04727618691569564
iteration: 78 Logisticloss: 0.04656398843373272
iteration: 79 Logisticloss: 0.045867303523322134
iteration: 80 Logisticloss: 0.045185699974185575
iteration: 81 Logisticloss: 0.044518760229740495
iteration: 82 Logisticloss: 0.04386608192267983
iteration: 83 Logisticloss: 0.04322727833229937
iteration: 84 Logisticloss: 0.04260197876080565
iteration: 85 Logisticloss: 0.04198982882658674
iteration: 86 Logisticloss: 0.041390490673024825
iteration: 87 Logisticloss: 0.04080364309199154
iteration: 88 Logisticloss: 0.040228981561788
iteration: 89 Logisticloss: 0.039666218200020587
iteration: 90 Logisticloss: 0.039115081632761575
iteration: 91 Logisticloss: 0.03857531678232306
iteration: 92 Logisticloss: 0.0380466845770424
iteration: 93 Logisticloss: 0.03752896158759853
iteration: 94 Logisticloss: 0.037021939595499716
iteration: 95 Logisticloss: 0.0365254251004524
iteration: 96 Logisticloss: 0.03603923877428676
iteration: 97 Logisticloss: 0.03556321486992569
iteration: 98 Logisticloss: 0.03509720059450021
iteration: 99 Logisticloss: 0.034641055456093854
[-4.30071222e-04 1.70483725e-04 -1.67495461e-04 ... 1.25796296e-04
-4.61596776e-05 1.49472066e-04]

```

CROSS VALIDATION 8

```

iteration: 0 Logisticloss: 8.02062735275987
iteration: 1 Logisticloss: 0.2121510939606676
iteration: 2 Logisticloss: 0.19506787141129564
iteration: 3 Logisticloss: 0.19056333244007478
iteration: 4 Logisticloss: 0.1863206436756644
iteration: 5 Logisticloss: 0.1822636953356185
iteration: 6 Logisticloss: 0.17835379713240426
iteration: 7 Logisticloss: 0.17456851741053428
iteration: 8 Logisticloss: 0.17089354660412046
iteration: 9 Logisticloss: 0.16731904981612444
iteration: 10 Logisticloss: 0.16383784511539673
iteration: 11 Logisticloss: 0.16044441704593895
iteration: 12 Logisticloss: 0.15713434771444962
iteration: 13 Logisticloss: 0.15390397176034068
iteration: 14 Logisticloss: 0.15075015834589706
iteration: 15 Logisticloss: 0.14767016866189875
iteration: 16 Logisticloss: 0.1446615601201629
iteration: 17 Logisticloss: 0.14172212037307458
iteration: 18 Logisticloss: 0.13884982091483897
iteration: 19 Logisticloss: 0.13604278382345164
iteration: 20 Logisticloss: 0.13329925746900953
iteration: 21 Logisticloss: 0.1306175984088274

```

Output_logistic_train.txt

iteration: 22 Logisticloss: 0.12799625757497837
iteration: 23 Logisticloss: 0.1254337694388509
iteration: 24 Logisticloss: 0.12292874322774752
iteration: 25 Logisticloss: 0.1204798555400488
iteration: 26 Logisticloss: 0.11808584389995162
iteration: 27 Logisticloss: 0.11574550093589715
iteration: 28 Logisticloss: 0.11345766897434459
iteration: 29 Logisticloss: 0.1112212349224134
iteration: 30 Logisticloss: 0.1090351253753248
iteration: 31 Logisticloss: 0.1068983019315376
iteration: 32 Logisticloss: 0.10480975673265898
iteration: 33 Logisticloss: 0.10276850826846992
iteration: 34 Logisticloss: 0.10077359750115887
iteration: 35 Logisticloss: 0.09882408436826766
iteration: 36 Logisticloss: 0.0969190447220103
iteration: 37 Logisticloss: 0.09505756775458779
iteration: 38 Logisticloss: 0.09323875394603458
iteration: 39 Logisticloss: 0.09146171355419855
iteration: 40 Logisticloss: 0.08972556564699705
iteration: 41 Logisticloss: 0.08802943765649245
iteration: 42 Logisticloss: 0.08637246541401991
iteration: 43 Logisticloss: 0.0847537936069631
iteration: 44 Logisticloss: 0.08317257658208702
iteration: 45 Logisticloss: 0.08162797940863992
iteration: 46 Logisticloss: 0.08011917910748403
iteration: 47 Logisticloss: 0.07864536595067592
iteration: 48 Logisticloss: 0.0772057447391603
iteration: 49 Logisticloss: 0.07579953597416123
iteration: 50 Logisticloss: 0.0744259768496965
iteration: 51 Logisticloss: 0.07308432200843615
iteration: 52 Logisticloss: 0.0717738440197626
iteration: 53 Logisticloss: 0.0704938335562569
iteration: 54 Logisticloss: 0.06924359926190365
iteration: 55 Logisticloss: 0.06802246732120347
iteration: 56 Logisticloss: 0.06682978075243225
iteration: 57 Logisticloss: 0.06566489846002178
iteration: 58 Logisticloss: 0.06452719409017435
iteration: 59 Logisticloss: 0.06341605474025196
iteration: 60 Logisticloss: 0.06233087957621199
iteration: 61 Logisticloss: 0.06127107841351267
iteration: 62 Logisticloss: 0.06023607031568244
iteration: 63 Logisticloss: 0.05922528226139845
iteration: 64 Logisticloss: 0.058238147925773996
iteration: 65 Logisticloss: 0.05727410661498155
iteration: 66 Logisticloss: 0.05633260238575111
iteration: 67 Logisticloss: 0.055413083373116706
iteration: 68 Logisticloss: 0.054515001341479415
iteration: 69 Logisticloss: 0.05363781146601917
iteration: 70 Logisticloss: 0.052780972344074674
iteration: 71 Logisticloss: 0.051943946229575294
iteration: 72 Logisticloss: 0.05112619947810748
iteration: 73 Logisticloss: 0.05032720318575415

Output_logistic_train.txt

```
iteration: 74 Logisticloss: 0.04954643400139048
iteration: 75 Logisticloss: 0.04878337508949016
iteration: 76 Logisticloss: 0.04803751721849911
iteration: 77 Logisticloss: 0.04730835994826743
iteration: 78 Logisticloss: 0.04659541288874296
iteration: 79 Logisticloss: 0.045898197001045124
iteration: 80 Logisticloss: 0.04521624591115936
iteration: 81 Logisticloss: 0.044549107205922756
iteration: 82 Logisticloss: 0.04389634368086127
iteration: 83 Logisticloss: 0.04325753450998161
iteration: 84 Logisticloss: 0.042632276308985924
iteration: 85 Logisticloss: 0.04202018406569755
iteration: 86 Logisticloss: 0.04142089191480405
iteration: 87 Logisticloss: 0.04083405373829525
iteration: 88 Logisticloss: 0.04025934357805112
iteration: 89 Logisticloss: 0.03969645585269118
iteration: 90 Logisticloss: 0.039145105376743886
iteration: 91 Logisticloss: 0.038605027186112306
iteration: 92 Logisticloss: 0.03807597617939123
iteration: 93 Logisticloss: 0.037557726589545426
iteration: 94 Logisticloss: 0.03705007130456934
iteration: 95 Logisticloss: 0.03655282105885872
iteration: 96 Logisticloss: 0.0360658035190609
iteration: 97 Logisticloss: 0.03558886228912948
iteration: 98 Logisticloss: 0.03512185585925642
iteration: 99 Logisticloss: 0.03466465652240315
[-4.16561807e-04 1.76262928e-04 -1.49587294e-04 ... 1.30587005e-04
-4.97631823e-05 1.46470267e-04]
```

CROSS VALIDATION 9

```
iteration: 0 Logisticloss: 8.082977417232788
iteration: 1 Logisticloss: 0.24717992988161663
iteration: 2 Logisticloss: 0.22763249820586126
iteration: 3 Logisticloss: 0.22234660211344
iteration: 4 Logisticloss: 0.21738442096755747
iteration: 5 Logisticloss: 0.2126382270943963
iteration: 6 Logisticloss: 0.20805929893338848
iteration: 7 Logisticloss: 0.20362118475591565
iteration: 8 Logisticloss: 0.19930767963610818
iteration: 9 Logisticloss: 0.1951079267490418
iteration: 10 Logisticloss: 0.19101412080069355
iteration: 11 Logisticloss: 0.18702031903281316
iteration: 12 Logisticloss: 0.1831217780242833
iteration: 13 Logisticloss: 0.17931456161242704
iteration: 14 Logisticloss: 0.17559529803905788
iteration: 15 Logisticloss: 0.1719610237060503
iteration: 16 Logisticloss: 0.16840907946385356
iteration: 17 Logisticloss: 0.16493703996642123
iteration: 18 Logisticloss: 0.16154266449824392
iteration: 19 Logisticloss: 0.15822386210945133
iteration: 20 Logisticloss: 0.1549786664841701
iteration: 21 Logisticloss: 0.1518052175326247
iteration: 22 Logisticloss: 0.14870174767396874
```

Output_logistic_train.txt

```

iteration: 23 Logisticloss: 0.14566657140489728
iteration: 24 Logisticloss: 0.14269807716561192
iteration: 25 Logisticloss: 0.13979472079970026
iteration: 26 Logisticloss: 0.13695502010562663
iteration: 27 Logisticloss: 0.13417755012367416
iteration: 28 Logisticloss: 0.1314609389109772
iteration: 29 Logisticloss: 0.12880386363965451
iteration: 30 Logisticloss: 0.1262050469157883
iteration: 31 Logisticloss: 0.12366325326443478
iteration: 32 Logisticloss: 0.12117728576085342
iteration: 33 Logisticloss: 0.11874598281269515
iteration: 34 Logisticloss: 0.11636821511353025
iteration: 35 Logisticloss: 0.11404288279611559
iteration: 36 Logisticloss: 0.11176891281539654
iteration: 37 Logisticloss: 0.10954525658762623
iteration: 38 Logisticloss: 0.1073708879044045
iteration: 39 Logisticloss: 0.10524480113019315
iteration: 40 Logisticloss: 0.10316600968029425
iteration: 41 Logisticloss: 0.10113354476471598
iteration: 42 Logisticloss: 0.09914645437303715
iteration: 43 Logisticloss: 0.09720380246740833
iteration: 44 Logisticloss: 0.09530466834600781
iteration: 45 Logisticloss: 0.09344814613808168
iteration: 46 Logisticloss: 0.09163334439421088
iteration: 47 Logisticloss: 0.08985938574131301
iteration: 48 Logisticloss: 0.08812540658036083
iteration: 49 Logisticloss: 0.08643055681482668
iteration: 50 Logisticloss: 0.0847739996082058
iteration: 51 Logisticloss: 0.08315491117834536
iteration: 52 Logisticloss: 0.0815724806435627
iteration: 53 Logisticloss: 0.08002590993978367
iteration: 54 Logisticloss: 0.07851441382865479
iteration: 55 Logisticloss: 0.07703722001370657
iteration: 56 Logisticloss: 0.07559356937551664
iteration: 57 Logisticloss: 0.07418271632817791
iteration: 58 Logisticloss: 0.07280392928921842
iteration: 59 Logisticloss: 0.07145649124460464
iteration: 60 Logisticloss: 0.07013970038073543
iteration: 61 Logisticloss: 0.06885287074742516
iteration: 62 Logisticloss: 0.06759533291056938
iteration: 63 Logisticloss: 0.06636643455095541
iteration: 64 Logisticloss: 0.06516554096667693
iteration: 65 Logisticloss: 0.06399203544065603
iteration: 66 Logisticloss: 0.06284531944142674
iteration: 67 Logisticloss: 0.06172481263394771
iteration: 68 Logisticloss: 0.06062995268703049
iteration: 69 Logisticloss: 0.05956019487420075
iteration: 70 Logisticloss: 0.05851501147469841
iteration: 71 Logisticloss: 0.05749389099022164
iteration: 72 Logisticloss: 0.05649633720040813
iteration: 73 Logisticloss: 0.05552186808559135
iteration: 74 Logisticloss: 0.05457001464889822

```


Output_logistic_train.txt

```

iteration: 75 Logisticloss: 0.05364031967129032
iteration: 76 Logisticloss: 0.05273233643286772
iteration: 77 Logisticloss: 0.0518456274319679
iteration: 78 Logisticloss: 0.05097976313072146
iteration: 79 Logisticloss: 0.050134320752228546
iteration: 80 Logisticloss: 0.0493088831508694
iteration: 81 Logisticloss: 0.04850303777385741
iteration: 82 Logisticloss: 0.04771637572929506
iteration: 83 Logisticloss: 0.046948490973860696
iteration: 84 Logisticloss: 0.04619897963184107
iteration: 85 Logisticloss: 0.04546743945637919
iteration: 86 Logisticloss: 0.044753469443248435
iteration: 87 Logisticloss: 0.04405666960682463
iteration: 88 Logisticloss: 0.043376640926825666
iteration: 89 Logisticloss: 0.042712985472473576
iteration: 90 Logisticloss: 0.042065306707771664
iteration: 91 Logisticloss: 0.041433209977487846
iteration: 92 Logisticloss: 0.04081630316828178
iteration: 93 Logisticloss: 0.04021419753347707
iteration: 94 Logisticloss: 0.03962650866366734
iteration: 95 Logisticloss: 0.039052857579181754
iteration: 96 Logisticloss: 0.038492871914968696
iteration: 97 Logisticloss: 0.03794618716420689
iteration: 98 Logisticloss: 0.03741244794434749
iteration: 99 Logisticloss: 0.03689130924859304
[-3.83137533e-04 2.02460620e-04 -1.12092875e-04 ... 2.57630342e-04
-3.30756685e-05 1.43159658e-04]

```

CROSS VALIDATION 10

```

iteration: 0 Logisticloss: 7.478201133661325
iteration: 1 Logisticloss: 0.25471758464458666
iteration: 2 Logisticloss: 0.24907163666793872
iteration: 3 Logisticloss: 0.2436835188413558
iteration: 4 Logisticloss: 0.2384823630324597
iteration: 5 Logisticloss: 0.2334353182553176
iteration: 6 Logisticloss: 0.22852411365090267
iteration: 7 Logisticloss: 0.22373722089606557
iteration: 8 Logisticloss: 0.21906663948980984
iteration: 9 Logisticloss: 0.21450638713813674
iteration: 10 Logisticloss: 0.21005171822956983
iteration: 11 Logisticloss: 0.20569868811731426
iteration: 12 Logisticloss: 0.2014438955852993
iteration: 13 Logisticloss: 0.19728432327227213
iteration: 14 Logisticloss: 0.19321723488160297
iteration: 15 Logisticloss: 0.18924010680365475
iteration: 16 Logisticloss: 0.1853505813960091
iteration: 17 Logisticloss: 0.1815464343452709
iteration: 18 Logisticloss: 0.17782555144531065
iteration: 19 Logisticloss: 0.17418591182526727
iteration: 20 Logisticloss: 0.1706255756840954
iteration: 21 Logisticloss: 0.1671426752229443
iteration: 22 Logisticloss: 0.16373540787020424
iteration: 23 Logisticloss: 0.16040203115692492

```

Output_logistic_train.txt

```

iteration: 24 Logisticloss: 0.15714085877567893
iteration: 25 Logisticloss: 0.153950257476058
iteration: 26 Logisticloss: 0.15082864453486156
iteration: 27 Logisticloss: 0.14777448560136572
iteration: 28 Logisticloss: 0.14478629276590319
iteration: 29 Logisticloss: 0.14186262273845923
iteration: 30 Logisticloss: 0.13900207505617326
iteration: 31 Logisticloss: 0.13620329026623976
iteration: 32 Logisticloss: 0.13346494805453415
iteration: 33 Logisticloss: 0.13078576531053124
iteration: 34 Logisticloss: 0.12816449413565933
iteration: 35 Logisticloss: 0.12559991981494845
iteration: 36 Logisticloss: 0.1230908587805904
iteration: 37 Logisticloss: 0.12063615660090964
iteration: 38 Logisticloss: 0.11823468602955538
iteration: 39 Logisticloss: 0.11588534514799563
iteration: 40 Logisticloss: 0.11358705563032061
iteration: 41 Logisticloss: 0.11133876115372704
iteration: 42 Logisticloss: 0.10913942597164546
iteration: 43 Logisticloss: 0.10698803365998699
iteration: 44 Logisticloss: 0.10488358604096684
iteration: 45 Logisticloss: 0.1028251022837636
iteration: 46 Logisticloss: 0.10081161817704082
iteration: 47 Logisticloss: 0.09884218556506524
iteration: 48 Logisticloss: 0.09691587193663878
iteration: 49 Logisticloss: 0.09503176015409187
iteration: 50 Logisticloss: 0.09318894830794199
iteration: 51 Logisticloss: 0.09138654968132325
iteration: 52 Logisticloss: 0.08962369280688075
iteration: 53 Logisticloss: 0.08789952159752745
iteration: 54 Logisticloss: 0.08621319553142759
iteration: 55 Logisticloss: 0.08456388987099538
iteration: 56 Logisticloss: 0.08295079589580674
iteration: 57 Logisticloss: 0.08137312113029298
iteration: 58 Logisticloss: 0.07983008954901999
iteration: 59 Logisticloss: 0.07832094174525858
iteration: 60 Logisticloss: 0.07684493505227802
iteration: 61 Logisticloss: 0.07540134361113028
iteration: 62 Logisticloss: 0.07398945838330945
iteration: 63 Logisticloss: 0.07260858711121994
iteration: 64 Logisticloss: 0.07125805423350362
iteration: 65 Logisticloss: 0.06993720076563459
iteration: 66 Logisticloss: 0.06864538415852955
iteration: 67 Logisticloss: 0.06738197814905775
iteration: 68 Logisticloss: 0.06614637261617802
iteration: 69 Logisticloss: 0.06493797345498943
iteration: 70 Logisticloss: 0.06375620247833827
iteration: 71 Logisticloss: 0.06260049735196059
iteration: 72 Logisticloss: 0.06147031156469013
iteration: 73 Logisticloss: 0.06036511443033668
iteration: 74 Logisticloss: 0.059284391112791296
iteration: 75 Logisticloss: 0.05822764266112537

```

Output_logistic_train.txt

```

iteration: 76 Logisticloss: 0.057194386037316886
iteration: 77 Logisticloss: 0.0561841541161359
iteration: 78 Logisticloss: 0.055196495634978124
iteration: 79 Logisticloss: 0.0542309750712942
iteration: 80 Logisticloss: 0.0532871724268501
iteration: 81 Logisticloss: 0.052364682901350795
iteration: 82 Logisticloss: 0.05146311644280369
iteration: 83 Logisticloss: 0.05058209716806164
iteration: 84 Logisticloss: 0.049721262653827016
iteration: 85 Logisticloss: 0.048880263105478265
iteration: 86 Logisticloss: 0.04805876041782535
iteration: 87 Logisticloss: 0.047256427147764644
iteration: 88 Logisticloss: 0.04647294542332167
iteration: 89 Logisticloss: 0.045708005816422766
iteration: 90 Logisticloss: 0.044961306207774644
iteration: 91 Logisticloss: 0.044232550671507415
iteration: 92 Logisticloss: 0.0435214484049873
iteration: 93 Logisticloss: 0.042827712725826896
iteration: 94 Logisticloss: 0.04215106015410699
iteration: 95 Logisticloss: 0.04149120959371236
iteration: 96 Logisticloss: 0.040847881622966584
iteration: 97 Logisticloss: 0.040220797901812155
iteration: 98 Logisticloss: 0.039609680700850754
iteration: 99 Logisticloss: 0.03901425255665427
[-3.89714754e-04 1.66322229e-04 -1.80285245e-04 ... 2.45657513e-04
-1.57387758e-05 1.53089928e-04]

```

CROSS VALIDATION 11

```

iteration: 0 Logisticloss: 8.01738795910508
iteration: 1 Logisticloss: 0.21161961971726287
iteration: 2 Logisticloss: 0.19507806347043513
iteration: 3 Logisticloss: 0.19055863653403496
iteration: 4 Logisticloss: 0.18630910884264829
iteration: 5 Logisticloss: 0.18224873497683308
iteration: 6 Logisticloss: 0.17833712967768675
iteration: 7 Logisticloss: 0.17455111697111894
iteration: 8 Logisticloss: 0.17087601869349978
iteration: 9 Logisticloss: 0.16730180081747384
iteration: 10 Logisticloss: 0.1638211659866682
iteration: 11 Logisticloss: 0.1604285272633785
iteration: 12 Logisticloss: 0.15711941915781238
iteration: 13 Logisticloss: 0.15389014177591956
iteration: 14 Logisticloss: 0.15073753665291598
iteration: 15 Logisticloss: 0.1476588406191347
iteration: 16 Logisticloss: 0.14465158779620868
iteration: 17 Logisticloss: 0.14171354229847385
iteration: 18 Logisticloss: 0.13884265108177554
iteration: 19 Logisticloss: 0.13603701031685944
iteration: 20 Logisticloss: 0.13329484100103572
iteration: 21 Logisticloss: 0.1306144709551902
iteration: 22 Logisticloss: 0.12799432126041954
iteration: 23 Logisticloss: 0.1254328957808971
iteration: 24 Logisticloss: 0.12292877281877175

```

Output_logistic_train.txt

```

iteration: 25 Logisticloss: 0.12048059822469263
iteration: 26 Logisticloss: 0.11808707948687497
iteration: 27 Logisticloss: 0.11574698046845736
iteration: 28 Logisticloss: 0.11345911657312396
iteration: 29 Logisticloss: 0.11122235020235134
iteration: 30 Logisticloss: 0.10903558643035496
iteration: 31 Logisticloss: 0.1068977688688995
iteration: 32 Logisticloss: 0.10480787572646225
iteration: 33 Logisticloss: 0.10276491608702118
iteration: 34 Logisticloss: 0.10076792644490759
iteration: 35 Logisticloss: 0.09881596753546439
iteration: 36 Logisticloss: 0.09690812149837401
iteration: 37 Logisticloss: 0.0950434894030491
iteration: 38 Logisticloss: 0.09322118915492739
iteration: 39 Logisticloss: 0.09144035378920858
iteration: 40 Logisticloss: 0.08970013014571804
iteration: 41 Logisticloss: 0.0879996779061336
iteration: 42 Logisticloss: 0.08633816896353103
iteration: 43 Logisticloss: 0.0847147870846291
iteration: 44 Logisticloss: 0.08312872781758536
iteration: 45 Logisticloss: 0.08157919859291086
iteration: 46 Logisticloss: 0.08006541896209049
iteration: 47 Logisticloss: 0.07858662091781064
iteration: 48 Logisticloss: 0.07714204924123846
iteration: 49 Logisticloss: 0.07573096182545794
iteration: 50 Logisticloss: 0.07435262992980222
iteration: 51 Logisticloss: 0.07300633832721971
iteration: 52 Logisticloss: 0.07169138531570976
iteration: 53 Logisticloss: 0.07040708257489742
iteration: 54 Logisticloss: 0.06915275485955524
iteration: 55 Logisticloss: 0.06792773953280602
iteration: 56 Logisticloss: 0.0667313859523018
iteration: 57 Logisticloss: 0.06556305473229938
iteration: 58 Logisticloss: 0.06442211691271314
iteration: 59 Logisticloss: 0.06330795307245647
iteration: 60 Logisticloss: 0.06221995242833635
iteration: 61 Logisticloss: 0.06115751196222718
iteration: 62 Logisticloss: 0.06012003561816283
iteration: 63 Logisticloss: 0.05910693360745415
iteration: 64 Logisticloss: 0.05811762185423175
iteration: 65 Logisticloss: 0.057151521606341446
iteration: 66 Logisticloss: 0.05620805922781942
iteration: 67 Logisticloss: 0.055286666179865385
iteration: 68 Logisticloss: 0.054386779187971586
iteration: 69 Logisticloss: 0.05350784058428958
iteration: 70 Logisticloss: 0.0526492988069841
iteration: 71 Logisticloss: 0.051810609032664566
iteration: 72 Logisticloss: 0.05099123391425459
iteration: 73 Logisticloss: 0.050190644394929956
iteration: 74 Logisticloss: 0.049408320568911285
iteration: 75 Logisticloss: 0.048643752561656484
iteration: 76 Logisticloss: 0.04789644140498274

```

Output_logistic_train.txt

```

iteration: 77 Logisticloss: 0.04716589988640132
iteration: 78 Logisticloss: 0.04645165335603273
iteration: 79 Logisticloss: 0.045753240478483594
iteration: 80 Logisticloss: 0.04507021392069807
iteration: 81 Logisticloss: 0.04440214096984398
iteration: 82 Logisticloss: 0.04374860407765056
iteration: 83 Logisticloss: 0.043109201329282386
iteration: 84 Logisticloss: 0.04248354683588162
iteration: 85 Logisticloss: 0.04187127105045979
iteration: 86 Logisticloss: 0.041272021007017407
iteration: 87 Logisticloss: 0.04068546048276927
iteration: 88 Logisticloss: 0.04011127008329126
iteration: 89 Logisticloss: 0.03954914725040323
iteration: 90 Logisticloss: 0.03899880619274849
iteration: 91 Logisticloss: 0.03845997773938353
iteration: 92 Logisticloss: 0.03793240911727806
iteration: 93 Logisticloss: 0.03741586365444402
iteration: 94 Logisticloss: 0.03691012041143075
iteration: 95 Logisticloss: 0.03641497374509256
iteration: 96 Logisticloss: 0.03593023280978138
iteration: 97 Logisticloss: 0.03545572100235951
iteration: 98 Logisticloss: 0.034991275358579134
iteration: 99 Logisticloss: 0.03453674590934977
[-4.21005626e-04 1.78048800e-04 -1.51627421e-04 ... 1.30642137e-04
 -4.35996267e-05 1.47142149e-04]

```

CROSS VALIDATION 12

```

iteration: 0 Logisticloss: 10.152145393665286
iteration: 1 Logisticloss: 0.1829814269578485
iteration: 2 Logisticloss: 0.17420696292133508
iteration: 3 Logisticloss: 0.16989516107006175
iteration: 4 Logisticloss: 0.16602640357312662
iteration: 5 Logisticloss: 0.1623863878576168
iteration: 6 Logisticloss: 0.158902664551706
iteration: 7 Logisticloss: 0.15554184235517354
iteration: 8 Logisticloss: 0.15228556849069583
iteration: 9 Logisticloss: 0.1491224709173432
iteration: 10 Logisticloss: 0.1460448423119075
iteration: 11 Logisticloss: 0.14304707737944916
iteration: 12 Logisticloss: 0.14012486103795757
iteration: 13 Logisticloss: 0.13727471443653494
iteration: 14 Logisticloss: 0.13449372601968912
iteration: 15 Logisticloss: 0.13177938465564942
iteration: 16 Logisticloss: 0.1291294720483935
iteration: 17 Logisticloss: 0.12654199105126052
iteration: 18 Logisticloss: 0.12401511645959638
iteration: 19 Logisticloss: 0.12154716025134595
iteration: 20 Logisticloss: 0.11913654630203638
iteration: 21 Logisticloss: 0.11678179140891595
iteration: 22 Logisticloss: 0.11448149057053311
iteration: 23 Logisticloss: 0.11223430517567819
iteration: 24 Logisticloss: 0.11003895322009515
iteration: 25 Logisticloss: 0.10789420098163932

```

Output_logistic_train.txt

```

iteration: 26 Logisticloss: 0.10579885579755399
iteration: 27 Logisticloss: 0.10375175973304622
iteration: 28 Logisticloss: 0.10175178402816104
iteration: 29 Logisticloss: 0.09979782427296169
iteration: 30 Logisticloss: 0.09788879629810458
iteration: 31 Logisticloss: 0.09602363278554471
iteration: 32 Logisticloss: 0.09420128060738607
iteration: 33 Logisticloss: 0.09242069889395686
iteration: 34 Logisticloss: 0.09068085781856514
iteration: 35 Logisticloss: 0.08898073806911794
iteration: 36 Logisticloss: 0.08731933095843136
iteration: 37 Logisticloss: 0.08569563910773659
iteration: 38 Logisticloss: 0.08410867762320118
iteration: 39 Logisticloss: 0.08255747567431676
iteration: 40 Logisticloss: 0.08104107837631216
iteration: 41 Logisticloss: 0.07955854887640336
iteration: 42 Logisticloss: 0.07810897054535708
iteration: 43 Logisticloss: 0.07669144918090004
iteration: 44 Logisticloss: 0.07530511513717164
iteration: 45 Logisticloss: 0.07394912530389429
iteration: 46 Logisticloss: 0.07262266486950233
iteration: 47 Logisticloss: 0.0713249488135817
iteration: 48 Logisticloss: 0.07005522308526221
iteration: 49 Logisticloss: 0.0688127654354943
iteration: 50 Logisticloss: 0.06759688588238204
iteration: 51 Logisticloss: 0.06640692679993383
iteration: 52 Logisticloss: 0.06524226263172693
iteration: 53 Logisticloss: 0.06410229924197003
iteration: 54 Logisticloss: 0.0629864729270912
iteration: 55 Logisticloss: 0.06189424912096396
iteration: 56 Logisticloss: 0.060825120835817384
iteration: 57 Logisticloss: 0.0597786068883313
iteration: 58 Logisticloss: 0.058754249965996076
iteration: 59 Logisticloss: 0.05775161459222374
iteration: 60 Logisticloss: 0.056770285049751665
iteration: 61 Logisticloss: 0.05580986332058344
iteration: 62 Logisticloss: 0.05486996709719521
iteration: 63 Logisticloss: 0.05395022791428035
iteration: 64 Logisticloss: 0.05305028944327886
iteration: 65 Logisticloss: 0.0521698059837561
iteration: 66 Logisticloss: 0.05130844117679682
iteration: 67 Logisticloss: 0.05046586695636419
iteration: 68 Logisticloss: 0.04964176274540219
iteration: 69 Logisticloss: 0.048835814894628876
iteration: 70 Logisticloss: 0.04804771635372034
iteration: 71 Logisticloss: 0.04727716655709217
iteration: 72 Logisticloss: 0.04652387149989001
iteration: 73 Logisticloss: 0.04578754397419449
iteration: 74 Logisticloss: 0.04506790393091042
iteration: 75 Logisticloss: 0.0443646789293943
iteration: 76 Logisticloss: 0.04367760463462844
iteration: 77 Logisticloss: 0.043006425320694826

```

Output_logistic_train.txt

```
iteration: 78 Logisticloss: 0.04235089433945333
iteration: 79 Logisticloss: 0.041710774514670805
iteration: 80 Logisticloss: 0.041085838424344504
iteration: 81 Logisticloss: 0.0404758685375471
iteration: 82 Logisticloss: 0.03988065717670175
iteration: 83 Logisticloss: 0.039300006281653595
iteration: 84 Logisticloss: 0.03873372695811624
iteration: 85 Logisticloss: 0.038181638799894196
iteration: 86 Logisticloss: 0.03764356898158854
iteration: 87 Logisticloss: 0.03711935112615261
iteration: 88 Logisticloss: 0.03660882395956308
iteration: 89 Logisticloss: 0.036111829772895065
iteration: 90 Logisticloss: 0.03562821272011992
iteration: 91 Logisticloss: 0.03515781698783217
iteration: 92 Logisticloss: 0.03470048488067692
iteration: 93 Logisticloss: 0.0342560548732339
iteration: 94 Logisticloss: 0.03382435968520163
iteration: 95 Logisticloss: 0.033405224441506044
iteration: 96 Logisticloss: 0.032998464981967
iteration: 97 Logisticloss: 0.032603886385877856
iteration: 98 Logisticloss: 0.032221281774792956
iteration: 99 Logisticloss: 0.03185043145153937
[-7.32208821e-04 -3.78860179e-05 -2.25834036e-04 ... 6.97550916e-05
-4.89209248e-05 8.52395147e-05]
```

CROSS VALIDATION 13

```
iteration: 0 Logisticloss: 8.108345695782985
iteration: 1 Logisticloss: 0.24643707094654285
iteration: 2 Logisticloss: 0.2375026771133593
iteration: 3 Logisticloss: 0.23144118167796543
iteration: 4 Logisticloss: 0.22605127291562752
iteration: 5 Logisticloss: 0.22099988692074563
iteration: 6 Logisticloss: 0.21617297295705604
iteration: 7 Logisticloss: 0.21151857290622506
iteration: 8 Logisticloss: 0.20700867880170631
iteration: 9 Logisticloss: 0.20262631523446908
iteration: 10 Logisticloss: 0.19836023207365178
iteration: 11 Logisticloss: 0.19420241993098725
iteration: 12 Logisticloss: 0.19014683063380977
iteration: 13 Logisticloss: 0.18618866811729715
iteration: 14 Logisticloss: 0.18232397177083506
iteration: 15 Logisticloss: 0.17854935960243185
iteration: 16 Logisticloss: 0.1748618634327862
iteration: 17 Logisticloss: 0.17125881946112398
iteration: 18 Logisticloss: 0.16773779341969455
iteration: 19 Logisticloss: 0.16429652805161754
iteration: 20 Logisticloss: 0.16093290542049318
iteration: 21 Logisticloss: 0.15764491933840874
iteration: 22 Logisticloss: 0.15443065486990534
iteration: 23 Logisticloss: 0.15128827290363467
iteration: 24 Logisticloss: 0.1482159984394071
iteration: 25 Logisticloss: 0.1452121116629445
iteration: 26 Logisticloss: 0.14227494115978284
```

Output_logistic_train.txt

iteration: 27 Logisticloss: 0.13940285880513098
iteration: 28 Logisticloss: 0.13659427599008409
iteration: 29 Logisticloss: 0.13384764092687337
iteration: 30 Logisticloss: 0.1311614368302944
iteration: 31 Logisticloss: 0.12853418080833032
iteration: 32 Logisticloss: 0.12596442331875318
iteration: 33 Logisticloss: 0.12345074806484108
iteration: 34 Logisticloss: 0.12099177221563663
iteration: 35 Logisticloss: 0.11858614684676928
iteration: 36 Logisticloss: 0.11623255750829795
iteration: 37 Logisticloss: 0.11392972483716667
iteration: 38 Logisticloss: 0.11167640514400676
iteration: 39 Logisticloss: 0.10947139091702822
iteration: 40 Logisticloss: 0.10731351119920483
iteration: 41 Logisticloss: 0.10520163180828149
iteration: 42 Logisticloss: 0.10313465538169027
iteration: 43 Logisticloss: 0.1011115212397008
iteration: 44 Logisticloss: 0.09913120506962109
iteration: 45 Logisticloss: 0.09719271844137178
iteration: 46 Logisticloss: 0.09529510817021665
iteration: 47 Logisticloss: 0.0934374555459575
iteration: 48 Logisticloss: 0.09161887544973489
iteration: 49 Logisticloss: 0.08983851538002934
iteration: 50 Logisticloss: 0.08809555440888316
iteration: 51 Logisticloss: 0.08638920208809092
iteration: 52 Logisticloss: 0.08471869732341349
iteration: 53 Logisticloss: 0.08308330723297117
iteration: 54 Logisticloss: 0.08148232600398979
iteration: 55 Logisticloss: 0.07991507376006159
iteration: 56 Logisticloss: 0.07838089544904257
iteration: 57 Logisticloss: 0.07687915975958104
iteration: 58 Logisticloss: 0.07540925807201435
iteration: 59 Logisticloss: 0.07397060344692581
iteration: 60 Logisticloss: 0.07256262965200883
iteration: 61 Logisticloss: 0.0711847902250816
iteration: 62 Logisticloss: 0.06983655756820992
iteration: 63 Logisticloss: 0.06851742206509276
iteration: 64 Logisticloss: 0.06722689121131997
iteration: 65 Logisticloss: 0.06596448874506498
iteration: 66 Logisticloss: 0.06472975376445411
iteration: 67 Logisticloss: 0.06352223981748291
iteration: 68 Logisticloss: 0.0623415139511086
iteration: 69 Logisticloss: 0.06118715570815289
iteration: 70 Logisticloss: 0.06005875606392738
iteration: 71 Logisticloss: 0.058955916298980365
iteration: 72 Logisticloss: 0.057878246809867376
iteration: 73 Logisticloss: 0.05682536586609258
iteration: 74 Logisticloss: 0.055796898327952156
iteration: 75 Logisticloss: 0.054792474346479665
iteration: 76 Logisticloss: 0.053811728072525475
iteration: 77 Logisticloss: 0.05285429640668322
iteration: 78 Logisticloss: 0.05191981782482316

Output_logistic_train.txt

```

iteration: 79 Logisticloss: 0.05100793131502648
iteration: 80 Logisticloss: 0.05011827546049113
iteration: 81 Logisticloss: 0.04925048769944763
iteration: 82 Logisticloss: 0.04840420378743522
iteration: 83 Logisticloss: 0.047579057479805655
iteration: 84 Logisticloss: 0.046774680443588276
iteration: 85 Logisticloss: 0.04599070239852504
iteration: 86 Logisticloss: 0.04522675147788056
iteration: 87 Logisticloss: 0.04448245479120837
iteration: 88 Logisticloss: 0.0437574391641495
iteration: 89 Logisticloss: 0.043051332024892704
iteration: 90 Logisticloss: 0.04236376240326352
iteration: 91 Logisticloss: 0.04169436200643371
iteration: 92 Logisticloss: 0.04104276633469584
iteration: 93 Logisticloss: 0.04040861580126682
iteration: 94 Logisticloss: 0.039791556821289424
iteration: 95 Logisticloss: 0.03919124283677512
iteration: 96 Logisticloss: 0.03860733524596345
iteration: 97 Logisticloss: 0.03803950420739804
iteration: 98 Logisticloss: 0.03748742929099414
iteration: 99 Logisticloss: 0.03695079995066329
[-5.81883968e-04 -1.15178216e-04 -2.67993325e-04 ... 7.19849931e-05
 3.29708354e-05 1.29757704e-04]

```

CROSS VALIDATION 14

```

iteration: 0 Logisticloss: 7.9974384215464696
iteration: 1 Logisticloss: 0.21022548865055496
iteration: 2 Logisticloss: 0.1935359456616334
iteration: 3 Logisticloss: 0.18924923369767271
iteration: 4 Logisticloss: 0.18515435753727524
iteration: 5 Logisticloss: 0.18120435715555008
iteration: 6 Logisticloss: 0.17737543710445905
iteration: 7 Logisticloss: 0.17365361214745445
iteration: 8 Logisticloss: 0.1700297393547634
iteration: 9 Logisticloss: 0.16649733230793293
iteration: 10 Logisticloss: 0.1630514806785003
iteration: 11 Logisticloss: 0.15968826819306145
iteration: 12 Logisticloss: 0.1564044376083525
iteration: 13 Logisticloss: 0.15319718750921307
iteration: 14 Logisticloss: 0.15006404378595997
iteration: 15 Logisticloss: 0.14700277555563254
iteration: 16 Logisticloss: 0.14401133864264007
iteration: 17 Logisticloss: 0.1410878367409875
iteration: 18 Logisticloss: 0.13823049423517422
iteration: 19 Logisticloss: 0.135437636866097
iteration: 20 Logisticloss: 0.132707677741747
iteration: 21 Logisticloss: 0.13003910700129664
iteration: 22 Logisticloss: 0.12743048395746032
iteration: 23 Logisticloss: 0.12488043088466183
iteration: 24 Logisticloss: 0.12238762785779264
iteration: 25 Logisticloss: 0.1199508082180085
iteration: 26 Logisticloss: 0.1175687543714811
iteration: 27 Logisticloss: 0.11524029372797251

```

Output_logistic_train.txt

```

iteration: 28 Logisticloss: 0.11296429466648512
iteration: 29 Logisticloss: 0.11073966247960813
iteration: 30 Logisticloss: 0.10856533529914039
iteration: 31 Logisticloss: 0.10644028004466426
iteration: 32 Logisticloss: 0.10436348846497927
iteration: 33 Logisticloss: 0.10233397336045527
iteration: 34 Logisticloss: 0.10035076508312404
iteration: 35 Logisticloss: 0.09841290841144071
iteration: 36 Logisticloss: 0.09651945988889478
iteration: 37 Logisticloss: 0.09466948570097895
iteration: 38 Logisticloss: 0.09286206014450987
iteration: 39 Logisticloss: 0.09109626471822935
iteration: 40 Logisticloss: 0.08937118783550883
iteration: 41 Logisticloss: 0.08768592513055075
iteration: 42 Logisticloss: 0.08603958030062993
iteration: 43 Logisticloss: 0.08443126640059258
iteration: 44 Logisticloss: 0.0828601074839336
iteration: 45 Logisticloss: 0.08132524046893906
iteration: 46 Logisticloss: 0.0798258170998592
iteration: 47 Logisticloss: 0.07836100587251821
iteration: 48 Logisticloss: 0.07692999380119653
iteration: 49 Logisticloss: 0.07553198791837046
iteration: 50 Logisticloss: 0.07416621641969648
iteration: 51 Logisticloss: 0.07283192939176399
iteration: 52 Logisticloss: 0.07152839908761227
iteration: 53 Logisticloss: 0.07025491974277999
iteration: 54 Logisticloss: 0.0690108069508397
iteration: 55 Logisticloss: 0.06779539664038363
iteration: 56 Logisticloss: 0.06660804371411604
iteration: 57 Logisticloss: 0.06544812042436192
iteration: 58 Logisticloss: 0.06431501456765391
iteration: 59 Logisticloss: 0.06320812758423974
iteration: 60 Logisticloss: 0.06212687264678109
iteration: 61 Logisticloss: 0.06107067281684735
iteration: 62 Logisticloss: 0.06003895933883086
iteration: 63 Logisticloss: 0.05903117012948102
iteration: 64 Logisticloss: 0.058046748508239834
iteration: 65 Logisticloss: 0.05708514219980536
iteration: 66 Logisticloss: 0.056145802626620465
iteration: 67 Logisticloss: 0.055228184495971853
iteration: 68 Logisticloss: 0.05433174567465768
iteration: 69 Logisticloss: 0.0534559473341787
iteration: 70 Logisticloss: 0.05260025434141634
iteration: 71 Logisticloss: 0.05176413586391267
iteration: 72 Logisticloss: 0.050947066155140205
iteration: 73 Logisticloss: 0.050148525483379856
iteration: 74 Logisticloss: 0.04936800116774101
iteration: 75 Logisticloss: 0.04860498868611286
iteration: 76 Logisticloss: 0.047858992822051936
iteration: 77 Logisticloss: 0.04712952882042422
iteration: 78 Logisticloss: 0.04641612352472259
iteration: 79 Logisticloss: 0.04571831647212744

```

Output_logistic_train.txt

```

iteration: 80 Logisticloss: 0.04503566092542844
iteration: 81 Logisticloss: 0.04436772482380334
iteration: 82 Logisticloss: 0.04371409163716496
iteration: 83 Logisticloss: 0.043074361111380986
iteration: 84 Logisticloss: 0.042448149894212535
iteration: 85 Logisticloss: 0.04183509203436597
iteration: 86 Logisticloss: 0.041234839348649105
iteration: 87 Logisticloss: 0.04064706165486977
iteration: 88 Logisticloss: 0.040071446870785926
iteration: 89 Logisticloss: 0.039507700982050704
iteration: 90 Logisticloss: 0.03895554788461289
iteration: 91 Logisticloss: 0.03841472910935019
iteration: 92 Logisticloss: 0.03788500343874195
iteration: 93 Logisticloss: 0.03736614642706616
iteration: 94 Logisticloss: 0.03685794983688272
iteration: 95 Logisticloss: 0.036360221005416915
iteration: 96 Logisticloss: 0.03587278215488472
iteration: 97 Logisticloss: 0.03539546966081862
iteration: 98 Logisticloss: 0.03492813329209714
iteration: 99 Logisticloss: 0.03447063543569086
[-3.95703504e-04 1.87212067e-04 -1.48549887e-04 ... 1.13544561e-04
-5.90732748e-05 1.44525656e-04]

```

CROSS VALIDATION 15

```

iteration: 0 Logisticloss: 8.046523358101647
iteration: 1 Logisticloss: 0.21212003972267393
iteration: 2 Logisticloss: 0.19513504538089407
iteration: 3 Logisticloss: 0.1906335475685038
iteration: 4 Logisticloss: 0.1863915894616381
iteration: 5 Logisticloss: 0.18233422341556613
iteration: 6 Logisticloss: 0.17842326858800314
iteration: 7 Logisticloss: 0.17463655070732595
iteration: 8 Logisticloss: 0.17095990422067708
iteration: 9 Logisticloss: 0.1673835807748178
iteration: 10 Logisticloss: 0.16390045273248688
iteration: 11 Logisticloss: 0.16050503908437105
iteration: 12 Logisticloss: 0.15719294307814222
iteration: 13 Logisticloss: 0.1539605108660313
iteration: 14 Logisticloss: 0.15080461571294718
iteration: 15 Logisticloss: 0.1477225169658326
iteration: 16 Logisticloss: 0.1447117653300992
iteration: 17 Logisticloss: 0.1417701377992498
iteration: 18 Logisticloss: 0.13889559210650324
iteration: 19 Logisticloss: 0.13608623431761094
iteration: 20 Logisticloss: 0.13334029541694412
iteration: 21 Logisticloss: 0.13065611411161296
iteration: 22 Logisticloss: 0.12803212394863292
iteration: 23 Logisticloss: 0.12546684340927564
iteration: 24 Logisticloss: 0.12295886802911804
iteration: 25 Logisticloss: 0.12050686386070543
iteration: 26 Logisticloss: 0.11810956178949707
iteration: 27 Logisticloss: 0.11576575235795336
iteration: 28 Logisticloss: 0.1134742808626785

```

Output_logistic_train.txt

```

iteration: 29 Logisticloss: 0.11123404257499657
iteration: 30 Logisticloss: 0.10904397800227106
iteration: 31 Logisticloss: 0.10690306815962361
iteration: 32 Logisticloss: 0.10481032986216218
iteration: 33 Logisticloss: 0.10276481107829931
iteration: 34 Logisticloss: 0.10076558640664607
iteration: 35 Logisticloss: 0.09881175275331869
iteration: 36 Logisticloss: 0.09690242529403038
iteration: 37 Logisticloss: 0.09503673380653871
iteration: 38 Logisticloss: 0.09321381945422963
iteration: 39 Logisticloss: 0.09143283209112307
iteration: 40 Logisticloss: 0.08969292814277237
iteration: 41 Logisticloss: 0.08799326909700676
iteration: 42 Logisticloss: 0.08633302061417916
iteration: 43 Logisticloss: 0.08471135223987826
iteration: 44 Logisticloss: 0.08312743767567314
iteration: 45 Logisticloss: 0.0815804555374061
iteration: 46 Logisticloss: 0.08006959050793568
iteration: 47 Logisticloss: 0.0785940347740468
iteration: 48 Logisticloss: 0.07715298962705665
iteration: 49 Logisticloss: 0.07574566710442633
iteration: 50 Logisticloss: 0.07437129155563434
iteration: 51 Logisticloss: 0.07302910102907985
iteration: 52 Logisticloss: 0.07171834839654179
iteration: 53 Logisticloss: 0.07043830215584683
iteration: 54 Logisticloss: 0.06918824687873686
iteration: 55 Logisticloss: 0.06796748329725323
iteration: 56 Logisticloss: 0.0667753280462924
iteration: 57 Logisticloss: 0.06561111310071449
iteration: 58 Logisticloss: 0.06447418496142013
iteration: 59 Logisticloss: 0.06336390365557797
iteration: 60 Logisticloss: 0.062279641621621286
iteration: 61 Logisticloss: 0.061220782550084035
iteration: 62 Logisticloss: 0.06018672024746007
iteration: 63 Logisticloss: 0.05917685758289323
iteration: 64 Logisticloss: 0.05819060556757245
iteration: 65 Logisticloss: 0.05722738260516906
iteration: 66 Logisticloss: 0.05628661393941595
iteration: 67 Logisticloss: 0.0553677313127996
iteration: 68 Logisticloss: 0.054470172839007534
iteration: 69 Logisticloss: 0.05359338308178987
iteration: 70 Logisticloss: 0.05273681332463954
iteration: 71 Logisticloss: 0.05189992200939127
iteration: 72 Logisticloss: 0.05108217531754125
iteration: 73 Logisticloss: 0.0502830478657026
iteration: 74 Logisticloss: 0.04950202348591594
iteration: 75 Logisticloss: 0.048738596062225734
iteration: 76 Logisticloss: 0.047992270396650716
iteration: 77 Logisticloss: 0.04726256308006945
iteration: 78 Logisticloss: 0.04654900334628018
iteration: 79 Logisticloss: 0.0458511338903248
iteration: 80 Logisticloss: 0.045168511634902944

```

Output_logistic_train.txt

```

iteration: 81 Logisticloss: 0.04450070843124929
iteration: 82 Logisticloss: 0.043847311683171235
iteration: 83 Logisticloss: 0.043207924885065835
iteration: 84 Logisticloss: 0.04258216806670633
iteration: 85 Logisticloss: 0.04196967813946337
iteration: 86 Logisticloss: 0.041370109140450834
iteration: 87 Logisticloss: 0.04078313237288968
iteration: 88 Logisticloss: 0.040208436442764395
iteration: 89 Logisticloss: 0.0396457271935875
iteration: 90 Logisticloss: 0.03909472754275412
iteration: 91 Logisticloss: 0.038555177224516096
iteration: 92 Logisticloss: 0.038026832445996146
iteration: 93 Logisticloss: 0.03750946546386051
iteration: 94 Logisticloss: 0.037002864090250775
iteration: 95 Logisticloss: 0.03650683113733069
iteration: 96 Logisticloss: 0.03602118381032869
iteration: 97 Logisticloss: 0.03554575305925768
iteration: 98 Logisticloss: 0.03508038289957843
iteration: 99 Logisticloss: 0.03462492971195233
[-4.21454549e-04 1.85234444e-04 -1.60409216e-04 ... 1.31181151e-04
-4.45761022e-05 1.46760651e-04]

```

CROSS VALIDATION 16

```

iteration: 0 Logisticloss: 8.02212520353611
iteration: 1 Logisticloss: 0.19760221557657293
iteration: 2 Logisticloss: 0.19315861097382395
iteration: 3 Logisticloss: 0.18894187145843902
iteration: 4 Logisticloss: 0.18488722664437438
iteration: 5 Logisticloss: 0.18096374432035336
iteration: 6 Logisticloss: 0.17715399053362624
iteration: 7 Logisticloss: 0.17344694031941524
iteration: 8 Logisticloss: 0.16983498622561496
iteration: 9 Logisticloss: 0.1663125033631767
iteration: 10 Logisticloss: 0.1628750941083858
iteration: 11 Logisticloss: 0.15951916145364126
iteration: 12 Logisticloss: 0.15624165426421177
iteration: 13 Logisticloss: 0.15303990826875608
iteration: 14 Logisticloss: 0.14991154316964553
iteration: 15 Logisticloss: 0.1468543940857633
iteration: 16 Logisticloss: 0.14386646476244258
iteration: 17 Logisticloss: 0.14094589499585874
iteration: 18 Logisticloss: 0.13809093756132212
iteration: 19 Logisticloss: 0.13529994160698514
iteration: 20 Logisticloss: 0.13257134049165192
iteration: 21 Logisticloss: 0.12990364268427296
iteration: 22 Logisticloss: 0.1272954247572365
iteration: 23 Logisticloss: 0.12474532578401025
iteration: 24 Logisticloss: 0.1222520426458538
iteration: 25 Logisticloss: 0.11981432589310083
iteration: 26 Logisticloss: 0.11743097591243726
iteration: 27 Logisticloss: 0.1151008392337434
iteration: 28 Logisticloss: 0.11282280487498665
iteration: 29 Logisticloss: 0.11059580067515443

```

Output_logistic_train.txt

```

iteration: 30 Logisticloss: 0.10841878960554355
iteration: 31 Logisticloss: 0.10629076608026891
iteration: 32 Logisticloss: 0.10421075230861956
iteration: 33 Logisticloss: 0.10217779474577046
iteration: 34 Logisticloss: 0.10019096070528251
iteration: 35 Logisticloss: 0.09824933519779232
iteration: 36 Logisticloss: 0.09635201805637798
iteration: 37 Logisticloss: 0.09449812140138597
iteration: 38 Logisticloss: 0.09268676748705999
iteration: 39 Logisticloss: 0.09091708696008817
iteration: 40 Logisticloss: 0.08918821754698827
iteration: 41 Logisticloss: 0.08749930317372806
iteration: 42 Logisticloss: 0.08584949350763092
iteration: 43 Logisticloss: 0.08423794389880024
iteration: 44 Logisticloss: 0.08266381568631564
iteration: 45 Logisticloss: 0.08112627682356613
iteration: 46 Logisticloss: 0.07962450276760483
iteration: 47 Logisticloss: 0.07815767756968152
iteration: 48 Logisticloss: 0.0767249950985489
iteration: 49 Logisticloss: 0.07532566032516959
iteration: 50 Logisticloss: 0.07395889059744194
iteration: 51 Logisticloss: 0.0726239168367688
iteration: 52 Logisticloss: 0.07131998459475522
iteration: 53 Logisticloss: 0.070046354917838
iteration: 54 Logisticloss: 0.06880230497975186
iteration: 55 Logisticloss: 0.06758712845571808
iteration: 56 Logisticloss: 0.06640013562722666
iteration: 57 Logisticloss: 0.06524065322130886
iteration: 58 Logisticloss: 0.06410802400232397
iteration: 59 Logisticloss: 0.06300160614668178
iteration: 60 Logisticloss: 0.061920772440938375
iteration: 61 Logisticloss: 0.060864909350912294
iteration: 62 Logisticloss: 0.05983341601367352
iteration: 63 Logisticloss: 0.05882570320548463
iteration: 64 Logisticloss: 0.05784119233722543
iteration: 65 Logisticloss: 0.05687931452484546
iteration: 66 Logisticloss: 0.055939509776397736
iteration: 67 Logisticloss: 0.055021226329678354
iteration: 68 Logisticloss: 0.05412392016592267
iteration: 69 Logisticloss: 0.05324705471586252
iteration: 70 Logisticloss: 0.0523901007651686
iteration: 71 Logisticloss: 0.05155253655731048
iteration: 72 Logisticloss: 0.0507338480835121
iteration: 73 Logisticloss: 0.04993352954209041
iteration: 74 Logisticloss: 0.04915108394329015
iteration: 75 Logisticloss: 0.048386023830972874
iteration: 76 Logisticloss: 0.047637872089302064
iteration: 77 Logisticloss: 0.04690616280094736
iteration: 78 Logisticloss: 0.046190442123270024
iteration: 79 Logisticloss: 0.045490269150348206
iteration: 80 Logisticloss: 0.044805216731367586
iteration: 81 Logisticloss: 0.04413487221960613

```

Output_logistic_train.txt

```
iteration: 82 Logisticloss: 0.04347883813069973
iteration: 83 Logisticloss: 0.04283673269379332
iteration: 84 Logisticloss: 0.04220819028426543
iteration: 85 Logisticloss: 0.041592861731691654
iteration: 86 Logisticloss: 0.040990414501353926
iteration: 87 Logisticloss: 0.04040053275172883
iteration: 88 Logisticloss: 0.039822917273874506
iteration: 89 Logisticloss: 0.03925728532141444
iteration: 90 Logisticloss: 0.03870337034187393
iteration: 91 Logisticloss: 0.038160921621486876
iteration: 92 Logisticloss: 0.037629703856319856
iteration: 93 Logisticloss: 0.03710949666274359
iteration: 94 Logisticloss: 0.03660009404001237
iteration: 95 Logisticloss: 0.03610130379709672
iteration: 96 Logisticloss: 0.035612946955044154
iteration: 97 Logisticloss: 0.0351348571351105
iteration: 98 Logisticloss: 0.03466687994177725
iteration: 99 Logisticloss: 0.03420887234861056
[-4.03596668e-04 1.75529651e-04 -1.53428418e-04 ... 1.27882399e-04
-4.54109117e-05 1.51969466e-04]
```

CROSS VALIDATION 17

```
iteration: 0 Logisticloss: 8.01421224890771
iteration: 1 Logisticloss: 0.21153638720528833
iteration: 2 Logisticloss: 0.1950311745447467
iteration: 3 Logisticloss: 0.19051050618683876
iteration: 4 Logisticloss: 0.18626107336476347
iteration: 5 Logisticloss: 0.18220138294909483
iteration: 6 Logisticloss: 0.17829076756867246
iteration: 7 Logisticloss: 0.17450592752529567
iteration: 8 Logisticloss: 0.17083212567769201
iteration: 9 Logisticloss: 0.16725929913538656
iteration: 10 Logisticloss: 0.16378013717443524
iteration: 11 Logisticloss: 0.16038904818559185
iteration: 12 Logisticloss: 0.1570815672957177
iteration: 13 Logisticloss: 0.15385399870081667
iteration: 14 Logisticloss: 0.1507031904796297
iteration: 15 Logisticloss: 0.14762638785350768
iteration: 16 Logisticloss: 0.1446211347971205
iteration: 17 Logisticloss: 0.14168520647100877
iteration: 18 Logisticloss: 0.1388165618594129
iteration: 19 Logisticloss: 0.1360133099556221
iteration: 20 Logisticloss: 0.13327368518676092
iteration: 21 Logisticloss: 0.13059602921094413
iteration: 22 Logisticloss: 0.12797877713168046
iteration: 23 Logisticloss: 0.1254204467699434
iteration: 24 Logisticloss: 0.1229196300360266
iteration: 25 Logisticloss: 0.12047498572330931
iteration: 26 Logisticloss: 0.1180852332476274
iteration: 27 Logisticloss: 0.11574914700521034
iteration: 28 Logisticloss: 0.11346555113508111
iteration: 29 Logisticloss: 0.1112333145582034
iteration: 30 Logisticloss: 0.10905134623160079
```

Output_logistic_train.txt

iteration: 31 Logisticloss: 0.10691859060506427
iteration: 32 Logisticloss: 0.10483402330351936
iteration: 33 Logisticloss: 0.10279664708157342
iteration: 34 Logisticloss: 0.100805488109725
iteration: 35 Logisticloss: 0.0988595926555545
iteration: 36 Logisticloss: 0.09695802421919326
iteration: 37 Logisticloss: 0.09509986117176783
iteration: 38 Logisticloss: 0.09328419492963158
iteration: 39 Logisticloss: 0.09151012867740638
iteration: 40 Logisticloss: 0.08977677663060882
iteration: 41 Logisticloss: 0.0880832638054703
iteration: 42 Logisticloss: 0.08642872624105902
iteration: 43 Logisticloss: 0.084812311598572
iteration: 44 Logisticloss: 0.08323318004618047
iteration: 45 Logisticloss: 0.08169050532638869
iteration: 46 Logisticloss: 0.08018347589747746
iteration: 47 Logisticloss: 0.07871129604179272
iteration: 48 Logisticloss: 0.07727318684142387
iteration: 49 Logisticloss: 0.07586838693565935
iteration: 50 Logisticloss: 0.07449615299346582
iteration: 51 Logisticloss: 0.07315575985662766
iteration: 52 Logisticloss: 0.07184650033338065
iteration: 53 Logisticloss: 0.07056768464654259
iteration: 54 Logisticloss: 0.06931863956257446
iteration: 55 Logisticloss: 0.06809870724723734
iteration: 56 Logisticloss: 0.0669072439084711
iteration: 57 Logisticloss: 0.06574361829717479
iteration: 58 Logisticloss: 0.06460721014151681
iteration: 59 Logisticloss: 0.06349740859044553
iteration: 60 Logisticloss: 0.06241361073771217
iteration: 61 Logisticloss: 0.06135522028969462
iteration: 62 Logisticloss: 0.06032164642948126
iteration: 63 Logisticloss: 0.05931230291695106
iteration: 64 Logisticloss: 0.05832660745087811
iteration: 65 Logisticloss: 0.057363981305241764
iteration: 66 Logisticloss: 0.05642384923870998
iteration: 67 Logisticloss: 0.05550563966434374
iteration: 68 Logisticloss: 0.05460878505648206
iteration: 69 Logisticloss: 0.05373272256390587
iteration: 70 Logisticloss: 0.05287689479297524
iteration: 71 Logisticloss: 0.05204075072155431
iteration: 72 Logisticloss: 0.051223746704064654
iteration: 73 Logisticloss: 0.05042534752967107
iteration: 74 Logisticloss: 0.04964502749899026
iteration: 75 Logisticloss: 0.04888227148932461
iteration: 76 Logisticloss: 0.04813657598371553
iteration: 77 Logisticloss: 0.04740745004456101
iteration: 78 Logisticloss: 0.046694416217690736
iteration: 79 Logisticloss: 0.0459970113572914
iteration: 80 Logisticloss: 0.045314787365705066
iteration: 81 Logisticloss: 0.044647311844805276
iteration: 82 Logisticloss: 0.043994168657427155

Output_logistic_train.txt

```

iteration: 83 Logisticloss: 0.043354958398330194
iteration: 84 Logisticloss: 0.04272929877460426
iteration: 85 Logisticloss: 0.04211682489551708
iteration: 86 Logisticloss: 0.041517189471761584
iteration: 87 Logisticloss: 0.040930062924079844
iteration: 88 Logisticloss: 0.04035513340144362
iteration: 89 Logisticloss: 0.03979210670944015
iteration: 90 Logisticloss: 0.03924070615025676
iteration: 91 Logisticloss: 0.03870067227665261
iteration: 92 Logisticloss: 0.0381717625634829
iteration: 93 Logisticloss: 0.037653751001613146
iteration: 94 Logisticloss: 0.03714642762033348
iteration: 95 Logisticloss: 0.03664959794556294
iteration: 96 Logisticloss: 0.03616308240214504
iteration: 97 Logisticloss: 0.03568671566931101
iteration: 98 Logisticloss: 0.03522034599889027
iteration: 99 Logisticloss: 0.03476383450605171
[-4.19817472e-04 1.77275221e-04 -1.55593193e-04 ... 1.33159786e-04
-4.70041035e-05 1.47062048e-04]

```

CROSS VALIDATION 18

```

iteration: 0 Logisticloss: 7.13643175285409
iteration: 1 Logisticloss: 0.20272360274509138
iteration: 2 Logisticloss: 0.19770486554486846
iteration: 3 Logisticloss: 0.19311907633116043
iteration: 4 Logisticloss: 0.18880317914850492
iteration: 5 Logisticloss: 0.1846844768750801
iteration: 6 Logisticloss: 0.18072352730405955
iteration: 7 Logisticloss: 0.17689624909541066
iteration: 8 Logisticloss: 0.17318667540277893
iteration: 9 Logisticloss: 0.1695835337289475
iteration: 10 Logisticloss: 0.16607845539957622
iteration: 11 Logisticloss: 0.16266496449418186
iteration: 12 Logisticloss: 0.15933787269288818
iteration: 13 Logisticloss: 0.1560928998018273
iteration: 14 Logisticloss: 0.15292642646123655
iteration: 15 Logisticloss: 0.14983532764598867
iteration: 16 Logisticloss: 0.14681685733930996
iteration: 17 Logisticloss: 0.14386856661867706
iteration: 18 Logisticloss: 0.1409882441409027
iteration: 19 Logisticloss: 0.13817387199987258
iteration: 20 Logisticloss: 0.1354235923628816
iteration: 21 Logisticloss: 0.13273568181810025
iteration: 22 Logisticloss: 0.13010853134729955
iteration: 23 Logisticloss: 0.12754063048215414
iteration: 24 Logisticloss: 0.1250305546320962
iteration: 25 Logisticloss: 0.12257695486142768
iteration: 26 Logisticloss: 0.120178549589709
iteration: 27 Logisticloss: 0.11783411782203686
iteration: 28 Logisticloss: 0.1155424936043191
iteration: 29 Logisticloss: 0.11330256145647245
iteration: 30 Logisticloss: 0.11111325257326445
iteration: 31 Logisticloss: 0.10897354160554988

```

Output_logistic_train.txt

iteration: 32 Logisticloss: 0.1068824438496234
iteration: 33 Logisticloss: 0.10483901268389945
iteration: 34 Logisticloss: 0.10284233710374695
iteration: 35 Logisticloss: 0.10089153921977465
iteration: 36 Logisticloss: 0.09898577160395028
iteration: 37 Logisticloss: 0.09712421439249583
iteration: 38 Logisticloss: 0.09530607208442259
iteration: 39 Logisticloss: 0.09353057000893093
iteration: 40 Logisticloss: 0.0917969504720388
iteration: 41 Logisticloss: 0.09010446863058097
iteration: 42 Logisticloss: 0.0884523881776994
iteration: 43 Logisticloss: 0.08683997695564591
iteration: 44 Logisticloss: 0.08526650263686743
iteration: 45 Logisticloss: 0.08373122863102019
iteration: 46 Logisticloss: 0.08223341038240278
iteration: 47 Logisticloss: 0.0807722922185537
iteration: 48 Logisticloss: 0.07934710489636261
iteration: 49 Logisticloss: 0.07795706396758542
iteration: 50 Logisticloss: 0.0766013690523442
iteration: 51 Logisticloss: 0.07527920406880508
iteration: 52 Logisticloss: 0.07398973842202007
iteration: 53 Logisticloss: 0.07273212910756377
iteration: 54 Logisticloss: 0.07150552363908227
iteration: 55 Logisticloss: 0.07030906366639152
iteration: 56 Logisticloss: 0.06914188911546311
iteration: 57 Logisticloss: 0.06800314265638295
iteration: 58 Logisticloss: 0.06689197429235441
iteration: 59 Logisticloss: 0.06580754586325054
iteration: 60 Logisticloss: 0.0647490352710468
iteration: 61 Logisticloss: 0.06371564026030775
iteration: 62 Logisticloss: 0.06270658162216652
iteration: 63 Logisticloss: 0.06172110573150275
iteration: 64 Logisticloss: 0.06075848637049516
iteration: 65 Logisticloss: 0.05981802583379138
iteration: 66 Logisticloss: 0.05889905534821466
iteration: 67 Logisticloss: 0.05800093487113479
iteration: 68 Logisticloss: 0.057123052355282235
iteration: 69 Logisticloss: 0.05626482258367358
iteration: 70 Logisticloss: 0.05542568568687925
iteration: 71 Logisticloss: 0.05460510545691448
iteration: 72 Logisticloss: 0.05380256756850865
iteration: 73 Logisticloss: 0.05301757781031549
iteration: 74 Logisticloss: 0.052249660416566646
iteration: 75 Logisticloss: 0.051498356574483165
iteration: 76 Logisticloss: 0.05076322316515368
iteration: 77 Logisticloss: 0.05004383177636349
iteration: 78 Logisticloss: 0.04933976800591982
iteration: 79 Logisticloss: 0.04865063105439599
iteration: 80 Logisticloss: 0.04797603358800442
iteration: 81 Logisticloss: 0.047315601836571505
iteration: 82 Logisticloss: 0.046668975879244234
iteration: 83 Logisticloss: 0.046035810062269165

Output_logistic_train.txt

```
iteration: 84 Logisticloss: 0.04541577348927891
iteration: 85 Logisticloss: 0.044808550524942106
iteration: 86 Logisticloss: 0.04421384125717672
iteration: 87 Logisticloss: 0.043631361870673006
iteration: 88 Logisticloss: 0.0430608448943013
iteration: 89 Logisticloss: 0.04250203929606847
iteration: 90 Logisticloss: 0.04195471041061592
iteration: 91 Logisticloss: 0.041418639694920656
iteration: 92 Logisticloss: 0.040893624317132546
iteration: 93 Logisticloss: 0.04037947659085009
iteration: 94 Logisticloss: 0.03987602327232791
iteration: 95 Logisticloss: 0.039383104741071644
iteration: 96 Logisticloss: 0.038900574085153745
iteration: 97 Logisticloss: 0.03842829611166747
iteration: 98 Logisticloss: 0.03796614630042363
iteration: 99 Logisticloss: 0.03751400971572745
[-3.53617763e-04 -1.22877250e-04 -5.15969351e-04 ... 3.69116686e-04
-1.58131737e-05 1.27083188e-04]
```

CROSS VALIDATION 19

```
iteration: 0 Logisticloss: 7.855076195196735
iteration: 1 Logisticloss: 0.2066991477269903
iteration: 2 Logisticloss: 0.18904262702795863
iteration: 3 Logisticloss: 0.18471399034881553
iteration: 4 Logisticloss: 0.18062011689744886
iteration: 5 Logisticloss: 0.17669966472024543
iteration: 6 Logisticloss: 0.1729195738490891
iteration: 7 Logisticloss: 0.1692598822029823
iteration: 8 Logisticloss: 0.1657074732987956
iteration: 9 Logisticloss: 0.1622531324669079
iteration: 10 Logisticloss: 0.15889002064592853
iteration: 11 Logisticloss: 0.1556128232207254
iteration: 12 Logisticloss: 0.15241724734350937
iteration: 13 Logisticloss: 0.14929971103962694
iteration: 14 Logisticloss: 0.14625714348859944
iteration: 15 Logisticloss: 0.1432868525729674
iteration: 16 Logisticloss: 0.14038643460033887
iteration: 17 Logisticloss: 0.1375537112524284
iteration: 18 Logisticloss: 0.1347866845350751
iteration: 19 Logisticloss: 0.13208350385499498
iteration: 20 Logisticloss: 0.12944244138367828
iteration: 21 Logisticloss: 0.12686187314575398
iteration: 22 Logisticloss: 0.12434026409655988
iteration: 23 Logisticloss: 0.12187615600647964
iteration: 24 Logisticloss: 0.11946815734942594
iteration: 25 Logisticloss: 0.11711493465978604
iteration: 26 Logisticloss: 0.11481520501231177
iteration: 27 Logisticloss: 0.11256772941489004
iteration: 28 Logisticloss: 0.11037130699867684
iteration: 29 Logisticloss: 0.10822476995277105
iteration: 30 Logisticloss: 0.10612697918786143
iteration: 31 Logisticloss: 0.104076820730159
iteration: 32 Logisticloss: 0.10207320284789036
```

Output_logistic_train.txt

```

iteration: 33 Logisticloss: 0.1001150539018828
iteration: 34 Logisticloss: 0.09820132089344603
iteration: 35 Logisticloss: 0.09633096866078723
iteration: 36 Logisticloss: 0.09450297965323134
iteration: 37 Logisticloss: 0.09271635419363142
iteration: 38 Logisticloss: 0.09097011112588123
iteration: 39 Logisticloss: 0.08926328873779293
iteration: 40 Logisticloss: 0.0875949458501887
iteration: 41 Logisticloss: 0.08596416297036522
iteration: 42 Logisticloss: 0.08437004342082595
iteration: 43 Logisticloss: 0.08281171437051867
iteration: 44 Logisticloss: 0.08128832771373448
iteration: 45 Logisticloss: 0.07979906075937371
iteration: 46 Logisticloss: 0.07834311670884196
iteration: 47 Logisticloss: 0.07691972491332638
iteration: 48 Logisticloss: 0.07552814091008798
iteration: 49 Logisticloss: 0.07416764624275765
iteration: 50 Logisticloss: 0.07283754807295395
iteration: 51 Logisticloss: 0.07153717859068293
iteration: 52 Logisticloss: 0.07026589422993244
iteration: 53 Logisticloss: 0.0690230746946039
iteration: 54 Logisticloss: 0.06780812179929357
iteration: 55 Logisticloss: 0.06662045813005693
iteration: 56 Logisticloss: 0.06545952553253412
iteration: 57 Logisticloss: 0.06432478343875601
iteration: 58 Logisticloss: 0.06321570704943706
iteration: 59 Logisticloss: 0.06213178539521591
iteration: 60 Logisticloss: 0.06107251930761893
iteration: 61 Logisticloss: 0.06003741933787799
iteration: 62 Logisticloss: 0.059026003668491894
iteration: 63 Logisticloss: 0.0580377960679464
iteration: 64 Logisticloss: 0.057072323942730395
iteration: 65 Logisticloss: 0.05612911654224227
iteration: 66 Logisticloss: 0.05520770337103562
iteration: 67 Logisticloss: 0.054307612858954295
iteration: 68 Logisticloss: 0.05342837133307521
iteration: 69 Logisticloss: 0.05256950232624605
iteration: 70 Logisticloss: 0.05173052624578863
iteration: 71 Logisticloss: 0.05091096041322557
iteration: 72 Logisticloss: 0.05011031947238955
iteration: 73 Logisticloss: 0.049328116149774746
iteration: 74 Logisticloss: 0.04856386233827246
iteration: 75 Logisticloss: 0.047817070464222414
iteration: 76 Logisticloss: 0.047087255088603036
iteration: 77 Logisticloss: 0.04637393468660267
iteration: 78 Logisticloss: 0.04567663354598727
iteration: 79 Logisticloss: 0.044994883723631404
iteration: 80 Logisticloss: 0.04432822700114824
iteration: 81 Logisticloss: 0.04367621678442517
iteration: 82 Logisticloss: 0.04303841989762601
iteration: 83 Logisticloss: 0.0424144182293726
iteration: 84 Logisticloss: 0.04180381019687025

```

Output_logistic_train.txt

```
iteration: 85 Logisticloss: 0.041206212002213215
iteration: 86 Logisticloss: 0.04062125866356555
iteration: 87 Logisticloss: 0.04004860481199678
iteration: 88 Logisticloss: 0.03948792525216771
iteration: 89 Logisticloss: 0.0389389152916013
iteration: 90 Logisticloss: 0.03840129084879578
iteration: 91 Logisticloss: 0.037874788354877016
iteration: 92 Logisticloss: 0.03735916446683396
iteration: 93 Logisticloss: 0.03685419561267742
iteration: 94 Logisticloss: 0.03635967739019
iteration: 95 Logisticloss: 0.035875423841402965
iteration: 96 Logisticloss: 0.03540126662467438
iteration: 97 Logisticloss: 0.03493705410538664
iteration: 98 Logisticloss: 0.03448265038496963
iteration: 99 Logisticloss: 0.034037934286318
[-4.82173816e-04 1.76352418e-04 -1.93666351e-04 ... 1.15707333e-04
-5.10882434e-05 1.56326527e-04]
```

Accuracy (Logistic Loss): 0.95

eta = 0.0001 lambda = 0.3

CROSS VALIDATION 0

```
iteration: 0 Logisticloss: 5.917963782549974
iteration: 1 Logisticloss: 0.06754332192202822
iteration: 2 Logisticloss: 0.0651755499715362
iteration: 3 Logisticloss: 0.0641187012722007
iteration: 4 Logisticloss: 0.06335723808999968
iteration: 5 Logisticloss: 0.06272509421335211
iteration: 6 Logisticloss: 0.06216458170008308
iteration: 7 Logisticloss: 0.06164937798808224
iteration: 8 Logisticloss: 0.06116544709417129
iteration: 9 Logisticloss: 0.060704492037785725
iteration: 10 Logisticloss: 0.060261232718425546
iteration: 11 Logisticloss: 0.059832116836143194
iteration: 12 Logisticloss: 0.059414648351756215
iteration: 13 Logisticloss: 0.059007011039281236
iteration: 14 Logisticloss: 0.058607844792998444
iteration: 15 Logisticloss: 0.05821610623569383
iteration: 16 Logisticloss: 0.057830978358571414
iteration: 17 Logisticloss: 0.05745180995897053
iteration: 18 Logisticloss: 0.057078073874552805
iteration: 19 Logisticloss: 0.05670933746032821
iteration: 20 Logisticloss: 0.05634524126499277
iteration: 21 Logisticloss: 0.055985483334217566
iteration: 22 Logisticloss: 0.05562980745975939
iteration: 23 Logisticloss: 0.055277994249162375
iteration: 24 Logisticloss: 0.05492985424666844
iteration: 25 Logisticloss: 0.054585222569099597
iteration: 26 Logisticloss: 0.05424395467645394
iteration: 27 Logisticloss: 0.0539059230033019
iteration: 28 Logisticloss: 0.053571014250836345
iteration: 29 Logisticloss: 0.053239127191402766
iteration: 30 Logisticloss: 0.05291017087449154
iteration: 31 Logisticloss: 0.05258406315008453
```

Output_logistic_train.txt

```

iteration: 32 Logisticloss: 0.05226072944498375
iteration: 33 Logisticloss: 0.05194010174238244
iteration: 34 Logisticloss: 0.05162211772590858
iteration: 35 Logisticloss: 0.05130672005766891
iteration: 36 Logisticloss: 0.050993855766161854
iteration: 37 Logisticloss: 0.050683475724810176
iteration: 38 Logisticloss: 0.05037553420565467
iteration: 39 Logisticloss: 0.05006998849571606
iteration: 40 Logisticloss: 0.04976679856586954
iteration: 41 Logisticloss: 0.049465926783928006
iteration: 42 Logisticloss: 0.04916733766510969
iteration: 43 Logisticloss: 0.04887099765425257
iteration: 44 Logisticloss: 0.04857687493509762
iteration: 45 Logisticloss: 0.0482849392627388
iteration: 46 Logisticloss: 0.047995161815974005
iteration: 47 Logisticloss: 0.047707515066811146
iteration: 48 Logisticloss: 0.047421972664811095
iteration: 49 Logisticloss: 0.04713850933430401
iteration: 50 Logisticloss: 0.04685710078280983
iteration: 51 Logisticloss: 0.046577723619238315
iteration: 52 Logisticloss: 0.04630035528065053
iteration: 53 Logisticloss: 0.04602497396653399
iteration: 54 Logisticloss: 0.0457515585796916
iteration: 55 Logisticloss: 0.04548008867296455
iteration: 56 Logisticloss: 0.045210544401116014
iteration: 57 Logisticloss: 0.044942906477289324
iteration: 58 Logisticloss: 0.044677156133531154
iteration: 59 Logisticloss: 0.04441327508493402
iteration: 60 Logisticloss: 0.044151245497008995
iteration: 61 Logisticloss: 0.04389104995594634
iteration: 62 Logisticloss: 0.043632671441463725
iteration: 63 Logisticloss: 0.0433760933019772
iteration: 64 Logisticloss: 0.04312129923186067
iteration: 65 Logisticloss: 0.04286827325058762
iteration: 66 Logisticloss: 0.0426169996835705
iteration: 67 Logisticloss: 0.04236746314453618
iteration: 68 Logisticloss: 0.042119648519291265
iteration: 69 Logisticloss: 0.04187354095074903
iteration: 70 Logisticloss: 0.041629125825102545
iteration: 71 Logisticloss: 0.04138638875904124
iteration: 72 Logisticloss: 0.041145315587918924
iteration: 73 Logisticloss: 0.04090589235479141
iteration: 74 Logisticloss: 0.04066810530025024
iteration: 75 Logisticloss: 0.04043194085298666
iteration: 76 Logisticloss: 0.04019738562102695
iteration: 77 Logisticloss: 0.03996442638358727
iteration: 78 Logisticloss: 0.039733050083500115
iteration: 79 Logisticloss: 0.03950324382017109
iteration: 80 Logisticloss: 0.039274994843028224
iteration: 81 Logisticloss: 0.03904829054543085
iteration: 82 Logisticloss: 0.03882311845900773
iteration: 83 Logisticloss: 0.03859946624839859

```

Output_logistic_train.txt

```
iteration: 84 Logisticloss: 0.03837732170637524
iteration: 85 Logisticloss: 0.0381566727493213
iteration: 86 Logisticloss: 0.03793750741305237
iteration: 87 Logisticloss: 0.03771981384895944
iteration: 88 Logisticloss: 0.03750358032046144
iteration: 89 Logisticloss: 0.03728879519975332
iteration: 90 Logisticloss: 0.03707544696483772
iteration: 91 Logisticloss: 0.03686352419682968
iteration: 92 Logisticloss: 0.03665301557752414
iteration: 93 Logisticloss: 0.036443909887217296
iteration: 94 Logisticloss: 0.03623619600277285
iteration: 95 Logisticloss: 0.0360298628959249
iteration: 96 Logisticloss: 0.03582489963180972
iteration: 97 Logisticloss: 0.035621295367717534
iteration: 98 Logisticloss: 0.03541903935205726
iteration: 99 Logisticloss: 0.035218120923525165
[-1.71654170e-04 6.56685465e-04 2.59922089e-04 ... 3.83543216e-04
-1.20577890e-05 2.33649388e-04]
```

CROSS VALIDATION 1

```
iteration: 0 Logisticloss: 9.113208239127609
iteration: 1 Logisticloss: 0.07640462553325021
iteration: 2 Logisticloss: 0.06846800565815354
iteration: 3 Logisticloss: 0.06621433336728454
iteration: 4 Logisticloss: 0.0647748754495519
iteration: 5 Logisticloss: 0.06369023908807972
iteration: 6 Logisticloss: 0.06280178869554168
iteration: 7 Logisticloss: 0.062036422150128584
iteration: 8 Logisticloss: 0.061354769638654647
iteration: 9 Logisticloss: 0.06073339032265425
iteration: 10 Logisticloss: 0.060157303879655115
iteration: 11 Logisticloss: 0.0596164165744905
iteration: 12 Logisticloss: 0.059103641037079484
iteration: 13 Logisticloss: 0.0586138333034331
iteration: 14 Logisticloss: 0.058143156820549484
iteration: 15 Logisticloss: 0.05768868401233577
iteration: 16 Logisticloss: 0.057248136981774875
iteration: 17 Logisticloss: 0.056819713256245415
iteration: 18 Logisticloss: 0.056401965424076383
iteration: 19 Logisticloss: 0.055993715995834865
iteration: 20 Logisticloss: 0.05559399591673485
iteration: 21 Logisticloss: 0.055201999337899946
iteration: 22 Logisticloss: 0.05481704980004163
iteration: 23 Logisticloss: 0.05443857457783851
iteration: 24 Logisticloss: 0.054066084957779495
iteration: 25 Logisticloss: 0.05369916089538739
iteration: 26 Logisticloss: 0.05333743894912182
iteration: 27 Logisticloss: 0.052980602696542284
iteration: 28 Logisticloss: 0.05262837505240744
iteration: 29 Logisticloss: 0.052280512059357444
iteration: 30 Logisticloss: 0.05193679782978132
iteration: 31 Logisticloss: 0.051597040395674455
iteration: 32 Logisticloss: 0.051261068280612616
```

Output_logistic_train.txt

iteration: 33 Logisticloss: 0.050928727650455696
iteration: 34 Logisticloss: 0.05059987993121075
iteration: 35 Logisticloss: 0.050274399806531575
iteration: 36 Logisticloss: 0.04995217352568148
iteration: 37 Logisticloss: 0.04963309746689509
iteration: 38 Logisticloss: 0.049317076912014986
iteration: 39 Logisticloss: 0.04900402499682389
iteration: 40 Logisticloss: 0.048693861808210046
iteration: 41 Logisticloss: 0.04838651360462478
iteration: 42 Logisticloss: 0.0480819121405256
iteration: 43 Logisticloss: 0.04777999407889443
iteration: 44 Logisticloss: 0.047480700478654686
iteration: 45 Logisticloss: 0.047183976346026675
iteration: 46 Logisticloss: 0.04688977024066364
iteration: 47 Logisticloss: 0.04659803392888681
iteration: 48 Logisticloss: 0.04630872207754867
iteration: 49 Logisticloss: 0.0460217919830551
iteration: 50 Logisticloss: 0.04573720333090534
iteration: 51 Logisticloss: 0.045454917981798466
iteration: 52 Logisticloss: 0.04517489978093131
iteration: 53 Logisticloss: 0.0448971143875956
iteration: 54 Logisticloss: 0.044621529122587364
iteration: 55 Logisticloss: 0.04434811283128524
iteration: 56 Logisticloss: 0.044076835760544004
iteration: 57 Logisticloss: 0.04380766944779612
iteration: 58 Logisticloss: 0.04354058662096317
iteration: 59 Logisticloss: 0.0432755611079595
iteration: 60 Logisticloss: 0.04301256775472269
iteration: 61 Logisticloss: 0.04275158235083818
iteration: 62 Logisticloss: 0.04249258156193788
iteration: 63 Logisticloss: 0.04223554286815154
iteration: 64 Logisticloss: 0.04198044450797385
iteration: 65 Logisticloss: 0.041727265426984045
iteration: 66 Logisticloss: 0.04147598523091858
iteration: 67 Logisticloss: 0.04122658414265366
iteration: 68 Logisticloss: 0.04097904296270303
iteration: 69 Logisticloss: 0.040733343032878976
iteration: 70 Logisticloss: 0.04048946620280305
iteration: 71 Logisticloss: 0.040247394798985196
iteration: 72 Logisticloss: 0.04000711159622023
iteration: 73 Logisticloss: 0.03976859979107655
iteration: 74 Logisticloss: 0.039531842977274544
iteration: 75 Logisticloss: 0.03929682512277466
iteration: 76 Logisticloss: 0.03906353054841146
iteration: 77 Logisticloss: 0.038831943907929045
iteration: 78 Logisticloss: 0.038602050169286556
iteration: 79 Logisticloss: 0.038373834597117795
iteration: 80 Logisticloss: 0.03814728273624018
iteration: 81 Logisticloss: 0.03792238039612004
iteration: 82 Logisticloss: 0.037699113636212554
iteration: 83 Logisticloss: 0.037477468752102366
iteration: 84 Logisticloss: 0.03725743226238132

Output_logistic_train.txt

iteration: 85 Logisticloss: 0.03703899089620622
iteration: 86 Logisticloss: 0.03682213158148836
iteration: 87 Logisticloss: 0.03660684143367162
iteration: 88 Logisticloss: 0.03639310774506312
iteration: 89 Logisticloss: 0.03618091797468565
iteration: 90 Logisticloss: 0.03597025973862546
iteration: 91 Logisticloss: 0.03576112080085462
iteration: 92 Logisticloss: 0.03555348906451013
iteration: 93 Logisticloss: 0.03534735256361569
iteration: 94 Logisticloss: 0.03514269945523576
iteration: 95 Logisticloss: 0.034939518012053195
iteration: 96 Logisticloss: 0.034737796615364525
iteration: 97 Logisticloss: 0.034537523748488716
iteration: 98 Logisticloss: 0.03433868799058622
iteration: 99 Logisticloss: 0.03414127801088676
[-0.00073073 0.00040558 -0.00031539 ... 0.00019841 -0.00015625
0.00028769]

CROSS VALIDATION 2

iteration: 0 Logisticloss: 2.6252020536407197
iteration: 1 Logisticloss: 0.06623446748204743
iteration: 2 Logisticloss: 0.06480078746063533
iteration: 3 Logisticloss: 0.06388255868557584
iteration: 4 Logisticloss: 0.06316948758551401
iteration: 5 Logisticloss: 0.06256216006039152
iteration: 6 Logisticloss: 0.06201767693984822
iteration: 7 Logisticloss: 0.06151422126799635
iteration: 8 Logisticloss: 0.061039440583374564
iteration: 9 Logisticloss: 0.06058578428471183
iteration: 10 Logisticloss: 0.06014836216814975
iteration: 11 Logisticloss: 0.0597238598453413
iteration: 12 Logisticloss: 0.059309946811194954
iteration: 13 Logisticloss: 0.05890493366874186
iteration: 14 Logisticloss: 0.05850756382337113
iteration: 15 Logisticloss: 0.05811688171035822
iteration: 16 Logisticloss: 0.05773214655729053
iteration: 17 Logisticloss: 0.05735277427792648
iteration: 18 Logisticloss: 0.05697829731792389
iteration: 19 Logisticloss: 0.05660833628400659
iteration: 20 Logisticloss: 0.05624257950167989
iteration: 21 Logisticloss: 0.055880768026122254
iteration: 22 Logisticloss: 0.05552268447793485
iteration: 23 Logisticloss: 0.055168144609293895
iteration: 24 Logisticloss: 0.05481699085047103
iteration: 25 Logisticloss: 0.05446908731361972
iteration: 26 Logisticloss: 0.05412431588312772
iteration: 27 Logisticloss: 0.05378257312597725
iteration: 28 Logisticloss: 0.05344376782785797
iteration: 29 Logisticloss: 0.05310781901171703
iteration: 30 Logisticloss: 0.052774654331799606
iteration: 31 Logisticloss: 0.05244420876252937
iteration: 32 Logisticloss: 0.05211642352080852
iteration: 33 Logisticloss: 0.0517912451745328

Output_logistic_train.txt

```

iteration: 34 Logisticloss: 0.05146862490073283
iteration: 35 Logisticloss: 0.0511485178647526
iteration: 36 Logisticloss: 0.050830882697959254
iteration: 37 Logisticloss: 0.05051568105614186
iteration: 38 Logisticloss: 0.05020287724435946
iteration: 39 Logisticloss: 0.049892437896802644
iteration: 40 Logisticloss: 0.04958433170243008
iteration: 41 Logisticloss: 0.0492785291688748
iteration: 42 Logisticloss: 0.04897500241849041
iteration: 43 Logisticloss: 0.04867372501150506
iteration: 44 Logisticloss: 0.0483746717921334
iteration: 45 Logisticloss: 0.048077818754207545
iteration: 46 Logisticloss: 0.0477831429234657
iteration: 47 Logisticloss: 0.047490622254106926
iteration: 48 Logisticloss: 0.04720023553760641
iteration: 49 Logisticloss: 0.046911962322102506
iteration: 50 Logisticloss: 0.04662578284092717
iteration: 51 Logisticloss: 0.04634167794907098
iteration: 52 Logisticloss: 0.046059629066552185
iteration: 53 Logisticloss: 0.045779618127812026
iteration: 54 Logisticloss: 0.045501627536384336
iteration: 55 Logisticloss: 0.04522564012419456
iteration: 56 Logisticloss: 0.04495163911493366
iteration: 57 Logisticloss: 0.04467960809102787
iteration: 58 Logisticloss: 0.04440953096379091
iteration: 59 Logisticloss: 0.0441413919464005
iteration: 60 Logisticloss: 0.043875175529388036
iteration: 61 Logisticloss: 0.04361086645837086
iteration: 62 Logisticloss: 0.04334844971379162
iteration: 63 Logisticloss: 0.04308791049245904
iteration: 64 Logisticloss: 0.04282923419071047
iteration: 65 Logisticloss: 0.042572406389038496
iteration: 66 Logisticloss: 0.04231741283804437
iteration: 67 Logisticloss: 0.04206423944559637
iteration: 68 Logisticloss: 0.04181287226508734
iteration: 69 Logisticloss: 0.04156329748469737
iteration: 70 Logisticloss: 0.04131550141757883
iteration: 71 Logisticloss: 0.04106947049289122
iteration: 72 Logisticloss: 0.040825191247620796
iteration: 73 Logisticloss: 0.04058265031912806
iteration: 74 Logisticloss: 0.04034183443837169
iteration: 75 Logisticloss: 0.04010273042376423
iteration: 76 Logisticloss: 0.03986532517561829
iteration: 77 Logisticloss: 0.03962960567114709
iteration: 78 Logisticloss: 0.03939555895998644
iteration: 79 Logisticloss: 0.039163172160208384
iteration: 80 Logisticloss: 0.0389324324547992
iteration: 81 Logisticloss: 0.03870332708857712
iteration: 82 Logisticloss: 0.03847584336552648
iteration: 83 Logisticloss: 0.038249968646527244
iteration: 84 Logisticloss: 0.03802569034745952
iteration: 85 Logisticloss: 0.03780299593766463

```

Output_logistic_train.txt

```
iteration: 86 Logisticloss: 0.03758187293874446
iteration: 87 Logisticloss: 0.03736230892368181
iteration: 88 Logisticloss: 0.03714429151626577
iteration: 89 Logisticloss: 0.03692780839080515
iteration: 90 Logisticloss: 0.03671284727211507
iteration: 91 Logisticloss: 0.036499395935760896
iteration: 92 Logisticloss: 0.036287442208544546
iteration: 93 Logisticloss: 0.03607697396921792
iteration: 94 Logisticloss: 0.03586797914940917
iteration: 95 Logisticloss: 0.03566044573474644
iteration: 96 Logisticloss: 0.03545436176616503
iteration: 97 Logisticloss: 0.03524971534138294
iteration: 98 Logisticloss: 0.035046494616530977
iteration: 99 Logisticloss: 0.03484468780792214
[-0.0011281 -0.00040691 -0.00055763 ... 0.00062165 0.00037108
0.00021915]
```

CROSS VALIDATION 3

```
iteration: 0 Logisticloss: 8.039244499994084
iteration: 1 Logisticloss: 0.07809824781205194
iteration: 2 Logisticloss: 0.06368161494422414
iteration: 3 Logisticloss: 0.06266075533366994
iteration: 4 Logisticloss: 0.06184871750695248
iteration: 5 Logisticloss: 0.061157378615469
iteration: 6 Logisticloss: 0.06054356466773289
iteration: 7 Logisticloss: 0.05998325774594885
iteration: 8 Logisticloss: 0.059461888093602845
iteration: 9 Logisticloss: 0.05897003985187049
iteration: 10 Logisticloss: 0.05850132531841672
iteration: 11 Logisticloss: 0.058051240871875805
iteration: 12 Logisticloss: 0.05761650991205322
iteration: 13 Logisticloss: 0.05719468533689432
iteration: 14 Logisticloss: 0.05678389853692182
iteration: 15 Logisticloss: 0.05638269513094486
iteration: 16 Logisticloss: 0.055989924146899364
iteration: 17 Logisticloss: 0.055604661273819946
iteration: 18 Logisticloss: 0.05522615448278998
iteration: 19 Logisticloss: 0.05485378471622277
iteration: 20 Logisticloss: 0.054487036960011934
iteration: 21 Logisticloss: 0.05412547861535887
iteration: 22 Logisticloss: 0.05376874309579202
iteration: 23 Logisticloss: 0.053416517225482754
iteration: 24 Logisticloss: 0.053068531443798736
iteration: 25 Logisticloss: 0.052724552109298835
iteration: 26 Logisticloss: 0.05238437539362666
iteration: 27 Logisticloss: 0.05204782239294564
iteration: 28 Logisticloss: 0.05171473518139544
iteration: 29 Logisticloss: 0.051384973600349146
iteration: 30 Logisticloss: 0.05105841262747059
iteration: 31 Logisticloss: 0.05073494020639077
iteration: 32 Logisticloss: 0.05041445544511824
iteration: 33 Logisticloss: 0.05009686711172709
iteration: 34 Logisticloss: 0.04978209237131417
```

Output_logistic_train.txt

iteration: 35 Logisticloss: 0.04947005571999117
iteration: 36 Logisticloss: 0.04916068808073074
iteration: 37 Logisticloss: 0.048853926032901694
iteration: 38 Logisticloss: 0.04854971115280353
iteration: 39 Logisticloss: 0.04824798944681298
iteration: 40 Logisticloss: 0.04794871086216056
iteration: 41 Logisticloss: 0.047651828863063975
iteration: 42 Logisticloss: 0.04735730006211566
iteration: 43 Logisticloss: 0.047065083898567395
iteration: 44 Logisticloss: 0.046775142356569724
iteration: 45 Logisticloss: 0.046487439717573374
iteration: 46 Logisticloss: 0.0462019423420407
iteration: 47 Logisticloss: 0.04591861847638607
iteration: 48 Logisticloss: 0.0456374380817016
iteration: 49 Logisticloss: 0.04535837268135199
iteration: 50 Logisticloss: 0.04508139522495985
iteration: 51 Logisticloss: 0.04480647996666928
iteration: 52 Logisticloss: 0.04453360235588309
iteration: 53 Logisticloss: 0.04426273893892419
iteration: 54 Logisticloss: 0.043993867270291954
iteration: 55 Logisticloss: 0.04372696583236629
iteration: 56 Logisticloss: 0.04346201396256969
iteration: 57 Logisticloss: 0.043198991787128944
iteration: 58 Logisticloss: 0.04293788016069355
iteration: 59 Logisticloss: 0.04267866061116331
iteration: 60 Logisticloss: 0.04242131528916229
iteration: 61 Logisticloss: 0.042165826921667336
iteration: 62 Logisticloss: 0.04191217876936132
iteration: 63 Logisticloss: 0.0416603545873353
iteration: 64 Logisticloss: 0.04141033858880947
iteration: 65 Logisticloss: 0.04116211541158332
iteration: 66 Logisticloss: 0.04091567008696052
iteration: 67 Logisticloss: 0.040670988010924315
iteration: 68 Logisticloss: 0.040428054917365716
iteration: 69 Logisticloss: 0.04018685685319064
iteration: 70 Logisticloss: 0.03994738015515144
iteration: 71 Logisticloss: 0.03970961142826693
iteration: 72 Logisticloss: 0.039473537525710624
iteration: 73 Logisticloss: 0.03923914553005961
iteration: 74 Logisticloss: 0.039006422735809954
iteration: 75 Logisticloss: 0.03877535663307382
iteration: 76 Logisticloss: 0.03854593489238341
iteration: 77 Logisticloss: 0.03831814535053478
iteration: 78 Logisticloss: 0.03809197599741158
iteration: 79 Logisticloss: 0.03786741496373518
iteration: 80 Logisticloss: 0.03764445050969272
iteration: 81 Logisticloss: 0.03742307101439983
iteration: 82 Logisticloss: 0.037203264966158237
iteration: 83 Logisticloss: 0.036985020953472544
iteration: 84 Logisticloss: 0.03676832765679289
iteration: 85 Logisticloss: 0.03655317384095363
iteration: 86 Logisticloss: 0.036339548348279155

Output_logistic_train.txt

```
iteration: 87 Logisticloss: 0.03612744009233099
iteration: 88 Logisticloss: 0.03591683805227054
iteration: 89 Logisticloss: 0.035707731267814485
iteration: 90 Logisticloss: 0.03550010883475925
iteration: 91 Logisticloss: 0.03529395990105264
iteration: 92 Logisticloss: 0.03508927366339125
iteration: 93 Logisticloss: 0.0348860393643219
iteration: 94 Logisticloss: 0.03468424628982612
iteration: 95 Logisticloss: 0.03448388376736692
iteration: 96 Logisticloss: 0.03428494116437601
iteration: 97 Logisticloss: 0.03408740788716096
iteration: 98 Logisticloss: 0.03389127338021037
iteration: 99 Logisticloss: 0.03369652712587567
[-0.00072517 0.00045773 -0.00029296 ... 0.0002082 -0.00013761
 0.0002996 ]
```

CROSS VALIDATION 4

```
iteration: 0 Logisticloss: 7.89334121331526
iteration: 1 Logisticloss: 0.07691841690170284
iteration: 2 Logisticloss: 0.06368109947908711
iteration: 3 Logisticloss: 0.06261011360164845
iteration: 4 Logisticloss: 0.061771912246262446
iteration: 5 Logisticloss: 0.061065089003481794
iteration: 6 Logisticloss: 0.060441389801753065
iteration: 7 Logisticloss: 0.05987445872329984
iteration: 8 Logisticloss: 0.05934850962201748
iteration: 9 Logisticloss: 0.05885343564581136
iteration: 10 Logisticloss: 0.058382429653236576
iteration: 11 Logisticloss: 0.0579307198709932
iteration: 12 Logisticloss: 0.05749485097445724
iteration: 13 Logisticloss: 0.05707225259888735
iteration: 14 Logisticloss: 0.05666096866314022
iteration: 15 Logisticloss: 0.056259481196793866
iteration: 16 Logisticloss: 0.05586659203603373
iteration: 17 Logisticloss: 0.05548134121737759
iteration: 18 Logisticloss: 0.05510294935617565
iteration: 19 Logisticloss: 0.054730776118394206
iteration: 20 Logisticloss: 0.054364289743199054
iteration: 21 Logisticloss: 0.054003044310997804
iteration: 22 Logisticloss: 0.0536466625405855
iteration: 23 Logisticloss: 0.053294822598768686
iteration: 24 Logisticloss: 0.0529472478655189
iteration: 25 Logisticloss: 0.05260369890576676
iteration: 26 Logisticloss: 0.052263967109171215
iteration: 27 Logisticloss: 0.05192786960504018
iteration: 28 Logisticloss: 0.051595245162292865
iteration: 29 Logisticloss: 0.05126595085770492
iteration: 30 Logisticloss: 0.05093985934873106
iteration: 31 Logisticloss: 0.05061685662602903
iteration: 32 Logisticloss: 0.050296840149543776
iteration: 33 Logisticloss: 0.0499797172934877
iteration: 34 Logisticloss: 0.049665404041765095
iteration: 35 Logisticloss: 0.04935382388773313
```

Output_logistic_train.txt

```

iteration: 36 Logisticloss: 0.04904490690166842
iteration: 37 Logisticloss: 0.048738588936645406
iteration: 38 Logisticloss: 0.04843481094925011
iteration: 39 Logisticloss: 0.048133518416042825
iteration: 40 Logisticloss: 0.047834660830231815
iteration: 41 Logisticloss: 0.047538191265841113
iteration: 42 Logisticloss: 0.04724406599891189
iteration: 43 Logisticloss: 0.046952244177093636
iteration: 44 Logisticloss: 0.046662687530447305
iteration: 45 Logisticloss: 0.04637536011747817
iteration: 46 Logisticloss: 0.046090228101389005
iteration: 47 Logisticloss: 0.04580725955234385
iteration: 48 Logisticloss: 0.045526424272193035
iteration: 49 Logisticloss: 0.045247693638652955
iteration: 50 Logisticloss: 0.044971040466389695
iteration: 51 Logisticloss: 0.044696438882831264
iteration: 52 Logisticloss: 0.04442386421685095
iteration: 53 Logisticloss: 0.044153292898729164
iteration: 54 Logisticloss: 0.04388470237002565
iteration: 55 Logisticloss: 0.04361807100218241
iteration: 56 Logisticloss: 0.04335337802283944
iteration: 57 Logisticloss: 0.043090603448980996
iteration: 58 Logisticloss: 0.042829728026147124
iteration: 59 Logisticloss: 0.042570733173044245
iteration: 60 Logisticloss: 0.04231360093097536
iteration: 61 Logisticloss: 0.04205831391758196
iteration: 62 Logisticloss: 0.04180485528445493
iteration: 63 Logisticloss: 0.041553208678224776
iteration: 64 Logisticloss: 0.04130335820479004
iteration: 65 Logisticloss: 0.04105528839638296
iteration: 66 Logisticloss: 0.04080898418120737
iteration: 67 Logisticloss: 0.04056443085541441
iteration: 68 Logisticloss: 0.04032161405720975
iteration: 69 Logisticloss: 0.04008051974290757
iteration: 70 Logisticloss: 0.03984113416476966
iteration: 71 Logisticloss: 0.03960344385048338
iteration: 72 Logisticloss: 0.039367435584150436
iteration: 73 Logisticloss: 0.0391330963886704
iteration: 74 Logisticloss: 0.038900413509416004
iteration: 75 Logisticloss: 0.03866937439910775
iteration: 76 Logisticloss: 0.03843996670380448
iteration: 77 Logisticloss: 0.038212178249934795
iteration: 78 Logisticloss: 0.037985997032302043
iteration: 79 Logisticloss: 0.03776141120300077
iteration: 80 Logisticloss: 0.03753840906118915
iteration: 81 Logisticloss: 0.03731697904366632
iteration: 82 Logisticloss: 0.0370971097162075
iteration: 83 Logisticloss: 0.036878789765614504
iteration: 84 Logisticloss: 0.03666200799244105
iteration: 85 Logisticloss: 0.03644675330435641
iteration: 86 Logisticloss: 0.03623301471011286
iteration: 87 Logisticloss: 0.03602078131408416

```

Output_logistic_train.txt

```
iteration: 88 Logisticloss: 0.035810042311344874
iteration: 89 Logisticloss: 0.035600786983261565
iteration: 90 Logisticloss: 0.03539300469356776
iteration: 91 Logisticloss: 0.03518668488489685
iteration: 92 Logisticloss: 0.034981817075747046
iteration: 93 Logisticloss: 0.03477839085785373
iteration: 94 Logisticloss: 0.03457639589394557
iteration: 95 Logisticloss: 0.034375821915860666
iteration: 96 Logisticloss: 0.034176658723000145
iteration: 97 Logisticloss: 0.033978896181096827
iteration: 98 Logisticloss: 0.03378252422127669
iteration: 99 Logisticloss: 0.0335875328393917
[-0.00071109 0.00046967 -0.00028137 ... 0.00019742 -0.00013764
 0.00030023]
```

CROSS VALIDATION 5

```
iteration: 0 Logisticloss: 6.687451631291518
iteration: 1 Logisticloss: 0.06439484593946072
iteration: 2 Logisticloss: 0.06354289355099896
iteration: 3 Logisticloss: 0.0628547642151485
iteration: 4 Logisticloss: 0.06225611012177802
iteration: 5 Logisticloss: 0.061713262076898166
iteration: 6 Logisticloss: 0.061208341355553586
iteration: 7 Logisticloss: 0.06073083122382671
iteration: 8 Logisticloss: 0.060274082153900344
iteration: 9 Logisticloss: 0.05983365592098085
iteration: 10 Logisticloss: 0.059406462153357355
iteration: 11 Logisticloss: 0.0589902742073313
iteration: 12 Logisticloss: 0.0585834417591415
iteration: 13 Logisticloss: 0.058184712091656376
iteration: 14 Logisticloss: 0.0577931146194309
iteration: 15 Logisticloss: 0.05740788381823428
iteration: 16 Logisticloss: 0.05702840633949554
iteration: 17 Logisticloss: 0.05665418383689654
iteration: 18 Logisticloss: 0.05628480628061111
iteration: 19 Logisticloss: 0.055919932440133005
iteration: 20 Logisticloss: 0.055559275371135315
iteration: 21 Logisticloss: 0.0552025914615318
iteration: 22 Logisticloss: 0.05484967205209169
iteration: 23 Logisticloss: 0.05450033694792683
iteration: 24 Logisticloss: 0.05415442933805864
iteration: 25 Logisticloss: 0.053811811776859446
iteration: 26 Logisticloss: 0.05347236297560117
iteration: 27 Logisticloss: 0.05313597521864922
iteration: 28 Logisticloss: 0.05280255226605745
iteration: 29 Logisticloss: 0.05247200763837786
iteration: 30 Logisticloss: 0.05214426320436853
iteration: 31 Logisticloss: 0.05181924801064135
iteration: 32 Logisticloss: 0.05149689730598716
iteration: 33 Logisticloss: 0.05117715172343251
iteration: 34 Logisticloss: 0.050859956590921
iteration: 35 Logisticloss: 0.050545261347524205
iteration: 36 Logisticloss: 0.050233019046730366
```

Output_logistic_train.txt

```

iteration: 37 Logisticloss: 0.04992318593197289
iteration: 38 Logisticloss: 0.04961572107239677
iteration: 39 Logisticloss: 0.04931058604909569
iteration: 40 Logisticloss: 0.049007744683830956
iteration: 41 Logisticloss: 0.04870716280366145
iteration: 42 Logisticloss: 0.04840880803605487
iteration: 43 Logisticloss: 0.04811264962997215
iteration: 44 Logisticloss: 0.04781865829916497
iteration: 45 Logisticloss: 0.04752680608453716
iteration: 46 Logisticloss: 0.04723706623292141
iteration: 47 Logisticloss: 0.046949413090034746
iteration: 48 Logisticloss: 0.04666382200571851
iteration: 49 Logisticloss: 0.04638026924985014
iteration: 50 Logisticloss: 0.04609873193755201
iteration: 51 Logisticloss: 0.04581918796251963
iteration: 52 Logisticloss: 0.045541615937457466
iteration: 53 Logisticloss: 0.04526599514075158
iteration: 54 Logisticloss: 0.04499230546862648
iteration: 55 Logisticloss: 0.044720527392134155
iteration: 56 Logisticloss: 0.04445064191840958
iteration: 57 Logisticloss: 0.04418263055569988
iteration: 58 Logisticloss: 0.043916475281737866
iteration: 59 Logisticloss: 0.043652158515083604
iteration: 60 Logisticloss: 0.04338966308910584
iteration: 61 Logisticloss: 0.04312897222831433
iteration: 62 Logisticloss: 0.042870069526789414
iteration: 63 Logisticloss: 0.042612938928485666
iteration: 64 Logisticloss: 0.04235756470921336
iteration: 65 Logisticloss: 0.042103931460123666
iteration: 66 Logisticloss: 0.04185202407254497
iteration: 67 Logisticloss: 0.04160182772403417
iteration: 68 Logisticloss: 0.041353327865524286
iteration: 69 Logisticloss: 0.041106510209460954
iteration: 70 Logisticloss: 0.04086136071883509
iteration: 71 Logisticloss: 0.0406178655970277
iteration: 72 Logisticloss: 0.040376011278393395
iteration: 73 Logisticloss: 0.04013578441951689
iteration: 74 Logisticloss: 0.039897171891084444
iteration: 75 Logisticloss: 0.03966016077031842
iteration: 76 Logisticloss: 0.039424738333928844
iteration: 77 Logisticloss: 0.03919089205154137
iteration: 78 Logisticloss: 0.038958609579564596
iteration: 79 Logisticloss: 0.03872787875546411
iteration: 80 Logisticloss: 0.03849868759241432
iteration: 81 Logisticloss: 0.03827102427430121
iteration: 82 Logisticloss: 0.03804487715105231
iteration: 83 Logisticloss: 0.03782023473427268
iteration: 84 Logisticloss: 0.03759708569316656
iteration: 85 Logisticloss: 0.03737541885072743
iteration: 86 Logisticloss: 0.037155223180179074
iteration: 87 Logisticloss: 0.03693648780165303
iteration: 88 Logisticloss: 0.036719201979087186

```


Output_logistic_train.txt

```
iteration: 89 Logisticloss: 0.03650335511733265
iteration: 90 Logisticloss: 0.03628893675945551
iteration: 91 Logisticloss: 0.036075936584221494
iteration: 92 Logisticloss: 0.035864344403751545
iteration: 93 Logisticloss: 0.035654150161336905
iteration: 94 Logisticloss: 0.0354453439294026
iteration: 95 Logisticloss: 0.035237915907608636
iteration: 96 Logisticloss: 0.03503185642107799
iteration: 97 Logisticloss: 0.03482715591874128
iteration: 98 Logisticloss: 0.03462380497178767
iteration: 99 Logisticloss: 0.03442179427221202
[-4.92676196e-04 5.71615241e-04 -2.95210888e-04 ... 6.45900602e-05
-1.06430194e-04 3.77868650e-04]
```

CROSS VALIDATION 6

```
iteration: 0 Logisticloss: 7.887572197915339
iteration: 1 Logisticloss: 0.0768585124480026
iteration: 2 Logisticloss: 0.06367998613143785
iteration: 3 Logisticloss: 0.06260699454148459
iteration: 4 Logisticloss: 0.06176786898846029
iteration: 5 Logisticloss: 0.06106056705137608
iteration: 6 Logisticloss: 0.06043661115484206
iteration: 7 Logisticloss: 0.059869548594830645
iteration: 8 Logisticloss: 0.05934354519597411
iteration: 9 Logisticloss: 0.05884846785278913
iteration: 10 Logisticloss: 0.058377493999379956
iteration: 11 Logisticloss: 0.0579258422815995
iteration: 12 Logisticloss: 0.057490051157257825
iteration: 13 Logisticloss: 0.05706754608356277
iteration: 14 Logisticloss: 0.05665636809272912
iteration: 15 Logisticloss: 0.05625499717571478
iteration: 16 Logisticloss: 0.055862233704533346
iteration: 17 Logisticloss: 0.05547711665126044
iteration: 18 Logisticloss: 0.055098865851566516
iteration: 19 Logisticloss: 0.054726840398843124
iteration: 20 Logisticloss: 0.05436050811310494
iteration: 21 Logisticloss: 0.053999422771150093
iteration: 22 Logisticloss: 0.05364320687647269
iteration: 23 Logisticloss: 0.05329153844897719
iteration: 24 Logisticloss: 0.05294414077534873
iteration: 25 Logisticloss: 0.05260077436971368
iteration: 26 Logisticloss: 0.052261230604910135
iteration: 27 Logisticloss: 0.051925326620839096
iteration: 28 Logisticloss: 0.051592901219286044
iteration: 29 Logisticloss: 0.051263811528095796
iteration: 30 Logisticloss: 0.050937930270734094
iteration: 31 Logisticloss: 0.05061514351616975
iteration: 32 Logisticloss: 0.05029534881279144
iteration: 33 Logisticloss: 0.04997845363159013
iteration: 34 Logisticloss: 0.04966437406007331
iteration: 35 Logisticloss: 0.04935303370074121
iteration: 36 Logisticloss: 0.04904436273744675
iteration: 37 Logisticloss: 0.04873829714030809
```

Output_logistic_train.txt

iteration: 38 Logisticloss: 0.04843477798556784
iteration: 39 Logisticloss: 0.048133750871290445
iteration: 40 Logisticloss: 0.04783516541334091
iteration: 41 Logisticloss: 0.04753897480891346
iteration: 42 Logisticloss: 0.047245135457138945
iteration: 43 Logisticloss: 0.04695360662811613
iteration: 44 Logisticloss: 0.04666435017318358
iteration: 45 Logisticloss: 0.04637733027044174
iteration: 46 Logisticloss: 0.04609251320051235
iteration: 47 Logisticloss: 0.045809867148320714
iteration: 48 Logisticloss: 0.04552936202734806
iteration: 49 Logisticloss: 0.04525096932334561
iteration: 50 Logisticloss: 0.04497466195495663
iteration: 51 Logisticloss: 0.04470041414906986
iteration: 52 Logisticloss: 0.04442820132904542
iteration: 53 Logisticloss: 0.04415800001422017
iteration: 54 Logisticloss: 0.04388978772932265
iteration: 55 Logisticloss: 0.043623542922618934
iteration: 56 Logisticloss: 0.04335924489177018
iteration: 57 Logisticloss: 0.04309687371652007
iteration: 58 Logisticloss: 0.04283641019744756
iteration: 59 Logisticloss: 0.042577835800118355
iteration: 60 Logisticloss: 0.04232113260405667
iteration: 61 Logisticloss: 0.04206628325603047
iteration: 62 Logisticloss: 0.04181327092720734
iteration: 63 Logisticloss: 0.04156207927379369
iteration: 64 Logisticloss: 0.041312692400816295
iteration: 65 Logisticloss: 0.04106509482874673
iteration: 66 Logisticloss: 0.04081927146270554
iteration: 67 Logisticloss: 0.0405752075640129
iteration: 68 Logisticloss: 0.04033288872388082
iteration: 69 Logisticloss: 0.04009230083906479
iteration: 70 Logisticloss: 0.039853430089313586
iteration: 71 Logisticloss: 0.039616262916474736
iteration: 72 Logisticloss: 0.03938078600512756
iteration: 73 Logisticloss: 0.03914698626463131
iteration: 74 Logisticloss: 0.03891485081248671
iteration: 75 Logisticloss: 0.038684366958920545
iteration: 76 Logisticloss: 0.03845552219261247
iteration: 77 Logisticloss: 0.0382283041674908
iteration: 78 Logisticloss: 0.03800270069053178
iteration: 79 Logisticloss: 0.03777869971050293
iteration: 80 Logisticloss: 0.037556289307596843
iteration: 81 Logisticloss: 0.03733545768390595
iteration: 82 Logisticloss: 0.03711619315469366
iteration: 83 Logisticloss: 0.03689848414042103
iteration: 84 Logisticloss: 0.036682319159489926
iteration: 85 Logisticloss: 0.03646768682166842
iteration: 86 Logisticloss: 0.03625457582216464
iteration: 87 Logisticloss: 0.036042974936318355
iteration: 88 Logisticloss: 0.03583287301488065
iteration: 89 Logisticloss: 0.0356242589798541

Output_logistic_train.txt

```
iteration: 90 Logisticloss: 0.03541712182086617
iteration: 91 Logisticloss: 0.035211450592050116
iteration: 92 Logisticloss: 0.03500723440940844
iteration: 93 Logisticloss: 0.03480446244863399
iteration: 94 Logisticloss: 0.03460312394336514
iteration: 95 Logisticloss: 0.03440320818385067
iteration: 96 Logisticloss: 0.034204704516001605
iteration: 97 Logisticloss: 0.034007602340806194
iteration: 98 Logisticloss: 0.03381189111408494
iteration: 99 Logisticloss: 0.03361756034656285
[-0.00071209 0.00046979 -0.00028093 ... 0.00019677 -0.0001381
 0.00030011]
```

CROSS VALIDATION 7

```
iteration: 0 Logisticloss: 7.90782251532728
iteration: 1 Logisticloss: 0.07700705460740426
iteration: 2 Logisticloss: 0.06361873021816418
iteration: 3 Logisticloss: 0.06255620105910349
iteration: 4 Logisticloss: 0.061721073625848825
iteration: 5 Logisticloss: 0.06101509783658677
iteration: 6 Logisticloss: 0.06039116168182545
iteration: 7 Logisticloss: 0.059823406791246356
iteration: 8 Logisticloss: 0.059296292096233695
iteration: 9 Logisticloss: 0.05879984265269158
iteration: 10 Logisticloss: 0.058327327310560645
iteration: 11 Logisticloss: 0.057874020536332046
iteration: 12 Logisticloss: 0.05743649646420186
iteration: 13 Logisticloss: 0.057012204265845155
iteration: 14 Logisticloss: 0.05659920129654784
iteration: 15 Logisticloss: 0.056195979147715465
iteration: 16 Logisticloss: 0.055801346686941575
iteration: 17 Logisticloss: 0.055414349289532705
iteration: 18 Logisticloss: 0.0550342117534694
iteration: 19 Logisticloss: 0.05466029712279728
iteration: 20 Logisticloss: 0.05429207644536001
iteration: 21 Logisticloss: 0.05392910620087456
iteration: 22 Logisticloss: 0.05357101120863543
iteration: 23 Logisticloss: 0.05321747151449977
iteration: 24 Logisticloss: 0.05286821221075068
iteration: 25 Logisticloss: 0.0525229954469159
iteration: 26 Logisticloss: 0.05218161409755387
iteration: 27 Logisticloss: 0.05184388669737586
iteration: 28 Logisticloss: 0.05150965335580293
iteration: 29 Logisticloss: 0.051178772435748046
iteration: 30 Logisticloss: 0.05085111783401657
iteration: 31 Logisticloss: 0.05052657673923854
iteration: 32 Logisticloss: 0.05020504777176215
iteration: 33 Logisticloss: 0.04988643943126325
iteration: 34 Logisticloss: 0.04957066879392656
iteration: 35 Logisticloss: 0.04925766041332017
iteration: 36 Logisticloss: 0.04894734538850379
iteration: 37 Logisticloss: 0.048639660570204885
iteration: 38 Logisticloss: 0.04833454788158275
```

Output_logistic_train.txt

iteration: 39 Logisticloss: 0.048031953734568776
iteration: 40 Logisticloss: 0.04773182852629786
iteration: 41 Logisticloss: 0.04743412620295741
iteration: 42 Logisticloss: 0.047138803880623435
iteration: 43 Logisticloss: 0.04684582151446355
iteration: 44 Logisticloss: 0.04655514160914605
iteration: 45 Logisticloss: 0.046266728964484194
iteration: 46 Logisticloss: 0.045980550451315376
iteration: 47 Logisticloss: 0.045696574813410745
iteration: 48 Logisticloss: 0.045414772491868635
iteration: 49 Logisticloss: 0.04513511546898782
iteration: 50 Logisticloss: 0.04485757712906872
iteration: 51 Logisticloss: 0.0445821321339678
iteration: 52 Logisticloss: 0.044308756311545384
iteration: 53 Logisticloss: 0.044037426555412776
iteration: 54 Logisticloss: 0.043768120734608444
iteration: 55 Logisticloss: 0.043500817612021556
iteration: 56 Logisticloss: 0.04323549677054232
iteration: 57 Logisticloss: 0.04297213854605532
iteration: 58 Logisticloss: 0.042710723966508136
iteration: 59 Logisticloss: 0.04245123469638837
iteration: 60 Logisticloss: 0.04219365298602698
iteration: 61 Logisticloss: 0.04193796162522089
iteration: 62 Logisticloss: 0.04168414390072982
iteration: 63 Logisticloss: 0.041432183557259396
iteration: 64 Logisticloss: 0.04118206476158856
iteration: 65 Logisticloss: 0.04093377206954148
iteration: 66 Logisticloss: 0.04068729039554073
iteration: 67 Logisticloss: 0.04044260498450864
iteration: 68 Logisticloss: 0.04019970138591212
iteration: 69 Logisticloss: 0.039958565429770145
iteration: 70 Logisticloss: 0.03971918320446343
iteration: 71 Logisticloss: 0.039481541036204784
iteration: 72 Logisticloss: 0.03924562547004421
iteration: 73 Logisticloss: 0.03901142325229764
iteration: 74 Logisticloss: 0.03877892131429934
iteration: 75 Logisticloss: 0.038548106757390045
iteration: 76 Logisticloss: 0.03831896683906143
iteration: 77 Logisticloss: 0.03809148896018658
iteration: 78 Logisticloss: 0.03786566065327214
iteration: 79 Logisticloss: 0.03764146957167555
iteration: 80 Logisticloss: 0.037418903479735116
iteration: 81 Logisticloss: 0.03719795024376564
iteration: 82 Logisticloss: 0.03697859782387642
iteration: 83 Logisticloss: 0.03676083426657219
iteration: 84 Logisticloss: 0.0365446476980995
iteration: 85 Logisticloss: 0.03633002631850478
iteration: 86 Logisticloss: 0.03611695839637117
iteration: 87 Logisticloss: 0.03590543226420357
iteration: 88 Logisticloss: 0.03569543631443255
iteration: 89 Logisticloss: 0.03548695899600835
iteration: 90 Logisticloss: 0.035279988811557805

Output_logistic_train.txt

```
iteration: 91 Logisticloss: 0.03507451431507682
iteration: 92 Logisticloss: 0.034870524110131716
iteration: 93 Logisticloss: 0.034668006848542945
iteration: 94 Logisticloss: 0.0344669512295249
iteration: 95 Logisticloss: 0.0342673459992553
iteration: 96 Logisticloss: 0.03406917995084739
iteration: 97 Logisticloss: 0.03387244192469882
iteration: 98 Logisticloss: 0.03367712080918975
iteration: 99 Logisticloss: 0.03348320554170328
[-0.00071381 0.00046722 -0.00028523 ... 0.0001949 -0.00014029
 0.00030093]
```

CROSS VALIDATION 8

```
iteration: 0 Logisticloss: 7.889570288869437
iteration: 1 Logisticloss: 0.07730095504623023
iteration: 2 Logisticloss: 0.06368146234842606
iteration: 3 Logisticloss: 0.06262080615295222
iteration: 4 Logisticloss: 0.06178741556920727
iteration: 5 Logisticloss: 0.06108313745703402
iteration: 6 Logisticloss: 0.06046087348258951
iteration: 7 Logisticloss: 0.059894768004654216
iteration: 8 Logisticloss: 0.0593692809558123
iteration: 9 Logisticloss: 0.058874438027316324
iteration: 10 Logisticloss: 0.05840350853972661
iteration: 11 Logisticloss: 0.057951767294336896
iteration: 12 Logisticloss: 0.057515788634269725
iteration: 13 Logisticloss: 0.057093021825185906
iteration: 14 Logisticloss: 0.05668152421350127
iteration: 15 Logisticloss: 0.056279787290728765
iteration: 16 Logisticloss: 0.05588661974441319
iteration: 17 Logisticloss: 0.05550106669937549
iteration: 18 Logisticloss: 0.05512235264130902
iteration: 19 Logisticloss: 0.054749840247863696
iteration: 20 Logisticloss: 0.054383000153274616
iteration: 21 Logisticloss: 0.05402138838266413
iteration: 22 Logisticloss: 0.05366462926540586
iteration: 23 Logisticloss: 0.05331240232728366
iteration: 24 Logisticloss: 0.05296443211510665
iteration: 25 Logisticloss: 0.05262048021190686
iteration: 26 Logisticloss: 0.05228033890877207
iteration: 27 Logisticloss: 0.05194382614371516
iteration: 28 Logisticloss: 0.051610781419705064
iteration: 29 Logisticloss: 0.051281062486673475
iteration: 30 Logisticloss: 0.050954542624909165
iteration: 31 Logisticloss: 0.05063110840577171
iteration: 32 Logisticloss: 0.05031065783416751
iteration: 33 Logisticloss: 0.049993098798558
iteration: 34 Logisticloss: 0.049678347770367594
iteration: 35 Logisticloss: 0.049366328706924194
iteration: 36 Logisticloss: 0.04905697212148283
iteration: 37 Logisticloss: 0.04875021429117689
iteration: 38 Logisticloss: 0.048445996579426526
iteration: 39 Logisticloss: 0.04814426485379925
```

Output_logistic_train.txt

```

iteration: 40 Logisticloss: 0.04784496898384782
iteration: 41 Logisticloss: 0.04754806240625846
iteration: 42 Logisticloss: 0.04725350174688699
iteration: 43 Logisticloss: 0.04696124649106823
iteration: 44 Logisticloss: 0.04667125869504631
iteration: 45 Logisticloss: 0.04638350273256022
iteration: 46 Logisticloss: 0.04609794507159023
iteration: 47 Logisticloss: 0.04581455407706703
iteration: 48 Logisticloss: 0.045533299836001975
iteration: 49 Logisticloss: 0.04525415400203921
iteration: 50 Logisticloss: 0.044977089656883164
iteration: 51 Logisticloss: 0.04470208118643026
iteration: 52 Logisticloss: 0.04442910416974963
iteration: 53 Logisticloss: 0.04415813527932237
iteration: 54 Logisticloss: 0.043889152191171905
iteration: 55 Logisticloss: 0.04362213350370726
iteration: 56 Logisticloss: 0.04335705866426088
iteration: 57 Logisticloss: 0.04309390790243938
iteration: 58 Logisticloss: 0.04283266216952173
iteration: 59 Logisticloss: 0.04257330308323839
iteration: 60 Logisticloss: 0.04231581287735177
iteration: 61 Logisticloss: 0.04206017435553004
iteration: 62 Logisticloss: 0.04180637084907079
iteration: 63 Logisticloss: 0.041554386178085594
iteration: 64 Logisticloss: 0.04130420461580342
iteration: 65 Logisticloss: 0.04105581085569248
iteration: 66 Logisticloss: 0.04080918998113532
iteration: 67 Logisticloss: 0.04056432743742343
iteration: 68 Logisticloss: 0.04032120900586465
iteration: 69 Logisticloss: 0.040079820779820315
iteration: 70 Logisticloss: 0.03984014914250955
iteration: 71 Logisticloss: 0.03960218074643686
iteration: 72 Logisticloss: 0.03936590249431443
iteration: 73 Logisticloss: 0.0391313015213648
iteration: 74 Logisticloss: 0.03889836517890187
iteration: 75 Logisticloss: 0.03866708101909845
iteration: 76 Logisticloss: 0.03843743678085886
iteration: 77 Logisticloss: 0.03820942037672247
iteration: 78 Logisticloss: 0.037983019880731585
iteration: 79 Logisticloss: 0.037758223517204294
iteration: 80 Logisticloss: 0.03753501965035669
iteration: 81 Logisticloss: 0.03731339677472578
iteration: 82 Logisticloss: 0.03709334350634708
iteration: 83 Logisticloss: 0.03687484857464572
iteration: 84 Logisticloss: 0.036657900815002156
iteration: 85 Logisticloss: 0.036442489161957234
iteration: 86 Logisticloss: 0.03622860264302349
iteration: 87 Logisticloss: 0.036016230373071445
iteration: 88 Logisticloss: 0.03580536154926142
iteration: 89 Logisticloss: 0.03559598544649394
iteration: 90 Logisticloss: 0.035388091413351495
iteration: 91 Logisticloss: 0.03518166886850687

```

Output_logistic_train.txt

iteration: 92 Logisticloss: 0.03497670729757363
iteration: 93 Logisticloss: 0.03477319625037539
iteration: 94 Logisticloss: 0.034571125338610655
iteration: 95 Logisticloss: 0.03437048423389152
iteration: 96 Logisticloss: 0.034171262666133975
iteration: 97 Logisticloss: 0.033973450422278964
iteration: 98 Logisticloss: 0.03377703734532252
iteration: 99 Logisticloss: 0.033582013333635176
[-0.00071019 0.00047187 -0.00027479 ... 0.00019889 -0.00014184
0.00030016]

CROSS VALIDATION 9

iteration: 0 Logisticloss: 7.898525844587498
iteration: 1 Logisticloss: 0.08855130498297077
iteration: 2 Logisticloss: 0.0736918999265011
iteration: 3 Logisticloss: 0.07253666191166872
iteration: 4 Logisticloss: 0.07163285521244353
iteration: 5 Logisticloss: 0.07086568477040883
iteration: 6 Logisticloss: 0.07018318145847012
iteration: 7 Logisticloss: 0.06955777898182294
iteration: 8 Logisticloss: 0.06897328625693304
iteration: 9 Logisticloss: 0.06841948251851873
iteration: 10 Logisticloss: 0.06788955712247141
iteration: 11 Logisticloss: 0.06737877562110066
iteration: 12 Logisticloss: 0.06688373259410936
iteration: 13 Logisticloss: 0.06640190853701299
iteration: 14 Logisticloss: 0.06593139459875902
iteration: 15 Logisticloss: 0.06547071488001242
iteration: 16 Logisticloss: 0.06501870792545955
iteration: 17 Logisticloss: 0.06457444546182885
iteration: 18 Logisticloss: 0.06413717531512192
iteration: 19 Logisticloss: 0.06370628045649136
iteration: 20 Logisticloss: 0.06328124906608681
iteration: 21 Logisticloss: 0.06286165228404755
iteration: 22 Logisticloss: 0.062447127426589866
iteration: 23 Logisticloss: 0.06203736515361136
iteration: 24 Logisticloss: 0.06163209953731967
iteration: 25 Logisticloss: 0.06123110029034014
iteration: 26 Logisticloss: 0.060834166621719366
iteration: 27 Logisticloss: 0.06044112233436142
iteration: 28 Logisticloss: 0.060051811879288854
iteration: 29 Logisticloss: 0.05966609715463158
iteration: 30 Logisticloss: 0.05928385488954033
iteration: 31 Logisticloss: 0.05890497449139552
iteration: 32 Logisticloss: 0.05852935626285798
iteration: 33 Logisticloss: 0.05815690991632522
iteration: 34 Logisticloss: 0.05778755332918173
iteration: 35 Logisticloss: 0.05742121149526244
iteration: 36 Logisticloss: 0.05705781563716438
iteration: 37 Logisticloss: 0.056697302451164916
iteration: 38 Logisticloss: 0.05633961346204719
iteration: 39 Logisticloss: 0.05598469446947925
iteration: 40 Logisticloss: 0.05563249507102192

Output_logistic_train.txt

```

iteration: 41 Logisticloss: 0.05528296824956347
iteration: 42 Logisticloss: 0.05493607001515434
iteration: 43 Logisticloss: 0.05459175909296284
iteration: 44 Logisticloss: 0.05424999665048487
iteration: 45 Logisticloss: 0.05391074605828544
iteration: 46 Logisticloss: 0.05357397267948705
iteration: 47 Logisticloss: 0.0532396436839839
iteration: 48 Logisticloss: 0.05290772788399422
iteration: 49 Logisticloss: 0.05257819558808309
iteration: 50 Logisticloss: 0.05225101847122211
iteration: 51 Logisticloss: 0.05192616945881358
iteration: 52 Logisticloss: 0.05160362262290693
iteration: 53 Logisticloss: 0.05128335308909166
iteration: 54 Logisticloss: 0.05096533695276176
iteration: 55 Logisticloss: 0.050649551203628206
iteration: 56 Logisticloss: 0.05033597365750986
iteration: 57 Logisticloss: 0.05002458289456115
iteration: 58 Logisticloss: 0.04971535820320827
iteration: 59 Logisticloss: 0.04940827952915834
iteration: 60 Logisticloss: 0.049103327428928555
iteration: 61 Logisticloss: 0.04880048302741159
iteration: 62 Logisticloss: 0.04849972797905475
iteration: 63 Logisticloss: 0.04820104443228028
iteration: 64 Logisticloss: 0.047904414996822006
iteration: 65 Logisticloss: 0.047609822713689805
iteration: 66 Logisticloss: 0.04731725102750939
iteration: 67 Logisticloss: 0.047026683761012766
iteration: 68 Logisticloss: 0.04673810509148183
iteration: 69 Logisticloss: 0.04645149952896872
iteration: 70 Logisticloss: 0.04616685189613722
iteration: 71 Logisticloss: 0.04588414730958585
iteration: 72 Logisticloss: 0.04560337116252889
iteration: 73 Logisticloss: 0.04532450910872459
iteration: 74 Logisticloss: 0.04504754704755106
iteration: 75 Logisticloss: 0.04477247111014104
iteration: 76 Logisticloss: 0.044499267646495276
iteration: 77 Logisticloss: 0.044227923213502225
iteration: 78 Logisticloss: 0.04395842456379868
iteration: 79 Logisticloss: 0.04369075863541186
iteration: 80 Logisticloss: 0.04342491254212885
iteration: 81 Logisticloss: 0.04316087356454433
iteration: 82 Logisticloss: 0.04289862914174069
iteration: 83 Logisticloss: 0.04263816686355932
iteration: 84 Logisticloss: 0.04237947446342442
iteration: 85 Logisticloss: 0.042122539811683374
iteration: 86 Logisticloss: 0.04186735090943034
iteration: 87 Logisticloss: 0.04161389588278226
iteration: 88 Logisticloss: 0.041362162977577284
iteration: 89 Logisticloss: 0.04111214055446858
iteration: 90 Logisticloss: 0.04086381708438704
iteration: 91 Logisticloss: 0.04061718114434785
iteration: 92 Logisticloss: 0.04037222141357774

```


Output_logistic_train.txt

iteration: 93 Logisticloss: 0.04012892666993973
iteration: 94 Logisticloss: 0.039887285786634114
iteration: 95 Logisticloss: 0.03964728772915448
iteration: 96 Logisticloss: 0.039408921552479693
iteration: 97 Logisticloss: 0.03917217639848147
iteration: 98 Logisticloss: 0.038937041493530486
iteration: 99 Logisticloss: 0.038703506146282575
[-0.00064306 0.00052601 -0.00019531 ... 0.00046055 -0.000104
0.00030342]

CROSS VALIDATION 10

iteration: 0 Logisticloss: 7.264814318699107
iteration: 1 Logisticloss: 0.08008178924069102
iteration: 2 Logisticloss: 0.07914626244050504
iteration: 3 Logisticloss: 0.07836624847117693
iteration: 4 Logisticloss: 0.07767270412861417
iteration: 5 Logisticloss: 0.07703374553407803
iteration: 6 Logisticloss: 0.07643225664043662
iteration: 7 Logisticloss: 0.07585810055152732
iteration: 8 Logisticloss: 0.07530483811833405
iteration: 9 Logisticloss: 0.07476815691727283
iteration: 10 Logisticloss: 0.0742450461810751
iteration: 11 Logisticloss: 0.07373333180970489
iteration: 12 Logisticloss: 0.07323139926577639
iteration: 13 Logisticloss: 0.07273802076358753
iteration: 14 Logisticloss: 0.07225224335177384
iteration: 15 Logisticloss: 0.07177331408016374
iteration: 16 Logisticloss: 0.07130062857276773
iteration: 17 Logisticloss: 0.07083369483501496
iteration: 18 Logisticloss: 0.07037210724522625
iteration: 19 Logisticloss: 0.06991552751626413
iteration: 20 Logisticloss: 0.06946367052805297
iteration: 21 Logisticloss: 0.06901629362784949
iteration: 22 Logisticloss: 0.06857318844095607
iteration: 23 Logisticloss: 0.06813417452652198
iteration: 24 Logisticloss: 0.06769909440817384
iteration: 25 Logisticloss: 0.06726780964199906
iteration: 26 Logisticloss: 0.06684019767629518
iteration: 27 Logisticloss: 0.06641614932206738
iteration: 28 Logisticloss: 0.06599556669926596
iteration: 29 Logisticloss: 0.0655783615569701
iteration: 30 Logisticloss: 0.06516445388998493
iteration: 31 Logisticloss: 0.06475377079224437
iteration: 32 Logisticloss: 0.06434624550078408
iteration: 33 Logisticloss: 0.06394181659413221
iteration: 34 Logisticloss: 0.06354042731662714
iteration: 35 Logisticloss: 0.06314202500604933
iteration: 36 Logisticloss: 0.06274656060649683
iteration: 37 Logisticloss: 0.062353988251970124
iteration: 38 Logisticloss: 0.06196426490890764
iteration: 39 Logisticloss: 0.06157735006810112
iteration: 40 Logisticloss: 0.06119320547816126
iteration: 41 Logisticloss: 0.06081179491409401

Output_logistic_train.txt

```

iteration: 42 Logisticloss: 0.060433083975664666
iteration: 43 Logisticloss: 0.06005703991113149
iteration: 44 Logisticloss: 0.05968363146266278
iteration: 45 Logisticloss: 0.05931282873035105
iteration: 46 Logisticloss: 0.05894460305222876
iteration: 47 Logisticloss: 0.05857892689809473
iteration: 48 Logisticloss: 0.05821577377529507
iteration: 49 Logisticloss: 0.057855118144881264
iteration: 50 Logisticloss: 0.05749693534679876
iteration: 51 Logisticloss: 0.05714120153295568
iteration: 52 Logisticloss: 0.05678789360718298
iteration: 53 Logisticloss: 0.056436989171235685
iteration: 54 Logisticloss: 0.05608846647610228
iteration: 55 Logisticloss: 0.05574230437798679
iteration: 56 Logisticloss: 0.055398482298414514
iteration: 57 Logisticloss: 0.055056980187982364
iteration: 58 Logisticloss: 0.05471777849333825
iteration: 59 Logisticloss: 0.054380858127026414
iteration: 60 Logisticloss: 0.05404620043988154
iteration: 61 Logisticloss: 0.053713787195693564
iteration: 62 Logisticloss: 0.05338360054790075
iteration: 63 Logisticloss: 0.05305562301809622
iteration: 64 Logisticloss: 0.05272983747616157
iteration: 65 Logisticloss: 0.05240622712186148
iteration: 66 Logisticloss: 0.05208477546775424
iteration: 67 Logisticloss: 0.051765466323290224
iteration: 68 Logisticloss: 0.051448283779984824
iteration: 69 Logisticloss: 0.05113321219756645
iteration: 70 Logisticloss: 0.05082023619101101
iteration: 71 Logisticloss: 0.050509340618384996
iteration: 72 Logisticloss: 0.050200510569428446
iteration: 73 Logisticloss: 0.04989373135481597
iteration: 74 Logisticloss: 0.04958898849604224
iteration: 75 Logisticloss: 0.04928626771588361
iteration: 76 Logisticloss: 0.048985554929393174
iteration: 77 Logisticloss: 0.04868683623539084
iteration: 78 Logisticloss: 0.04839009790841548
iteration: 79 Logisticloss: 0.04809532639110781
iteration: 80 Logisticloss: 0.047802508286997517
iteration: 81 Logisticloss: 0.047511630353670384
iteration: 82 Logisticloss: 0.047222679496293093
iteration: 83 Logisticloss: 0.046935642761476604
iteration: 84 Logisticloss: 0.04665050733145941
iteration: 85 Logisticloss: 0.04636726051859544
iteration: 86 Logisticloss: 0.0460858897601305
iteration: 87 Logisticloss: 0.04580638261325451
iteration: 88 Logisticloss: 0.04552872675041666
iteration: 89 Logisticloss: 0.04525290995489134
iteration: 90 Logisticloss: 0.04497892011658477
iteration: 91 Logisticloss: 0.04470674522807093
iteration: 92 Logisticloss: 0.0444363733808483
iteration: 93 Logisticloss: 0.044167792761807434

```

Output_logistic_train.txt

iteration: 94 Logisticloss: 0.04390099164990083
iteration: 95 Logisticloss: 0.043635958413007256
iteration: 96 Logisticloss: 0.043372681504981865
iteration: 97 Logisticloss: 0.04311114946288499
iteration: 98 Logisticloss: 0.04285135090438195
iteration: 99 Logisticloss: 0.04259327452530709
[-6.65867862e-04 4.50054948e-04 -3.43359947e-04 ... 4.31516617e-04
-6.40818669e-05 3.20159730e-04]

CROSS VALIDATION 11

iteration: 0 Logisticloss: 7.88987107873521
iteration: 1 Logisticloss: 0.0768811791455425
iteration: 2 Logisticloss: 0.06369814119611689
iteration: 3 Logisticloss: 0.0626263212869426
iteration: 4 Logisticloss: 0.061787696480969434
iteration: 5 Logisticloss: 0.06108058941903698
iteration: 6 Logisticloss: 0.06045666435505799
iteration: 7 Logisticloss: 0.05988953457719272
iteration: 8 Logisticloss: 0.05936340050792591
iteration: 9 Logisticloss: 0.05886814878559671
iteration: 10 Logisticloss: 0.05839696884224321
iteration: 11 Logisticloss: 0.05794508697112452
iteration: 12 Logisticloss: 0.057509046686365105
iteration: 13 Logisticloss: 0.05708627688312123
iteration: 14 Logisticloss: 0.05667482098013552
iteration: 15 Logisticloss: 0.05627316064873656
iteration: 16 Logisticloss: 0.05588009745335063
iteration: 17 Logisticloss: 0.05549467121284737
iteration: 18 Logisticloss: 0.055116102359507986
iteration: 19 Logisticloss: 0.054743750398696105
iteration: 20 Logisticloss: 0.054377083423739085
iteration: 21 Logisticloss: 0.054015655378962364
iteration: 22 Logisticloss: 0.05365908885350971
iteration: 23 Logisticloss: 0.05330706188871932
iteration: 24 Logisticloss: 0.05295929774173185
iteration: 25 Logisticloss: 0.0526155568562079
iteration: 26 Logisticloss: 0.052275630501339314
iteration: 27 Logisticloss: 0.05193933568623344
iteration: 28 Logisticloss: 0.05160651105949685
iteration: 29 Logisticloss: 0.051277013577216396
iteration: 30 Logisticloss: 0.05095071577560346
iteration: 31 Logisticloss: 0.0506275035234064
iteration: 32 Logisticloss: 0.05030727415793489
iteration: 33 Logisticloss: 0.04998993493002373
iteration: 34 Logisticloss: 0.049675401699477685
iteration: 35 Logisticloss: 0.04936359783488419
iteration: 36 Logisticloss: 0.04905445328116079
iteration: 37 Logisticloss: 0.04874790376554035
iteration: 38 Logisticloss: 0.04844389011841621
iteration: 39 Logisticloss: 0.04814235768996029
iteration: 40 Logisticloss: 0.04784325584697442
iteration: 41 Logisticloss: 0.04754653753725771
iteration: 42 Logisticloss: 0.04725215891102959

Output_logistic_train.txt

```

iteration: 43 Logisticloss: 0.04696007899076289
iteration: 44 Logisticloss: 0.04667025938225079
iteration: 45 Logisticloss: 0.046382664020922934
iteration: 46 Logisticloss: 0.04609725894840235
iteration: 47 Logisticloss: 0.04581401211509285
iteration: 48 Logisticloss: 0.04553289320524646
iteration: 49 Logisticloss: 0.04525387348150477
iteration: 50 Logisticloss: 0.044976925646361764
iteration: 51 Logisticloss: 0.04470202371837338
iteration: 52 Logisticloss: 0.0444291429212539
iteration: 53 Logisticloss: 0.0441582595842677
iteration: 54 Logisticloss: 0.043889351052544906
iteration: 55 Logisticloss: 0.0436223956061423
iteration: 56 Logisticloss: 0.043357372386828866
iteration: 57 Logisticloss: 0.043094261331712805
iteration: 58 Logisticloss: 0.042833043112943184
iteration: 59 Logisticloss: 0.04257369908281835
iteration: 60 Logisticloss: 0.04231621122371955
iteration: 61 Logisticloss: 0.042060562102360255
iteration: 62 Logisticloss: 0.04180673482790572
iteration: 63 Logisticloss: 0.041554713013571706
iteration: 64 Logisticloss: 0.04130448074135778
iteration: 65 Logisticloss: 0.04105602252961215
iteration: 66 Logisticloss: 0.040809323303160464
iteration: 67 Logisticloss: 0.040564368365760814
iteration: 68 Logisticloss: 0.04032114337467584
iteration: 69 Logisticloss: 0.04007963431717435
iteration: 70 Logisticloss: 0.03983982748879683
iteration: 71 Logisticloss: 0.03960170947323635
iteration: 72 Logisticloss: 0.039365267123702495
iteration: 73 Logisticloss: 0.039130487545649295
iteration: 74 Logisticloss: 0.03889735808076087
iteration: 75 Logisticloss: 0.03866586629209847
iteration: 76 Logisticloss: 0.03843599995032249
iteration: 77 Logisticloss: 0.03820774702091116
iteration: 78 Logisticloss: 0.03798109565230462
iteration: 79 Logisticloss: 0.03775603416490999
iteration: 80 Logisticloss: 0.037532551040908725
iteration: 81 Logisticloss: 0.03731063491481185
iteration: 82 Logisticloss: 0.037090274564714275
iteration: 83 Logisticloss: 0.036871458904202695
iteration: 84 Logisticloss: 0.0366541769748749
iteration: 85 Logisticloss: 0.03643841793943223
iteration: 86 Logisticloss: 0.036224171075309286
iteration: 87 Logisticloss: 0.03601142576880715
iteration: 88 Logisticloss: 0.03580017150969951
iteration: 89 Logisticloss: 0.03559039788628242
iteration: 90 Logisticloss: 0.03538209458084027
iteration: 91 Logisticloss: 0.0351752513655028
iteration: 92 Logisticloss: 0.03496985809846859
iteration: 93 Logisticloss: 0.034765904720572643
iteration: 94 Logisticloss: 0.03456338125217647

```

Output_logistic_train.txt

iteration: 95 Logisticloss: 0.03436227779035969
iteration: 96 Logisticloss: 0.034162584506394866
iteration: 97 Logisticloss: 0.03396429164348598
iteration: 98 Logisticloss: 0.03376738951475377
iteration: 99 Logisticloss: 0.03357186850145047
[-0.00071057 0.00047027 -0.00027911 ... 0.0001973 -0.00013802
0.00029985]

CROSS VALIDATION 12

iteration: 0 Logisticloss: 10.029956051486387
iteration: 1 Logisticloss: 0.0628245863739192
iteration: 2 Logisticloss: 0.0573655166048936
iteration: 3 Logisticloss: 0.056116026436409526
iteration: 4 Logisticloss: 0.05527195329686235
iteration: 5 Logisticloss: 0.054601621603901675
iteration: 6 Logisticloss: 0.054027081447810175
iteration: 7 Logisticloss: 0.05351287683722014
iteration: 8 Logisticloss: 0.05304003284326932
iteration: 9 Logisticloss: 0.05259728055075104
iteration: 10 Logisticloss: 0.05217742072712919
iteration: 11 Logisticloss: 0.05177559753563582
iteration: 12 Logisticloss: 0.05138839495601584
iteration: 13 Logisticloss: 0.05101332753791857
iteration: 14 Logisticloss: 0.05064853622638307
iteration: 15 Logisticloss: 0.05029259794405942
iteration: 16 Logisticloss: 0.04994440167355458
iteration: 17 Logisticloss: 0.049603065143605615
iteration: 18 Logisticloss: 0.04926787723475513
iteration: 19 Logisticloss: 0.04893825719671274
iteration: 20 Logisticloss: 0.04861372515809161
iteration: 21 Logisticloss: 0.04829388040408746
iteration: 22 Logisticloss: 0.0479783851112253
iteration: 23 Logisticloss: 0.04766695198814153
iteration: 24 Logisticloss: 0.04735933475943992
iteration: 25 Logisticloss: 0.0470553207503973
iteration: 26 Logisticloss: 0.04675472504543479
iteration: 27 Logisticloss: 0.046457385840277025
iteration: 28 Logisticloss: 0.04616316070987975
iteration: 29 Logisticloss: 0.04587192358629218
iteration: 30 Logisticloss: 0.045583562292212935
iteration: 31 Logisticloss: 0.0452979765134006
iteration: 32 Logisticloss: 0.04501507612054277
iteration: 33 Logisticloss: 0.044734779771547356
iteration: 34 Logisticloss: 0.04445701374047809
iteration: 35 Logisticloss: 0.04418171093090655
iteration: 36 Logisticloss: 0.04390881004026814
iteration: 37 Logisticloss: 0.043638254848599865
iteration: 38 Logisticloss: 0.043369993610305885
iteration: 39 Logisticloss: 0.04310397853171494
iteration: 40 Logisticloss: 0.04284016532043695
iteration: 41 Logisticloss: 0.04257851279509413
iteration: 42 Logisticloss: 0.04231898254605138
iteration: 43 Logisticloss: 0.042061538639412636

Output_logistic_train.txt

iteration: 44 Logisticloss: 0.04180614735787518
iteration: 45 Logisticloss: 0.04155277697310737
iteration: 46 Logisticloss: 0.041301397545191
iteration: 47 Logisticloss: 0.04105198074538504
iteration: 48 Logisticloss: 0.04080449969905728
iteration: 49 Logisticloss: 0.04055892884611643
iteration: 50 Logisticloss: 0.040315243816681015
iteration: 51 Logisticloss: 0.04007342132005706
iteration: 52 Logisticloss: 0.03983343904537756
iteration: 53 Logisticloss: 0.03959527557249174
iteration: 54 Logisticloss: 0.03935891029189063
iteration: 55 Logisticloss: 0.039124323332622474
iteration: 56 Logisticloss: 0.038891495497292934
iteration: 57 Logisticloss: 0.03866040820336577
iteration: 58 Logisticloss: 0.03843104343008201
iteration: 59 Logisticloss: 0.03820338367040246
iteration: 60 Logisticloss: 0.0379774118874543
iteration: 61 Logisticloss: 0.03775311147502625
iteration: 62 Logisticloss: 0.037530466221711606
iteration: 63 Logisticloss: 0.037309460278347514
iteration: 64 Logisticloss: 0.03709007812843794
iteration: 65 Logisticloss: 0.03687230456128565
iteration: 66 Logisticloss: 0.03665612464758783
iteration: 67 Logisticloss: 0.03644152371727692
iteration: 68 Logisticloss: 0.03622848733941276
iteration: 69 Logisticloss: 0.03601700130395096
iteration: 70 Logisticloss: 0.035807051605231385
iteration: 71 Logisticloss: 0.03559862442704528
iteration: 72 Logisticloss: 0.035391706129153905
iteration: 73 Logisticloss: 0.035186283235142994
iteration: 74 Logisticloss: 0.0349823424215079
iteration: 75 Logisticloss: 0.03477987050787415
iteration: 76 Logisticloss: 0.034578854448265285
iteration: 77 Logisticloss: 0.034379281323337736
iteration: 78 Logisticloss: 0.034181138333509324
iteration: 79 Logisticloss: 0.033984412792912366
iteration: 80 Logisticloss: 0.03378909212410901
iteration: 81 Logisticloss: 0.033595163853509816
iteration: 82 Logisticloss: 0.03340261560744143
iteration: 83 Logisticloss: 0.03321143510881227
iteration: 84 Logisticloss: 0.03302161017432963
iteration: 85 Logisticloss: 0.03283312871222298
iteration: 86 Logisticloss: 0.03264597872043291
iteration: 87 Logisticloss: 0.032460148285226226
iteration: 88 Logisticloss: 0.03227562558020088
iteration: 89 Logisticloss: 0.032092398865646764
iteration: 90 Logisticloss: 0.03191045648822948
iteration: 91 Logisticloss: 0.03172978688096749
iteration: 92 Logisticloss: 0.031550378563473584
iteration: 93 Logisticloss: 0.031372220142434175
iteration: 94 Logisticloss: 0.031195300312300833
iteration: 95 Logisticloss: 0.03101960785617078

Output_logistic_train.txt

iteration: 96 Logisticloss: 0.030845131646833508
iteration: 97 Logisticloss: 0.030671860647962856
iteration: 98 Logisticloss: 0.03049978391543472
iteration: 99 Logisticloss: 0.030328890598751712
[-1.37345008e-03 2.53638443e-05 -4.30910299e-04 ... 6.33200650e-05
-1.53597605e-04 1.72073530e-04]

CROSS VALIDATION 13

iteration: 0 Logisticloss: 7.993918184819082
iteration: 1 Logisticloss: 0.08143250381111176
iteration: 2 Logisticloss: 0.07720850090931783
iteration: 3 Logisticloss: 0.07550729301623296
iteration: 4 Logisticloss: 0.0743746067932659
iteration: 5 Logisticloss: 0.07348594372008752
iteration: 6 Logisticloss: 0.07272905784434272
iteration: 7 Logisticloss: 0.07205319328054444
iteration: 8 Logisticloss: 0.07143160830728576
iteration: 9 Logisticloss: 0.07084871504839832
iteration: 10 Logisticloss: 0.07029474441854161
iteration: 11 Logisticloss: 0.06976322935522523
iteration: 12 Logisticloss: 0.06924970060546332
iteration: 13 Logisticloss: 0.06875096033727081
iteration: 14 Logisticloss: 0.06826465372332478
iteration: 15 Logisticloss: 0.06778900418606511
iteration: 16 Logisticloss: 0.06732264330104808
iteration: 17 Logisticloss: 0.06686449786427315
iteration: 18 Logisticloss: 0.06641371276969027
iteration: 19 Logisticloss: 0.06596959703857493
iteration: 20 Logisticloss: 0.06553158523325281
iteration: 21 Logisticloss: 0.065099209342954
iteration: 22 Logisticloss: 0.06467207795176062
iteration: 23 Logisticloss: 0.06424986056765356
iteration: 24 Logisticloss: 0.0638322756724611
iteration: 25 Logisticloss: 0.0634190814961035
iteration: 26 Logisticloss: 0.06301006881358484
iteration: 27 Logisticloss: 0.06260505526314482
iteration: 28 Logisticloss: 0.06220388082181939
iteration: 29 Logisticloss: 0.06180640417116287
iteration: 30 Logisticloss: 0.061412499754416615
iteration: 31 Logisticloss: 0.06102205537572633
iteration: 32 Logisticloss: 0.06063497022792936
iteration: 33 Logisticloss: 0.060251153261891795
iteration: 34 Logisticloss: 0.05987052183007246
iteration: 35 Logisticloss: 0.05949300055179361
iteration: 36 Logisticloss: 0.059118520358929734
iteration: 37 Logisticloss: 0.058747017689316804
iteration: 38 Logisticloss: 0.058378433801811846
iteration: 39 Logisticloss: 0.058012714192080046
iteration: 40 Logisticloss: 0.05764980809221821
iteration: 41 Logisticloss: 0.0572896680404971
iteration: 42 Logisticloss: 0.05693224951002271
iteration: 43 Logisticloss: 0.05657751058712499
iteration: 44 Logisticloss: 0.05622541169189243

Output_logistic_train.txt

iteration: 45 Logisticloss: 0.05587591533457102
iteration: 46 Logisticloss: 0.05552898590259863
iteration: 47 Logisticloss: 0.05518458947390382
iteration: 48 Logisticloss: 0.054842693652801415
iteration: 49 Logisticloss: 0.05450326742539231
iteration: 50 Logisticloss: 0.054166281031854134
iteration: 51 Logisticloss: 0.05383170585340271
iteration: 52 Logisticloss: 0.05349951431203324
iteration: 53 Logisticloss: 0.05316967978142579
iteration: 54 Logisticloss: 0.05284217650762834
iteration: 55 Logisticloss: 0.05251697953832534
iteration: 56 Logisticloss: 0.05219406465966298
iteration: 57 Logisticloss: 0.05187340833974017
iteration: 58 Logisticloss: 0.051554987677991895
iteration: 59 Logisticloss: 0.05123878035979256
iteration: 60 Logisticloss: 0.05092476461569105
iteration: 61 Logisticloss: 0.05061291918476316
iteration: 62 Logisticloss: 0.05030322328163053
iteration: 63 Logisticloss: 0.049995656566748196
iteration: 64 Logisticloss: 0.04969019911961127
iteration: 65 Logisticloss: 0.04938683141456994
iteration: 66 Logisticloss: 0.04908553429897951
iteration: 67 Logisticloss: 0.04878628897344105
iteration: 68 Logisticloss: 0.048489076973915746
iteration: 69 Logisticloss: 0.048193880155520195
iteration: 70 Logisticloss: 0.04790068067782933
iteration: 71 Logisticloss: 0.04760946099153274
iteration: 72 Logisticloss: 0.04732020382630584
iteration: 73 Logisticloss: 0.04703289217977197
iteration: 74 Logisticloss: 0.046747509307443244
iteration: 75 Logisticloss: 0.04646403871354052
iteration: 76 Logisticloss: 0.046182464142601805
iteration: 77 Logisticloss: 0.04590276957179767
iteration: 78 Logisticloss: 0.04562493920388111
iteration: 79 Logisticloss: 0.045348957460704824
iteration: 80 Logisticloss: 0.04507480897724791
iteration: 81 Logisticloss: 0.044802478596096845
iteration: 82 Logisticloss: 0.04453195136233413
iteration: 83 Logisticloss: 0.044263212518789806
iteration: 84 Logisticloss: 0.043996247501618214
iteration: 85 Logisticloss: 0.04373104193616409
iteration: 86 Logisticloss: 0.043467581633086956
iteration: 87 Logisticloss: 0.04320585258471593
iteration: 88 Logisticloss: 0.0429458409616097
iteration: 89 Logisticloss: 0.042687533109299264
iteration: 90 Logisticloss: 0.04243091554519373
iteration: 91 Logisticloss: 0.042175974955631385
iteration: 92 Logisticloss: 0.041922698193060735
iteration: 93 Logisticloss: 0.04167107227333701
iteration: 94 Logisticloss: 0.041421084373123106
iteration: 95 Logisticloss: 0.04117272182738321
iteration: 96 Logisticloss: 0.040925972126960704

Output_logistic_train.txt

iteration: 97 Logisticloss: 0.040680822916231645
iteration: 98 Logisticloss: 0.04043726199082711
iteration: 99 Logisticloss: 0.04019527729541819
[-1.06026328e-03 -1.35920977e-04 -5.23483788e-04 ... 7.12942901e-05
4.73845904e-05 2.76552746e-04]

CROSS VALIDATION 14

iteration: 0 Logisticloss: 7.871277653759692
iteration: 1 Logisticloss: 0.07538110987373542
iteration: 2 Logisticloss: 0.06222681119274688
iteration: 3 Logisticloss: 0.06143301148120278
iteration: 4 Logisticloss: 0.06077549705496289
iteration: 5 Logisticloss: 0.06019634950800726
iteration: 6 Logisticloss: 0.05966785013164465
iteration: 7 Logisticloss: 0.05917470603307546
iteration: 8 Logisticloss: 0.05870765107582502
iteration: 9 Logisticloss: 0.05826068236883921
iteration: 10 Logisticloss: 0.057829710007038376
iteration: 11 Logisticloss: 0.05741183516866351
iteration: 12 Logisticloss: 0.05700493663350567
iteration: 13 Logisticloss: 0.056607420678687
iteration: 14 Logisticloss: 0.05621806293959048
iteration: 15 Logisticloss: 0.05583590467216376
iteration: 16 Logisticloss: 0.055460182555203304
iteration: 17 Logisticloss: 0.05509027990850563
iteration: 18 Logisticloss: 0.05472569200318089
iteration: 19 Logisticloss: 0.05436600089053035
iteration: 20 Logisticloss: 0.05401085680936491
iteration: 21 Logisticloss: 0.0536599642329678
iteration: 22 Logisticloss: 0.05331307124801636
iteration: 23 Logisticloss: 0.052969961365491126
iteration: 24 Logisticloss: 0.05263044713287589
iteration: 25 Logisticloss: 0.05229436509835896
iteration: 26 Logisticloss: 0.05196157180218023
iteration: 27 Logisticloss: 0.051631940557026135
iteration: 28 Logisticloss: 0.0513053588407771
iteration: 29 Logisticloss: 0.050981726168969003
iteration: 30 Logisticloss: 0.050660952346342006
iteration: 31 Logisticloss: 0.05034295602038674
iteration: 32 Logisticloss: 0.050027663477285295
iteration: 33 Logisticloss: 0.04971500763377773
iteration: 34 Logisticloss: 0.04940492718843039
iteration: 35 Logisticloss: 0.0490973659033917
iteration: 36 Logisticloss: 0.048792271993579994
iteration: 37 Logisticloss: 0.04848959760480448
iteration: 38 Logisticloss: 0.048189298365880255
iteration: 39 Logisticloss: 0.04789133300260745
iteration: 40 Logisticloss: 0.0475956630037076
iteration: 41 Logisticloss: 0.047302252330587845
iteration: 42 Logisticloss: 0.04701106716422615
iteration: 43 Logisticloss: 0.04672207568362164
iteration: 44 Logisticloss: 0.046435247871185595
iteration: 45 Logisticloss: 0.04615055534120835

Output_logistic_train.txt

```

iteration: 46 Logisticloss: 0.045867971188160564
iteration: 47 Logisticloss: 0.04558746985209828
iteration: 48 Logisticloss: 0.04530902699886479
iteration: 49 Logisticloss: 0.045032619413132906
iteration: 50 Logisticloss: 0.04475822490262404
iteration: 51 Logisticloss: 0.044485822212084365
iteration: 52 Logisticloss: 0.044215390945803214
iteration: 53 Logisticloss: 0.043946911497632225
iteration: 54 Logisticloss: 0.0436803649876087
iteration: 55 Logisticloss: 0.04341573320441075
iteration: 56 Logisticloss: 0.04315299855297612
iteration: 57 Logisticloss: 0.04289214400670733
iteration: 58 Logisticloss: 0.0426331530637603
iteration: 59 Logisticloss: 0.04237600970698095
iteration: 60 Logisticloss: 0.042120698367109535
iteration: 61 Logisticloss: 0.041867203888920956
iteration: 62 Logisticloss: 0.041615511500011804
iteration: 63 Logisticloss: 0.04136560678197978
iteration: 64 Logisticloss: 0.04111747564377385
iteration: 65 Logisticloss: 0.040871104297019255
iteration: 66 Logisticloss: 0.04062647923314647
iteration: 67 Logisticloss: 0.040383587202172624
iteration: 68 Logisticloss: 0.04014241519300195
iteration: 69 Logisticloss: 0.039902950415128785
iteration: 70 Logisticloss: 0.03966518028163801
iteration: 71 Logisticloss: 0.03942909239341125
iteration: 72 Logisticloss: 0.03919467452445796
iteration: 73 Logisticloss: 0.03896191460829729
iteration: 74 Logisticloss: 0.03873080072532777
iteration: 75 Logisticloss: 0.03850132109112554
iteration: 76 Logisticloss: 0.038273464045620396
iteration: 77 Logisticloss: 0.03804721804310233
iteration: 78 Logisticloss: 0.037822571643016896
iteration: 79 Logisticloss: 0.03759951350151124
iteration: 80 Logisticloss: 0.037378032363695496
iteration: 81 Logisticloss: 0.03715811705658758
iteration: 82 Logisticloss: 0.03693975648271238
iteration: 83 Logisticloss: 0.03672293961432647
iteration: 84 Logisticloss: 0.03650765548824346
iteration: 85 Logisticloss: 0.03629389320123467
iteration: 86 Logisticloss: 0.03608164190598176
iteration: 87 Logisticloss: 0.035870890807558335
iteration: 88 Logisticloss: 0.035661629160418803
iteration: 89 Logisticloss: 0.03545384626587222
iteration: 90 Logisticloss: 0.035247531470019994
iteration: 91 Logisticloss: 0.03504267416213631
iteration: 92 Logisticloss: 0.03483926377346928
iteration: 93 Logisticloss: 0.034637289776442294
iteration: 94 Logisticloss: 0.03443674168423339
iteration: 95 Logisticloss: 0.03423760905071133
iteration: 96 Logisticloss: 0.034039881470705996
iteration: 97 Logisticloss: 0.03384354858059135

```

Output_logistic_train.txt

iteration: 98 Logisticloss: 0.03364860005915792
iteration: 99 Logisticloss: 0.03345502562875256
[-0.00068874 0.00048161 -0.0002709 ... 0.00018159 -0.00015351
0.00029687]

CROSS VALIDATION 15

iteration: 0 Logisticloss: 7.919527245786216
iteration: 1 Logisticloss: 0.07723551494489352
iteration: 2 Logisticloss: 0.06367314340578652
iteration: 3 Logisticloss: 0.06261996207820998
iteration: 4 Logisticloss: 0.06179045375732868
iteration: 5 Logisticloss: 0.061088446763199876
iteration: 6 Logisticloss: 0.06046761009112671
iteration: 7 Logisticloss: 0.05990244258937323
iteration: 8 Logisticloss: 0.05937758875798042
iteration: 9 Logisticloss: 0.058883179050654134
iteration: 10 Logisticloss: 0.058412546234901164
iteration: 11 Logisticloss: 0.057961005504042984
iteration: 12 Logisticloss: 0.0575251579400656
iteration: 13 Logisticloss: 0.05710247106306045
iteration: 14 Logisticloss: 0.05669101498792952
iteration: 15 Logisticloss: 0.05628929030794668
iteration: 16 Logisticloss: 0.055896112292071656
iteration: 17 Logisticloss: 0.055510530872404394
iteration: 18 Logisticloss: 0.05513177406733853
iteration: 19 Logisticloss: 0.05475920715538194
iteration: 20 Logisticloss: 0.054392302680074736
iteration: 21 Logisticloss: 0.05403061805603025
iteration: 22 Logisticloss: 0.05367377860718599
iteration: 23 Logisticloss: 0.053321464551212526
iteration: 24 Logisticloss: 0.0529734008932535
iteration: 25 Logisticloss: 0.05262934949360794
iteration: 26 Logisticloss: 0.05228910277990481
iteration: 27 Logisticloss: 0.05195247871733758
iteration: 28 Logisticloss: 0.05161931675134752
iteration: 29 Logisticloss: 0.05128947450920421
iteration: 30 Logisticloss: 0.05096282509909488
iteration: 31 Logisticloss: 0.05063925488353881
iteration: 32 Logisticloss: 0.05031866163223353
iteration: 33 Logisticloss: 0.05000095298060024
iteration: 34 Logisticloss: 0.049686045136277314
iteration: 35 Logisticloss: 0.04937386178798482
iteration: 36 Logisticloss: 0.04906433318053581
iteration: 37 Logisticloss: 0.04875739532701399
iteration: 38 Logisticloss: 0.04845298933478264
iteration: 39 Logisticloss: 0.04815106082642954
iteration: 40 Logisticloss: 0.04785155944025726
iteration: 41 Logisticloss: 0.04755443839771913
iteration: 42 Logisticloss: 0.047259654127434034
iteration: 43 Logisticloss: 0.04696716593720875
iteration: 44 Logisticloss: 0.046676935726950336
iteration: 45 Logisticloss: 0.04638892773653182
iteration: 46 Logisticloss: 0.04610310832364045

Output_logistic_train.txt

iteration: 47 Logisticloss: 0.04581944576742902
iteration: 48 Logisticloss: 0.04553791009444396
iteration: 49 Logisticloss: 0.04525847292384465
iteration: 50 Logisticloss: 0.04498110732937682
iteration: 51 Logisticloss: 0.04470578771593842
iteration: 52 Logisticloss: 0.04443248970888898
iteration: 53 Logisticloss: 0.04416119005451805
iteration: 54 Logisticloss: 0.043891866530310054
iteration: 55 Logisticloss: 0.04362449786383073
iteration: 56 Logisticloss: 0.04335906365922031
iteration: 57 Logisticloss: 0.04309554433041344
iteration: 58 Logisticloss: 0.042833921040322645
iteration: 59 Logisticloss: 0.04257417564532068
iteration: 60 Logisticloss: 0.04231629064444219
iteration: 61 Logisticloss: 0.042060249132798634
iteration: 62 Logisticloss: 0.04180603475876302
iteration: 63 Logisticloss: 0.041553631684536387
iteration: 64 Logisticloss: 0.04130302454975433
iteration: 65 Logisticloss: 0.04105419843783405
iteration: 66 Logisticloss: 0.04080713884479698
iteration: 67 Logisticloss: 0.04056183165033454
iteration: 68 Logisticloss: 0.04031826309091103
iteration: 69 Logisticloss: 0.04007641973472165
iteration: 70 Logisticloss: 0.03983628845834533
iteration: 71 Logisticloss: 0.03959785642494973
iteration: 72 Logisticloss: 0.0393611110639222
iteration: 73 Logisticloss: 0.039126040051815365
iteration: 74 Logisticloss: 0.038892631294508144
iteration: 75 Logisticloss: 0.03866087291049411
iteration: 76 Logisticloss: 0.038430753215219646
iteration: 77 Logisticloss: 0.03820226070640229
iteration: 78 Logisticloss: 0.03797538405026833
iteration: 79 Logisticloss: 0.037750112068654515
iteration: 80 Logisticloss: 0.03752643372692587
iteration: 81 Logisticloss: 0.037304338122666106
iteration: 82 Logisticloss: 0.037083814475102235
iteration: 83 Logisticloss: 0.03686485211522923
iteration: 84 Logisticloss: 0.03664744047660361
iteration: 85 Logisticloss: 0.036431569086778526
iteration: 86 Logisticloss: 0.03621722755935556
iteration: 87 Logisticloss: 0.03600440558663013
iteration: 88 Logisticloss: 0.0357930929328102
iteration: 89 Logisticloss: 0.0355832794277888
iteration: 90 Logisticloss: 0.03537495496145287
iteration: 91 Logisticloss: 0.035168109478511254
iteration: 92 Logisticloss: 0.03496273297382615
iteration: 93 Logisticloss: 0.03475881548823199
iteration: 94 Logisticloss: 0.03455634710482726
iteration: 95 Logisticloss: 0.03435531794572343
iteration: 96 Logisticloss: 0.03415571816923664
iteration: 97 Logisticloss: 0.03395753796750632
iteration: 98 Logisticloss: 0.03376076756452573

Output_logistic_train.txt

iteration: 99 Logisticloss: 0.03356539721456804
[-0.00071213 0.00047094 -0.00028203 ... 0.0001992 -0.00013947
0.00029935]

CROSS VALIDATION 16

iteration: 0 Logisticloss: 7.89629288222957
iteration: 1 Logisticloss: 0.06292583912659612
iteration: 2 Logisticloss: 0.06198727795527168
iteration: 3 Logisticloss: 0.06125474147194073
iteration: 4 Logisticloss: 0.060630238948372966
iteration: 5 Logisticloss: 0.06007163136676129
iteration: 6 Logisticloss: 0.05955715756150102
iteration: 7 Logisticloss: 0.05907422984137958
iteration: 8 Logisticloss: 0.05861497439760185
iteration: 9 Logisticloss: 0.05817417375636986
iteration: 10 Logisticloss: 0.05774821336591485
iteration: 11 Logisticloss: 0.05733449861149813
iteration: 12 Logisticloss: 0.05693111198678943
iteration: 13 Logisticloss: 0.05653660141026219
iteration: 14 Logisticloss: 0.05614984416267968
iteration: 15 Logisticloss: 0.05576995643506015
iteration: 16 Logisticloss: 0.05539623144745733
iteration: 17 Logisticloss: 0.055028096052806466
iteration: 18 Logisticloss: 0.05466507963959201
iteration: 19 Logisticloss: 0.05430679141988397
iteration: 20 Logisticloss: 0.0539529035591666
iteration: 21 Logisticloss: 0.05360313845473108
iteration: 22 Logisticloss: 0.053257259011202936
iteration: 23 Logisticloss: 0.05291506111510774
iteration: 24 Logisticloss: 0.05257636774567158
iteration: 25 Logisticloss: 0.05224102431872121
iteration: 26 Logisticloss: 0.05190889497077819
iteration: 27 Logisticloss: 0.05157985956773354
iteration: 28 Logisticloss: 0.05125381127747306
iteration: 29 Logisticloss: 0.0509306545854542
iteration: 30 Logisticloss: 0.05061030366115045
iteration: 31 Logisticloss: 0.05029268100461626
iteration: 32 Logisticloss: 0.049977716318334656
iteration: 33 Logisticloss: 0.04966534556148933
iteration: 34 Logisticloss: 0.049355510152906706
iteration: 35 Logisticloss: 0.04904815629588934
iteration: 36 Logisticloss: 0.04874323440355186
iteration: 37 Logisticloss: 0.04844069860746601
iteration: 38 Logisticloss: 0.0481405063357103
iteration: 39 Logisticloss: 0.04784261794901585
iteration: 40 Logisticloss: 0.04754699642576046
iteration: 41 Logisticloss: 0.047253607088211635
iteration: 42 Logisticloss: 0.04696241736374224
iteration: 43 Logisticloss: 0.046673396575811696
iteration: 44 Logisticloss: 0.04638651576037486
iteration: 45 Logisticloss: 0.046101747504089276
iteration: 46 Logisticloss: 0.045819065801272096
iteration: 47 Logisticloss: 0.04553844592703769

Output_logistic_train.txt

iteration: 48 Logisticloss: 0.04525986432444185
iteration: 49 Logisticloss: 0.044983298503787746
iteration: 50 Logisticloss: 0.04470872695252226
iteration: 51 Logisticloss: 0.04443612905438178
iteration: 52 Logisticloss: 0.044165485016637515
iteration: 53 Logisticloss: 0.043896775804453725
iteration: 54 Logisticloss: 0.04362998308150912
iteration: 55 Logisticloss: 0.04336508915614744
iteration: 56 Logisticloss: 0.04310207693242264
iteration: 57 Logisticloss: 0.042840929865488146
iteration: 58 Logisticloss: 0.04258163192085152
iteration: 59 Logisticloss: 0.04232416753707766
iteration: 60 Logisticloss: 0.04206852159157705
iteration: 61 Logisticloss: 0.041814679369160605
iteration: 62 Logisticloss: 0.04156262653308285
iteration: 63 Logisticloss: 0.04131234909832808
iteration: 64 Logisticloss: 0.04106383340692527
iteration: 65 Logisticloss: 0.04081706610510105
iteration: 66 Logisticloss: 0.04057203412210474
iteration: 67 Logisticloss: 0.04032872465055633
iteration: 68 Logisticloss: 0.040087125128187164
iteration: 69 Logisticloss: 0.03984722322085659
iteration: 70 Logisticloss: 0.039609006806741495
iteration: 71 Logisticloss: 0.039372463961606374
iteration: 72 Logisticloss: 0.039137582945071706
iteration: 73 Logisticloss: 0.03890435218780756
iteration: 74 Logisticloss: 0.038672760279585564
iteration: 75 Logisticloss: 0.03844279595813112
iteration: 76 Logisticloss: 0.038214448098721696
iteration: 77 Logisticloss: 0.037987705704483454
iteration: 78 Logisticloss: 0.037762557897342716
iteration: 79 Logisticloss: 0.03753899390959248
iteration: 80 Logisticloss: 0.037317003076038316
iteration: 81 Logisticloss: 0.03709657482669098
iteration: 82 Logisticloss: 0.03687769867997543
iteration: 83 Logisticloss: 0.03666036423642899
iteration: 84 Logisticloss: 0.036444561172863627
iteration: 85 Logisticloss: 0.0362302792369687
iteration: 86 Logisticloss: 0.036017508242332644
iteration: 87 Logisticloss: 0.03580623806386391
iteration: 88 Logisticloss: 0.035596458633592204
iteration: 89 Logisticloss: 0.035388159936832794
iteration: 90 Logisticloss: 0.035181332008697455
iteration: 91 Logisticloss: 0.03497596493093697
iteration: 92 Logisticloss: 0.03477204882910033
iteration: 93 Logisticloss: 0.03456957386999739
iteration: 94 Logisticloss: 0.034368530259451385
iteration: 95 Logisticloss: 0.03416890824032953
iteration: 96 Logisticloss: 0.03397069809083899
iteration: 97 Logisticloss: 0.03377389012307748
iteration: 98 Logisticloss: 0.0335784746818268
iteration: 99 Logisticloss: 0.03338444214357875

Output_logistic_train.txt

[-0.00069647 0.00046996 -0.00027662 ... 0.00019569 -0.00014058
0.0003042]

CROSS VALIDATION 17

iteration: 0 Logisticloss: 7.887313736112338
iteration: 1 Logisticloss: 0.07685167239666973
iteration: 2 Logisticloss: 0.06368093636835119
iteration: 3 Logisticloss: 0.06260768764447688
iteration: 4 Logisticloss: 0.061768453075197315
iteration: 5 Logisticloss: 0.061061089721875184
iteration: 6 Logisticloss: 0.060437087901308584
iteration: 7 Logisticloss: 0.05986998292995306
iteration: 8 Logisticloss: 0.05934393579520008
iteration: 9 Logisticloss: 0.05884881139723802
iteration: 10 Logisticloss: 0.05837778639017609
iteration: 11 Logisticloss: 0.05792607917753341
iteration: 12 Logisticloss: 0.05749022821267617
iteration: 13 Logisticloss: 0.0570676590477516
iteration: 14 Logisticloss: 0.056656412843896456
iteration: 15 Logisticloss: 0.056254969724142505
iteration: 16 Logisticloss: 0.05586213018171954
iteration: 17 Logisticloss: 0.05547693329336138
iteration: 18 Logisticloss: 0.055098598981235467
iteration: 19 Logisticloss: 0.05472648640743952
iteration: 20 Logisticloss: 0.054360063444158814
iteration: 21 Logisticloss: 0.05399888390541489
iteration: 22 Logisticloss: 0.05364257031862122
iteration: 23 Logisticloss: 0.0532908007158626
iteration: 24 Logisticloss: 0.05294329838569695
iteration: 25 Logisticloss: 0.052599823835095906
iteration: 26 Logisticloss: 0.052260168421847046
iteration: 27 Logisticloss: 0.05192414926389984
iteration: 28 Logisticloss: 0.0515916051350609
iteration: 29 Logisticloss: 0.0512623931299367
iteration: 30 Logisticloss: 0.05093638593417354
iteration: 31 Logisticloss: 0.05061346957494108
iteration: 32 Logisticloss: 0.05029354155538697
iteration: 33 Logisticloss: 0.04997650929830385
iteration: 34 Logisticloss: 0.04966228884048334
iteration: 35 Logisticloss: 0.049350803731596254
iteration: 36 Logisticloss: 0.04904198410092662
iteration: 37 Logisticloss: 0.048735765862634305
iteration: 38 Logisticloss: 0.04843209003594529
iteration: 39 Logisticloss: 0.04813090216116498
iteration: 40 Logisticloss: 0.0478321517959614
iteration: 41 Logisticloss: 0.04753579207918985
iteration: 42 Logisticloss: 0.04724177935179017
iteration: 43 Logisticloss: 0.04695007282610409
iteration: 44 Logisticloss: 0.04666063429643113
iteration: 45 Logisticloss: 0.04637342788483452
iteration: 46 Logisticloss: 0.046088419817184596
iteration: 47 Logisticloss: 0.04580557822522758
iteration: 48 Logisticloss: 0.045524872971127145

Output_logistic_train.txt

```

iteration: 49 Logisticloss: 0.0452462754914712
iteration: 50 Logisticloss: 0.04496975865819062
iteration: 51 Logisticloss: 0.04469529665421434
iteration: 52 Logisticloss: 0.04442286486200203
iteration: 53 Logisticloss: 0.04415243976336069
iteration: 54 Logisticloss: 0.043883998849177125
iteration: 55 Logisticloss: 0.04361752053788596
iteration: 56 Logisticloss: 0.04335298410165514
iteration: 57 Logisticloss: 0.043090369599406354
iteration: 58 Logisticloss: 0.042829657815905316
iteration: 59 Logisticloss: 0.042570830206256016
iteration: 60 Logisticloss: 0.04231386884521885
iteration: 61 Logisticloss: 0.04205875638084609
iteration: 62 Logisticloss: 0.04180547599199131
iteration: 63 Logisticloss: 0.041554011349303886
iteration: 64 Logisticloss: 0.0413043465793682
iteration: 65 Logisticloss: 0.04105646623168606
iteration: 66 Logisticloss: 0.04081035524823878
iteration: 67 Logisticloss: 0.04056599893539496
iteration: 68 Logisticloss: 0.04032338293795703
iteration: 69 Logisticloss: 0.040082493215164154
iteration: 70 Logisticloss: 0.03984331601848876
iteration: 71 Logisticloss: 0.03960583787108212
iteration: 72 Logisticloss: 0.03937004554874084
iteration: 73 Logisticloss: 0.03913592606227898
iteration: 74 Logisticloss: 0.03890346664120322
iteration: 75 Logisticloss: 0.03867265471859912
iteration: 76 Logisticloss: 0.038443477917145495
iteration: 77 Logisticloss: 0.03821592403618241
iteration: 78 Logisticloss: 0.03798998103976533
iteration: 79 Logisticloss: 0.03776563704564389
iteration: 80 Logisticloss: 0.0375428803151101
iteration: 81 Logisticloss: 0.037321699243664505
iteration: 82 Logisticloss: 0.037102082352453915
iteration: 83 Logisticloss: 0.03688401828043721
iteration: 84 Logisticloss: 0.036667495777239496
iteration: 85 Logisticloss: 0.036452503696657104
iteration: 86 Logisticloss: 0.03623903099077865
iteration: 87 Logisticloss: 0.03602706670468913
iteration: 88 Logisticloss: 0.03581659997172587
iteration: 89 Logisticloss: 0.03560762000925663
iteration: 90 Logisticloss: 0.035400116114951245
iteration: 91 Logisticloss: 0.035194077663519535
iteration: 92 Logisticloss: 0.034989494103888616
iteration: 93 Logisticloss: 0.03478635495679406
iteration: 94 Logisticloss: 0.034584649812759445
iteration: 95 Logisticloss: 0.034384368330439535
iteration: 96 Logisticloss: 0.03418550023530285
iteration: 97 Logisticloss: 0.03398803531862975
iteration: 98 Logisticloss: 0.03379196343680203
iteration: 99 Logisticloss: 0.033597274510861065
[-0.00071182 0.00047016 -0.00028054 ... 0.0001971 -0.0001384

```


0.00030006]

CROSS VALIDATION 18

| | | | |
|------------|----|---------------|----------------------|
| iteration: | 0 | Logisticloss: | 7.00193745681463 |
| iteration: | 1 | Logisticloss: | 0.06706127793400525 |
| iteration: | 2 | Logisticloss: | 0.06559196981712684 |
| iteration: | 3 | Logisticloss: | 0.06449486699546063 |
| iteration: | 4 | Logisticloss: | 0.06359929479609547 |
| iteration: | 5 | Logisticloss: | 0.06282948004801804 |
| iteration: | 6 | Logisticloss: | 0.06214501507191331 |
| iteration: | 7 | Logisticloss: | 0.061521894382992395 |
| iteration: | 8 | Logisticloss: | 0.06094477998330325 |
| iteration: | 9 | Logisticloss: | 0.06040333713569756 |
| iteration: | 10 | Logisticloss: | 0.059890311772395864 |
| iteration: | 11 | Logisticloss: | 0.059400443211310175 |
| iteration: | 12 | Logisticloss: | 0.058929812700765076 |
| iteration: | 13 | Logisticloss: | 0.058475434666794425 |
| iteration: | 14 | Logisticloss: | 0.05803499034991272 |
| iteration: | 15 | Logisticloss: | 0.05760664863646597 |
| iteration: | 16 | Logisticloss: | 0.05718894223918106 |
| iteration: | 17 | Logisticloss: | 0.05678068010606071 |
| iteration: | 18 | Logisticloss: | 0.056380884179336385 |
| iteration: | 19 | Logisticloss: | 0.055988742904740735 |
| iteration: | 20 | Logisticloss: | 0.055603576501712326 |
| iteration: | 21 | Logisticloss: | 0.05522481064334871 |
| iteration: | 22 | Logisticloss: | 0.05485195624903665 |
| iteration: | 23 | Logisticloss: | 0.05448459378625035 |
| iteration: | 24 | Logisticloss: | 0.054122360943564374 |
| iteration: | 25 | Logisticloss: | 0.05376494285514298 |
| iteration: | 26 | Logisticloss: | 0.0534120642780737 |
| iteration: | 27 | Logisticloss: | 0.053063483279872765 |
| iteration: | 28 | Logisticloss: | 0.05271898610502078 |
| iteration: | 29 | Logisticloss: | 0.05237838297016564 |
| iteration: | 30 | Logisticloss: | 0.05204150459682405 |
| iteration: | 31 | Logisticloss: | 0.05170819933426662 |
| iteration: | 32 | Logisticloss: | 0.051378330758088314 |
| iteration: | 33 | Logisticloss: | 0.05105177565475766 |
| iteration: | 34 | Logisticloss: | 0.05072842232133373 |
| iteration: | 35 | Logisticloss: | 0.050408169124058745 |
| iteration: | 36 | Logisticloss: | 0.050090923270780796 |
| iteration: | 37 | Logisticloss: | 0.04977659976093344 |
| iteration: | 38 | Logisticloss: | 0.04946512048369061 |
| iteration: | 39 | Logisticloss: | 0.049156413440364255 |
| iteration: | 40 | Logisticloss: | 0.04885041207144787 |
| iteration: | 41 | Logisticloss: | 0.04854705467217682 |
| iteration: | 42 | Logisticloss: | 0.04824628388326928 |
| iteration: | 43 | Logisticloss: | 0.047948046245768226 |
| iteration: | 44 | Logisticloss: | 0.04765229181074171 |
| iteration: | 45 | Logisticloss: | 0.04735897379609766 |
| iteration: | 46 | Logisticloss: | 0.0470680482839995 |
| iteration: | 47 | Logisticloss: | 0.046779473953383846 |
| iteration: | 48 | Logisticloss: | 0.04649321184292005 |
| iteration: | 49 | Logisticloss: | 0.04620922514044848 |

Output_logistic_train.txt

```

iteration: 50 Logisticloss: 0.04592747899551617
iteration: 51 Logisticloss: 0.045647940352115245
iteration: 52 Logisticloss: 0.045370577799137286
iteration: 53 Logisticloss: 0.045095361436402685
iteration: 54 Logisticloss: 0.04482226275441386
iteration: 55 Logisticloss: 0.04455125452622873
iteration: 56 Logisticloss: 0.04428231071006064
iteration: 57 Logisticloss: 0.04401540636139019
iteration: 58 Logisticloss: 0.04375051755352729
iteration: 59 Logisticloss: 0.04348762130569308
iteration: 60 Logisticloss: 0.04322669551780487
iteration: 61 Logisticloss: 0.04296771891124369
iteration: 62 Logisticloss: 0.042710670974969125
iteration: 63 Logisticloss: 0.04245553191641823
iteration: 64 Logisticloss: 0.04220228261668916
iteration: 65 Logisticloss: 0.041950904589565324
iteration: 66 Logisticloss: 0.04170137994398363
iteration: 67 Logisticloss: 0.041453691349593064
iteration: 68 Logisticloss: 0.041207822005086665
iteration: 69 Logisticloss: 0.04096375560902256
iteration: 70 Logisticloss: 0.04072147633287865
iteration: 71 Logisticloss: 0.04048096879611104
iteration: 72 Logisticloss: 0.04024221804300915
iteration: 73 Logisticloss: 0.040005209521160004
iteration: 74 Logisticloss: 0.03976992906135362
iteration: 75 Logisticloss: 0.03953636285877646
iteration: 76 Logisticloss: 0.039304497455355025
iteration: 77 Logisticloss: 0.0390743197231252
iteration: 78 Logisticloss: 0.03884581684851476
iteration: 79 Logisticloss: 0.038618976317437305
iteration: 80 Logisticloss: 0.038393785901106134
iteration: 81 Logisticloss: 0.03817023364248595
iteration: 82 Logisticloss: 0.03794830784330846
iteration: 83 Logisticloss: 0.03772799705158567
iteration: 84 Logisticloss: 0.03750929004956246
iteration: 85 Logisticloss: 0.03729217584205634
iteration: 86 Logisticloss: 0.03707664364513867
iteration: 87 Logisticloss: 0.03686268287511708
iteration: 88 Logisticloss: 0.03665028313778521
iteration: 89 Logisticloss: 0.03643943421790971
iteration: 90 Logisticloss: 0.03623012606893007
iteration: 91 Logisticloss: 0.036022348802850886
iteration: 92 Logisticloss: 0.03581609268031021
iteration: 93 Logisticloss: 0.03561134810081149
iteration: 94 Logisticloss: 0.03540810559311012
iteration: 95 Logisticloss: 0.035206355805748914
iteration: 96 Logisticloss: 0.03500608949773965
iteration: 97 Logisticloss: 0.034807297529390636
iteration: 98 Logisticloss: 0.034609970853282726
iteration: 99 Logisticloss: 0.034414100505398684
[-0.00065124 -0.00017791 -0.0011938 ... 0.00070459 -0.00012505
 0.00025022]

```

CROSS VALIDATION 19

iteration: 0 Logisticloss: 7.720634875982017
iteration: 1 Logisticloss: 0.07586722669690957
iteration: 2 Logisticloss: 0.06187522899180766
iteration: 3 Logisticloss: 0.06085364101771455
iteration: 4 Logisticloss: 0.060041275138934765
iteration: 5 Logisticloss: 0.05935159013487736
iteration: 6 Logisticloss: 0.05874140469568718
iteration: 7 Logisticloss: 0.05818638472703555
iteration: 8 Logisticloss: 0.05767162920807368
iteration: 9 Logisticloss: 0.05718744104449022
iteration: 10 Logisticloss: 0.056727207737136076
iteration: 11 Logisticloss: 0.0562862493898308
iteration: 12 Logisticloss: 0.05586115171531059
iteration: 13 Logisticloss: 0.055449359797169855
iteration: 14 Logisticloss: 0.05504892015964097
iteration: 15 Logisticloss: 0.05465831119571117
iteration: 16 Logisticloss: 0.0542763283304728
iteration: 17 Logisticloss: 0.0539020042384792
iteration: 18 Logisticloss: 0.053534552165643325
iteration: 19 Logisticloss: 0.05317332486704934
iteration: 20 Logisticloss: 0.05281778433565463
iteration: 21 Logisticloss: 0.052467479135961656
iteration: 22 Logisticloss: 0.05212202719264984
iteration: 23 Logisticloss: 0.051781102554592
iteration: 24 Logisticloss: 0.05144442509794723
iteration: 25 Logisticloss: 0.05111175243078862
iteration: 26 Logisticloss: 0.0507828734666577
iteration: 27 Logisticloss: 0.05045760327726121
iteration: 28 Logisticloss: 0.05013577893553767
iteration: 29 Logisticloss: 0.049817256132721796
iteration: 30 Logisticloss: 0.049501906405581955
iteration: 31 Logisticloss: 0.049189614848581226
iteration: 32 Logisticloss: 0.04888027821433679
iteration: 33 Logisticloss: 0.048573803327204804
iteration: 34 Logisticloss: 0.04827010575104414
iteration: 35 Logisticloss: 0.04796910866459579
iteration: 36 Logisticloss: 0.047670741907438044
iteration: 37 Logisticloss: 0.04737494116686394
iteration: 38 Logisticloss: 0.0470816472817916
iteration: 39 Logisticloss: 0.04679080564435164
iteration: 40 Logisticloss: 0.04650236568338349
iteration: 41 Logisticloss: 0.04621628041692572
iteration: 42 Logisticloss: 0.045932506063073836
iteration: 43 Logisticloss: 0.04565100170041839
iteration: 44 Logisticloss: 0.04537172897076688
iteration: 45 Logisticloss: 0.04509465181806267
iteration: 46 Logisticloss: 0.044819736258406684
iteration: 47 Logisticloss: 0.04454695017689739
iteration: 48 Logisticloss: 0.04427626314767691
iteration: 49 Logisticloss: 0.04400764627412313
iteration: 50 Logisticloss: 0.04374107204658971

Output_logistic_train.txt

```

iteration: 51 Logisticloss: 0.04347651421547939
iteration: 52 Logisticloss: 0.043213947677756916
iteration: 53 Logisticloss: 0.04295334837527828
iteration: 54 Logisticloss: 0.04269469320353961
iteration: 55 Logisticloss: 0.04243795992964111
iteration: 56 Logisticloss: 0.0421831271184242
iteration: 57 Logisticloss: 0.04193017406587707
iteration: 58 Logisticloss: 0.04167908073902282
iteration: 59 Logisticloss: 0.041429827721603425
iteration: 60 Logisticloss: 0.0411823961649589
iteration: 61 Logisticloss: 0.04093676774357496
iteration: 62 Logisticloss: 0.04069292461483508
iteration: 63 Logisticloss: 0.04045084938256742
iteration: 64 Logisticloss: 0.040210525064024366
iteration: 65 Logisticloss: 0.039971935059971896
iteration: 66 Logisticloss: 0.03973506312760236
iteration: 67 Logisticloss: 0.0394998933560136
iteration: 68 Logisticloss: 0.039266410144024363
iteration: 69 Logisticloss: 0.03903459818011843
iteration: 70 Logisticloss: 0.03880444242433071
iteration: 71 Logisticloss: 0.03857592809190544
iteration: 72 Logisticloss: 0.03834904063857215
iteration: 73 Logisticloss: 0.038123765747299095
iteration: 74 Logisticloss: 0.03790008931639501
iteration: 75 Logisticloss: 0.03767799744884179
iteration: 76 Logisticloss: 0.03745747644274877
iteration: 77 Logisticloss: 0.03723851278282886
iteration: 78 Logisticloss: 0.0370210931328041
iteration: 79 Logisticloss: 0.03680520432865466
iteration: 80 Logisticloss: 0.03659083337263208
iteration: 81 Logisticloss: 0.03637796742796312
iteration: 82 Logisticloss: 0.03616659381417552
iteration: 83 Logisticloss: 0.03595670000298264
iteration: 84 Logisticloss: 0.03574827361466749
iteration: 85 Logisticloss: 0.0355413024149119
iteration: 86 Logisticloss: 0.03533577431201977
iteration: 87 Logisticloss: 0.03513167735448783
iteration: 88 Logisticloss: 0.034928999728880264
iteration: 89 Logisticloss: 0.03472772975796784
iteration: 90 Logisticloss: 0.034527855899094274
iteration: 91 Logisticloss: 0.03432936674273704
iteration: 92 Logisticloss: 0.0341322510112316
iteration: 93 Logisticloss: 0.03393649755763179
iteration: 94 Logisticloss: 0.033742095364681084
iteration: 95 Logisticloss: 0.033549033543872585
iteration: 96 Logisticloss: 0.03335730133457786
iteration: 97 Logisticloss: 0.0331668881032268
iteration: 98 Logisticloss: 0.032977783342523444
iteration: 99 Logisticloss: 0.032789976670684035
[-0.00084464 0.00047144 -0.0003545 ... 0.00017396 -0.00015344
 0.0003167 ]
Accuracy (Logistic Loss): 0.95

```

Output_logistic_train.txt

eta = 0.0001 lambda = 0.1

CROSS VALIDATION 0

```
iteration: 0 Logisticloss: 5.862983307459211
iteration: 1 Logisticloss: 0.02650219172694015
iteration: 2 Logisticloss: 0.024486824212663603
iteration: 3 Logisticloss: 0.023749804716050486
iteration: 4 Logisticloss: 0.02330678433713447
iteration: 5 Logisticloss: 0.02299248818325142
iteration: 6 Logisticloss: 0.022748992040360093
iteration: 7 Logisticloss: 0.022549693593479865
iteration: 8 Logisticloss: 0.022380332713235106
iteration: 9 Logisticloss: 0.02223244344122962
iteration: 10 Logisticloss: 0.022100619535981088
iteration: 11 Logisticloss: 0.021981214320954446
iteration: 12 Logisticloss: 0.0218716608393845
iteration: 13 Logisticloss: 0.021770089419555595
```

Convergence reached in 14 iterations

```
[-1.85132182e-04 9.26818680e-04 3.73272866e-04 ... 4.89534350e-04
-4.24159246e-05 3.19411756e-04]
```

CROSS VALIDATION 1

```
iteration: 0 Logisticloss: 9.093617960582295
iteration: 1 Logisticloss: 0.03635640425806361
iteration: 2 Logisticloss: 0.028820552957589396
iteration: 3 Logisticloss: 0.026845676526283623
iteration: 4 Logisticloss: 0.02569899892456206
iteration: 5 Logisticloss: 0.024913627319877285
iteration: 6 Logisticloss: 0.024327713782734243
iteration: 7 Logisticloss: 0.02386643675815369
iteration: 8 Logisticloss: 0.023489392144700128
iteration: 9 Logisticloss: 0.02317246970466342
iteration: 10 Logisticloss: 0.02290023339230401
iteration: 11 Logisticloss: 0.022662267503638665
iteration: 12 Logisticloss: 0.02245125071049305
iteration: 13 Logisticloss: 0.022261865308047652
iteration: 14 Logisticloss: 0.022090143524213818
iteration: 15 Logisticloss: 0.02193305738515612
iteration: 16 Logisticloss: 0.021788251434950154
iteration: 17 Logisticloss: 0.02165386288887897
iteration: 18 Logisticloss: 0.021528397262605012
iteration: 19 Logisticloss: 0.02141064030440172
iteration: 20 Logisticloss: 0.02129959432918931
iteration: 21 Logisticloss: 0.021194431344578324
```

Convergence reached in 22 iterations

```
[-0.00093265 0.0005723 -0.00040855 ... 0.00024942 -0.00023272
0.00037661]
```

CROSS VALIDATION 2

```
iteration: 0 Logisticloss: 2.582199419048423
iteration: 1 Logisticloss: 0.024581465789795573
iteration: 2 Logisticloss: 0.023500223333583824
iteration: 3 Logisticloss: 0.02292591601803303
iteration: 4 Logisticloss: 0.022553553428519165
iteration: 5 Logisticloss: 0.02228455487210548
```

Output_logistic_train.txt

iteration: 6 Logisticloss: 0.022076185899160317
iteration: 7 Logisticloss: 0.02190665083758622
iteration: 8 Logisticloss: 0.02176358593604534
iteration: 9 Logisticloss: 0.02163942475080767
iteration: 10 Logisticloss: 0.021529263949479512
Convergence reached in 11 iterations
[-0.0015093 -0.0005385 -0.00074727 ... 0.00083707 0.00048505
0.00029186]

CROSS VALIDATION 3

iteration: 0 Logisticloss: 8.004847474114653
iteration: 1 Logisticloss: 0.03846056973450461
iteration: 2 Logisticloss: 0.02435994104698299
iteration: 3 Logisticloss: 0.023625414630266538
iteration: 4 Logisticloss: 0.02311195731503805
iteration: 5 Logisticloss: 0.02272426673437641
iteration: 6 Logisticloss: 0.022416142573094176
iteration: 7 Logisticloss: 0.022162051735486517
iteration: 8 Logisticloss: 0.02194657541119604
iteration: 9 Logisticloss: 0.02175978289133843
iteration: 10 Logisticloss: 0.021594955790301254
iteration: 11 Logisticloss: 0.02144736879175108
iteration: 12 Logisticloss: 0.021313591818938524
iteration: 13 Logisticloss: 0.021191068968902084
iteration: 14 Logisticloss: 0.021077853198750284
iteration: 15 Logisticloss: 0.0209724329881048
Convergence reached in 16 iterations
[-0.0009226 0.00065226 -0.00038165 ... 0.00026069 -0.00019924
0.00040005]

CROSS VALIDATION 4

iteration: 0 Logisticloss: 7.857690001916195
iteration: 1 Logisticloss: 0.03745637390423957
iteration: 2 Logisticloss: 0.024462229169448457
iteration: 3 Logisticloss: 0.023679116782809304
iteration: 4 Logisticloss: 0.02313994044216065
iteration: 5 Logisticloss: 0.022736628209027464
iteration: 6 Logisticloss: 0.022418153498457483
iteration: 7 Logisticloss: 0.022156777623317157
iteration: 8 Logisticloss: 0.02193593974783959
iteration: 9 Logisticloss: 0.021745062728777194
iteration: 10 Logisticloss: 0.02157703691372079
iteration: 11 Logisticloss: 0.02142688744848745
iteration: 12 Logisticloss: 0.021291018282653857
iteration: 13 Logisticloss: 0.02116675924675051
iteration: 14 Logisticloss: 0.021052082327988053
iteration: 15 Logisticloss: 0.020945417207811762
Convergence reached in 16 iterations
[-0.00090386 0.00066933 -0.00036564 ... 0.00024581 -0.00019969
0.00040082]

CROSS VALIDATION 5

iteration: 0 Logisticloss: 6.636791717929259
iteration: 1 Logisticloss: 0.0237997710277018
iteration: 2 Logisticloss: 0.0232412297127575

Output_logistic_train.txt

```
iteration: 3 Logisticloss: 0.022861323833996618
iteration: 4 Logisticloss: 0.022576244729472755
iteration: 5 Logisticloss: 0.022348877600040697
iteration: 6 Logisticloss: 0.022159766721227124
iteration: 7 Logisticloss: 0.021997563220434863
iteration: 8 Logisticloss: 0.021855133418226286
iteration: 9 Logisticloss: 0.02172773676074938
iteration: 10 Logisticloss: 0.021612083878259962
iteration: 11 Logisticloss: 0.021505811851298483
Convergence reached in 12 iterations
[-6.17937732e-04  8.10348842e-04 -3.90494554e-04 ...  6.57896974e-05
 -1.51828458e-04  5.13920976e-04]
```

CROSS VALIDATION 6

```
iteration: 0 Logisticloss: 7.851672833685031
iteration: 1 Logisticloss: 0.03740051868637707
iteration: 2 Logisticloss: 0.024466661782723928
iteration: 3 Logisticloss: 0.023681384114234694
iteration: 4 Logisticloss: 0.023141166885367687
iteration: 5 Logisticloss: 0.022737270569028214
iteration: 6 Logisticloss: 0.022418436326874507
iteration: 7 Logisticloss: 0.022156825597121836
iteration: 8 Logisticloss: 0.021935828254841732
iteration: 9 Logisticloss: 0.021744840334471036
iteration: 10 Logisticloss: 0.021576736477446325
iteration: 11 Logisticloss: 0.02142653209251625
iteration: 12 Logisticloss: 0.02129062481048449
iteration: 13 Logisticloss: 0.02116634020514033
iteration: 14 Logisticloss: 0.02105164730537508
iteration: 15 Logisticloss: 0.020944973681878337
Convergence reached in 16 iterations
[-0.00090425  0.00066994 -0.00036529 ...  0.00024529 -0.00019974
 0.00040092]
```

CROSS VALIDATION 7

```
iteration: 0 Logisticloss: 7.872222478563851
iteration: 1 Logisticloss: 0.03752498352704973
iteration: 2 Logisticloss: 0.024390113444575832
iteration: 3 Logisticloss: 0.02361644139721198
iteration: 4 Logisticloss: 0.02308150843645585
iteration: 5 Logisticloss: 0.022680330372914767
iteration: 6 Logisticloss: 0.022362981036268974
iteration: 7 Logisticloss: 0.022102195465683927
iteration: 8 Logisticloss: 0.02188164352807098
iteration: 9 Logisticloss: 0.021690870696856608
iteration: 10 Logisticloss: 0.021522836881410278
iteration: 11 Logisticloss: 0.021372608725702513
iteration: 12 Logisticloss: 0.021236615935674687
iteration: 13 Logisticloss: 0.021112204840506747
iteration: 14 Logisticloss: 0.020997358266000903
iteration: 15 Logisticloss: 0.020890513157925162
iteration: 16 Logisticloss: 0.020790438073459275
Convergence reached in 17 iterations
[-0.0009017  0.00066709 -0.00036637 ...  0.00024554 -0.00020178]
```

Output_logistic_train.txt

0.00040024]

CROSS VALIDATION 8

iteration: 0 Logisticloss: 7.852666982385376
iteration: 1 Logisticloss: 0.03779191668971928
iteration: 2 Logisticloss: 0.02444789940429353
iteration: 3 Logisticloss: 0.0236739535788473
iteration: 4 Logisticloss: 0.023139113427155345
iteration: 5 Logisticloss: 0.02273817823002742
iteration: 6 Logisticloss: 0.02242112934813121
iteration: 7 Logisticloss: 0.02216066118579673
iteration: 8 Logisticloss: 0.021940424840368462
iteration: 9 Logisticloss: 0.021749956890058326
iteration: 10 Logisticloss: 0.02158221310286112
iteration: 11 Logisticloss: 0.02143225838765416
iteration: 12 Logisticloss: 0.021296521975323654
iteration: 13 Logisticloss: 0.021172350390065514
iteration: 14 Logisticloss: 0.0210577270059658
iteration: 15 Logisticloss: 0.020951089494638937

Convergence reached in 16 iterations

[-0.00090252 0.00067254 -0.00035885 ... 0.00024789 -0.00020319
0.00040146]

CROSS VALIDATION 9

iteration: 0 Logisticloss: 7.845517925523411
iteration: 1 Logisticloss: 0.04197368225581771
iteration: 2 Logisticloss: 0.027607684898595487
iteration: 3 Logisticloss: 0.026813448399032845
iteration: 4 Logisticloss: 0.02627559273219379
iteration: 5 Logisticloss: 0.02587614803942407
iteration: 6 Logisticloss: 0.025561529918915128
iteration: 7 Logisticloss: 0.02530327922209335
iteration: 8 Logisticloss: 0.025084673068241508
iteration: 9 Logisticloss: 0.02489515526749331
iteration: 10 Logisticloss: 0.02472769436286738
iteration: 11 Logisticloss: 0.024577405920656645
iteration: 12 Logisticloss: 0.024440780387693987
iteration: 13 Logisticloss: 0.024315224970799756
iteration: 14 Logisticloss: 0.0241987789510114
iteration: 15 Logisticloss: 0.02408992984263874
iteration: 16 Logisticloss: 0.023987490757594508

Convergence reached in 17 iterations

[-0.00081241 0.0007358 -0.00025366 ... 0.00059652 -0.00014973
0.00040837]

CROSS VALIDATION 10

iteration: 0 Logisticloss: 7.203095930057752
iteration: 1 Logisticloss: 0.028843374240114846
iteration: 2 Logisticloss: 0.028320307882912694
iteration: 3 Logisticloss: 0.027952549013145058
iteration: 4 Logisticloss: 0.027670497782735396
iteration: 5 Logisticloss: 0.027441743541025052
iteration: 6 Logisticloss: 0.02724879489086182
iteration: 7 Logisticloss: 0.027081255193277858
iteration: 8 Logisticloss: 0.02693250389041814

Output_logistic_train.txt

iteration: 9 Logisticloss: 0.026798099903424376
iteration: 10 Logisticloss: 0.026674939997806867
iteration: 11 Logisticloss: 0.026560783031926785
iteration: 12 Logisticloss: 0.0264539657224036
iteration: 13 Logisticloss: 0.02635322499662093
Convergence reached in 14 iterations
[-0.00084998 0.00063935 -0.00045519 ... 0.00055539 -0.00010087
0.00042779]

CROSS VALIDATION 11

iteration: 0 Logisticloss: 7.8539659748800235
iteration: 1 Logisticloss: 0.03740627220295893
iteration: 2 Logisticloss: 0.024468660184323154
iteration: 3 Logisticloss: 0.023684702352630874
iteration: 4 Logisticloss: 0.023145159535583167
iteration: 5 Logisticloss: 0.022741648742124244
iteration: 6 Logisticloss: 0.02242304785441701
iteration: 7 Logisticloss: 0.022161581445719062
iteration: 8 Logisticloss: 0.021940672344538944
iteration: 9 Logisticloss: 0.021749735352695764
iteration: 10 Logisticloss: 0.021581656520708332
iteration: 11 Logisticloss: 0.021431458553249377
iteration: 12 Logisticloss: 0.021295543938785078
iteration: 13 Logisticloss: 0.021171241593333896
iteration: 14 Logisticloss: 0.021056522908768766
iteration: 15 Logisticloss: 0.020949817165061762
Convergence reached in 16 iterations
[-0.0009023 0.00066985 -0.0003639 ... 0.00024588 -0.00019969
0.00040054]

CROSS VALIDATION 12

iteration: 0 Logisticloss: 9.994715704380967
iteration: 1 Logisticloss: 0.02752558507315734
iteration: 2 Logisticloss: 0.022391037204156118
iteration: 3 Logisticloss: 0.021398407827558908
iteration: 4 Logisticloss: 0.020819907150197218
iteration: 5 Logisticloss: 0.020418380943333293
iteration: 6 Logisticloss: 0.020113829062354396
iteration: 7 Logisticloss: 0.019869762337218506
iteration: 8 Logisticloss: 0.019666606846545222
iteration: 9 Logisticloss: 0.019492716360546135
iteration: 10 Logisticloss: 0.019340640518687988
iteration: 11 Logisticloss: 0.019205349724189465
iteration: 12 Logisticloss: 0.019083304293297493
iteration: 13 Logisticloss: 0.01897192894531851
iteration: 14 Logisticloss: 0.01886929842627649
Convergence reached in 15 iterations
[-1.80598906e-03 6.52899703e-05 -5.70787174e-04 ... 6.49928348e-05
-2.05219260e-04 2.35703467e-04]

CROSS VALIDATION 13

iteration: 0 Logisticloss: 7.960932829222033
iteration: 1 Logisticloss: 0.033110908831739144
iteration: 2 Logisticloss: 0.02933857696975247
iteration: 3 Logisticloss: 0.028030855378387315

Output_logistic_train.txt

```
iteration: 4 Logisticloss: 0.02728768261453019
iteration: 5 Logisticloss: 0.026786737008311773
iteration: 6 Logisticloss: 0.026415833598724632
iteration: 7 Logisticloss: 0.02612405159353708
iteration: 8 Logisticloss: 0.025884491039908197
iteration: 9 Logisticloss: 0.02568144191140807
iteration: 10 Logisticloss: 0.02550504562123442
iteration: 11 Logisticloss: 0.025348770669891878
iteration: 12 Logisticloss: 0.02520810190015688
iteration: 13 Logisticloss: 0.025079809223452553
iteration: 14 Logisticloss: 0.024961515679581825
iteration: 15 Logisticloss: 0.02485143015322003
iteration: 16 Logisticloss: 0.024748175451800823
Convergence reached in 17 iterations
[-1.39017556e-03 -1.56664350e-04 -7.03054473e-04 ... 7.16138767e-05
 5.29609458e-05 3.71684470e-04]
```

CROSS VALIDATION 14

```
iteration: 0 Logisticloss: 7.835753632542152
iteration: 1 Logisticloss: 0.03588325364144189
iteration: 2 Logisticloss: 0.023024376417474277
iteration: 3 Logisticloss: 0.022530652438625086
iteration: 4 Logisticloss: 0.02217916672726765
iteration: 5 Logisticloss: 0.02190814976924524
iteration: 6 Logisticloss: 0.021688214046378936
iteration: 7 Logisticloss: 0.02150319895858286
iteration: 8 Logisticloss: 0.021343334069631834
iteration: 9 Logisticloss: 0.021202300889978282
iteration: 10 Logisticloss: 0.021075801543279107
iteration: 11 Logisticloss: 0.0209607950159921
iteration: 12 Logisticloss: 0.020855060292755096
Convergence reached in 13 iterations
[-0.0008889 0.00068105 -0.00035907 ... 0.0002347 -0.00021177
 0.00039969]
```

CROSS VALIDATION 15

```
iteration: 0 Logisticloss: 7.883773367247923
iteration: 1 Logisticloss: 0.03772285776618524
iteration: 2 Logisticloss: 0.024425245904079802
iteration: 3 Logisticloss: 0.023659474882984546
iteration: 4 Logisticloss: 0.023128893670852586
iteration: 5 Logisticloss: 0.02273050035721069
iteration: 6 Logisticloss: 0.022415107528535906
iteration: 7 Logisticloss: 0.02215578708961773
iteration: 8 Logisticloss: 0.02193638402343292
iteration: 9 Logisticloss: 0.021746543698271278
iteration: 10 Logisticloss: 0.02157928712209633
iteration: 11 Logisticloss: 0.021429720399726085
iteration: 12 Logisticloss: 0.021294299865657167
iteration: 13 Logisticloss: 0.02117039048031965
iteration: 14 Logisticloss: 0.02105598850811674
iteration: 15 Logisticloss: 0.020949540843458608
Convergence reached in 16 iterations
[-0.00090474 0.00066848 -0.00036665 ... 0.00024849 -0.00020175
```

Output_logistic_train.txt

0.00039982]

CROSS VALIDATION 16

iteration: 0 Logisticloss: 7.860868952938521
iteration: 1 Logisticloss: 0.02347977751348529
iteration: 2 Logisticloss: 0.02282282629371551
iteration: 3 Logisticloss: 0.022389093905134258
iteration: 4 Logisticloss: 0.022069569557512738
iteration: 5 Logisticloss: 0.021818261903744612
iteration: 6 Logisticloss: 0.02161166582135495
iteration: 7 Logisticloss: 0.021436275075053992
iteration: 8 Logisticloss: 0.021283681587644626
iteration: 9 Logisticloss: 0.021148334849503004
iteration: 10 Logisticloss: 0.021026402057943826
iteration: 11 Logisticloss: 0.02091514022698816
iteration: 12 Logisticloss: 0.02081252826083257

Convergence reached in 13 iterations

[-0.00089415 0.00067292 -0.00036339 ... 0.00024446 -0.0002044
0.00040503]

CROSS VALIDATION 17

iteration: 0 Logisticloss: 7.851582902318498
iteration: 1 Logisticloss: 0.037396877916884605
iteration: 2 Logisticloss: 0.02446561417002668
iteration: 3 Logisticloss: 0.023680263474853476
iteration: 4 Logisticloss: 0.023140021769584053
iteration: 5 Logisticloss: 0.022736116162171745
iteration: 6 Logisticloss: 0.022417277461617667
iteration: 7 Logisticloss: 0.0221556633665536
iteration: 8 Logisticloss: 0.021934662309900144
iteration: 9 Logisticloss: 0.02174366977805639
iteration: 10 Logisticloss: 0.021575560236043283
iteration: 11 Logisticloss: 0.02142534907467263
iteration: 12 Logisticloss: 0.021289433972864584
iteration: 13 Logisticloss: 0.021165140577013984
iteration: 14 Logisticloss: 0.021050437994201546
iteration: 15 Logisticloss: 0.02094375387047722

Convergence reached in 16 iterations

[-0.00090422 0.00066996 -0.00036529 ... 0.00024531 -0.00019972
0.00040093]

CROSS VALIDATION 18

iteration: 0 Logisticloss: 6.962729058185431
iteration: 1 Logisticloss: 0.027257058585679693
iteration: 2 Logisticloss: 0.026077550839905154
iteration: 3 Logisticloss: 0.025277381892267452
iteration: 4 Logisticloss: 0.024682008149105594
iteration: 5 Logisticloss: 0.024213791049233168
iteration: 6 Logisticloss: 0.023831299534840197
iteration: 7 Logisticloss: 0.0235099079187017
iteration: 8 Logisticloss: 0.02323387364103117
iteration: 9 Logisticloss: 0.022992583157657003
iteration: 10 Logisticloss: 0.02277858209678944
iteration: 11 Logisticloss: 0.022586461220223737
iteration: 12 Logisticloss: 0.022412188872397435

Output_logistic_train.txt

```
iteration: 13 Logisticloss: 0.022252692046624178
iteration: 14 Logisticloss: 0.022105583305376077
iteration: 15 Logisticloss: 0.021968977019929135
iteration: 16 Logisticloss: 0.02184136231460826
iteration: 17 Logisticloss: 0.02172151313392641
iteration: 18 Logisticloss: 0.021608423267963046
iteration: 19 Logisticloss: 0.021501258552469763
iteration: 20 Logisticloss: 0.021399321132970453
Convergence reached in 21 iterations
[-0.00086382 -0.00022298 -0.00165147 ... 0.00093662 -0.00019793
 0.00032589]
CROSS VALIDATION 19
iteration: 0 Logisticloss: 7.6826531656535755
iteration: 1 Logisticloss: 0.03752573253222821
iteration: 2 Logisticloss: 0.023887770801148043
iteration: 3 Logisticloss: 0.02313622194806714
iteration: 4 Logisticloss: 0.02260804208255679
iteration: 5 Logisticloss: 0.02220851643331991
iteration: 6 Logisticloss: 0.021891027230414962
iteration: 7 Logisticloss: 0.02162953366265167
iteration: 8 Logisticloss: 0.021408188623619213
iteration: 9 Logisticloss: 0.02121672814458581
iteration: 10 Logisticloss: 0.021048179971786842
iteration: 11 Logisticloss: 0.02089762574474598
iteration: 12 Logisticloss: 0.020761487765105766
iteration: 13 Logisticloss: 0.02063709627393459
iteration: 14 Logisticloss: 0.02052241557099791
iteration: 15 Logisticloss: 0.020415864426190356
Convergence reached in 16 iterations
[-0.00108423 0.00067399 -0.00046384 ... 0.00021521 -0.00022197
 0.00042256]
Accuracy (Logistic Loss): 0.95
```