## CROSS VALIDATION 20

0 HingeLoss: iteration: 21.046507266414338 iteration: 1 HingeLoss: 1.6371070800645002 iteration: 2 HingeLoss: 1.102836884187078 iteration: 3 HingeLoss: 0.3086003042197427 4 HingeLoss: iteration: 0.302126198359513 5 HingeLoss: iteration: 0.29578791234818264 iteration: 6 HingeLoss: 0.28958259682990983 7 HingeLoss: iteration: 0.28350746222530465 iteration: 8 HingeLoss: 0.27755977747738303 iteration: 9 HingeLoss: 0.2717368688238295 iteration: 10 HingeLoss: 0.26603611859501525 iteration: 11 HingeLoss: 0.2604549640372338 iteration: 12 HingeLoss: 0.25499089616062315 iteration: 13 HingeLoss: 0.2496414586112575 14 HingeLoss: iteration: 0.24440424656690202 iteration: 15 HingeLoss: 0.23927690565593154 iteration: 16 HingeLoss: 0.2342571308989318 17 HingeLoss: iteration: 0.2293426656725026 18 HingeLoss: iteration: 0.2245313006948007 iteration: 19 HingeLoss: 0.21982087303236336 iteration: 20 HingeLoss: 0.21520926512777014 iteration: 21 HingeLoss: 0.21069440384770052 iteration: 22 HingeLoss: 0.2062742595509642 iteration: 23 HingeLoss: 0.20194684517608225 24 HingeLoss: iteration: 0.19771021534801045 25 HingeLoss: iteration: 0.19356246550360195 iteration: 26 HingeLoss: 0.18950173103541718 iteration: 27 HingeLoss: 0.1855261864534959 iteration: 28 HingeLoss: 0.18163404456471352 29 HingeLoss: iteration: 0.17782355566935487 iteration: 30 HingeLoss: 0.17409300677454204 iteration: 31 HingeLoss: 0.17044072082416425 iteration: 32 HingeLoss: 0.1668650559449625 33 HingeLoss: iteration: 0.16336440470843097 iteration: 34 HingeLoss: 0.15993719340820264 iteration: 35 HingeLoss: 0.15658188135259485 iteration: 36 HingeLoss: 0.15329696017199612 iteration: 37 HingeLoss: 0.15008095314078387 38 HingeLoss: iteration: 0.146932414513467 39 HingeLoss: iteration: 0.1438499288747555 40 HingeLoss: iteration: 0.1408321105032657 iteration: 41 HingeLoss: 0.13787760274857316 iteration: 42 HingeLoss: 0.1349850774213351 iteration: 43 HingeLoss: 0.1321532341962074 44 HingeLoss: iteration: 0.12938080002728722 iteration: 45 HingeLoss: 0.1266665285758196 iteration: 46 HingeLoss: 0.12400919964990983 iteration: 47 HingeLoss: 0.12140761865599023 iteration: 48 HingeLoss: 0.11886061606179449 iteration: 49 HingeLoss: 0.11636704687059811 iteration: 50 HingeLoss: 0.11392579010648907

```
Output_hinge_test.txt
iteration:
            51 HingeLoss:
                           0.11153574831043643
            52 HingeLoss:
iteration:
                           0.10919584704693175
iteration:
            53 HingeLoss:
                           0.1069050344209795
iteration:
            54 HingeLoss:
                           0.10466228060522145
iteration:
            55 HingeLoss:
                           0.10246657737698098
            56 HingeLoss:
iteration:
                           0.10031693766502
iteration:
            57 HingeLoss:
                           0.09821239510580414
iteration:
            58 HingeLoss:
                           0.09615200360907729
            59 HingeLoss:
iteration:
                           0.09413483693254968
iteration:
            60 HingeLoss:
                           0.0921599882655087
iteration:
            61 HingeLoss:
                           0.09022656982116527
iteration:
            62 HingeLoss:
                           0.08833371243755203
            63 HingeLoss:
iteration:
                           0.08648056518679434
iteration:
            64 HingeLoss:
                           0.08466629499257858
iteration:
            65 HingeLoss:
                           0.08289008625564523
            66 HingeLoss:
iteration:
                           0.08115114048713912
iteration:
            67 HingeLoss:
                           0.0794486759496511
iteration:
            68 HingeLoss:
                           0.07778192730579084
            69 HingeLoss:
iteration:
                           0.07615014527413148
            70 HingeLoss:
iteration:
                           0.07455259629237304
iteration:
            71 HingeLoss:
                           0.07298856218757153
iteration:
            72 HingeLoss:
                           0.0714573398532869
iteration:
            73 HingeLoss:
                           0.06995824093350365
iteration:
            74 HingeLoss:
                           0.06849059151318276
iteration:
            75 HingeLoss:
                           0.06705373181530519
            76 HingeLoss:
iteration:
                           0.06564701590427156
            77 HingeLoss:
iteration:
                           0.06426981139552353
iteration:
            78 HingeLoss:
                           0.06292149917125774
iteration:
            79 HingeLoss:
                           0.06160147310210317
iteration:
            80 HingeLoss:
                           0.06030913977463789
            81 HingeLoss:
iteration:
                           0.0590439182246216
iteration:
            82 HingeLoss:
                           0.0578052396758255
                           0.056592547284340454
iteration:
            83 HingeLoss:
iteration:
            84 HingeLoss:
                           0.05540529588824987
            85 HingeLoss:
iteration:
                           0.05424295176255365
iteration:
            86 HingeLoss:
                           0.05310499237923412
iteration:
            87 HingeLoss:
                           0.05199090617235521
iteration:
            88 HingeLoss:
                           0.05090019230808947
iteration:
            89 HingeLoss:
                           0.04983236045957004
iteration:
            90 HingeLoss:
                           0.048786930586465785
            91 HingeLoss:
iteration:
                           0.04776343271918062
            92 HingeLoss:
iteration:
                           0.04676140674758032
iteration:
            93 HingeLoss: 0.045780402214151444
iteration:
            94 HingeLoss:
                           0.04481997811149968
iteration:
            95 HingeLoss:
                           0.043879702684096286
            96 HingeLoss:
iteration:
                           0.04295915323418401
iteration:
            97 HingeLoss:
                           0.042057915931754467
iteration:
            98 HingeLoss:
                           0.04117558562851232
iteration:
            99 HingeLoss:
                           0.04031176567574219
[-1.02917761e-03 -1.03769365e-04 -1.84274226e-04 ...
                                                      7.82773867e-04
  4.72392452e-04 7.07149782e-051
CROSS VALIDATION 21
```

iteration: 0 HingeLoss: 21.046507266414338 iteration: 1 HingeLoss: 1.6371070800645002 iteration: 2 HingeLoss: 1.102836884187078 iteration: 3 HingeLoss: 0.3086003042197427 iteration: 4 HingeLoss: 0.302126198359513 5 HingeLoss: iteration: 0.29578791234818264 iteration: 6 HingeLoss: 0.28958259682990983 7 HingeLoss: iteration: 0.28350746222530465 8 HingeLoss: iteration: 0.27755977747738303 iteration: 9 HingeLoss: 0.2717368688238295 iteration: 10 HingeLoss: 0.26603611859501525 iteration: 11 HingeLoss: 0.2604549640372338 12 HingeLoss: iteration: 0.25499089616062315 13 HingeLoss: iteration: 0.2496414586112575 iteration: 14 HingeLoss: 0.24440424656690202 15 HingeLoss: iteration: 0.23927690565593154 iteration: 16 HingeLoss: 0.2342571308989318 iteration: 17 HingeLoss: 0.2293426656725026 18 HingeLoss: iteration: 0.2245313006948007 19 HingeLoss: iteration: 0.21982087303236336 iteration: 20 HingeLoss: 0.21520926512777014 iteration: 21 HingeLoss: 0.21069440384770052 iteration: 22 HingeLoss: 0.2062742595509642 iteration: 23 HingeLoss: 0.20194684517608225 iteration: 24 HingeLoss: 0.19771021534801045 25 HingeLoss: iteration: 0.19356246550360195 26 HingeLoss: iteration: 0.18950173103541718 iteration: 27 HingeLoss: 0.1855261864534959 iteration: 28 HingeLoss: 0.18163404456471352 iteration: 29 HingeLoss: 0.17782355566935487 30 HingeLoss: iteration: 0.17409300677454204 iteration: 31 HingeLoss: 0.17044072082416425 iteration: 32 HingeLoss: 0.1668650559449625 iteration: 33 HingeLoss: 0.16336440470843097 34 HingeLoss: iteration: 0.15993719340820264 iteration: 35 HingeLoss: 0.15658188135259485 iteration: 36 HingeLoss: 0.15329696017199612 iteration: 37 HingeLoss: 0.15008095314078387 iteration: 38 HingeLoss: 0.146932414513467 39 HingeLoss: iteration: 0.1438499288747555 40 HingeLoss: iteration: 0.1408321105032657 41 HingeLoss: iteration: 0.13787760274857316 iteration: 42 HingeLoss: 0.1349850774213351 iteration: 43 HingeLoss: 0.1321532341962074 iteration: 44 HingeLoss: 0.12938080002728722 45 HingeLoss: iteration: 0.1266665285758196 iteration: 46 HingeLoss: 0.12400919964990983 iteration: 47 HingeLoss: 0.12140761865599023 48 HingeLoss: iteration: 0.11886061606179449 iteration: 49 HingeLoss: 0.11636704687059811 iteration: 50 HingeLoss: 0.11392579010648907 iteration: 51 HingeLoss: 0.11153574831043643

```
Output_hinge_test.txt
iteration:
            52 HingeLoss:
                           0.10919584704693175
            53 HingeLoss:
iteration:
                           0.1069050344209795
iteration:
            54 HingeLoss:
                           0.10466228060522145
iteration:
            55 HingeLoss:
                           0.10246657737698098
iteration:
            56 HingeLoss:
                           0.10031693766502
            57 HingeLoss:
iteration:
                           0.09821239510580414
iteration:
            58 HingeLoss:
                           0.09615200360907729
iteration:
            59 HingeLoss:
                           0.09413483693254968
            60 HingeLoss:
iteration:
                           0.0921599882655087
iteration:
            61 HingeLoss:
                           0.09022656982116527
iteration:
            62 HingeLoss:
                           0.08833371243755203
iteration:
            63 HingeLoss:
                           0.08648056518679434
            64 HingeLoss:
iteration:
                           0.08466629499257858
iteration:
            65 HingeLoss:
                           0.08289008625564523
iteration:
            66 HingeLoss:
                           0.08115114048713912
            67 HingeLoss:
iteration:
                           0.0794486759496511
                           0.07778192730579084
iteration:
            68 HingeLoss:
iteration:
            69 HingeLoss:
                           0.07615014527413148
            70 HingeLoss:
iteration:
                           0.07455259629237304
            71 HingeLoss:
iteration:
                           0.07298856218757153
iteration:
            72 HingeLoss:
                           0.0714573398532869
iteration:
            73 HingeLoss:
                           0.06995824093350365
iteration:
            74 HingeLoss:
                           0.06849059151318276
iteration:
            75 HingeLoss:
                           0.06705373181530519
iteration:
            76 HingeLoss:
                           0.06564701590427156
            77 HingeLoss:
iteration:
                           0.06426981139552353
            78 HingeLoss:
iteration:
                           0.06292149917125774
iteration:
            79 HingeLoss:
                           0.06160147310210317
iteration:
            80 HingeLoss:
                           0.06030913977463789
iteration:
            81 HingeLoss:
                           0.0590439182246216
            82 HingeLoss:
iteration:
                           0.0578052396758255
iteration:
            83 HingeLoss:
                           0.056592547284340454
iteration:
            84 HingeLoss:
                           0.05540529588824987
iteration:
            85 HingeLoss:
                           0.05424295176255365
            86 HingeLoss:
iteration:
                           0.05310499237923412
iteration:
            87 HingeLoss:
                           0.05199090617235521
iteration:
            88 HingeLoss:
                           0.05090019230808947
iteration:
            89 HingeLoss:
                           0.04983236045957004
iteration:
            90 HingeLoss:
                           0.048786930586465785
iteration:
            91 HingeLoss:
                           0.04776343271918062
iteration:
            92 HingeLoss:
                           0.04676140674758032
            93 HingeLoss:
iteration:
                           0.045780402214151444
iteration:
            94 HingeLoss:
                           0.04481997811149968
iteration:
            95 HingeLoss:
                           0.043879702684096286
iteration:
            96 HingeLoss:
                           0.04295915323418401
            97 HingeLoss:
                           0.042057915931754467
iteration:
iteration:
            98 HingeLoss:
                           0.04117558562851232
iteration:
            99 HingeLoss:
                           0.04031176567574219
[-1.02917761e-03 -1.03769365e-04 -1.84274226e-04 ...
                                                      7.82773867e-04
                 7.07149782e-05]
  4.72392452e-04
CROSS VALIDATION 22
iteration:
           0 HingeLoss:
                          21.046507266414338
```

iteration: 1 HingeLoss: 1.6371070800645002 iteration: 2 HingeLoss: 1.102836884187078 iteration: 3 HingeLoss: 0.3086003042197427 iteration: 4 HingeLoss: 0.302126198359513 iteration: 5 HingeLoss: 0.29578791234818264 6 HingeLoss: iteration: 0.28958259682990983 7 HingeLoss: iteration: 0.28350746222530465 iteration: 8 HingeLoss: 0.27755977747738303 9 HingeLoss: iteration: 0.2717368688238295 iteration: 10 HingeLoss: 0.26603611859501525 iteration: 11 HingeLoss: 0.2604549640372338 iteration: 12 HingeLoss: 0.25499089616062315 13 HingeLoss: iteration: 0.2496414586112575 14 HingeLoss: iteration: 0.24440424656690202 iteration: 15 HingeLoss: 0.23927690565593154 16 HingeLoss: iteration: 0.2342571308989318 iteration: 17 HingeLoss: 0.2293426656725026 iteration: 18 HingeLoss: 0.2245313006948007 19 HingeLoss: iteration: 0.21982087303236336 20 HingeLoss: iteration: 0.21520926512777014 iteration: 21 HingeLoss: 0.21069440384770052 iteration: 22 HingeLoss: 0.2062742595509642 23 HingeLoss: iteration: 0.20194684517608225 iteration: 24 HingeLoss: 0.19771021534801045 iteration: 25 HingeLoss: 0.19356246550360195 26 HingeLoss: iteration: 0.18950173103541718 27 HingeLoss: iteration: 0.1855261864534959 iteration: 28 HingeLoss: 0.18163404456471352 iteration: 29 HingeLoss: 0.17782355566935487 30 HingeLoss: iteration: 0.17409300677454204 31 HingeLoss: iteration: 0.17044072082416425 iteration: 32 HingeLoss: 0.1668650559449625 iteration: 33 HingeLoss: 0.16336440470843097 iteration: 34 HingeLoss: 0.15993719340820264 35 HingeLoss: iteration: 0.15658188135259485 iteration: 36 HingeLoss: 0.15329696017199612 iteration: 37 HingeLoss: 0.15008095314078387 iteration: 38 HingeLoss: 0.146932414513467 iteration: 39 HingeLoss: 0.1438499288747555 40 HingeLoss: iteration: 0.1408321105032657 41 HingeLoss: iteration: 0.13787760274857316 42 HingeLoss: iteration: 0.1349850774213351 iteration: 43 HingeLoss: 0.1321532341962074 iteration: 44 HingeLoss: 0.12938080002728722 iteration: 45 HingeLoss: 0.1266665285758196 46 HingeLoss: 0.12400919964990983 iteration: 47 HingeLoss: iteration: 0.12140761865599023 iteration: 48 HingeLoss: 0.11886061606179449 49 HingeLoss: iteration: 0.11636704687059811 iteration: 50 HingeLoss: 0.11392579010648907 iteration: 51 HingeLoss: 0.11153574831043643 iteration: 52 HingeLoss: 0.10919584704693175

```
Output_hinge_test.txt
iteration:
            53 HingeLoss:
                           0.1069050344209795
iteration:
            54 HingeLoss:
                           0.10466228060522145
iteration:
            55 HingeLoss:
                           0.10246657737698098
iteration:
            56 HingeLoss:
                           0.10031693766502
iteration:
            57 HingeLoss:
                           0.09821239510580414
            58 HingeLoss:
iteration:
                           0.09615200360907729
            59 HingeLoss:
iteration:
                           0.09413483693254968
iteration:
            60 HingeLoss:
                           0.0921599882655087
            61 HingeLoss:
iteration:
                           0.09022656982116527
                           0.08833371243755203
iteration:
            62 HingeLoss:
iteration:
            63 HingeLoss:
                           0.08648056518679434
iteration:
            64 HingeLoss:
                           0.08466629499257858
            65 HingeLoss:
iteration:
                           0.08289008625564523
            66 HingeLoss:
iteration:
                           0.08115114048713912
iteration:
            67 HingeLoss:
                           0.0794486759496511
            68 HingeLoss:
iteration:
                           0.07778192730579084
iteration:
            69 HingeLoss:
                           0.07615014527413148
iteration:
            70 HingeLoss:
                           0.07455259629237304
iteration:
            71 HingeLoss:
                           0.07298856218757153
            72 HingeLoss:
iteration:
                           0.0714573398532869
iteration:
            73 HingeLoss:
                           0.06995824093350365
iteration:
            74 HingeLoss:
                           0.06849059151318276
            75 HingeLoss:
iteration:
                           0.06705373181530519
iteration:
            76 HingeLoss:
                           0.06564701590427156
iteration:
            77 HingeLoss:
                           0.06426981139552353
            78 HingeLoss:
iteration:
                           0.06292149917125774
            79 HingeLoss:
iteration:
                           0.06160147310210317
iteration:
            80 HingeLoss:
                           0.06030913977463789
iteration:
            81 HingeLoss:
                           0.0590439182246216
            82 HingeLoss:
iteration:
                           0.0578052396758255
            83 HingeLoss:
iteration:
                           0.056592547284340454
iteration:
            84 HingeLoss:
                           0.05540529588824987
            85 HingeLoss:
                           0.05424295176255365
iteration:
            86 HingeLoss:
iteration:
                           0.05310499237923412
            87 HingeLoss:
iteration:
                           0.05199090617235521
iteration:
            88 HingeLoss: 0.05090019230808947
iteration:
            89 HingeLoss:
                           0.04983236045957004
            90 HingeLoss:
iteration:
                           0.048786930586465785
iteration:
            91 HingeLoss:
                           0.04776343271918062
            92 HingeLoss:
iteration:
                           0.04676140674758032
            93 HingeLoss:
iteration:
                           0.045780402214151444
iteration:
            94 HingeLoss:
                           0.04481997811149968
iteration:
            95 HingeLoss: 0.043879702684096286
iteration:
            96 HingeLoss:
                           0.04295915323418401
iteration:
            97 HingeLoss:
                           0.042057915931754467
            98 HingeLoss:
                           0.04117558562851232
iteration:
iteration:
            99 HingeLoss:
                           0.04031176567574219
[-1.02917761e-03 -1.03769365e-04 -1.84274226e-04 ...
                                                      7.82773867e-04
                 7.07149782e-05]
  4.72392452e-04
CROSS VALIDATION 23
iteration:
            0 HingeLoss:
                          24.31245019538759
iteration:
            1 HingeLoss:
                          19.929486901314874
```

iteration: 2 HingeLoss: 0.33783696867892643 iteration: 3 HingeLoss: 0.33074950872240905 iteration: 4 HingeLoss: 0.3238107361307815 iteration: 5 HingeLoss: 0.3170175316014146 iteration: 6 HingeLoss: 0.31036684127132713 7 HingeLoss: iteration: 0.3038556753443327 iteration: 8 HingeLoss: 0.29748110674698597 iteration: 9 HingeLoss: 0.29124026981272644 10 HingeLoss: iteration: 0.28513035899362754 iteration: 11 HingeLoss: 0.2791486275991709 iteration: 12 HingeLoss: 0.27329238656148214 iteration: 13 HingeLoss: 0.26755900322646775 14 HingeLoss: iteration: 0.2619459001703143 15 HingeLoss: iteration: 0.25645055404081657 iteration: 16 HingeLoss: 0.25107049442301216 17 HingeLoss: iteration: 0.24580330272861456 iteration: 18 HingeLoss: 0.24064661110874497 iteration: 19 HingeLoss: 0.2355981013894734 20 HingeLoss: iteration: 0.23065550402969076 21 HingeLoss: iteration: 0.2258165971008448 iteration: 22 HingeLoss: 0.22107920528807876 iteration: 23 HingeLoss: 0.21644119891232577 iteration: 24 HingeLoss: 0.21190049297291869 iteration: 25 HingeLoss: 0.20745504621028457 iteration: 26 HingeLoss: 0.20310286018830365 27 HingeLoss: iteration: 0.1988419783959182 28 HingeLoss: iteration: 0.19467048536758974 iteration: 29 HingeLoss: 0.19058650582220776 iteration: 30 HingeLoss: 0.1865882038200631 iteration: 31 HingeLoss: 0.18267378193750694 32 HingeLoss: iteration: 0.17884148045892573 iteration: 33 HingeLoss: 0.1750895765856656 iteration: 34 HingeLoss: 0.17141638366155484 iteration: 35 HingeLoss: 0.16782025041467236 36 HingeLoss: iteration: 0.16429956021502445 iteration: 37 HingeLoss: 0.16085273034779307 iteration: 38 HingeLoss: 0.157478211301833 iteration: 39 HingeLoss: 0.15417448607309267 iteration: 40 HingeLoss: 0.15094006948265096 41 HingeLoss: iteration: 0.14777350750905902 42 HingeLoss: iteration: 0.1446733766346906 43 HingeLoss: iteration: 0.14163828320580368 iteration: 44 HingeLoss: 0.13866686280602775 iteration: 45 HingeLoss: 0.13575777964299585 iteration: 46 HingeLoss: 0.13290972594784245 47 HingeLoss: iteration: 0.1301214213873008 iteration: 48 HingeLoss: 0.127391612488133 iteration: 49 HingeLoss: 0.12471907207363529 iteration: 50 HingeLoss: 0.12210259871196488 iteration: 51 HingeLoss: 0.11954101617603999 iteration: 52 HingeLoss: 0.1170331729147707 iteration: 53 HingeLoss: 0.11457794153538339

```
Output_hinge_test.txt
iteration:
            54 HingeLoss:
                           0.11217421829660432
            55 HingeLoss:
iteration:
                           0.10982092261247693
iteration:
            56 HingeLoss:
                           0.1075169965665874
iteration:
            57 HingeLoss:
                           0.10526140443648244
iteration:
            58 HingeLoss:
                           0.10305313222806302
            59 HingeLoss:
iteration:
                           0.1008911872197468
            60 HingeLoss:
iteration:
                           0.09877459751619361
iteration:
            61 HingeLoss:
                           0.09670241161139266
            62 HingeLoss:
iteration:
                           0.09467369796091661
iteration:
            63 HingeLoss:
                           0.09268754456314825
iteration:
            64 HingeLoss:
                           0.09074305854929356
iteration:
            65 HingeLoss:
                           0.08883936578199535
            66 HingeLoss:
iteration:
                           0.08697561046236751
            67 HingeLoss:
iteration:
                           0.08515095474527364
iteration:
            68 HingeLoss:
                           0.08336457836267623
            69 HingeLoss:
iteration:
                           0.08161567825488796
iteration:
            70 HingeLoss:
                           0.0799034682095591
iteration:
            71 HingeLoss:
                           0.07822717850823772
            72 HingeLoss:
iteration:
                           0.07658605558034588
            73 HingeLoss:
iteration:
                           0.07497936166441399
            74 HingeLoss:
iteration:
                           0.07340637447642269
iteration:
            75 HingeLoss:
                           0.07186638688510251
            76 HingeLoss:
iteration:
                           0.07035870659404528
iteration:
            77 HingeLoss:
                           0.06888265583048428
iteration:
            78 HingeLoss:
                           0.0674375710406042
            79 HingeLoss:
iteration:
                           0.06602280259124213
            80 HingeLoss:
iteration:
                           0.06463771447784743
            81 HingeLoss:
iteration:
                           0.06328168403856789
iteration:
            82 HingeLoss:
                           0.061954101674334155
            83 HingeLoss:
iteration:
                           0.06065437057481628
            84 HingeLoss:
iteration:
                           0.059381906450129786
iteration:
            85 HingeLoss:
                           0.0581361372681699
iteration:
            86 HingeLoss:
                           0.056916502997456465
            87 HingeLoss:
iteration:
                           0.055722455355373714
            88 HingeLoss:
iteration:
                           0.054553457561691256
iteration:
            89 HingeLoss:
                           0.053408984097256605
            90 HingeLoss:
iteration:
                           0.05228852046774979
            91 HingeLoss:
iteration:
                           0.05119156297239376
iteration:
            92 HingeLoss:
                           0.050117618477517605
            93 HingeLoss:
iteration:
                           0.04906620419486993
            94 HingeLoss:
iteration:
                           0.04803684746458284
            95 HingeLoss:
iteration:
                           0.04702908554268931
iteration:
            96 HingeLoss:
                           0.046042465393098114
iteration:
            97 HingeLoss:
                           0.045076543483932946
iteration:
            98 HingeLoss:
                           0.04413088558814415
            99 HingeLoss:
iteration:
                           0.043205066588303226
[-0.00145382 -0.00032994 -0.00058449 ...
                                          0.00065603
                                                      0.00041546
  0.00013952]
CROSS VALIDATION 24
iteration:
            0 HingeLoss:
                          21.049571397762453
iteration:
            1 HingeLoss:
                          1.6370593684692527
iteration:
            2 HingeLoss:
                          1.1024810519043897
```

iteration: 3 HingeLoss: 0.3086054402450847 iteration: 4 HingeLoss: 0.30213122663651076 iteration: 5 HingeLoss: 0.29579283513728216 iteration: 6 HingeLoss: 0.2895874163441346 iteration: 7 HingeLoss: 0.28351218063125144 8 HingeLoss: iteration: 0.27756439689619633 9 HingeLoss: iteration: 0.2717413913321537 10 HingeLoss: iteration: 0.26604054622592926 11 HingeLoss: iteration: 0.2604592987811647 iteration: 0.2549951399662408 12 HingeLoss: iteration: 13 HingeLoss: 0.2496456133863512 0.2444083141792371 iteration: 14 HingeLoss: 15 HingeLoss: iteration: 0.23928088793409005 16 HingeLoss: iteration: 0.2342610296331339 iteration: 17 HingeLoss: 0.22934648261541163 18 HingeLoss: iteration: 0.22453503756231075 iteration: 19 HingeLoss: 0.2198245315043712 iteration: 20 HingeLoss: 0.21521284684892997 21 HingeLoss: iteration: 0.2106979104281633 22 HingeLoss: iteration: 0.2062776925671018 iteration: 23 HingeLoss: 0.2019502061711959 iteration: 24 HingeLoss: 0.1977135058330246 25 HingeLoss: iteration: 0.1935656869577434 iteration: 26 HingeLoss: 0.18950488490688028 iteration: 27 HingeLoss: 0.18552927416009307 28 HingeLoss: iteration: 0.18163706749451328 29 HingeLoss: iteration: 0.17782651518130554 iteration: 30 HingeLoss: 0.1740959041990826 iteration: 31 HingeLoss: 0.1704435574638224 32 HingeLoss: iteration: 0.16686783307494044 33 HingeLoss: iteration: 0.1633671235771784 iteration: 34 HingeLoss: 0.1599398552379781 iteration: 35 HingeLoss: 0.15658448734001523 iteration: 36 HingeLoss: 0.15329951148857465 37 HingeLoss: iteration: 0.15008345093345665 iteration: 38 HingeLoss: 0.1469348599051085 iteration: 39 HingeLoss: 0.14385232296468364 iteration: 40 HingeLoss: 0.14083445436773578 iteration: 41 HingeLoss: 0.1378798974412618 42 HingeLoss: iteration: 0.13498732397381402 43 HingeLoss: iteration: 0.13215543361840684 44 HingeLoss: iteration: 0.12938295330795035 iteration: 45 HingeLoss: 0.12666863668294667 iteration: 46 HingeLoss: 0.12401126353119354 iteration: 47 HingeLoss: 0.12140963923924177 48 HingeLoss: iteration: 0.11886259425536044 iteration: 49 HingeLoss: 0.11636898356376896 iteration: 50 HingeLoss: 0.11392768616989889 51 HingeLoss: iteration: 0.11153760459645443 iteration: 52 HingeLoss: 0.10919766439004519 iteration: 53 HingeLoss: 0.10690681363816905 iteration: 54 HingeLoss: 0.10466402249632847

```
Output_hinge_test.txt
iteration:
            55 HingeLoss:
                           0.10246828272506694
            56 HingeLoss:
iteration:
                           0.10031860723671858
iteration:
            57 HingeLoss:
                           0.09821402965166579
iteration:
            58 HingeLoss:
                           0.09615360386390685
iteration:
            59 HingeLoss:
                           0.09413640361573643
            60 HingeLoss:
iteration:
                           0.09216152208135
            61 HingeLoss:
iteration:
                           0.09022807145918312
iteration:
            62 HingeLoss:
                           0.08833518257280285
            63 HingeLoss:
iteration:
                           0.08648200448017263
                           0.08466770409111397
iteration:
            64 HingeLoss:
iteration:
            65 HingeLoss:
                           0.0828914657927934
iteration:
            66 HingeLoss:
                           0.08115249108306656
            67 HingeLoss:
                           0.07944999821151377
iteration:
            68 HingeLoss:
iteration:
                           0.07778322182800725
iteration:
            69 HingeLoss:
                           0.07615141263864986
            70 HingeLoss:
iteration:
                           0.07455383706893298
iteration:
            71 HingeLoss:
                           0.07298977693396012
iteration:
            72 HingeLoss:
                           0.07145852911558943
            73 HingeLoss:
iteration:
                           0.06995940524634912
            74 HingeLoss:
iteration:
                           0.06849173139998421
            75 HingeLoss:
iteration:
                           0.06705484778849502
iteration:
            76 HingeLoss:
                           0.06564810846553185
            77 HingeLoss:
iteration:
                           0.06427088103601172
iteration:
            78 HingeLoss:
                           0.06292254637182715
iteration:
            79 HingeLoss:
                           0.06160249833351947
            80 HingeLoss:
iteration:
                           0.06031014349779046
            81 HingeLoss:
iteration:
                           0.05904490089073097
            82 HingeLoss:
iteration:
                           0.05780620172664598
iteration:
            83 HingeLoss:
                           0.0565934891523589
            84 HingeLoss:
iteration:
                           0.05540621799687993
            85 HingeLoss:
iteration:
                           0.05424385452632628
iteration:
            86 HingeLoss:
                           0.053105876203983896
            87 HingeLoss:
iteration:
                           0.05199177145540258
            88 HingeLoss:
iteration:
                           0.050901039438419664
            89 HingeLoss:
iteration:
                           0.04983318981800773
iteration:
            90 HingeLoss: 0.04878774254584632
            91 HingeLoss: 0.04776422764451774
iteration:
            92 HingeLoss:
iteration:
                           0.04676218499623011
iteration:
            93 HingeLoss:
                           0.045781164135973065
            94 HingeLoss:
iteration:
                           0.04482072404901257
            95 HingeLoss:
iteration:
                           0.043880432972634255
            96 HingeLoss:
iteration:
                           0.042959868202045885
iteration:
            97 HingeLoss:
                           0.042058615900351724
iteration:
            98 HingeLoss:
                           0.04117627091251357
iteration:
            99 HingeLoss:
                           0.04031243658321462
[-1.02911210e-03 -1.03766398e-04 -1.84247476e-04 ...
                                                      7.82772652e-04
  4.72390873e-04
                 7.07080165e-05]
CROSS VALIDATION 25
           0 HingeLoss:
iteration:
                          21.049571397762453
iteration:
            1 HingeLoss:
                          1.6370593684692527
iteration:
            2 HingeLoss:
                          1.1024810519043897
iteration:
            3 HingeLoss:
                          0.3086054402450847
```

iteration: 4 HingeLoss: 0.30213122663651076 5 HingeLoss: iteration: 0.29579283513728216 iteration: 6 HingeLoss: 0.2895874163441346 iteration: 7 HingeLoss: 0.28351218063125144 iteration: 8 HingeLoss: 0.27756439689619633 9 HingeLoss: iteration: 0.2717413913321537 10 HingeLoss: iteration: 0.26604054622592926 iteration: 11 HingeLoss: 0.2604592987811647 12 HingeLoss: iteration: 0.2549951399662408 0.2496456133863512 iteration: 13 HingeLoss: iteration: 14 HingeLoss: 0.2444083141792371 iteration: 15 HingeLoss: 0.23928088793409005 16 HingeLoss: iteration: 0.2342610296331339 17 HingeLoss: iteration: 0.22934648261541163 iteration: 18 HingeLoss: 0.22453503756231075 19 HingeLoss: iteration: 0.2198245315043712 iteration: 20 HingeLoss: 0.21521284684892997 iteration: 21 HingeLoss: 0.2106979104281633 22 HingeLoss: iteration: 0.2062776925671018 23 HingeLoss: iteration: 0.2019502061711959 24 HingeLoss: iteration: 0.1977135058330246 iteration: 25 HingeLoss: 0.1935656869577434 26 HingeLoss: iteration: 0.18950488490688028 iteration: 27 HingeLoss: 0.18552927416009307 iteration: 28 HingeLoss: 0.18163706749451328 29 HingeLoss: iteration: 0.17782651518130554 30 HingeLoss: iteration: 0.1740959041990826 iteration: 31 HingeLoss: 0.1704435574638224 iteration: 32 HingeLoss: 0.16686783307494044 iteration: 33 HingeLoss: 0.1633671235771784 34 HingeLoss: iteration: 0.1599398552379781 iteration: 35 HingeLoss: 0.15658448734001523 0.15329951148857465 iteration: 36 HingeLoss: iteration: 37 HingeLoss: 0.15008345093345665 38 HingeLoss: iteration: 0.1469348599051085 iteration: 39 HingeLoss: 0.14385232296468364 40 HingeLoss: iteration: 0.14083445436773578 41 HingeLoss: iteration: 0.1378798974412618 iteration: 42 HingeLoss: 0.13498732397381402 43 HingeLoss: iteration: 0.13215543361840684 44 HingeLoss: iteration: 0.12938295330795035 45 HingeLoss: iteration: 0.12666863668294667 iteration: 46 HingeLoss: 0.12401126353119354 iteration: 47 HingeLoss: 0.12140963923924177 iteration: 48 HingeLoss: 0.11886259425536044 49 HingeLoss: iteration: 0.11636898356376896 iteration: 50 HingeLoss: 0.11392768616989889 iteration: 51 HingeLoss: 0.11153760459645443 iteration: 52 HingeLoss: 0.10919766439004519 iteration: 53 HingeLoss: 0.10690681363816905 iteration: 54 HingeLoss: 0.10466402249632847 iteration: 55 HingeLoss: 0.10246828272506694

```
Output_hinge_test.txt
iteration:
            56 HingeLoss:
                           0.10031860723671858
            57 HingeLoss:
iteration:
                           0.09821402965166579
iteration:
            58 HingeLoss:
                           0.09615360386390685
iteration:
            59 HingeLoss:
                           0.09413640361573643
iteration:
            60 HingeLoss:
                           0.09216152208135
            61 HingeLoss:
iteration:
                           0.09022807145918312
            62 HingeLoss:
iteration:
                           0.08833518257280285
iteration:
            63 HingeLoss:
                           0.08648200448017263
            64 HingeLoss:
iteration:
                           0.08466770409111397
                           0.0828914657927934
iteration:
            65 HingeLoss:
iteration:
            66 HingeLoss:
                           0.08115249108306656
iteration:
            67 HingeLoss:
                           0.07944999821151377
            68 HingeLoss:
iteration:
                           0.07778322182800725
            69 HingeLoss:
iteration:
                           0.07615141263864986
iteration:
            70 HingeLoss:
                           0.07455383706893298
            71 HingeLoss:
iteration:
                           0.07298977693396012
iteration:
            72 HingeLoss:
                           0.07145852911558943
iteration:
            73 HingeLoss:
                           0.06995940524634912
            74 HingeLoss:
iteration:
                           0.06849173139998421
            75 HingeLoss:
iteration:
                           0.06705484778849502
            76 HingeLoss:
iteration:
                           0.06564810846553185
iteration:
            77 HingeLoss:
                           0.06427088103601172
            78 HingeLoss:
iteration:
                           0.06292254637182715
iteration:
            79 HingeLoss:
                           0.06160249833351947
iteration:
            80 HingeLoss:
                           0.06031014349779046
            81 HingeLoss:
iteration:
                           0.05904490089073097
            82 HingeLoss:
iteration:
                           0.05780620172664598
            83 HingeLoss:
iteration:
                           0.0565934891523589
iteration:
            84 HingeLoss:
                           0.05540621799687993
            85 HingeLoss:
iteration:
                           0.05424385452632628
            86 HingeLoss:
iteration:
                           0.053105876203983896
iteration:
            87 HingeLoss:
                           0.05199177145540258
                           0.050901039438419664
iteration:
            88 HingeLoss:
            89 HingeLoss:
iteration:
                           0.04983318981800773
            90 HingeLoss:
iteration:
                           0.04878774254584632
iteration:
            91 HingeLoss: 0.04776422764451774
            92 HingeLoss:
iteration:
                           0.04676218499623011
            93 HingeLoss:
iteration:
                           0.045781164135973065
iteration:
            94 HingeLoss:
                           0.04482072404901257
            95 HingeLoss:
iteration:
                           0.043880432972634255
            96 HingeLoss:
iteration:
                           0.042959868202045885
            97 HingeLoss:
iteration:
                           0.042058615900351724
iteration:
            98 HingeLoss:
                           0.04117627091251357
iteration:
            99 HingeLoss:
                           0.04031243658321462
                                                       7.82772652e-04
[-1.02911210e-03 -1.03766398e-04 -1.84247476e-04 ...
  4.72390873e-04
                  7.07080165e-05]
CROSS VALIDATION 26
iteration:
            0 HingeLoss:
                          21.049571397762453
iteration:
            1 HingeLoss:
                          1.6370593684692527
iteration:
            2 HingeLoss:
                          1.1024810519043897
iteration:
            3 HingeLoss:
                          0.3086054402450847
iteration:
            4 HingeLoss:
                          0.30213122663651076
```

iteration: 5 HingeLoss: 0.29579283513728216 iteration: 6 HingeLoss: 0.2895874163441346 iteration: 7 HingeLoss: 0.28351218063125144 iteration: 8 HingeLoss: 0.27756439689619633 iteration: 9 HingeLoss: 0.2717413913321537 10 HingeLoss: iteration: 0.26604054622592926 11 HingeLoss: iteration: 0.2604592987811647 iteration: 12 HingeLoss: 0.2549951399662408 13 HingeLoss: iteration: 0.2496456133863512 iteration: 14 HingeLoss: 0.2444083141792371 iteration: 15 HingeLoss: 0.23928088793409005 iteration: 16 HingeLoss: 0.2342610296331339 17 HingeLoss: iteration: 0.22934648261541163 18 HingeLoss: iteration: 0.22453503756231075 iteration: 19 HingeLoss: 0.2198245315043712 20 HingeLoss: iteration: 0.21521284684892997 iteration: 21 HingeLoss: 0.2106979104281633 iteration: 22 HingeLoss: 0.2062776925671018 23 HingeLoss: iteration: 0.2019502061711959 24 HingeLoss: iteration: 0.1977135058330246 25 HingeLoss: iteration: 0.1935656869577434 iteration: 26 HingeLoss: 0.18950488490688028 27 HingeLoss: iteration: 0.18552927416009307 iteration: 28 HingeLoss: 0.18163706749451328 iteration: 29 HingeLoss: 0.17782651518130554 30 HingeLoss: iteration: 0.1740959041990826 31 HingeLoss: iteration: 0.1704435574638224 iteration: 32 HingeLoss: 0.16686783307494044 iteration: 33 HingeLoss: 0.1633671235771784 iteration: 34 HingeLoss: 0.1599398552379781 35 HingeLoss: iteration: 0.15658448734001523 iteration: 36 HingeLoss: 0.15329951148857465 0.15008345093345665 iteration: 37 HingeLoss: iteration: 38 HingeLoss: 0.1469348599051085 39 HingeLoss: iteration: 0.14385232296468364 iteration: 40 HingeLoss: 0.14083445436773578 41 HingeLoss: iteration: 0.1378798974412618 42 HingeLoss: iteration: 0.13498732397381402 iteration: 43 HingeLoss: 0.13215543361840684 44 HingeLoss: iteration: 0.12938295330795035 45 HingeLoss: iteration: 0.12666863668294667 46 HingeLoss: iteration: 0.12401126353119354 iteration: 47 HingeLoss: 0.12140963923924177 iteration: 48 HingeLoss: 0.11886259425536044 iteration: 49 HingeLoss: 0.11636898356376896 50 HingeLoss: iteration: 0.11392768616989889 iteration: 51 HingeLoss: 0.11153760459645443 iteration: 52 HingeLoss: 0.10919766439004519 iteration: 53 HingeLoss: 0.10690681363816905 iteration: 54 HingeLoss: 0.10466402249632847 iteration: 55 HingeLoss: 0.10246828272506694 iteration: 56 HingeLoss: 0.10031860723671858

```
Output_hinge_test.txt
iteration:
            57 HingeLoss:
                           0.09821402965166579
iteration:
            58 HingeLoss:
                           0.09615360386390685
iteration:
            59 HingeLoss:
                           0.09413640361573643
iteration:
            60 HingeLoss:
                           0.09216152208135
iteration:
            61 HingeLoss:
                           0.09022807145918312
            62 HingeLoss:
iteration:
                           0.08833518257280285
            63 HingeLoss:
iteration:
                           0.08648200448017263
            64 HingeLoss:
iteration:
                           0.08466770409111397
            65 HingeLoss:
iteration:
                           0.0828914657927934
iteration:
            66 HingeLoss:
                           0.08115249108306656
iteration:
            67 HingeLoss:
                           0.07944999821151377
iteration:
            68 HingeLoss:
                           0.07778322182800725
            69 HingeLoss:
iteration:
                           0.07615141263864986
            70 HingeLoss:
iteration:
                           0.07455383706893298
iteration:
            71 HingeLoss:
                           0.07298977693396012
            72 HingeLoss:
iteration:
                           0.07145852911558943
iteration:
            73 HingeLoss:
                           0.06995940524634912
iteration:
            74 HingeLoss:
                           0.06849173139998421
            75 HingeLoss:
iteration:
                           0.06705484778849502
            76 HingeLoss:
iteration:
                           0.06564810846553185
            77 HingeLoss:
iteration:
                           0.06427088103601172
iteration:
            78 HingeLoss:
                           0.06292254637182715
            79 HingeLoss:
iteration:
                           0.06160249833351947
iteration:
            80 HingeLoss:
                           0.06031014349779046
iteration:
            81 HingeLoss:
                           0.05904490089073097
            82 HingeLoss:
iteration:
                           0.05780620172664598
            83 HingeLoss:
iteration:
                           0.0565934891523589
            84 HingeLoss:
iteration:
                           0.05540621799687993
iteration:
            85 HingeLoss:
                           0.05424385452632628
            86 HingeLoss:
iteration:
                           0.053105876203983896
            87 HingeLoss:
iteration:
                           0.05199177145540258
iteration:
            88 HingeLoss:
                           0.050901039438419664
                           0.04983318981800773
iteration:
            89 HingeLoss:
            90 HingeLoss:
iteration:
                           0.04878774254584632
            91 HingeLoss:
iteration:
                           0.04776422764451774
iteration:
            92 HingeLoss: 0.04676218499623011
            93 HingeLoss:
iteration:
                           0.045781164135973065
iteration:
            94 HingeLoss:
                           0.04482072404901257
iteration:
            95 HingeLoss:
                           0.043880432972634255
            96 HingeLoss:
iteration:
                           0.042959868202045885
iteration:
            97 HingeLoss:
                           0.042058615900351724
            98 HingeLoss:
iteration:
                           0.04117627091251357
iteration:
            99 HingeLoss:
                           0.04031243658321462
[-1.02911210e-03 -1.03766398e-04 -1.84247476e-04 ...
                                                      7.82772652e-04
                  7.07080165e-05]
  4.72390873e-04
CROSS VALIDATION 27
            0 HingeLoss:
iteration:
                          21.049571397762453
iteration:
            1 HingeLoss:
                          1.6370593684692527
iteration:
            2 HingeLoss:
                          1.1024810519043897
iteration:
            3 HingeLoss:
                          0.3086054402450847
iteration:
            4 HingeLoss:
                          0.30213122663651076
iteration:
            5 HingeLoss:
                          0.29579283513728216
```

iteration: 6 HingeLoss: 0.2895874163441346 7 HingeLoss: iteration: 0.28351218063125144 iteration: 8 HingeLoss: 0.27756439689619633 iteration: 9 HingeLoss: 0.2717413913321537 iteration: 10 HingeLoss: 0.26604054622592926 11 HingeLoss: iteration: 0.2604592987811647 12 HingeLoss: iteration: 0.2549951399662408 13 HingeLoss: iteration: 0.2496456133863512 14 HingeLoss: iteration: 0.2444083141792371 iteration: 15 HingeLoss: 0.23928088793409005 iteration: 16 HingeLoss: 0.2342610296331339 iteration: 17 HingeLoss: 0.22934648261541163 iteration: 18 HingeLoss: 0.22453503756231075 iteration: 19 HingeLoss: 0.2198245315043712 iteration: 20 HingeLoss: 0.21521284684892997 21 HingeLoss: iteration: 0.2106979104281633 iteration: 22 HingeLoss: 0.2062776925671018 iteration: 23 HingeLoss: 0.2019502061711959 24 HingeLoss: iteration: 0.1977135058330246 25 HingeLoss: iteration: 0.1935656869577434 iteration: 26 HingeLoss: 0.18950488490688028 iteration: 27 HingeLoss: 0.18552927416009307 28 HingeLoss: iteration: 0.18163706749451328 iteration: 29 HingeLoss: 0.17782651518130554 iteration: 30 HingeLoss: 0.1740959041990826 31 HingeLoss: iteration: 0.1704435574638224 32 HingeLoss: iteration: 0.16686783307494044 iteration: 33 HingeLoss: 0.1633671235771784 iteration: 34 HingeLoss: 0.1599398552379781 iteration: 35 HingeLoss: 0.15658448734001523 36 HingeLoss: iteration: 0.15329951148857465 iteration: 37 HingeLoss: 0.15008345093345665 0.1469348599051085 iteration: 38 HingeLoss: iteration: 39 HingeLoss: 0.14385232296468364 40 HingeLoss: iteration: 0.14083445436773578 iteration: 41 HingeLoss: 0.1378798974412618 iteration: 42 HingeLoss: 0.13498732397381402 iteration: 43 HingeLoss: 0.13215543361840684 iteration: 44 HingeLoss: 0.12938295330795035 45 HingeLoss: iteration: 0.12666863668294667 46 HingeLoss: iteration: 0.12401126353119354 47 HingeLoss: iteration: 0.12140963923924177 iteration: 48 HingeLoss: 0.11886259425536044 iteration: 49 HingeLoss: 0.11636898356376896 iteration: 50 HingeLoss: 0.11392768616989889 51 HingeLoss: iteration: 0.11153760459645443 iteration: 52 HingeLoss: 0.10919766439004519 iteration: 53 HingeLoss: 0.10690681363816905 iteration: 54 HingeLoss: 0.10466402249632847 iteration: 55 HingeLoss: 0.10246828272506694 iteration: 56 HingeLoss: 0.10031860723671858 iteration: 57 HingeLoss: 0.09821402965166579

```
Output_hinge_test.txt
iteration:
            58 HingeLoss:
                           0.09615360386390685
iteration:
            59 HingeLoss:
                           0.09413640361573643
iteration:
            60 HingeLoss:
                           0.09216152208135
iteration:
            61 HingeLoss:
                           0.09022807145918312
iteration:
            62 HingeLoss:
                           0.08833518257280285
            63 HingeLoss:
iteration:
                           0.08648200448017263
            64 HingeLoss:
iteration:
                           0.08466770409111397
iteration:
            65 HingeLoss:
                           0.0828914657927934
            66 HingeLoss:
iteration:
                           0.08115249108306656
iteration:
            67 HingeLoss:
                           0.07944999821151377
iteration:
            68 HingeLoss:
                           0.07778322182800725
iteration:
            69 HingeLoss:
                           0.07615141263864986
            70 HingeLoss:
iteration:
                           0.07455383706893298
            71 HingeLoss:
iteration:
                           0.07298977693396012
iteration:
            72 HingeLoss:
                           0.07145852911558943
            73 HingeLoss:
iteration:
                           0.06995940524634912
iteration:
            74 HingeLoss:
                           0.06849173139998421
iteration:
            75 HingeLoss:
                           0.06705484778849502
iteration:
            76 HingeLoss:
                           0.06564810846553185
            77 HingeLoss:
iteration:
                           0.06427088103601172
            78 HingeLoss:
iteration:
                           0.06292254637182715
iteration:
            79 HingeLoss:
                           0.06160249833351947
            80 HingeLoss:
iteration:
                           0.06031014349779046
iteration:
            81 HingeLoss:
                           0.05904490089073097
iteration:
            82 HingeLoss:
                           0.05780620172664598
            83 HingeLoss:
iteration:
                           0.0565934891523589
            84 HingeLoss:
iteration:
                           0.05540621799687993
            85 HingeLoss:
iteration:
                           0.05424385452632628
iteration:
            86 HingeLoss:
                           0.053105876203983896
iteration:
            87 HingeLoss:
                           0.05199177145540258
            88 HingeLoss:
iteration:
                           0.050901039438419664
iteration:
            89 HingeLoss:
                           0.04983318981800773
                           0.04878774254584632
iteration:
            90 HingeLoss:
            91 HingeLoss:
iteration:
                           0.04776422764451774
iteration:
            92 HingeLoss:
                           0.04676218499623011
iteration:
            93 HingeLoss: 0.045781164135973065
iteration:
            94 HingeLoss:
                           0.04482072404901257
iteration:
            95 HingeLoss:
                           0.043880432972634255
iteration:
            96 HingeLoss:
                           0.042959868202045885
iteration:
            97 HingeLoss:
                           0.042058615900351724
iteration:
            98 HingeLoss:
                           0.04117627091251357
            99 HingeLoss:
iteration:
                           0.04031243658321462
[-1.02911210e-03 -1.03766398e-04 -1.84247476e-04 ...
                                                      7.82772652e-04
  4.72390873e-04 7.07080165e-051
CROSS VALIDATION 28
iteration:
            0 HingeLoss:
                          19.67505977349833
iteration:
            1 HingeLoss:
                          1.6370593684692527
iteration:
            2 HingeLoss:
                          1.1024810519043897
iteration:
            3 HingeLoss:
                          0.3086054402450847
iteration:
            4 HingeLoss:
                          0.30213122663651076
iteration:
            5 HingeLoss:
                          0.29579283513728216
iteration:
            6 HingeLoss:
                          0.2895874163441346
```

iteration: 7 HingeLoss: 0.28351218063125144 iteration: 8 HingeLoss: 0.27756439689619633 iteration: 9 HingeLoss: 0.2717413913321537 iteration: 10 HingeLoss: 0.26604054622592926 iteration: 11 HingeLoss: 0.2604592987811647 12 HingeLoss: 0.2549951399662408 iteration: 13 HingeLoss: iteration: 0.2496456133863512 14 HingeLoss: iteration: 0.2444083141792371 15 HingeLoss: iteration: 0.23928088793409005 iteration: 16 HingeLoss: 0.2342610296331339 iteration: 17 HingeLoss: 0.22934648261541163 iteration: 18 HingeLoss: 0.22453503756231075 19 HingeLoss: iteration: 0.2198245315043712 iteration: 20 HingeLoss: 0.21521284684892997 iteration: 21 HingeLoss: 0.2106979104281633 22 HingeLoss: iteration: 0.2062776925671018 0.2019502061711959 iteration: 23 HingeLoss: iteration: 24 HingeLoss: 0.1977135058330246 25 HingeLoss: iteration: 0.1935656869577434 26 HingeLoss: iteration: 0.18950488490688028 iteration: 27 HingeLoss: 0.18552927416009307 iteration: 28 HingeLoss: 0.18163706749451328 29 HingeLoss: iteration: 0.17782651518130554 0.1740959041990826 iteration: 30 HingeLoss: iteration: 31 HingeLoss: 0.1704435574638224 32 HingeLoss: iteration: 0.16686783307494044 33 HingeLoss: iteration: 0.1633671235771784 iteration: 34 HingeLoss: 0.1599398552379781 iteration: 35 HingeLoss: 0.15658448734001523 iteration: 36 HingeLoss: 0.15329951148857465 37 HingeLoss: iteration: 0.15008345093345665 iteration: 38 HingeLoss: 0.1469348599051085 0.14385232296468364 iteration: 39 HingeLoss: iteration: 40 HingeLoss: 0.14083445436773578 41 HingeLoss: iteration: 0.1378798974412618 iteration: 42 HingeLoss: 0.13498732397381402 iteration: 43 HingeLoss: 0.13215543361840684 iteration: 44 HingeLoss: 0.12938295330795035 iteration: 45 HingeLoss: 0.12666863668294667 46 HingeLoss: iteration: 0.12401126353119354 47 HingeLoss: iteration: 0.12140963923924177 48 HingeLoss: iteration: 0.11886259425536044 iteration: 49 HingeLoss: 0.11636898356376896 iteration: 50 HingeLoss: 0.11392768616989889 iteration: 51 HingeLoss: 0.11153760459645443 52 HingeLoss: iteration: 0.10919766439004519 iteration: 53 HingeLoss: 0.10690681363816905 iteration: 54 HingeLoss: 0.10466402249632847 iteration: 55 HingeLoss: 0.10246828272506694 iteration: 56 HingeLoss: 0.10031860723671858 iteration: 57 HingeLoss: 0.09821402965166579 iteration: 58 HingeLoss: 0.09615360386390685

```
Output_hinge_test.txt
iteration:
            59 HingeLoss:
                           0.09413640361573643
iteration:
            60 HingeLoss:
                           0.09216152208135
iteration:
            61 HingeLoss:
                           0.09022807145918312
iteration:
            62 HingeLoss:
                           0.08833518257280285
iteration:
            63 HingeLoss:
                           0.08648200448017263
            64 HingeLoss:
iteration:
                           0.08466770409111397
            65 HingeLoss:
iteration:
                           0.0828914657927934
            66 HingeLoss:
iteration:
                           0.08115249108306656
            67 HingeLoss:
iteration:
                           0.07944999821151377
iteration:
            68 HingeLoss:
                           0.07778322182800725
iteration:
            69 HingeLoss:
                           0.07615141263864986
iteration:
            70 HingeLoss:
                           0.07455383706893298
            71 HingeLoss:
iteration:
                           0.07298977693396012
            72 HingeLoss:
iteration:
                           0.07145852911558943
iteration:
            73 HingeLoss:
                           0.06995940524634912
            74 HingeLoss:
iteration:
                           0.06849173139998421
iteration:
            75 HingeLoss:
                           0.06705484778849502
iteration:
            76 HingeLoss:
                           0.06564810846553185
            77 HingeLoss:
iteration:
                           0.06427088103601172
            78 HingeLoss:
iteration:
                           0.06292254637182715
            79 HingeLoss:
iteration:
                           0.06160249833351947
iteration:
            80 HingeLoss:
                           0.06031014349779046
            81 HingeLoss:
iteration:
                           0.05904490089073097
iteration:
            82 HingeLoss:
                           0.05780620172664598
iteration:
            83 HingeLoss:
                           0.0565934891523589
            84 HingeLoss:
iteration:
                           0.05540621799687993
            85 HingeLoss:
iteration:
                           0.05424385452632628
iteration:
            86 HingeLoss:
                           0.053105876203983896
iteration:
            87 HingeLoss:
                           0.05199177145540258
iteration:
            88 HingeLoss:
                           0.050901039438419664
            89 HingeLoss:
iteration:
                           0.04983318981800773
iteration:
            90 HingeLoss:
                           0.04878774254584632
            91 HingeLoss:
                           0.04776422764451774
iteration:
            92 HingeLoss:
iteration:
                           0.04676218499623011
            93 HingeLoss:
iteration:
                           0.045781164135973065
iteration:
            94 HingeLoss: 0.04482072404901257
iteration:
            95 HingeLoss:
                           0.043880432972634255
iteration:
            96 HingeLoss:
                           0.042959868202045885
iteration:
            97 HingeLoss:
                           0.042058615900351724
iteration:
            98 HingeLoss:
                           0.04117627091251357
iteration:
            99 HingeLoss:
                           0.04031243658321462
[-1.02911210e-03 -1.03766398e-04 -1.84247476e-04 ...
                                                       7.82772652e-04
  4.72390873e-04
                  7.07080165e-051
CROSS VALIDATION 29
iteration:
            0 HingeLoss:
                          21.049571397762453
            1 HingeLoss:
iteration:
                          1.6370593684692527
iteration:
            2 HingeLoss:
                          1.1024810519043897
iteration:
            3 HingeLoss:
                          0.3086054402450847
iteration:
            4 HingeLoss:
                          0.30213122663651076
iteration:
            5 HingeLoss:
                          0.29579283513728216
iteration:
            6 HingeLoss:
                          0.2895874163441346
iteration:
            7 HingeLoss:
                          0.28351218063125144
```

iteration: 8 HingeLoss: 0.27756439689619633 9 HingeLoss: iteration: 0.2717413913321537 iteration: 10 HingeLoss: 0.26604054622592926 iteration: 11 HingeLoss: 0.2604592987811647 iteration: 12 HingeLoss: 0.2549951399662408 13 HingeLoss: iteration: 0.2496456133863512 14 HingeLoss: iteration: 0.2444083141792371 iteration: 15 HingeLoss: 0.23928088793409005 16 HingeLoss: iteration: 0.2342610296331339 iteration: 17 HingeLoss: 0.22934648261541163 iteration: 18 HingeLoss: 0.22453503756231075 iteration: 19 HingeLoss: 0.2198245315043712 20 HingeLoss: iteration: 0.21521284684892997 iteration: 21 HingeLoss: 0.2106979104281633 iteration: 22 HingeLoss: 0.2062776925671018 23 HingeLoss: iteration: 0.2019502061711959 iteration: 24 HingeLoss: 0.1977135058330246 iteration: 25 HingeLoss: 0.1935656869577434 26 HingeLoss: iteration: 0.18950488490688028 27 HingeLoss: iteration: 0.18552927416009307 iteration: 28 HingeLoss: 0.18163706749451328 iteration: 29 HingeLoss: 0.17782651518130554 30 HingeLoss: iteration: 0.1740959041990826 iteration: 31 HingeLoss: 0.1704435574638224 iteration: 32 HingeLoss: 0.16686783307494044 33 HingeLoss: iteration: 0.1633671235771784 34 HingeLoss: iteration: 0.1599398552379781 iteration: 35 HingeLoss: 0.15658448734001523 iteration: 36 HingeLoss: 0.15329951148857465 iteration: 37 HingeLoss: 0.15008345093345665 38 HingeLoss: iteration: 0.1469348599051085 iteration: 39 HingeLoss: 0.14385232296468364 0.14083445436773578 iteration: 40 HingeLoss: iteration: 41 HingeLoss: 0.1378798974412618 42 HingeLoss: iteration: 0.13498732397381402 iteration: 43 HingeLoss: 0.13215543361840684 iteration: 44 HingeLoss: 0.12938295330795035 iteration: 45 HingeLoss: 0.12666863668294667 iteration: 46 HingeLoss: 0.12401126353119354 47 HingeLoss: iteration: 0.12140963923924177 48 HingeLoss: iteration: 0.11886259425536044 49 HingeLoss: iteration: 0.11636898356376896 iteration: 50 HingeLoss: 0.11392768616989889 iteration: 51 HingeLoss: 0.11153760459645443 iteration: 52 HingeLoss: 0.10919766439004519 53 HingeLoss: iteration: 0.10690681363816905 iteration: 54 HingeLoss: 0.10466402249632847 iteration: 55 HingeLoss: 0.10246828272506694 iteration: 56 HingeLoss: 0.10031860723671858 iteration: 57 HingeLoss: 0.09821402965166579 iteration: 58 HingeLoss: 0.09615360386390685 iteration: 59 HingeLoss: 0.09413640361573643

```
Output_hinge_test.txt
iteration:
            60 HingeLoss:
                           0.09216152208135
iteration:
            61 HingeLoss:
                           0.09022807145918312
iteration:
            62 HingeLoss:
                           0.08833518257280285
iteration:
            63 HingeLoss:
                           0.08648200448017263
iteration:
            64 HingeLoss:
                           0.08466770409111397
            65 HingeLoss:
iteration:
                           0.0828914657927934
            66 HingeLoss:
iteration:
                           0.08115249108306656
iteration:
            67 HingeLoss:
                           0.07944999821151377
            68 HingeLoss:
iteration:
                           0.07778322182800725
iteration:
                           0.07615141263864986
            69 HingeLoss:
iteration:
            70 HingeLoss:
                           0.07455383706893298
iteration:
            71 HingeLoss:
                           0.07298977693396012
            72 HingeLoss:
                           0.07145852911558943
iteration:
            73 HingeLoss:
iteration:
                           0.06995940524634912
iteration:
            74 HingeLoss:
                           0.06849173139998421
            75 HingeLoss:
iteration:
                           0.06705484778849502
                           0.06564810846553185
iteration:
            76 HingeLoss:
iteration:
            77 HingeLoss:
                           0.06427088103601172
iteration:
            78 HingeLoss:
                           0.06292254637182715
            79 HingeLoss:
iteration:
                           0.06160249833351947
            80 HingeLoss:
iteration:
                           0.06031014349779046
iteration:
            81 HingeLoss:
                           0.05904490089073097
            82 HingeLoss:
iteration:
                           0.05780620172664598
iteration:
            83 HingeLoss:
                           0.0565934891523589
iteration:
            84 HingeLoss:
                           0.05540621799687993
            85 HingeLoss:
iteration:
                           0.05424385452632628
            86 HingeLoss:
iteration:
                           0.053105876203983896
            87 HingeLoss:
iteration:
                           0.05199177145540258
iteration:
            88 HingeLoss:
                           0.050901039438419664
            89 HingeLoss:
iteration:
                           0.04983318981800773
            90 HingeLoss:
iteration:
                           0.04878774254584632
iteration:
            91 HingeLoss:
                           0.04776422764451774
            92 HingeLoss:
                           0.04676218499623011
iteration:
            93 HingeLoss:
iteration:
                           0.045781164135973065
iteration:
            94 HingeLoss:
                           0.04482072404901257
iteration:
            95 HingeLoss: 0.043880432972634255
            96 HingeLoss:
iteration:
                           0.042959868202045885
iteration:
            97 HingeLoss:
                           0.042058615900351724
            98 HingeLoss:
                           0.04117627091251357
iteration:
iteration:
            99 HingeLoss:
                           0.04031243658321462
[-1.02911210e-03 -1.03766398e-04 -1.84247476e-04 ...
                                                      7.82772652e-04
  4.72390873e-04
                 7.07080165e-05]
CROSS VALIDATION 30
iteration:
            0 HingeLoss:
                          32.16587286049037
iteration:
            1 HingeLoss:
                          0.27015832193466416
            2 HingeLoss:
                          0.2644906879391331
iteration:
iteration:
            3 HingeLoss:
                          0.2589419548713146
iteration:
           4 HingeLoss:
                          0.25350962831632196
iteration:
            5 HingeLoss:
                          0.24819126618943735
iteration:
            6 HingeLoss:
                          0.2429844776382804
iteration:
            7 HingeLoss:
                          0.23788692196800892
iteration:
            8 HingeLoss:
                          0.23289630758906643
```

iteration: 9 HingeLoss: 0.2280103909870056 iteration: 10 HingeLoss: 0.22322697571392425 iteration: 11 HingeLoss: 0.21854391140105892 iteration: 12 HingeLoss: 0.21395909279209335 iteration: 13 HingeLoss: 0.20947045879674775 14 HingeLoss: iteration: 0.20507599156422232 15 HingeLoss: iteration: 0.20077371557607882 iteration: 16 HingeLoss: 0.19656169675815305 17 HingeLoss: iteration: 0.19243804161109743 iteration: 18 HingeLoss: 0.1884008963591653 iteration: 19 HingeLoss: 0.18444844611685157 iteration: 20 HingeLoss: 0.18057891407301707 21 HingeLoss: iteration: 0.17679056069212862 22 HingeLoss: iteration: 0.17308168293225704 iteration: 23 HingeLoss: 0.16945061347947965 24 HingeLoss: iteration: 0.16589571999834463 iteration: 0.16241540439806082 25 HingeLoss: iteration: 26 HingeLoss: 0.1590081021140801 27 HingeLoss: iteration: 0.1556722814047532 28 HingeLoss: iteration: 0.15240644266274017 iteration: 29 HingeLoss: 0.14920911774086648 iteration: 30 HingeLoss: 0.14607886929212216 iteration: 31 HingeLoss: 0.1430142901235078 iteration: 32 HingeLoss: 0.140014002563435 iteration: 33 HingeLoss: 0.13707665784239834 34 HingeLoss: iteration: 0.1342009354866412 35 HingeLoss: iteration: 0.13138554272454034 iteration: 36 HingeLoss: 0.12862921390544513 iteration: 37 HingeLoss: 0.12593070993070826 iteration: 38 HingeLoss: 0.12328881769665287 39 HingeLoss: iteration: 0.12070234954922567 iteration: 40 HingeLoss: 0.11817014275009138 0.11569105895392703 iteration: 41 HingeLoss: iteration: 42 HingeLoss: 0.1132639836966827 43 HingeLoss: iteration: 0.11088782589457793 iteration: 44 HingeLoss: 0.10856151735360828 iteration: 45 HingeLoss: 0.10628401228934245 iteration: 46 HingeLoss: 0.10405428685679333 iteration: 47 HingeLoss: 0.10187133869015152 48 HingeLoss: iteration: 0.09973418645217531 49 HingeLoss: iteration: 0.09764186939303365 50 HingeLoss: iteration: 0.0955934469184041 iteration: 51 HingeLoss: 0.09358799816663195 iteration: 52 HingeLoss: 0.09162462159475948 iteration: 53 HingeLoss: 0.08970243457324059 54 HingeLoss: iteration: 0.08782057298915745 iteration: 55 HingeLoss: 0.08597819085776146 iteration: 56 HingeLoss: 0.08417445994216316 iteration: 57 HingeLoss: 0.0824085693810016 iteration: 58 HingeLoss: 0.08067972532392381 iteration: 59 HingeLoss: 0.07898715057471226 iteration: 60 HingeLoss: 0.07733008424189858

```
Output_hinge_test.txt
iteration:
            61 HingeLoss:
                           0.07570778139670746
            62 HingeLoss:
iteration:
                           0.07411951273817625
iteration:
            63 HingeLoss:
                           0.07256456426530009
iteration:
            64 HingeLoss:
                           0.07104223695605522
iteration:
            65 HingeLoss:
                           0.06955184645315562
            66 HingeLoss:
iteration:
                           0.06809272275640273
iteration:
            67 HingeLoss:
                           0.0666642099214889
iteration:
            68 HingeLoss:
                           0.06526566576511961
            69 HingeLoss:
iteration:
                           0.06389646157632245
iteration:
            70 HingeLoss:
                           0.06255598183381171
iteration:
            71 HingeLoss:
                           0.061243623929283154
iteration:
            72 HingeLoss:
                           0.059958797896513066
            73 HingeLoss:
iteration:
                           0.05870092614614131
iteration:
            74 HingeLoss:
                           0.05746944320601746
iteration:
            75 HingeLoss:
                           0.05626379546699486
            76 HingeLoss:
iteration:
                           0.055083440934057454
iteration:
            77 HingeLoss:
                           0.05392784898266757
iteration:
            78 HingeLoss:
                           0.05279650012022555
            79 HingeLoss:
iteration:
                           0.05168888575253332
            80 HingeLoss:
iteration:
                           0.05060450795515781
iteration:
            81 HingeLoss:
                           0.04954287924959034
iteration:
            82 HingeLoss:
                           0.04850352238410249
iteration:
            83 HingeLoss:
                           0.047485970119199014
iteration:
            84 HingeLoss:
                           0.046489765017571835
iteration:
            85 HingeLoss:
                           0.04551445923846073
            86 HingeLoss:
iteration:
                           0.04455961433632774
            87 HingeLoss:
iteration:
                           0.043624801063755665
iteration:
            88 HingeLoss:
                           0.04270959917848108
iteration:
            89 HingeLoss:
                           0.04181359725447593
iteration:
            90 HingeLoss:
                           0.04093639249699217
            91 HingeLoss:
iteration:
                           0.04007759056148687
iteration:
            92 HingeLoss:
                           0.03923680537634572
iteration:
            93 HingeLoss:
                           0.03841365896932594
iteration:
            94 HingeLoss:
                           0.03760778129764
            95 HingeLoss:
iteration:
                           0.03681881008160414
iteration:
            96 HingeLoss:
                           0.03604639064177667
iteration:
            97 HingeLoss:
                           0.03529017573951305
iteration:
            98 HingeLoss:
                           0.03454982542086581
            99 HingeLoss:
                           0.03382500686375944
iteration:
[-9.58101994e-04 -1.42795238e-04 -2.74520679e-04 ...
                                                       4.90014772e-04
  2.62467876e-04 -7.63320070e-071
CROSS VALIDATION 31
                          21.050258091648175
iteration:
            0 HingeLoss:
iteration:
            1 HingeLoss:
                          1.6384026847562398
iteration:
            2 HingeLoss:
                          1.1029992905147148
            3 HingeLoss:
iteration:
                          0.3086111046022702
iteration:
            4 HingeLoss:
                          0.3021367721615126
iteration:
            5 HingeLoss:
                          0.2957982643230729
iteration:
            6 HingeLoss:
                          0.28959273163138705
iteration:
            7 HingeLoss:
                          0.28351738440943575
iteration:
            8 HingeLoss:
                          0.277569491504654
iteration:
            9 HingeLoss:
                          0.2717463790611495
```

Output\_hinge\_test.txt iteration: 0.26604542931768044 10 HingeLoss: iteration: 11 HingeLoss: 0.26046407943084915 iteration: 12 HingeLoss: 0.25499982032298435 iteration: 13 HingeLoss: 0.24965019555419277 iteration: 14 HingeLoss: 0.2444128002180752 15 HingeLoss: iteration: 0.23928527986060905 16 HingeLoss: iteration: 0.2342653294217098 iteration: 17 HingeLoss: 0.22935069219900073 18 HingeLoss: iteration: 0.22453915883331743 iteration: 19 HingeLoss: 0.21982856631549952 iteration: 20 HingeLoss: 0.215216797014016 0.2107017777229911 iteration: 21 HingeLoss: 22 HingeLoss: iteration: 0.20628147873020103 23 HingeLoss: iteration: 0.2019539129046239 iteration: 24 HingeLoss: 0.19771713480313136 25 HingeLoss: iteration: 0.19356923979592067 iteration: 26 HingeLoss: 0.18950836321029468 iteration: 27 HingeLoss: 0.18553267949240473 iteration: 28 HingeLoss: 0.18164040138657825 29 HingeLoss: iteration: 0.17782977913186404 iteration: 30 HingeLoss: 0.17409909967543302 iteration: 31 HingeLoss: 0.17044668590248072 32 HingeLoss: iteration: 0.16687089588228612 iteration: 33 HingeLoss: 0.16337012213008648 iteration: 34 HingeLoss: 0.15994279088443836 35 HingeLoss: iteration: 0.1565873613997379 36 HingeLoss: iteration: 0.15330232525358403 iteration: 37 HingeLoss: 0.15008620566867142 iteration: 38 HingeLoss: 0.14693755684891102 iteration: 39 HingeLoss: 0.14385496332947628 40 HingeLoss: iteration: 0.14083703934048583 iteration: 41 HingeLoss: 0.13788242818403543 0.1349898016242984 iteration: 42 HingeLoss: iteration: 43 HingeLoss: 0.13215785929042168 44 HingeLoss: iteration: 0.12938532809194853 iteration: 45 HingeLoss: 0.12667096164650465 iteration: 46 HingeLoss: 0.12401353971949121 iteration: 47 HingeLoss: 0.12141186767553205 iteration: 48 HingeLoss: 0.1188647759414296 49 HingeLoss: iteration: 0.1163711194803869 50 HingeLoss: iteration: 0.11392977727725995 51 HingeLoss: iteration: 0.1115396518346092 iteration: 52 HingeLoss: 0.10919966867932288 iteration: 53 HingeLoss: 0.10690877587959145 iteration: 54 HingeLoss: 0.10466594357201468 iteration: 55 HingeLoss: 0.10247016349863033 iteration: 56 HingeLoss: 0.1003204485536548 iteration: 57 HingeLoss: 0.09821583233973293 iteration: 58 HingeLoss: 0.09615536873349737 iteration: 59 HingeLoss: 0.09413813146024169

iteration:

iteration:

60 HingeLoss:

61 HingeLoss:

0.09216321367751695

```
Output_hinge_test.txt
iteration:
            62 HingeLoss:
                           0.08833680393769429
            63 HingeLoss:
iteration:
                           0.08648359183055475
iteration:
            64 HingeLoss:
                           0.08466925814057483
iteration:
            65 HingeLoss:
                           0.08289298723995099
iteration:
            66 HingeLoss:
                           0.08115398061188239
            67 HingeLoss:
iteration:
                           0.07945145649160076
            68 HingeLoss:
iteration:
                           0.07778464951493042
iteration:
            69 HingeLoss:
                           0.07615281037422128
            70 HingeLoss:
iteration:
                           0.07455520548150008
iteration:
            71 HingeLoss:
                           0.07299111663868832
iteration:
            72 HingeLoss:
                           0.0714598407147386
iteration:
            73 HingeLoss:
                           0.06996068932954441
            74 HingeLoss:
iteration:
                           0.06849298854448105
            75 HingeLoss:
iteration:
                           0.06705607855943863
iteration:
            76 HingeLoss: 0.0656493134162113
            77 HingeLoss:
iteration:
                           0.06427206070810859
                           0.06292370129565929
iteration:
            78 HingeLoss:
iteration:
            79 HingeLoss:
                           0.061603629028279094
            80 HingeLoss:
iteration:
                           0.06031125047177772
            81 HingeLoss:
iteration:
                           0.059045984641582394
            82 HingeLoss:
iteration:
                           0.05780726274155827
iteration:
            83 HingeLoss: 0.05659452790830783
            84 HingeLoss:
iteration:
                           0.055407234960834884
iteration:
            85 HingeLoss:
                           0.0542448501554601
iteration:
            86 HingeLoss:
                           0.053106850945878345
            87 HingeLoss:
iteration:
                           0.05199272574824977
            88 HingeLoss:
iteration:
                           0.0509019737112188
iteration:
            89 HingeLoss:
                           0.04983410449075814
iteration:
            90 HingeLoss: 0.04878863802973614
            91 HingeLoss: 0.04776510434210886
iteration:
iteration:
            92 HingeLoss:
                           0.046763043301639065
iteration:
            93 HingeLoss:
                           0.045782004435048235
            94 HingeLoss:
                           0.04482154671950767
iteration:
iteration:
            95 HingeLoss:
                           0.04388123838437819
            96 HingeLoss:
iteration:
                           0.042960656717108824
iteration:
            97 HingeLoss:
                           0.04205938787320806
iteration:
            98 HingeLoss:
                           0.04117702669020119
iteration:
            99 HingeLoss:
                           0.040313176505490926
[-1.02914392e-03 -1.03745346e-04 -1.84240165e-04 ...
                                                      7.82772652e-04
  4.72390873e-04
                 7.07080165e-05]
CROSS VALIDATION 32
           0 HingeLoss:
iteration:
                          9.390219511392763
iteration:
            1 HingeLoss:
                          2.854573240449894
iteration:
            2 HingeLoss:
                          0.3123370931232992
iteration:
            3 HingeLoss:
                          0.30578459340989383
            4 HingeLoss:
iteration:
                          0.29936955816497285
iteration:
            5 HingeLoss:
                          0.29308910353032624
iteration:
            6 HingeLoss:
                          0.286940406148019
iteration:
            7 HingeLoss:
                          0.2809207018911599
iteration:
            8 HingeLoss:
                          0.27502728462129766
iteration:
            9 HingeLoss:
                          0.2692575049718843
iteration:
            10 HingeLoss: 0.26360876915726233
```

iteration: 11 HingeLoss: 0.2580785378066355 iteration: 12 HingeLoss: 0.252664324822504 iteration: 13 HingeLoss: 0.24736369626304677 iteration: 14 HingeLoss: 0.2421742692479511 iteration: 15 HingeLoss: 0.2370937108871966 16 HingeLoss: iteration: 0.23211973723231166 17 HingeLoss: iteration: 0.22725011224963304 iteration: 18 HingeLoss: 0.22248264681510263 19 HingeLoss: iteration: 0.21781519773015473 iteration: 20 HingeLoss: 0.21324566675824813 iteration: 21 HingeLoss: 0.20877199968161064 iteration: 22 HingeLoss: 0.20439218537777198 23 HingeLoss: iteration: 0.20010425491547032 24 HingeLoss: iteration: 0.19590628066952567 iteration: 25 HingeLoss: 0.19179637545428238 26 HingeLoss: iteration: 0.1877726916752308 0.18383342049842682 iteration: 27 HingeLoss: iteration: 28 HingeLoss: 0.17997679103733766 iteration: 29 HingeLoss: 0.17620106955674414 30 HingeLoss: iteration: 0.1725045586933467 iteration: 31 HingeLoss: 0.16888559669272038 iteration: 32 HingeLoss: 0.16534255666227962 iteration: 33 HingeLoss: 0.16187384583991318 iteration: 34 HingeLoss: 0.15847790487796293 iteration: 35 HingeLoss: 0.15515320714222525 36 HingeLoss: iteration: 0.15189825802565643 37 HingeLoss: iteration: 0.14871159427647762 iteration: 38 HingeLoss: 0.1455917833403747 iteration: 39 HingeLoss: 0.14253742271649777 40 HingeLoss: iteration: 0.13954713932697194 41 HingeLoss: iteration: 0.13661958889963427 iteration: 42 HingeLoss: 0.13375345536372082 43 HingeLoss: iteration: 0.1309474502582312 iteration: 44 HingeLoss: 0.1282003121527052 iteration: 45 HingeLoss: 0.1255108060801508 iteration: 46 HingeLoss: 0.12287772298186889 iteration: 47 HingeLoss: 0.12029987916392462 iteration: 48 HingeLoss: 0.11777611576502173 iteration: 49 HingeLoss: 0.11530529823554035 50 HingeLoss: iteration: 0.11288631582750386 51 HingeLoss: iteration: 0.11051808109524586 52 HingeLoss: iteration: 0.10819952940655209 iteration: 53 HingeLoss: 0.10592961846405916 iteration: 54 HingeLoss: 0.10370732783669243 iteration: 55 HingeLoss: 0.101531658500935 iteration: 56 HingeLoss: 0.09940163239172 iteration: 57 HingeLoss: 0.09731629196274427 iteration: 58 HingeLoss: 0.09527469975600683 59 HingeLoss: iteration: 0.09327593798037752 iteration: 60 HingeLoss: 0.09131910809900713 iteration: 61 HingeLoss: 0.08940333042539292 iteration: 62 HingeLoss: 0.08752774372791852

```
Output_hinge_test.txt
iteration:
            63 HingeLoss:
                           0.08569150484269011
            64 HingeLoss:
iteration:
                           0.08389378829449477
iteration:
            65 HingeLoss:
                           0.08213378592571059
iteration:
            66 HingeLoss:
                           0.08041070653300246
iteration:
            67 HingeLoss:
                           0.07872377551163888
            68 HingeLoss:
                           0.07707223450727098
iteration:
            69 HingeLoss:
iteration:
                           0.07545534107501684
            70 HingeLoss:
iteration:
                           0.07387236834569788
            71 HingeLoss:
iteration:
                           0.07232260469907686
iteration:
            72 HingeLoss:
                           0.07080535344395182
iteration:
            73 HingeLoss:
                           0.06931993250496038
iteration:
            74 HingeLoss:
                           0.06786567411595529
            75 HingeLoss:
iteration:
                           0.06644192451981201
            76 HingeLoss:
iteration:
                           0.06504804367453465
iteration:
            77 HingeLoss:
                           0.06368340496552707
            78 HingeLoss:
iteration:
                           0.062347394923900123
iteration:
            79 HingeLoss:
                           0.06103941295068906
iteration:
            80 HingeLoss:
                           0.05975887104685591
            81 HingeLoss:
iteration:
                           0.05850519354895661
            82 HingeLoss:
iteration:
                           0.057277816870353375
iteration:
            83 HingeLoss:
                           0.05607618924785605
iteration:
            84 HingeLoss:
                           0.05489977049367885
            85 HingeLoss:
iteration:
                           0.05374803175260068
iteration:
            86 HingeLoss:
                           0.05262045526421992
iteration:
            87 HingeLoss:
                           0.05151653413019709
            88 HingeLoss:
iteration:
                           0.05043577208638025
            89 HingeLoss:
iteration:
                           0.04937768327971093
iteration:
            90 HingeLoss:
                           0.04834179204981082
iteration:
            91 HingeLoss:
                           0.04732763271514977
            92 HingeLoss:
iteration:
                           0.04633474936370055
            93 HingeLoss:
iteration:
                           0.04536269564798478
iteration:
            94 HingeLoss:
                           0.04441103458441917
            95 HingeLoss:
                           0.04347933835687065
iteration:
iteration:
            96 HingeLoss:
                           0.04256718812433333
            97 HingeLoss:
iteration:
                           0.04167417383263966
iteration:
            98 HingeLoss:
                           0.040799894030122
iteration:
            99 HingeLoss:
                           0.03994395568714137
[-9.23787000e-04 -1.16482153e-04 -2.87974339e-05 ...
                                                       7.37686944e-04
  5.88057205e-04
                  7.02666526e-051
CROSS VALIDATION 33
iteration:
            0 HingeLoss:
                          21.050258091648175
            1 HingeLoss:
iteration:
                          1.6380151772194562
iteration:
            2 HingeLoss:
                          1.102689735194056
iteration:
            3 HingeLoss:
                          0.3086128561300009
iteration:
            4 HingeLoss:
                          0.302138486944056
            5 HingeLoss:
iteration:
                          0.2957999431313041
iteration:
            6 HingeLoss:
                          0.28959437522000864
iteration:
            7 HingeLoss:
                          0.2835189935173178
iteration:
            8 HingeLoss:
                          0.27757106685516575
iteration:
            9 HingeLoss:
                          0.27174792136248455
iteration:
            10 HingeLoss:
                           0.26604693926317524
iteration:
            11 HingeLoss:
                           0.26046555769929497
```

Output\_hinge\_test.txt iteration: 12 HingeLoss: 0.2550012675789319 iteration: 13 HingeLoss: 0.24965161244825118 iteration: 14 HingeLoss: 0.24441418738720466 iteration: 15 HingeLoss: 0.23928663792840685 iteration: 16 HingeLoss: 0.23426665899869098 17 HingeLoss: iteration: 0.2293519938828722 18 HingeLoss: iteration: 0.224540433209247 iteration: 19 HingeLoss: 0.21982981395637874 20 HingeLoss: iteration: 0.21521801848071778 iteration: 21 HingeLoss: 0.21070297356462175 iteration: 22 HingeLoss: 0.20628264948434732 iteration: 23 HingeLoss: 0.20195505909759454 24 HingeLoss: iteration: 0.19771825695019365 25 HingeLoss: iteration: 0.19357033840153215 iteration: 26 HingeLoss: 0.18950943876832999 27 HingeLoss: iteration: 0.18553373248637745 iteration: 28 HingeLoss: 0.1816414322898584 iteration: 29 HingeLoss: 0.17783078840789082 iteration: 30 HingeLoss: 0.1741000877779232 31 HingeLoss: iteration: 0.17044765327563252 iteration: 32 HingeLoss: 0.16687184296097904 iteration: 33 HingeLoss: 0.16337104934007662 iteration: 34 HingeLoss: 0.15994369864254995 iteration: 35 HingeLoss: 0.1565882501140507 iteration: 36 HingeLoss: 0.1533031953236166 37 HingeLoss: iteration: 0.150087057485561 38 HingeLoss: iteration: 0.146938390795589 iteration: 39 HingeLoss: 0.1438557797808408 iteration: 40 HingeLoss: 0.14083783866356983 iteration: 41 HingeLoss: 0.13788321073817209 42 HingeLoss: iteration: 0.13499056776128235 iteration: 43 HingeLoss: 0.13215860935466733 0.12938606242064477 iteration: 44 HingeLoss: iteration: 45 HingeLoss: 0.12667168056976658

iteration: 47 HingeLoss: 0.121412556750714 iteration: 48 HingeLoss: 0.11886545056054784 iteration: 49 HingeLoss: 0.11637177994671419 iteration: 50 HingeLoss: 0.1139304238877068 51 HingeLoss: iteration: 0.1115402848798572 52 HingeLoss: iteration: 0.10920028844395549 53 HingeLoss: iteration: 0.10690938264222184 iteration: 54 HingeLoss: 0.10466653760541103 iteration: 55 HingeLoss: 0.10247074506983841 iteration: 56 HingeLoss: 0.10032101792411802 iteration: 57 HingeLoss: 0.09821638976540999 iteration: 58 HingeLoss: 0.0961559144649771 iteration: 59 HingeLoss: 0.09413866574285598 iteration: 60 HingeLoss: 0.09216373675145079 iteration: 61 HingeLoss: 0.09023023966786282 iteration: 62 HingeLoss: 0.08833730529477256 iteration: 63 HingeLoss: 0.08648408266969523

46 HingeLoss:

iteration:

```
Output_hinge_test.txt
iteration:
            64 HingeLoss:
                           0.08466973868243272
            65 HingeLoss:
iteration:
                           0.08289345770055224
iteration:
            66 HingeLoss:
                           0.08115444120272106
iteration:
            67 HingeLoss:
                           0.07945190741973396
iteration:
            68 HingeLoss:
                           0.0777850909830714
            69 HingeLoss:
iteration:
                           0.07615324258083064
            70 HingeLoss:
iteration:
                           0.07455562862087488
            71 HingeLoss:
iteration:
                           0.07299153090104948
            72 HingeLoss:
iteration:
                           0.07146024628631645
iteration:
            73 HingeLoss:
                           0.06996108639266232
iteration:
            74 HingeLoss:
                           0.06849337727763743
iteration:
            75 HingeLoss:
                           0.06705645913738723
            76 HingeLoss:
iteration:
                           0.06564968601003969
            77 HingeLoss:
iteration:
                           0.06427242548531509
iteration:
            78 HingeLoss: 0.06292405842022833
            79 HingeLoss:
iteration:
                           0.06160397866075487
iteration:
            80 HingeLoss:
                           0.06031159276933634
iteration:
            81 HingeLoss:
                           0.05904631975810264
            82 HingeLoss:
iteration:
                           0.05780759082769066
            83 HingeLoss:
iteration:
                           0.056594849111542424
iteration:
            84 HingeLoss:
                           0.055407549425567554
iteration:
            85 HingeLoss: 0.054245158023057446
            86 HingeLoss:
iteration:
                           0.053107152354741255
iteration:
            87 HingeLoss:
                           0.0519930208338756
iteration:
            88 HingeLoss:
                           0.050902262606262336
            89 HingeLoss:
iteration:
                           0.0498343873250912
            90 HingeLoss:
iteration:
                           0.04878891493050598
            91 HingeLoss:
iteration:
                           0.04776537543379533
iteration:
            92 HingeLoss: 0.04676330870611054
iteration:
            93 HingeLoss: 0.045782264271616434
            94 HingeLoss:
iteration:
                           0.044821801104981275
iteration:
            95 HingeLoss:
                           0.04388148743311538
                           0.04296090054106864
iteration:
            96 HingeLoss:
iteration:
            97 HingeLoss:
                           0.04205962658200075
            98 HingeLoss:
iteration:
                           0.04117726039113752
iteration:
            99 HingeLoss:
                           0.0403134053036304
[-1.02919175e-03 -1.03760037e-04 -1.84294908e-04 ...
                                                      7.82772652e-04
  4.72390873e-04
                  7.07080165e-05]
CROSS VALIDATION 34
            0 HingeLoss:
                          35.67661078997634
iteration:
iteration:
            1 HingeLoss:
                          0.2727466466147679
            2 HingeLoss:
iteration:
                          0.2670247123228648
iteration:
            3 HingeLoss:
                          0.2614228181210865
iteration:
            4 HingeLoss:
                          0.25593844569613133
iteration:
            5 HingeLoss:
                          0.2505691295662304
            6 HingeLoss:
iteration:
                          0.24531245597279702
iteration:
            7 HingeLoss:
                          0.24016606179533065
iteration:
            8 HingeLoss:
                          0.2351276334890829
iteration:
            9 HingeLoss:
                          0.23019490604501114
iteration:
            10 HingeLoss: 0.22536566197155136
iteration:
            11 HingeLoss:
                           0.22063773029775224
iteration:
            12 HingeLoss:
                           0.21600898559732137
```

Output\_hinge\_test.txt iteration: 13 HingeLoss: 0.21147734703314774 iteration: 14 HingeLoss: 0.20704077742186752 iteration: 15 HingeLoss: 0.20269728231805528 iteration: 16 HingeLoss: 0.19844490911762735 iteration: 17 HingeLoss: 0.19428174618005498 18 HingeLoss: iteration: 0.19020592196899272 19 HingeLoss: iteration: 0.18621560421093572 iteration: 20 HingeLoss: 0.18230899907152595 21 HingeLoss: iteration: 0.17848435034914126 iteration: 22 HingeLoss: 0.17473993868539936 iteration: 23 HingeLoss: 0.17107408079222708 iteration: 24 HingeLoss: 0.16748512869514268 25 HingeLoss: iteration: 0.16397146899241435 26 HingeLoss: iteration: 0.16053152212976202 iteration: 27 HingeLoss: 0.15716374169027206 28 HingeLoss: iteration: 0.1538666136992119 iteration: 29 HingeLoss: 0.15063865594342674 iteration: 30 HingeLoss: 0.14747841730501624 iteration: 31 HingeLoss: 0.14438447710898852 32 HingeLoss: iteration: 0.141355444484601 iteration: 33 HingeLoss: 0.13838995774009843 iteration: 34 HingeLoss: 0.13548668375056871 iteration: 35 HingeLoss: 0.13264431735864177 iteration: 36 HingeLoss: 0.1298615807877592 iteration: 37 HingeLoss: 0.12713722306775488 38 HingeLoss: iteration: 0.12447001947248494 39 HingeLoss: iteration: 0.12185877096925625 iteration: 40 HingeLoss: 0.11930230367980507 iteration: 41 HingeLoss: 0.116799468352584 iteration: 42 HingeLoss: 0.11434913984611972 43 HingeLoss: iteration: 0.1119502166232092 iteration: 44 HingeLoss: 0.1096016202557273 0.1073022949398228 iteration: 45 HingeLoss: iteration: 46 HingeLoss: 0.10505120702128544 iteration: 47 HingeLoss: 0.10284734453086997 iteration: 48 HingeLoss: 0.10068971672936833 iteration: 49 HingeLoss: 0.0985773536622266 iteration: 50 HingeLoss: 0.09650930572350482 iteration: 51 HingeLoss: 0.09448464322898459 52 HingeLoss: iteration: 0.09250245599823281 53 HingeLoss: iteration: 0.09056185294543297 54 HingeLoss: iteration: 0.08866196167880022 iteration: 55 HingeLoss: 0.0868019281084009 iteration: 56 HingeLoss: 0.08498091606219857 iteration: 57 HingeLoss: 0.08319810691015633 iteration: 58 HingeLoss: 0.08145269919622378 iteration: 59 HingeLoss: 0.07974390827804534 iteration: 60 HingeLoss: 0.07807096597422668 iteration: 61 HingeLoss: 0.0764331202190014 iteration: 62 HingeLoss: 0.07482963472414222

iteration:

iteration:

63 HingeLoss:

64 HingeLoss:

0.07325978864796517

```
Output_hinge_test.txt
iteration:
            65 HingeLoss:
                           0.07021820668012294
            66 HingeLoss:
iteration:
                           0.06874510345518603
iteration:
            67 HingeLoss:
                           0.06730290436770747
iteration:
            68 HingeLoss:
                           0.06589096108178254
iteration:
            69 HingeLoss:
                           0.06450863886290362
            70 HingeLoss:
iteration:
                           0.06315531629261743
            71 HingeLoss:
iteration:
                           0.061830384989168194
iteration:
           72 HingeLoss:
                           0.060533249334001726
           73 HingeLoss:
iteration:
                           0.059263326204007184
iteration:
            74 HingeLoss:
                           0.05802004470937565
iteration:
            75 HingeLoss:
                           0.056802845936958724
iteration:
            76 HingeLoss:
                           0.05561118269901086
           77 HingeLoss:
iteration:
                           0.05444451928720294
            78 HingeLoss:
iteration:
                           0.05330233123179622
iteration:
            79 HingeLoss:
                          0.05218410506586878
            80 HingeLoss:
iteration:
                           0.05108933809448815
iteration:
            81 HingeLoss:
                           0.05001753816872641
iteration:
            82 HingeLoss:
                           0.048968223464416046
            83 HingeLoss:
iteration:
                           0.047940922265547886
            84 HingeLoss:
iteration:
                           0.04693517275221236
            85 HingeLoss:
iteration:
                           0.045950522792989966
iteration:
            86 HingeLoss: 0.05225543128079589
            87 HingeLoss:
iteration:
                           8.191568419106252
iteration:
            88 HingeLoss:
                           0.12304164519413072
iteration:
            89 HingeLoss:
                           0.1204603624626775
            90 HingeLoss:
iteration:
                           0.1179332322950102
            91 HingeLoss:
iteration:
                           0.11545911862798901
iteration:
            92 HingeLoss:
                           0.11303690923186938
iteration:
           93 HingeLoss: 0.11066551521030288
iteration:
            94 HingeLoss:
                           0.10834387051082715
iteration:
           95 HingeLoss:
                           0.10607093144562565
iteration:
            96 HingeLoss:
                           0.10384567622234123
iteration:
            97 HingeLoss:
                           0.1016671044847325
iteration:
            98 HingeLoss:
                           0.09953423686296725
            99 HingeLoss:
iteration:
                           0.09744611453334966
[-0.00152152 -0.00033293 -0.00026675 ... 0.00103262 0.00066118
  0.00012261]
CROSS VALIDATION 35
iteration:
           0 HingeLoss:
                          6.303351312095344
            1 HingeLoss:
iteration:
                          13.699767958150712
            2 HingeLoss:
iteration:
                          0.3138196018945285
            3 HingeLoss:
iteration:
                          0.30723600072531654
iteration:
           4 HingeLoss:
                          0.3007905165000224
iteration:
            5 HingeLoss:
                          0.29448025167219605
iteration:
            6 HingeLoss:
                          0.28830236948282756
           7 HingeLoss:
iteration:
                          0.2822540926850902
iteration:
            8 HingeLoss:
                          0.2763327022958404
iteration:
           9 HingeLoss:
                          0.27053553637330535
iteration:
            10 HingeLoss: 0.26485998882041756
iteration:
           11 HingeLoss: 0.25930350821325115
iteration:
            12 HingeLoss:
                           0.25386359665403846
iteration:
            13 HingeLoss:
                           0.24853780864824748
```

Output\_hinge\_test.txt iteration: 14 HingeLoss: 0.2433237500052187 iteration: 15 HingeLoss: 0.23821907676186327 iteration: 16 HingeLoss: 0.23322149412894314 iteration: 17 HingeLoss: 0.228328755459455 iteration: 18 HingeLoss: 0.22353866123865834 19 HingeLoss: iteration: 0.21884905809529084 20 HingeLoss: iteration: 0.214257837833526 iteration: 21 HingeLoss: 0.20976293648524197 22 HingeLoss: iteration: 0.20536233338217078 iteration: 0.20105405024751366 23 HingeLoss: iteration: 24 HingeLoss: 0.19683615030661308 iteration: 25 HingeLoss: 0.19270673741628203 26 HingeLoss: iteration: 0.18866395521239882 27 HingeLoss: iteration: 0.1847059862753852 iteration: 28 HingeLoss: 0.1808310513131905 29 HingeLoss: iteration: 0.17703740836141751 0.17332335200022742 iteration: 30 HingeLoss: iteration: 31 HingeLoss: 0.1696872125876742 32 HingeLoss: 0.16612735550912228 33 HingeLoss: 0.16264218044241124 34 HingeLoss: 0.1592301206384358 35 HingeLoss: 0.1558896422168192 36 HingeLoss: 0.1526192434763618 37 HingeLoss: 0.14941745421995659 38 HingeLoss: 0.14628283509366688 39 HingeLoss: 0.1432139769396692 40 HingeLoss: 0.14020950016277103 41 HingeLoss: 0.13726805411021847 42 HingeLoss: 0.13438831646451446 43 HingeLoss: 0.13156899264897537 44 HingeLoss: 0.12880881524575832 45 HingeLoss: 0.1261065434260973 0.12346096239249321 46 HingeLoss:

iteration: 47 HingeLoss: 0.12087088283260498 48 HingeLoss: iteration: 0.1183351403845985 iteration: 49 HingeLoss: 0.11585259511371146 iteration: 50 HingeLoss: 0.11342213099979913 iteration: 51 HingeLoss: 0.11104265543563156 iteration: 52 HingeLoss: 0.10871309873571527 53 HingeLoss: iteration: 0.10643241365541974 54 HingeLoss: iteration: 0.10419957492019197 55 HingeLoss: iteration: 0.10201357876464728 iteration: 56 HingeLoss: 0.09987344248133072 iteration: 57 HingeLoss: 0.0977782039789432 iteration: 58 HingeLoss: 0.09572692134983708 iteration: 59 HingeLoss: 0.0937186724465844 iteration: 60 HingeLoss: 0.09175255446742862 iteration: 61 HingeLoss: 0.08982768355043287 iteration: 62 HingeLoss: 0.08794319437614281 iteration: 63 HingeLoss: 0.08609823977858513 iteration: 64 HingeLoss: 0.08429199036442678 iteration: 65 HingeLoss: 0.08252363414012384

```
Output_hinge_test.txt
iteration:
            66 HingeLoss:
                           0.0807923761468926
            67 HingeLoss:
iteration:
                           0.07909743810333823
iteration:
            68 HingeLoss:
                           0.07743805805558121
iteration:
            69 HingeLoss:
                           0.0758134900347232
iteration:
            70 HingeLoss:
                           0.07422300372149919
            71 HingeLoss:
iteration:
                           0.07266588411796486
            72 HingeLoss:
iteration:
                           0.07114143122607171
            73 HingeLoss:
iteration:
                           0.06964895973298504
            74 HingeLoss:
iteration:
                           0.06818779870300389
iteration:
            75 HingeLoss:
                           0.06675729127594399
iteration:
            76 HingeLoss:
                           0.06535679437184859
iteration:
            77 HingeLoss:
                           0.06398567840189372
            78 HingeLoss:
iteration:
                           0.0626433269853588
            79 HingeLoss:
iteration:
                           0.06132913667253459
iteration:
            80 HingeLoss:
                           0.06004251667344422
            81 HingeLoss:
iteration:
                           0.05878288859225579
                           0.057549686167266044
iteration:
            82 HingeLoss:
iteration:
            83 HingeLoss:
                           0.056342355016339524
            84 HingeLoss:
iteration:
                           0.05516035238768792
            85 HingeLoss:
iteration:
                           0.054003146915877445
iteration:
            86 HingeLoss:
                           0.05287021838295551
iteration:
            87 HingeLoss:
                           0.05176105748458845
            88 HingeLoss:
iteration:
                           0.05067516560110526
iteration:
            89 HingeLoss:
                           0.049612054573344846
iteration:
            90 HingeLoss:
                           0.04857124648320563
            91 HingeLoss:
iteration:
                           0.04755227343879906
            92 HingeLoss:
iteration:
                           0.04655467736411029
iteration:
            93 HingeLoss:
                           0.04557800979307163
iteration:
            94 HingeLoss:
                           0.04462183166795601
iteration:
            95 HingeLoss:
                           0.043685713142000204
iteration:
            96 HingeLoss:
                           0.04276923338616839
iteration:
            97 HingeLoss:
                           0.04187198039996991
                           0.04099355082624581
iteration:
            98 HingeLoss:
iteration:
            99 HingeLoss:
                           0.040133549769841015
[-1.22597913e-03 -2.18459223e-04 -4.11066629e-04 ...
                                                      8.16507797e-04
  6.17310888e-04
                 6.95543217e-05]
CROSS VALIDATION 36
iteration:
            0 HingeLoss:
                          21.048279354470203
iteration:
            1 HingeLoss:
                          1.637223393638659
iteration:
            2 HingeLoss:
                          1.0988610483899572
iteration:
            3 HingeLoss:
                          0.30862568160312676
            4 HingeLoss:
iteration:
                          0.3021510433524094
                          0.29581223611957697
iteration:
            5 HingeLoss:
iteration:
            6 HingeLoss:
                          0.28960641031447437
iteration:
            7 HingeLoss:
                          0.2835307761283135
            8 HingeLoss:
iteration:
                          0.277582602279526
iteration:
            9 HingeLoss:
                          0.2717592147859219
iteration:
            10 HingeLoss: 0.26605799576261147
iteration:
            11 HingeLoss:
                           0.2604763822451433
iteration:
            12 HingeLoss:
                           0.2550118650373316
iteration:
            13 HingeLoss:
                           0.24966198758325517
iteration:
            14 HingeLoss:
                           0.24442434486292122
```

Output\_hinge\_test.txt iteration: 15 HingeLoss: 0.23929658231109607 iteration: 16 HingeLoss: 0.2342763947588179 iteration: 17 HingeLoss: 0.22936152539711577 iteration: 18 HingeLoss: 0.22454976476246857 iteration: 19 HingeLoss: 0.21983894974354767 20 HingeLoss: iteration: 0.2152269626087975 21 HingeLoss: iteration: 0.2107117300544158 iteration: 22 HingeLoss: 0.20629122227230723 23 HingeLoss: iteration: 0.20196345203758928 iteration: 0.19772647381524214 24 HingeLoss: iteration: 25 HingeLoss: 0.19357838288549917 iteration: 26 HingeLoss: 0.18951731448758724 27 HingeLoss: 0.18554144298142883 28 HingeLoss: 0.18164898102693183 29 HingeLoss: 0.1778381787804965 30 HingeLoss: 0.17410732310837906

iteration: iteration: iteration: iteration: 0.17045473681655782 iteration: 31 HingeLoss: iteration: 32 HingeLoss: 0.16687877789675654 iteration: 33 HingeLoss: 0.16337783878828416 34 HingeLoss: iteration: 0.15995034565536187 iteration: 35 HingeLoss: 0.15659475767960992 iteration: 36 HingeLoss: 0.15330956636737805 iteration: 37 HingeLoss: 0.15009329487160666 iteration: 38 HingeLoss: 0.14694449732791562 iteration: 39 HingeLoss: 0.14386175820461983 40 HingeLoss: iteration: 0.14084369166638244 41 HingeLoss: iteration: 0.13788894095121654 iteration: 42 HingeLoss: 0.1349961777605571 iteration: 43 HingeLoss: 0.1321641016621295 44 HingeLoss: iteration: 0.1293914395053432 45 HingeLoss: iteration: 0.12667694484895237

iteration: 50 HingeLoss: 0.11393515865996529 iteration: 51 HingeLoss: 0.1115449203216341 iteration: 52 HingeLoss: 0.10920482663909864 iteration: 53 HingeLoss: 0.10691382563086198 54 HingeLoss: iteration: 0.10467088738487935 55 HingeLoss: iteration: 0.10247500359556402 56 HingeLoss: iteration: 0.10032518711050738 iteration: 57 HingeLoss: 0.0982204714867072 iteration: 58 HingeLoss: 0.09615991055610676 iteration: 59 HingeLoss: 0.09414257800024783

46 HingeLoss:

47 HingeLoss:

48 HingeLoss:

49 HingeLoss:

60 HingeLoss:

iteration:

iteration:

iteration:

iteration:

iteration:

iteration: 61 HingeLoss: 0.09023398949711016 iteration: 62 HingeLoss: 0.08834097645659422 63 HingeLoss: iteration: 0.08648767681444997 iteration: 64 HingeLoss: 0.08467325742585669 iteration: 65 HingeLoss: 0.0828969026244851 iteration: 66 HingeLoss: 0.08115781385581715

0.12401939740072099
0.12141760246884545

0.11887039042488433

0.11637661617795568

```
Output_hinge_test.txt
iteration:
            67 HingeLoss:
                           0.07945520931815846
iteration:
            68 HingeLoss:
                           0.077788323611182
iteration:
            69 HingeLoss:
                           0.07615640739184477
iteration:
            70 HingeLoss:
                           0.07455872703752305
iteration:
            71 HingeLoss:
                           0.0729945643162148
            72 HingeLoss:
iteration:
                           0.07146321606366086
            73 HingeLoss:
iteration:
                           0.06996399386723957
            74 HingeLoss:
iteration:
                           0.0684962237564932
            75 HingeLoss:
iteration:
                           0.06705924590014684
iteration:
            76 HingeLoss:
                           0.06565241430948324
iteration:
            77 HingeLoss:
                           0.06427509654794078
iteration:
            78 HingeLoss:
                           0.06292667344680362
            79 HingeLoss:
iteration:
                           0.06160653882685643
            80 HingeLoss:
iteration:
                           0.06031409922587852
iteration:
            81 HingeLoss:
                           0.05904877363185483
            82 HingeLoss:
iteration:
                           0.057809993221783824
iteration:
            83 HingeLoss:
                           0.056597201105965
iteration:
            84 HingeLoss:
                           0.05540985207765098
            85 HingeLoss:
iteration:
                           0.054247412367951435
            86 HingeLoss:
iteration:
                           0.05310935940587928
            87 HingeLoss:
iteration:
                           0.05199518158343027
iteration:
            88 HingeLoss: 0.05090437802559158
            89 HingeLoss:
iteration:
                           0.04983645836517492
iteration:
            90 HingeLoss:
                           0.04879094252237347
iteration:
            91 HingeLoss:
                           0.04776736048894392
            92 HingeLoss:
iteration:
                           0.04676525211691532
            93 HingeLoss:
iteration:
                           0.04578416691173138
            94 HingeLoss:
iteration:
                           0.044823663829732116
iteration:
            95 HingeLoss:
                           0.043883311079883906
iteration:
            96 HingeLoss:
                           0.042962685929669314
            97 HingeLoss:
                           0.04206137451504923
iteration:
iteration:
            98 HingeLoss:
                           0.04117897165441144
                           0.040315080666422566
iteration:
            99 HingeLoss:
[-1.02922151e-03 -1.03735633e-04 -1.84272758e-04 ...
                                                      7.82766835e-04
                 7.07219720e-05]
  4.72424339e-04
CROSS VALIDATION 37
iteration:
            0 HingeLoss:
                          21.048279354470203
iteration:
            1 HingeLoss:
                          1.637223393638659
iteration:
            2 HingeLoss:
                          1.0988610483899572
            3 HingeLoss:
iteration:
                          0.30862568160312676
            4 HingeLoss:
iteration:
                          0.3021510433524094
iteration:
            5 HingeLoss:
                          0.29581223611957697
iteration:
            6 HingeLoss:
                          0.28960641031447437
iteration:
            7 HingeLoss:
                          0.2835307761283135
iteration:
            8 HingeLoss:
                          0.277582602279526
iteration:
            9 HingeLoss:
                          0.2717592147859219
            10 HingeLoss: 0.26605799576261147
iteration:
iteration:
            11 HingeLoss: 0.2604763822451433
iteration:
            12 HingeLoss:
                           0.2550118650373316
iteration:
            13 HingeLoss: 0.24966198758325517
iteration:
            14 HingeLoss:
                           0.24442434486292122
iteration:
            15 HingeLoss:
                           0.23929658231109607
```

iteration: 16 HingeLoss: 0.2342763947588179 iteration: 17 HingeLoss: 0.22936152539711577 iteration: 18 HingeLoss: 0.22454976476246857 iteration: 19 HingeLoss: 0.21983894974354767 iteration: 20 HingeLoss: 0.2152269626087975 21 HingeLoss: iteration: 0.2107117300544158 22 HingeLoss: iteration: 0.20629122227230723 23 HingeLoss: iteration: 0.20196345203758928 24 HingeLoss: iteration: 0.19772647381524214 iteration: 25 HingeLoss: 0.19357838288549917 iteration: 26 HingeLoss: 0.18951731448758724 iteration: 27 HingeLoss: 0.18554144298142883 28 HingeLoss: iteration: 0.18164898102693183 29 HingeLoss: iteration: 0.1778381787804965 iteration: 30 HingeLoss: 0.17410732310837906 31 HingeLoss: iteration: 0.17045473681655782 iteration: 32 HingeLoss: 0.16687877789675654 iteration: 33 HingeLoss: 0.16337783878828416 iteration: 34 HingeLoss: 0.15995034565536187 35 HingeLoss: iteration: 0.15659475767960992 iteration: 36 HingeLoss: 0.15330956636737805 iteration: 37 HingeLoss: 0.15009329487160666 38 HingeLoss: iteration: 0.14694449732791562 iteration: 39 HingeLoss: 0.14386175820461983 iteration: 40 HingeLoss: 0.14084369166638244 41 HingeLoss: iteration: 0.13788894095121654 42 HingeLoss: iteration: 0.1349961777605571 iteration: 43 HingeLoss: 0.1321641016621295 iteration: 44 HingeLoss: 0.1293914395053432 iteration: 45 HingeLoss: 0.12667694484895237 46 HingeLoss: iteration: 0.12401939740072099 iteration: 47 HingeLoss: 0.12141760246884545 48 HingeLoss: 0.11887039042488433 iteration: 49 HingeLoss: iteration: 0.11637661617795568 iteration: 50 HingeLoss: 0.11393515865996529 iteration: 51 HingeLoss: 0.1115449203216341 iteration: 52 HingeLoss: 0.10920482663909864 iteration: 53 HingeLoss: 0.10691382563086198 iteration: 54 HingeLoss: 0.10467088738487935 55 HingeLoss: iteration: 0.10247500359556402 56 HingeLoss: iteration: 0.10032518711050738 57 HingeLoss: iteration: 0.0982204714867072 iteration: 58 HingeLoss: 0.09615991055610676 iteration: 59 HingeLoss: 0.09414257800024783 0.09216756693384738 iteration: 60 HingeLoss: iteration: 61 HingeLoss: 0.09023398949711016 iteration: 62 HingeLoss: 0.08834097645659422 iteration: 63 HingeLoss: 0.08648767681444997 64 HingeLoss: iteration: 0.08467325742585669 iteration: 65 HingeLoss: 0.0828969026244851 iteration: 66 HingeLoss: 0.08115781385581715 iteration: 67 HingeLoss: 0.07945520931815846

```
Output_hinge_test.txt
iteration:
            68 HingeLoss:
                           0.077788323611182
            69 HingeLoss:
iteration:
                           0.07615640739184477
iteration:
            70 HingeLoss:
                           0.07455872703752305
iteration:
            71 HingeLoss:
                           0.0729945643162148
iteration:
            72 HingeLoss:
                           0.07146321606366086
            73 HingeLoss:
iteration:
                           0.06996399386723957
            74 HingeLoss:
iteration:
                           0.0684962237564932
iteration:
            75 HingeLoss:
                           0.06705924590014684
            76 HingeLoss:
iteration:
                           0.06565241430948324
                           0.06427509654794078
iteration:
            77 HingeLoss:
iteration:
            78 HingeLoss:
                           0.06292667344680362
iteration:
            79 HingeLoss:
                           0.06160653882685643
            80 HingeLoss:
iteration:
                           0.06031409922587852
            81 HingeLoss:
iteration:
                           0.05904877363185483
iteration:
            82 HingeLoss:
                           0.057809993221783824
            83 HingeLoss:
iteration:
                           0.056597201105965
iteration:
            84 HingeLoss:
                           0.05540985207765098
iteration:
            85 HingeLoss:
                           0.054247412367951435
            86 HingeLoss:
iteration:
                           0.05310935940587928
            87 HingeLoss:
iteration:
                           0.05199518158343027
            88 HingeLoss:
iteration:
                           0.05090437802559158
iteration:
            89 HingeLoss: 0.04983645836517492
            90 HingeLoss:
iteration:
                           0.04879094252237347
iteration:
            91 HingeLoss:
                           0.04776736048894392
iteration:
            92 HingeLoss:
                           0.04676525211691532
            93 HingeLoss:
iteration:
                           0.04578416691173138
            94 HingeLoss:
iteration:
                           0.044823663829732116
            95 HingeLoss:
iteration:
                           0.043883311079883906
iteration:
            96 HingeLoss:
                           0.042962685929669314
iteration:
            97 HingeLoss:
                           0.04206137451504923
            98 HingeLoss:
iteration:
                           0.04117897165441144
iteration:
            99 HingeLoss:
                           0.040315080666422566
[-1.02922151e-03 -1.03735633e-04 -1.84272758e-04 ...
                                                      7.82766835e-04
  4.72424339e-04
                  7.07219720e-05]
CROSS VALIDATION 38
iteration:
            0 HingeLoss:
                          21.048279354470203
iteration:
            1 HingeLoss:
                          1.637223393638659
iteration:
            2 HingeLoss:
                          1.0988610483899572
iteration:
            3 HingeLoss:
                          0.30862568160312676
iteration:
            4 HingeLoss:
                          0.3021510433524094
            5 HingeLoss:
iteration:
                          0.29581223611957697
            6 HingeLoss:
iteration:
                          0.28960641031447437
iteration:
            7 HingeLoss:
                          0.2835307761283135
iteration:
            8 HingeLoss:
                          0.277582602279526
iteration:
            9 HingeLoss:
                          0.2717592147859219
            10 HingeLoss:
                           0.26605799576261147
iteration:
            11 HingeLoss:
iteration:
                           0.2604763822451433
iteration:
            12 HingeLoss:
                           0.2550118650373316
            13 HingeLoss:
iteration:
                           0.24966198758325517
iteration:
            14 HingeLoss:
                           0.24442434486292122
iteration:
            15 HingeLoss:
                           0.23929658231109607
iteration:
            16 HingeLoss:
                           0.2342763947588179
```

Output\_hinge\_test.txt iteration: 17 HingeLoss: 0.22936152539711577 iteration: 18 HingeLoss: 0.22454976476246857 iteration: 19 HingeLoss: 0.21983894974354767 iteration: 20 HingeLoss: 0.2152269626087975 iteration: 21 HingeLoss: 0.2107117300544158 22 HingeLoss: iteration: 0.20629122227230723 23 HingeLoss: iteration: 0.20196345203758928 iteration: 24 HingeLoss: 0.19772647381524214 25 HingeLoss: iteration: 0.19357838288549917 iteration: 26 HingeLoss: 0.18951731448758724 iteration: 27 HingeLoss: 0.18554144298142883 iteration: 28 HingeLoss: 0.18164898102693183 29 HingeLoss: iteration: 0.1778381787804965 30 HingeLoss: iteration: 0.17410732310837906 iteration: 31 HingeLoss: 0.17045473681655782 32 HingeLoss: iteration: 0.16687877789675654 iteration: 33 HingeLoss: 0.16337783878828416 iteration: 34 HingeLoss: 0.15995034565536187 iteration: 35 HingeLoss: 0.15659475767960992 36 HingeLoss: iteration: 0.15330956636737805 iteration: 37 HingeLoss: 0.15009329487160666 iteration: 38 HingeLoss: 0.14694449732791562 iteration: 39 HingeLoss: 0.14386175820461983 iteration: 40 HingeLoss: 0.14084369166638244 iteration: 41 HingeLoss: 0.13788894095121654 42 HingeLoss: iteration: 0.1349961777605571 43 HingeLoss: iteration: 0.1321641016621295 iteration: 44 HingeLoss: 0.1293914395053432 iteration: 45 HingeLoss: 0.12667694484895237 iteration: 46 HingeLoss: 0.12401939740072099 47 HingeLoss: iteration: 0.12141760246884545 iteration: 48 HingeLoss: 0.11887039042488433 iteration: 49 HingeLoss: 0.11637661617795568 iteration: 50 HingeLoss: 0.11393515865996529 iteration: 51 HingeLoss: 0.1115449203216341 iteration: 52 HingeLoss: 0.10920482663909864 iteration: 53 HingeLoss: 0.10691382563086198 iteration: 54 HingeLoss: 0.10467088738487935 iteration: 55 HingeLoss: 0.10247500359556402 iteration: 56 HingeLoss: 0.10032518711050738 iteration: 57 HingeLoss: 0.0982204714867072 58 HingeLoss: iteration: 0.09615991055610676 iteration: 59 HingeLoss: 0.09414257800024783 iteration: 60 HingeLoss: 0.09216756693384738 iteration: 61 HingeLoss: 0.09023398949711016 iteration: 62 HingeLoss: 0.08834097645659422 iteration: 63 HingeLoss: 0.08648767681444997 iteration: 64 HingeLoss: 0.08467325742585669

iteration:

iteration:

iteration:

iteration:

65 HingeLoss:

66 HingeLoss:

67 HingeLoss:

68 HingeLoss:

0.0828969026244851

0.08115781385581715

0.07945520931815846

```
Output_hinge_test.txt
iteration:
            69 HingeLoss:
                           0.07615640739184477
            70 HingeLoss:
iteration:
                           0.07455872703752305
iteration:
            71 HingeLoss:
                           0.0729945643162148
iteration:
            72 HingeLoss:
                           0.07146321606366086
iteration:
            73 HingeLoss:
                           0.06996399386723957
            74 HingeLoss:
iteration:
                           0.0684962237564932
            75 HingeLoss:
iteration:
                           0.06705924590014684
            76 HingeLoss:
iteration:
                           0.06565241430948324
            77 HingeLoss:
iteration:
                           0.06427509654794078
iteration:
            78 HingeLoss:
                           0.06292667344680362
iteration:
            79 HingeLoss:
                           0.06160653882685643
iteration:
            80 HingeLoss:
                           0.06031409922587852
            81 HingeLoss:
iteration:
                           0.05904877363185483
            82 HingeLoss:
iteration:
                           0.057809993221783824
iteration:
            83 HingeLoss:
                           0.056597201105965
            84 HingeLoss:
iteration:
                           0.05540985207765098
iteration:
            85 HingeLoss:
                           0.054247412367951435
iteration:
            86 HingeLoss:
                           0.05310935940587928
            87 HingeLoss:
iteration:
                           0.05199518158343027
            88 HingeLoss:
iteration:
                           0.05090437802559158
            89 HingeLoss:
iteration:
                           0.04983645836517492
iteration:
            90 HingeLoss: 0.04879094252237347
            91 HingeLoss: 0.04776736048894392
iteration:
iteration:
            92 HingeLoss:
                           0.04676525211691532
iteration:
            93 HingeLoss:
                           0.04578416691173138
            94 HingeLoss:
iteration:
                           0.044823663829732116
            95 HingeLoss:
iteration:
                           0.043883311079883906
iteration:
            96 HingeLoss:
                           0.042962685929669314
iteration:
            97 HingeLoss:
                           0.04206137451504923
iteration:
            98 HingeLoss:
                           0.04117897165441144
            99 HingeLoss:
iteration:
                           0.040315080666422566
[-1.02922151e-03 -1.03735633e-04 -1.84272758e-04 ...
                                                      7.82766835e-04
  4.72424339e-04
                 7.07219720e-05]
CROSS VALIDATION 39
            0 HingeLoss:
                          21.048279354470203
iteration:
iteration:
            1 HingeLoss:
                          1.637223393638659
iteration:
            2 HingeLoss:
                          1.0988610483899572
            3 HingeLoss:
iteration:
                          0.30862568160312676
iteration:
            4 HingeLoss:
                          0.3021510433524094
            5 HingeLoss:
iteration:
                          0.29581223611957697
            6 HingeLoss:
iteration:
                          0.28960641031447437
            7 HingeLoss:
iteration:
                          0.2835307761283135
iteration:
            8 HingeLoss:
                          0.277582602279526
iteration:
            9 HingeLoss:
                          0.2717592147859219
iteration:
            10 HingeLoss:
                           0.26605799576261147
            11 HingeLoss:
iteration:
                           0.2604763822451433
iteration:
            12 HingeLoss:
                           0.2550118650373316
iteration:
            13 HingeLoss:
                           0.24966198758325517
            14 HingeLoss:
iteration:
                           0.24442434486292122
iteration:
            15 HingeLoss: 0.23929658231109607
iteration:
            16 HingeLoss:
                           0.2342763947588179
iteration:
            17 HingeLoss:
                           0.22936152539711577
```

Output\_hinge\_test.txt iteration: 18 HingeLoss: 0.22454976476246857 iteration: 19 HingeLoss: 0.21983894974354767 iteration: 20 HingeLoss: 0.2152269626087975 iteration: 21 HingeLoss: 0.2107117300544158 iteration: 22 HingeLoss: 0.20629122227230723 23 HingeLoss: iteration: 0.20196345203758928 24 HingeLoss: iteration: 0.19772647381524214 25 HingeLoss: iteration: 0.19357838288549917 26 HingeLoss: iteration: 0.18951731448758724 iteration: 0.18554144298142883 27 HingeLoss: iteration: 28 HingeLoss: 0.18164898102693183 iteration: 29 HingeLoss: 0.1778381787804965 30 HingeLoss: iteration: 0.17410732310837906 31 HingeLoss: iteration: 0.17045473681655782 iteration: 32 HingeLoss: 0.16687877789675654 33 HingeLoss: iteration: 0.16337783878828416 iteration: 34 HingeLoss: 0.15995034565536187 iteration: 35 HingeLoss: 0.15659475767960992 iteration: 36 HingeLoss: 0.15330956636737805 37 HingeLoss: iteration: 0.15009329487160666 iteration: 38 HingeLoss: 0.14694449732791562 iteration: 39 HingeLoss: 0.14386175820461983 40 HingeLoss: iteration: 0.14084369166638244 iteration: 41 HingeLoss: 0.13788894095121654 iteration: 42 HingeLoss: 0.1349961777605571 43 HingeLoss: iteration: 0.1321641016621295 44 HingeLoss: iteration: 0.1293914395053432 iteration: 45 HingeLoss: 0.12667694484895237 iteration: 46 HingeLoss: 0.12401939740072099 iteration: 47 HingeLoss: 0.12141760246884545 48 HingeLoss: iteration: 0.11887039042488433 iteration: 49 HingeLoss: 0.11637661617795568 0.11393515865996529 iteration: 50 HingeLoss: iteration: 51 HingeLoss: 0.1115449203216341 iteration: 52 HingeLoss: 0.10920482663909864 iteration: 53 HingeLoss: 0.10691382563086198 iteration: 54 HingeLoss: 0.10467088738487935 iteration: 55 HingeLoss: 0.10247500359556402 iteration: 56 HingeLoss: 0.10032518711050738 57 HingeLoss: iteration: 0.0982204714867072 58 HingeLoss: iteration: 0.09615991055610676 59 HingeLoss: iteration: 0.09414257800024783 iteration: 60 HingeLoss: 0.09216756693384738 iteration: 61 HingeLoss: 0.09023398949711016 iteration: 62 HingeLoss: 0.08834097645659422 iteration: 63 HingeLoss: 0.08648767681444997 iteration: 64 HingeLoss: 0.08467325742585669 iteration: 65 HingeLoss: 0.0828969026244851 iteration: 66 HingeLoss: 0.08115781385581715

iteration:

iteration:

iteration:

67 HingeLoss:

68 HingeLoss:

69 HingeLoss:

0.07945520931815846

0.07615640739184477

```
Output_hinge_test.txt
iteration:
            70 HingeLoss:
                           0.07455872703752305
iteration:
            71 HingeLoss:
                           0.0729945643162148
iteration:
            72 HingeLoss:
                           0.07146321606366086
iteration:
            73 HingeLoss:
                           0.06996399386723957
iteration:
            74 HingeLoss:
                           0.0684962237564932
            75 HingeLoss:
iteration:
                           0.06705924590014684
            76 HingeLoss:
iteration:
                           0.06565241430948324
iteration:
            77 HingeLoss:
                           0.06427509654794078
            78 HingeLoss:
iteration:
                           0.06292667344680362
iteration:
            79 HingeLoss:
                           0.06160653882685643
iteration:
            80 HingeLoss:
                           0.06031409922587852
iteration:
            81 HingeLoss:
                           0.05904877363185483
            82 HingeLoss:
iteration:
                           0.057809993221783824
            83 HingeLoss:
iteration:
                           0.056597201105965
iteration:
            84 HingeLoss:
                           0.05540985207765098
            85 HingeLoss:
iteration:
                           0.054247412367951435
iteration:
            86 HingeLoss:
                           0.05310935940587928
iteration:
            87 HingeLoss:
                           0.05199518158343027
            88 HingeLoss:
iteration:
                           0.05090437802559158
            89 HingeLoss:
iteration:
                           0.04983645836517492
            90 HingeLoss:
iteration:
                           0.04879094252237347
iteration:
            91 HingeLoss: 0.04776736048894392
            92 HingeLoss:
iteration:
                           0.04676525211691532
iteration:
            93 HingeLoss:
                           0.04578416691173138
iteration:
            94 HingeLoss:
                           0.044823663829732116
            95 HingeLoss:
iteration:
                           0.043883311079883906
            96 HingeLoss:
iteration:
                           0.042962685929669314
iteration:
            97 HingeLoss:
                           0.04206137451504923
iteration:
            98 HingeLoss:
                           0.04117897165441144
iteration:
            99 HingeLoss:
                           0.040315080666422566
[-1.02922151e-03 -1.03735633e-04 -1.84272758e-04 ...
                                                       7.82766835e-04
  4.72424339e-04
                  7.07219720e-05]
CROSS VALIDATION 40
iteration:
            0 HingeLoss:
                          21.048279354470203
            1 HingeLoss:
iteration:
                          1.637223393638659
iteration:
            2 HingeLoss:
                          1.0988610483899572
iteration:
            3 HingeLoss:
                          0.30862568160312676
iteration:
            4 HingeLoss:
                          0.3021510433524094
iteration:
            5 HingeLoss:
                          0.29581223611957697
            6 HingeLoss:
iteration:
                          0.28960641031447437
            7 HingeLoss:
iteration:
                          0.2835307761283135
iteration:
            8 HingeLoss:
                          0.277582602279526
iteration:
            9 HingeLoss:
                          0.2717592147859219
iteration:
            10 HingeLoss: 0.26605799576261147
iteration:
            11 HingeLoss:
                           0.2604763822451433
            12 HingeLoss:
iteration:
                           0.2550118650373316
            13 HingeLoss:
iteration:
                           0.24966198758325517
iteration:
            14 HingeLoss:
                           0.24442434486292122
            15 HingeLoss:
iteration:
                           0.23929658231109607
iteration:
            16 HingeLoss:
                           0.2342763947588179
iteration:
            17 HingeLoss:
                           0.22936152539711577
iteration:
            18 HingeLoss:
                           0.22454976476246857
```

Output\_hinge\_test.txt iteration: 19 HingeLoss: 0.21983894974354767 iteration: 20 HingeLoss: 0.2152269626087975 iteration: 21 HingeLoss: 0.2107117300544158 iteration: 22 HingeLoss: 0.20629122227230723 iteration: 23 HingeLoss: 0.20196345203758928 24 HingeLoss: iteration: 0.19772647381524214 25 HingeLoss: iteration: 0.19357838288549917 iteration: 26 HingeLoss: 0.18951731448758724 27 HingeLoss: iteration: 0.18554144298142883 iteration: 28 HingeLoss: 0.18164898102693183 iteration: 29 HingeLoss: 0.1778381787804965 iteration: 30 HingeLoss: 0.17410732310837906 31 HingeLoss: iteration: 0.17045473681655782 32 HingeLoss: iteration: 0.16687877789675654 iteration: 33 HingeLoss: 0.16337783878828416 34 HingeLoss: iteration: 0.15995034565536187 iteration: 35 HingeLoss: 0.15659475767960992 iteration: 36 HingeLoss: 0.15330956636737805 iteration: 37 HingeLoss: 0.15009329487160666 38 HingeLoss: iteration: 0.14694449732791562 iteration: 39 HingeLoss: 0.14386175820461983 iteration: 40 HingeLoss: 0.14084369166638244 iteration: 41 HingeLoss: 0.13788894095121654 iteration: 42 HingeLoss: 0.1349961777605571 iteration: 43 HingeLoss: 0.1321641016621295 44 HingeLoss: iteration: 0.1293914395053432 45 HingeLoss: iteration: 0.12667694484895237 iteration: 46 HingeLoss: 0.12401939740072099 iteration: 47 HingeLoss: 0.12141760246884545 iteration: 48 HingeLoss: 0.11887039042488433 49 HingeLoss: iteration: 0.11637661617795568 iteration: 50 HingeLoss: 0.11393515865996529 0.1115449203216341 iteration: 51 HingeLoss: iteration: 52 HingeLoss: 0.10920482663909864 iteration: 53 HingeLoss: 0.10691382563086198 iteration: 54 HingeLoss: 0.10467088738487935 iteration: 55 HingeLoss: 0.10247500359556402 iteration: 56 HingeLoss: 0.10032518711050738 iteration: 57 HingeLoss: 0.0982204714867072 58 HingeLoss: iteration: 0.09615991055610676 59 HingeLoss: iteration: 0.09414257800024783 60 HingeLoss: iteration: 0.09216756693384738 iteration: 61 HingeLoss: 0.09023398949711016 iteration: 62 HingeLoss: 0.08834097645659422 iteration: 63 HingeLoss: 0.08648767681444997 iteration: 64 HingeLoss: 0.08467325742585669 iteration: 65 HingeLoss: 0.0828969026244851 iteration: 66 HingeLoss: 0.08115781385581715 iteration: 67 HingeLoss: 0.07945520931815846

iteration:

iteration:

iteration:

68 HingeLoss:

69 HingeLoss:

70 HingeLoss:

0.077788323611182

0.07615640739184477

```
Output_hinge_test.txt
iteration:
            71 HingeLoss:
                           0.0729945643162148
iteration:
            72 HingeLoss:
                           0.07146321606366086
iteration:
            73 HingeLoss:
                           0.06996399386723957
iteration:
            74 HingeLoss:
                           0.0684962237564932
iteration:
            75 HingeLoss:
                           0.06705924590014684
            76 HingeLoss:
iteration:
                           0.06565241430948324
            77 HingeLoss:
iteration:
                           0.06427509654794078
            78 HingeLoss:
iteration:
                           0.06292667344680362
            79 HingeLoss:
iteration:
                           0.06160653882685643
iteration:
            80 HingeLoss:
                           0.06031409922587852
iteration:
            81 HingeLoss:
                           0.05904877363185483
iteration:
            82 HingeLoss:
                           0.057809993221783824
            83 HingeLoss:
iteration:
                           0.056597201105965
            84 HingeLoss:
iteration:
                           0.05540985207765098
iteration:
            85 HingeLoss:
                           0.054247412367951435
            86 HingeLoss:
iteration:
                           0.05310935940587928
iteration:
            87 HingeLoss:
                           0.05199518158343027
iteration:
            88 HingeLoss:
                           0.05090437802559158
            89 HingeLoss:
iteration:
                           0.04983645836517492
            90 HingeLoss:
iteration:
                           0.04879094252237347
iteration:
            91 HingeLoss:
                           0.04776736048894392
iteration:
            92 HingeLoss: 0.04676525211691532
iteration:
            93 HingeLoss:
                           0.04578416691173138
iteration:
            94 HingeLoss:
                           0.044823663829732116
iteration:
            95 HingeLoss:
                           0.043883311079883906
            96 HingeLoss:
iteration:
                           0.042962685929669314
            97 HingeLoss:
iteration:
                           0.04206137451504923
iteration:
            98 HingeLoss:
                           0.04117897165441144
iteration:
            99 HingeLoss:
                           0.040315080666422566
[-1.02922151e-03 -1.03735633e-04 -1.84272758e-04 ...
                                                      7.82766835e-04
  4.72424339e-04
                  7.07219720e-051
CROSS VALIDATION 41
iteration:
            0 HingeLoss:
                          21.048279354470203
iteration:
            1 HingeLoss:
                          1.637223393638659
            2 HingeLoss:
iteration:
                          1.0988610483899572
iteration:
            3 HingeLoss:
                          0.30862568160312676
iteration:
            4 HingeLoss:
                          0.3021510433524094
iteration:
            5 HingeLoss:
                          0.29581223611957697
iteration:
            6 HingeLoss:
                          0.28960641031447437
iteration:
            7 HingeLoss:
                          0.2835307761283135
iteration:
            8 HingeLoss:
                          0.277582602279526
            9 HingeLoss:
iteration:
                          0.2717592147859219
iteration:
            10 HingeLoss: 0.26605799576261147
iteration:
            11 HingeLoss:
                           0.2604763822451433
iteration:
            12 HingeLoss:
                           0.2550118650373316
            13 HingeLoss:
                           0.24966198758325517
iteration:
            14 HingeLoss:
iteration:
                           0.24442434486292122
iteration:
            15 HingeLoss:
                           0.23929658231109607
iteration:
            16 HingeLoss:
                           0.2342763947588179
iteration:
            17 HingeLoss:
                           0.22936152539711577
iteration:
            18 HingeLoss:
                           0.22454976476246857
iteration:
            19 HingeLoss:
                           0.21983894974354767
```

Output\_hinge\_test.txt iteration: 20 HingeLoss: 0.2152269626087975 iteration: 21 HingeLoss: 0.2107117300544158 iteration: 22 HingeLoss: 0.20629122227230723 iteration: 23 HingeLoss: 0.20196345203758928 iteration: 24 HingeLoss: 0.19772647381524214 25 HingeLoss: iteration: 0.19357838288549917 26 HingeLoss: iteration: 0.18951731448758724 iteration: 27 HingeLoss: 0.18554144298142883 28 HingeLoss: iteration: 0.18164898102693183 iteration: 29 HingeLoss: 0.1778381787804965 iteration: 30 HingeLoss: 0.17410732310837906 iteration: 31 HingeLoss: 0.17045473681655782 32 HingeLoss: iteration: 0.16687877789675654 33 HingeLoss: iteration: 0.16337783878828416 iteration: 34 HingeLoss: 0.15995034565536187 35 HingeLoss: iteration: 0.15659475767960992 iteration: 36 HingeLoss: 0.15330956636737805 iteration: 37 HingeLoss: 0.15009329487160666 iteration: 38 HingeLoss: 0.14694449732791562 39 HingeLoss: iteration: 0.14386175820461983 iteration: 40 HingeLoss: 0.14084369166638244 iteration: 41 HingeLoss: 0.13788894095121654 42 HingeLoss: iteration: 0.1349961777605571 iteration: 43 HingeLoss: 0.1321641016621295 iteration: 44 HingeLoss: 0.1293914395053432 45 HingeLoss: iteration: 0.12667694484895237 46 HingeLoss: iteration: 0.12401939740072099 iteration: 47 HingeLoss: 0.12141760246884545 iteration: 48 HingeLoss: 0.11887039042488433 iteration: 49 HingeLoss: 0.11637661617795568 50 HingeLoss: iteration: 0.11393515865996529 iteration: 51 HingeLoss: 0.1115449203216341 iteration: 0.10920482663909864 52 HingeLoss: iteration: 53 HingeLoss: 0.10691382563086198 iteration: 54 HingeLoss: 0.10467088738487935

iteration: 55 HingeLoss: 0.10247500359556402 iteration: 56 HingeLoss: 0.10032518711050738 iteration: 57 HingeLoss: 0.0982204714867072 iteration: 58 HingeLoss: 0.09615991055610676 59 HingeLoss: iteration: 0.09414257800024783 60 HingeLoss: iteration: 0.09216756693384738 61 HingeLoss: iteration: 0.09023398949711016 iteration: 62 HingeLoss: 0.08834097645659422 iteration: 63 HingeLoss: 0.08648767681444997 iteration: 64 HingeLoss: 0.08467325742585669 iteration: 65 HingeLoss: 0.0828969026244851 iteration: 66 HingeLoss: 0.08115781385581715 iteration: 67 HingeLoss: 0.07945520931815846 68 HingeLoss: iteration: 0.077788323611182 0.07615640739184477 iteration: 69 HingeLoss: iteration: 70 HingeLoss: 0.07455872703752305 iteration: 71 HingeLoss: 0.0729945643162148 Page 43

```
Output_hinge_test.txt
iteration:
            72 HingeLoss:
                           0.07146321606366086
iteration:
            73 HingeLoss:
                           0.06996399386723957
iteration:
            74 HingeLoss:
                           0.0684962237564932
iteration:
            75 HingeLoss:
                           0.06705924590014684
iteration:
            76 HingeLoss:
                           0.06565241430948324
            77 HingeLoss:
iteration:
                           0.06427509654794078
            78 HingeLoss:
iteration:
                           0.06292667344680362
iteration:
            79 HingeLoss:
                           0.06160653882685643
            80 HingeLoss:
iteration:
                           0.06031409922587852
iteration:
            81 HingeLoss:
                           0.05904877363185483
iteration:
            82 HingeLoss:
                           0.057809993221783824
iteration:
            83 HingeLoss:
                           0.056597201105965
            84 HingeLoss:
iteration:
                           0.05540985207765098
            85 HingeLoss:
iteration:
                           0.054247412367951435
iteration:
            86 HingeLoss:
                           0.05310935940587928
            87 HingeLoss:
iteration:
                           0.05199518158343027
iteration:
            88 HingeLoss:
                           0.05090437802559158
iteration:
            89 HingeLoss:
                           0.04983645836517492
            90 HingeLoss:
iteration:
                           0.04879094252237347
            91 HingeLoss:
iteration:
                           0.04776736048894392
            92 HingeLoss:
iteration:
                           0.04676525211691532
iteration:
            93 HingeLoss: 0.04578416691173138
            94 HingeLoss:
iteration:
                           0.044823663829732116
iteration:
            95 HingeLoss:
                           0.043883311079883906
iteration:
            96 HingeLoss:
                           0.042962685929669314
            97 HingeLoss:
iteration:
                           0.04206137451504923
            98 HingeLoss:
iteration:
                           0.04117897165441144
            99 HingeLoss:
                           0.040315080666422566
iteration:
[-1.02922151e-03 -1.03735633e-04 -1.84272758e-04 ...
                                                      7.82766835e-04
  4.72424339e-04 7.07219720e-05]
CROSS VALIDATION 42
iteration:
           0 HingeLoss:
                          17.39212603081801
            1 HingeLoss:
                          0.2440694774176672
iteration:
            2 HingeLoss:
iteration:
                          0.23894915960706714
            3 HingeLoss:
iteration:
                          0.23393626061326858
iteration:
            4 HingeLoss:
                          0.22902852690384828
iteration:
            5 HingeLoss:
                          0.2242237522230943
iteration:
            6 HingeLoss:
                          0.21951977660019084
iteration:
            7 HingeLoss:
                          0.21491448537821076
            8 HingeLoss:
iteration:
                          0.21040580826347724
            9 HingeLoss:
iteration:
                          0.20599171839487163
            10 HingeLoss: 0.20167023143266377
iteration:
iteration:
            11 HingeLoss: 0.1974394046664581
iteration:
            12 HingeLoss:
                           0.19329733614185546
iteration:
            13 HingeLoss:
                           0.18924216380543513
iteration:
            14 HingeLoss:
                           0.18527206466767498
            15 HingeLoss:
iteration:
                           0.1813852539834322
iteration:
            16 HingeLoss:
                           0.1775799844496173
            17 HingeLoss:
iteration:
                           0.17385454541969933
iteration:
            18 HingeLoss:
                           0.17020726213469065
iteration:
            19 HingeLoss:
                           0.16663649497026425
iteration:
            20 HingeLoss:
                           0.16314063869966597
```

Output\_hinge\_test.txt iteration: 0.15971812177209008 21 HingeLoss: iteration: 22 HingeLoss: 0.156367405606194 iteration: 23 HingeLoss: 0.1530869838984333 iteration: 24 HingeLoss: 0.14987538194590888 iteration: 25 HingeLoss: 0.1467311559834184 26 HingeLoss: iteration: 0.14365289253441643 27 HingeLoss: iteration: 0.14063920777559064 28 HingeLoss: iteration: 0.13768874691476898 29 HingeLoss: iteration: 0.13480018358187654 iteration: 30 HingeLoss: 0.13197221923267086 iteration: 31 HingeLoss: 0.12920358256498507 iteration: 32 HingeLoss: 0.12649302894721867 33 HingeLoss: iteration: 0.12383933985881686 34 HingeLoss: iteration: 0.12124132234248916 iteration: 35 HingeLoss: 0.11869780846791891 36 HingeLoss: iteration: 0.11620765480672424 iteration: 37 HingeLoss: 0.11376974191843342 iteration: 38 HingeLoss: 0.11138297384724427 iteration: 39 HingeLoss: 0.10904627762934038 40 HingeLoss: iteration: 0.10675860281054417 41 HingeLoss: iteration: 0.10451892097408841 iteration: 42 HingeLoss: 0.10232622527829478 43 HingeLoss: iteration: 0.10017953000395158 iteration: 44 HingeLoss: 0.09807787011118674 iteration: 45 HingeLoss: 0.09602030080563756 46 HingeLoss: 0.0940058971137211 iteration: 47 HingeLoss: iteration: 2.615153336180135 iteration: 48 HingeLoss: 10.271293616472667 iteration: 49 HingeLoss: 0.1518882086184963 iteration: 50 HingeLoss: 0.14870175569518154 51 HingeLoss: iteration: 0.14558215116204049 iteration: 52 HingeLoss: 0.14252799261101107 0.13953790705505947 iteration: 53 HingeLoss: 54 HingeLoss: iteration: 0.1366105503109582 iteration: 55 HingeLoss: 0.13374460639501307

iteration: 58 HingeLoss: 0.1255025024352659 iteration: 59 HingeLoss: 0.12286959353861393 60 HingeLoss: iteration: 0.12029192026773486 61 HingeLoss: iteration: 0.1177683238380013 62 HingeLoss: iteration: 0.1152976697748539 iteration: 63 HingeLoss: 0.11287884740380172 iteration: 64 HingeLoss: 0.11051076935112238 iteration: 65 HingeLoss: 0.10819237105503667 iteration: 66 HingeLoss: 0.10592261028713798 iteration: 67 HingeLoss: 0.10370046668386247 iteration: 68 HingeLoss: 0.10152494128778732 69 HingeLoss: iteration: 0.0993950560985533 iteration: 70 HingeLoss: 0.09730985363320739 iteration: 71 HingeLoss: 0.09526839649576964 iteration: 72 HingeLoss: 0.09326976695582992

56 HingeLoss:

57 HingeLoss:

iteration:

iteration:

0.1309387869314667

```
Output_hinge_test.txt
iteration:
            73 HingeLoss:
                           0.09131306653598514
            74 HingeLoss:
iteration:
                           0.08939741560793156
iteration:
            75 HingeLoss:
                           0.08752195299703086
iteration:
            76 HingeLoss:
                           0.08568583559517193
iteration:
            77 HingeLoss:
                           0.08388823798175424
            78 HingeLoss:
iteration:
                           0.08212835205262278
            79 HingeLoss:
iteration:
                           0.08040538665678737
            80 HingeLoss:
iteration:
                           0.07871856724076344
            81 HingeLoss:
iteration:
                           0.07706713550037403
iteration:
            82 HingeLoss:
                           0.07545034903985645
iteration:
            83 HingeLoss:
                           0.07386748103812078
iteration:
            84 HingeLoss:
                           0.07231781992200996
            85 HingeLoss:
iteration:
                           0.07080066904641416
            86 HingeLoss:
iteration:
                           0.06931534638109622
iteration:
            87 HingeLoss:
                           0.0678611842040876
            88 HingeLoss:
iteration:
                           0.06643752880151554
iteration:
            89 HingeLoss:
                           0.06504374017372858
iteration:
            90 HingeLoss:
                           0.06367919174758659
            91 HingeLoss:
iteration:
                           0.06234327009478681
            92 HingeLoss:
iteration:
                           0.06103537465609942
            93 HingeLoss:
iteration:
                           0.05975491747138777
iteration:
            94 HingeLoss: 0.058501322915293
            95 HingeLoss:
iteration:
                           0.057274027438463535
iteration:
            96 HingeLoss:
                           0.05607247931421317
iteration:
            97 HingeLoss:
                           0.05489613839049441
            98 HingeLoss:
                           0.053744475847074424
iteration:
iteration:
            99 HingeLoss:
                           0.05261697395780613
[-1.18368821e-03 -1.21673319e-04 -3.73643623e-04 ...
                                                      7.95906385e-04
  3.96139969e-04
                 3.43842271e-05]
CROSS VALIDATION 43
iteration:
            0 HingeLoss:
                          21.04993950349939
iteration:
            1 HingeLoss:
                          1.6392374640225464
            2 HingeLoss:
                          1.1022223142995728
iteration:
iteration:
            3 HingeLoss:
                          0.30862985381204516
iteration:
            4 HingeLoss:
                          0.302155128032826
iteration:
            5 HingeLoss:
                          0.29581623510774696
iteration:
            6 HingeLoss:
                          0.28961032540812964
iteration:
            7 HingeLoss:
                          0.283534609087472
iteration:
            8 HingeLoss:
                          0.27758635482728145
            9 HingeLoss:
iteration:
                          0.2717628886092202
            10 HingeLoss: 0.26606159251300804
iteration:
            11 HingeLoss:
iteration:
                           0.2604799035395454
iteration:
            12 HingeLoss:
                           0.25501531245872566
iteration:
            13 HingeLoss:
                           0.24966536268141853
iteration:
            14 HingeLoss:
                           0.24442764915511814
            15 HingeLoss:
                           0.2392998172827602
iteration:
            16 HingeLoss:
iteration:
                           0.23427956186422033
iteration:
            17 HingeLoss:
                           0.22936462606001845
iteration:
            18 HingeLoss:
                           0.22455280037676442
iteration:
            19 HingeLoss:
                           0.21984192167388725
iteration:
            20 HingeLoss:
                           0.2152298721912022
iteration:
            21 HingeLoss:
                           0.21071457859687923
```

Output\_hinge\_test.txt iteration: 22 HingeLoss: 0.20629401105538211 iteration: 23 HingeLoss: 0.20196618231496422 iteration: 24 HingeLoss: 0.19772914681430406 iteration: 25 HingeLoss: 0.19358099980788637 iteration: 26 HingeLoss: 0.18951987650972868 27 HingeLoss: iteration: 0.18554395125507311 28 HingeLoss: iteration: 0.18165143667966527 29 HingeLoss: iteration: 0.17784058291624977 30 HingeLoss: iteration: 0.17410967680792344 iteration: 0.1704570411379915 31 HingeLoss: iteration: 32 HingeLoss: 0.16688103387597966 iteration: 33 HingeLoss: 0.16338004743946483 34 HingeLoss: iteration: 0.15995250797139196 35 HingeLoss: iteration: 0.15659687463255162 36 HingeLoss: 0.15331163890890065 37 HingeLoss: 0.1500953239334145 38 HingeLoss: 0.14694648382216663 39 HingeLoss: 0.1438637030243363 40 HingeLoss: 0.14084559568585162 41 HingeLoss: 0.13789080502638412 42 HingeLoss: 0.13499800272941215 43 HingeLoss: 0.13216588834508067 44 HingeLoss: 0.12939318870558822 45 HingeLoss: 0.12667865735283823 46 HingeLoss: 0.12402107397809842 47 HingeLoss: 0.12141924387341432 48 HingeLoss: 0.11887199739453272 49 HingeLoss: 0.11637818943509154 50 HingeLoss: 0.11393669891184129 51 HingeLoss: 0.11154642826066544 52 HingeLoss: 0.10920630294317436 53 HingeLoss: 0.10691527096364979 0.10467230239612395 54 HingeLoss:

iteration: 55 HingeLoss: 0.10247638892137907 iteration: 56 HingeLoss: 0.10032654337366151 iteration: 57 HingeLoss: 0.09822179929690422 iteration: 58 HingeLoss: 0.09616121051025939 iteration: 59 HingeLoss: 0.09414385068274615 iteration: 60 HingeLoss: 0.09216881291682176 61 HingeLoss: iteration: 0.09023520934068811 62 HingeLoss: iteration: 0.08834217070915254 63 HingeLoss: iteration: 0.08648884601286097 iteration: 64 HingeLoss: 0.08467440209572968 iteration: 65 HingeLoss: 0.08289802328040272 iteration: 66 HingeLoss: 0.0811589110015666 iteration: 67 HingeLoss: 0.07945628344695806 68 HingeLoss: iteration: 0.0777893752059029 iteration: 69 HingeLoss: 0.07615743692522789 iteration: 70 HingeLoss: 0.07455973497239181 iteration: 71 HingeLoss: 0.07299555110568304 iteration: 72 HingeLoss: 0.07146418215133654 iteration: 73 HingeLoss: 0.06996493968742423 Page 47

```
Output_hinge_test.txt
iteration:
            74 HingeLoss:
                           0.06849714973437726
iteration:
            75 HingeLoss:
                           0.06706015245200067
iteration:
            76 HingeLoss:
                           0.06565330184284425
iteration:
            77 HingeLoss:
                           0.06427596546179667
iteration:
            78 HingeLoss:
                           0.0629275241317719
            79 HingeLoss:
iteration:
                           0.06160737166535965
            80 HingeLoss:
iteration:
                           0.06031491459231652
iteration:
            81 HingeLoss:
                           0.059049571892773
            82 HingeLoss:
iteration:
                           0.05781077473603769
iteration:
            83 HingeLoss:
                           0.05659796622488181
iteration:
            84 HingeLoss:
                           0.0554106011451874
iteration:
            85 HingeLoss:
                           0.05424814572084837
            86 HingeLoss:
iteration:
                           0.05311007737381312
            87 HingeLoss:
iteration:
                           0.051995884489161176
iteration:
            88 HingeLoss: 0.050905066185108566
            89 HingeLoss:
iteration:
                           0.049837132087837785
                           0.048791602111052115
iteration:
            90 HingeLoss:
iteration:
            91 HingeLoss:
                           0.04776800624015424
            92 HingeLoss:
iteration:
                           0.04676588432095269
            93 HingeLoss:
iteration:
                           0.04578478585280109
            94 HingeLoss:
iteration:
                           0.04482426978607708
iteration:
            95 HingeLoss: 0.04388390432390976
            96 HingeLoss:
iteration:
                           0.042963266728067086
iteration:
            97 HingeLoss:
                           0.042061943128914925
iteration:
            98 HingeLoss:
                           0.04117952833936352
            99 HingeLoss:
iteration:
                           0.04031562567271699
[-1.02920888e-03 -1.03727596e-04 -1.84283548e-04 ...
                                                      7.82784708e-04
  4.72386577e-04
                 7.07289602e-05]
CROSS VALIDATION 44
iteration:
            0 HingeLoss:
                          6.488219091806243
iteration:
            1 HingeLoss:
                          2.485758691796465
iteration:
            2 HingeLoss:
                          0.2881990988578701
            3 HingeLoss:
                          0.28215298856790727
iteration:
iteration:
            4 HingeLoss:
                          0.2762337192354048
            5 HingeLoss:
iteration:
                          0.2704386298721047
iteration:
            6 HingeLoss:
                          0.26476511531444963
iteration:
            7 HingeLoss:
                          0.2592106250524403
iteration:
            8 HingeLoss:
                          0.2537726620830622
iteration:
            9 HingeLoss:
                          0.2484487817877654
            10 HingeLoss: 0.2432365908334954
iteration:
            11 HingeLoss:
iteration:
                           0.2381337460967769
            12 HingeLoss:
iteration:
                           0.23313795361037085
iteration:
            13 HingeLoss:
                           0.22824696753202886
iteration:
            14 HingeLoss:
                           0.22345858913488192
iteration:
            15 HingeLoss:
                           0.2187706658190104
            16 HingeLoss:
                           0.21418109014374892
iteration:
            17 HingeLoss:
iteration:
                           0.20968779888029415
iteration:
            18 HingeLoss:
                           0.2052887720841866
iteration:
            19 HingeLoss:
                           0.20098203218725114
iteration:
            20 HingeLoss:
                           0.19676564310858763
iteration:
            21 HingeLoss:
                           0.1926377093842122
iteration:
            22 HingeLoss:
                           0.18859637531495754
```

Output\_hinge\_test.txt iteration: 23 HingeLoss: 0.18463982413224966 iteration: 24 HingeLoss: 0.18076627718138472 iteration: 25 HingeLoss: 0.1769739931219413 iteration: 26 HingeLoss: 0.1732612671449663 iteration: 27 HingeLoss: 0.1696264302065837 28 HingeLoss: iteration: 0.16606784827768073 29 HingeLoss: iteration: 0.16258392160933666 iteration: 30 HingeLoss: 0.15917308401365948 31 HingeLoss: iteration: 0.15583380215971185 iteration: 32 HingeLoss: 0.15256457488420763 iteration: 33 HingeLoss: 0.14936393251666807 iteration: 34 HingeLoss: 0.14623043621873655 35 HingeLoss: iteration: 0.14316267733735333 36 HingeLoss: iteration: 0.14015927677150045 iteration: 37 HingeLoss: 0.13721888435223117 38 HingeLoss: iteration: 0.13434017823570574 iteration: 39 HingeLoss: 0.13152186430896118 iteration: 40 HingeLoss: 0.1287626756081469 iteration: 41 HingeLoss: 0.12606137174896478 42 HingeLoss: iteration: 0.12341673836905913 43 HingeLoss: iteration: 0.1208275865821036 iteration: 44 HingeLoss: 0.11829275244334136 45 HingeLoss: iteration: 0.11581109642633748 iteration: 46 HingeLoss: 0.11338150291070863 iteration: 47 HingeLoss: 0.11100287968059935 48 HingeLoss: iteration: 0.10867415743368014 49 HingeLoss: iteration: 0.10639428930044614 iteration: 50 HingeLoss: 0.10416225037360008 iteration: 51 HingeLoss: 0.10197703724730886 iteration: 52 HingeLoss: 0.09983766756612551 53 HingeLoss: iteration: 0.09774317958337461 iteration: 54 HingeLoss: 0.0956926317288021 0.0936851021852956 iteration: 55 HingeLoss: iteration: 56 HingeLoss: 0.09171968847448421 iteration: 57 HingeLoss: 0.08979550705103267 iteration: 58 HingeLoss: 0.08791169290544641 iteration: 59 HingeLoss: 0.09349176253057961 iteration: 60 HingeLoss: 0.10268338700652521 iteration: 61 HingeLoss: 0.10052919885934238 62 HingeLoss: iteration: 0.09842020328623355 63 HingeLoss: iteration: 0.0963554521951047 64 HingeLoss: iteration: 0.09433401738382463 iteration: 65 HingeLoss: 0.09235499012295469 iteration: 66 HingeLoss: 0.0936552703239405 iteration: 67 HingeLoss: 0.12060529159918729 iteration: 68 HingeLoss: 0.11807512097252114 iteration: 69 HingeLoss: 0.11559803063209428 iteration: 70 HingeLoss: 0.11317290701000815 71 HingeLoss: iteration: 0.11079865989983351 iteration: 72 HingeLoss: 0.10847422196651142

iteration:

iteration:

73 HingeLoss:

74 HingeLoss:

0.10619854826653609

```
Output_hinge_test.txt
iteration:
            75 HingeLoss:
                           0.10178942294171867
iteration:
            76 HingeLoss:
                           0.09965398920894061
iteration:
            77 HingeLoss:
                           0.09756335460258762
iteration:
            78 HingeLoss:
                           0.09551657928467827
iteration:
            79 HingeLoss:
                           0.09351274313403177
            80 HingeLoss:
iteration:
                           0.09155094533263002
            81 HingeLoss:
iteration:
                           0.08963030396065812
            82 HingeLoss:
iteration:
                           0.08774995560003993
            83 HingeLoss:
iteration:
                           0.08590905494629138
iteration:
            84 HingeLoss:
                           0.08410677442851673
iteration:
            85 HingeLoss:
                           0.0823423038373764
iteration:
            86 HingeLoss:
                           0.08061484996086053
            87 HingeLoss:
iteration:
                           0.07892363622770261
            88 HingeLoss:
iteration:
                           0.07726790235827458
iteration:
            89 HingeLoss:
                           0.07564690402280583
            90 HingeLoss:
iteration:
                           0.07405991250677167
iteration:
            91 HingeLoss:
                           0.07250621438330261
iteration:
            92 HingeLoss:
                           0.0709851111924653
            93 HingeLoss:
iteration:
                           0.0694959191272723
            94 HingeLoss:
iteration:
                           0.06803796872627865
            95 HingeLoss:
iteration:
                           0.06661060457262807
iteration:
            96 HingeLoss:
                           0.06521318499941198
iteration:
            97 HingeLoss:
                           0.06384508180121065
iteration:
            98 HingeLoss:
                           0.06250567995168511
iteration:
            99 HingeLoss:
                           0.06119437732709438
[-1.09373679e-03 -3.02254483e-05 -1.01792911e-04 ...
                                                      7.56342190e-04
  2.82035291e-04
                  1.00745786e-041
CROSS VALIDATION 45
iteration:
            0 HingeLoss:
                          21.053940962273852
iteration:
            1 HingeLoss:
                          1.639452037013105
iteration:
            2 HingeLoss:
                          1.1028536969130287
iteration:
            3 HingeLoss:
                          0.30863108959098046
iteration:
            4 HingeLoss:
                          0.3021563378864348
iteration:
            5 HingeLoss:
                          0.295817419579915
            6 HingeLoss:
iteration:
                          0.2896114850313325
iteration:
            7 HingeLoss:
                          0.28353574438301454
iteration:
            8 HingeLoss:
                          0.27758746630553216
iteration:
            9 HingeLoss:
                          0.2717639767698403
iteration:
            10 HingeLoss:
                           0.26606265784517685
            11 HingeLoss:
iteration:
                           0.26048094652217946
            12 HingeLoss:
iteration:
                           0.25501633356069436
            13 HingeLoss:
iteration:
                           0.24966636236175488
iteration:
            14 HingeLoss:
                           0.2444286278632253
iteration:
            15 HingeLoss:
                           0.23930077545861325
iteration:
            16 HingeLoss:
                           0.23428049993856392
iteration:
            17 HingeLoss:
                           0.22936554445456092
            18 HingeLoss:
iteration:
                           0.22455369950436704
iteration:
            19 HingeLoss:
                           0.21984280193874997
            20 HingeLoss:
iteration:
                           0.2152307339890452
iteration:
            21 HingeLoss:
                           0.21071542231512094
iteration:
            22 HingeLoss:
                           0.20629483707331325
iteration:
            23 HingeLoss:
                           0.20196699100391852
```

Output\_hinge\_test.txt 0.197729938537825

iteration: 24 HingeLoss: iteration: 25 HingeLoss: 0.19358177492189071 iteration: 26 HingeLoss: 0.18952063536266633 iteration: 27 HingeLoss: 0.185544694188084 iteration: 28 HingeLoss: 0.1816521640267324 29 HingeLoss: 0.17784129500434975 iteration: 30 HingeLoss: iteration: 0.17411037395717324 iteration: 31 HingeLoss: 0.1704577236617922 32 HingeLoss: iteration: 0.16688170208115757 iteration: 33 HingeLoss: 0.1633807016264094 iteration: 34 HingeLoss: 0.15995314843419092 iteration: 35 HingeLoss: 0.15659750165912284 36 HingeLoss: iteration: 0.15331225278112187 iteration: 37 HingeLoss: 0.15009592492725005 iteration: 38 HingeLoss: 0.14694707220779127 39 HingeLoss: iteration: 0.14386427906625693 iteration: 40 HingeLoss: 0.140846159643026 iteration: 41 HingeLoss: 0.1378913571523373 iteration: 42 HingeLoss: 0.13499854327235067 43 HingeLoss: iteration: 0.13216641754800376 44 HingeLoss: iteration: 0.12939370680639728 iteration: 45 HingeLoss: 0.1266791645844439 iteration: 46 HingeLoss: 0.12402157056852495 iteration: 47 HingeLoss: 0.1214197300459024 iteration: 48 HingeLoss: 0.11887247336763954 49 HingeLoss: iteration: 0.11637865542278927 50 HingeLoss: iteration: 0.11393715512361322 iteration: 51 HingeLoss: 0.11154687490160005 iteration: 52 HingeLoss: 0.10920674021405762 iteration: 53 HingeLoss: 0.10691569906105544 54 HingeLoss: iteration: 0.10467272151250176 iteration: 55 HingeLoss: 0.10247679924514144 iteration: 56 HingeLoss: 0.10032694508926818 iteration: 57 HingeLoss: 0.09822219258494506 iteration: 58 HingeLoss: 0.0961615955475358 iteration: 59 HingeLoss: 0.09414422764235043 iteration: 60 HingeLoss: 0.09216918196821484 iteration: 61 HingeLoss: 0.09023557064977583 iteration: 62 HingeLoss: 0.08834252443836026 63 HingeLoss: iteration: 0.08648919232120646 64 HingeLoss: iteration: 0.08467474113889475 65 HingeLoss: iteration: 0.0828983552108031 iteration: 66 HingeLoss: 0.08115923596842053 iteration: 67 HingeLoss: 0.07945660159635334 iteration: 68 HingeLoss: 0.07778968668086256 iteration: 69 HingeLoss: 0.07615774186577448 iteration: 70 HingeLoss: 0.07456003351561037 iteration: 71 HingeLoss: 0.07299584338578267 iteration: 72 HingeLoss: 0.07146446829971083 iteration: 73 HingeLoss: 0.06996521983271026 iteration: 74 HingeLoss: 0.06849742400251344

iteration:

75 HingeLoss:

```
Output_hinge_test.txt
iteration:
            76 HingeLoss:
                           0.06565356472398308
            77 HingeLoss:
iteration:
                           0.06427622282796908
iteration:
            78 HingeLoss:
                           0.06292777609867599
iteration:
            79 HingeLoss:
                           0.061607618346266324
iteration:
            80 HingeLoss:
                           0.06031515609812037
            81 HingeLoss:
iteration:
                           0.059049808332042195
            82 HingeLoss:
iteration:
                           0.057811006215062716
iteration:
            83 HingeLoss:
                           0.0565981928477233
            84 HingeLoss:
iteration:
                           0.05541082301372293
iteration:
            85 HingeLoss:
                           0.054248362934818224
iteration:
            86 HingeLoss:
                           0.05311029003086512
iteration:
            87 HingeLoss:
                           0.051996092684894635
            88 HingeLoss:
iteration:
                           0.05090527001311715
            89 HingeLoss:
iteration:
                           0.049837331639751736
iteration:
            90 HingeLoss: 0.04879179747657935
            91 HingeLoss: 0.04776819750712069
iteration:
iteration:
            92 HingeLoss:
                           0.04676607157534179
iteration:
            93 HingeLoss:
                           0.04578496917879244
            94 HingeLoss:
iteration:
                           0.044824449266084296
            95 HingeLoss:
iteration:
                           0.04388408003861752
iteration:
            96 HingeLoss:
                           0.04296343875646732
iteration:
            97 HingeLoss:
                           0.04206211154834245
iteration:
            98 HingeLoss:
                           0.04117969322553075
iteration:
            99 HingeLoss:
                           0.04031578709974796
[-1.02919955e-03 -1.03727205e-04 -1.84234582e-04 ...
                                                      7.82784708e-04
  4.72386577e-04
                 7.07289602e-051
CROSS VALIDATION 46
           0 HingeLoss:
iteration:
                          16.10875181271638
iteration:
            1 HingeLoss:
                          0.30398654295199734
iteration:
            2 HingeLoss:
                          0.2976092288915577
iteration:
            3 HingeLoss:
                          0.2913657040910983
iteration:
            4 HingeLoss:
                          0.2852531617943708
            5 HingeLoss:
iteration:
                          0.2792688541278851
iteration:
            6 HingeLoss:
                          0.2734100908656119
            7 HingeLoss:
iteration:
                          0.2676742382195995
iteration:
            8 HingeLoss:
                          0.2620587176559644
iteration:
            9 HingeLoss:
                          0.2565610047357183
iteration:
            10 HingeLoss:
                           0.2511786279799157
iteration:
            11 HingeLoss:
                           0.24590916775860847
            12 HingeLoss:
iteration:
                           0.24075025520310886
            13 HingeLoss:
iteration:
                           0.23569957114107246
            14 HingeLoss:
iteration:
                           0.23075484505392163
                           0.2259138540561414
iteration:
            15 HingeLoss:
iteration:
            16 HingeLoss:
                           0.22117442189598865
iteration:
            17 HingeLoss:
                           0.21653441797716513
            18 HingeLoss:
iteration:
                           0.21199175640101453
            19 HingeLoss:
iteration:
                           0.20754439502881405
iteration:
            20 HingeLoss:
                           0.2031903345637372
            21 HingeLoss:
iteration:
                           0.1989276176520766
iteration:
            22 HingeLoss:
                           0.1947543280033216
iteration:
            23 HingeLoss:
                           0.1906685895286971
iteration:
            24 HingeLoss:
                           0.18666856549777305
```

Output\_hinge\_test.txt iteration: 25 HingeLoss: 0.18275245771276807 iteration: 26 HingeLoss: 0.17891850570017667 iteration: 27 HingeLoss: 0.17516498591935284 iteration: 28 HingeLoss: 0.17149021098769865 iteration: 29 HingeLoss: 0.1678925289221071 30 HingeLoss: iteration: 0.1643703223963175 31 HingeLoss: iteration: 0.160922008013853 iteration: 32 HingeLoss: 0.157546035596209 33 HingeLoss: iteration: 0.15424088748597536 iteration: 34 HingeLoss: 0.15100507786457945 iteration: 35 HingeLoss: 0.14783715208433967 iteration: 36 HingeLoss: 0.1447356860145352 37 HingeLoss: iteration: 0.14169928540119087 38 HingeLoss: iteration: 0.13872658524029602 iteration: 39 HingeLoss: 0.13581624916417107 40 HingeLoss: iteration: 0.13296696884070738 iteration: 41 HingeLoss: 0.13017746338521174 iteration: 42 HingeLoss: 0.12744647878458762 iteration: 43 HingeLoss: 0.12477278733359853 44 HingeLoss: iteration: 0.12215518708295704 45 HingeLoss: iteration: 0.11959250129899196 iteration: 46 HingeLoss: 0.11708357793465199 47 HingeLoss: iteration: 0.11462728911160647

iteration:

48 HingeLoss:

49 HingeLoss:

50 HingeLoss:

51 HingeLoss:

52 HingeLoss:

53 HingeLoss:

54 HingeLoss:

55 HingeLoss:

56 HingeLoss:

57 HingeLoss:

58 HingeLoss:

59 HingeLoss:

60 HingeLoss:

61 HingeLoss:

62 HingeLoss:

63 HingeLoss:

64 HingeLoss:

65 HingeLoss:

66 HingeLoss:

67 HingeLoss:

68 HingeLoss:

69 HingeLoss:

70 HingeLoss:

71 HingeLoss:

72 HingeLoss:

73 HingeLoss:

74 HingeLoss:

75 HingeLoss:

76 HingeLoss:

0.11222253061321147

0.10986822138811281

0.10530673947313238

0.1075633030642627

0.1030975161839057

0.1009346400474451

0.09881713874982473

0.09674406037522983

0.09471447297802585
0.09272746416380583

0.09078214067922602

0.08887762801044692

0.08701306998999848

0.08518762841189262

0.08340048265481069

0.08165082931319564

0.07993788183608369

0.07826087017351314

0.07661904043035045

0.07501165452737966

0.0734379898695009

0.07189733902089035

0.07038900938697454

0.06891232290307694

0.06746661572959613

0.06605123795357863

0.06466555329655316

0.06330893882849319

```
Output_hinge_test.txt
iteration:
            77 HingeLoss:
                           0.060680493807046626
            78 HingeLoss:
iteration:
                           0.05940748164475757
                           0.058161175922440626
iteration:
            79 HingeLoss:
iteration:
            80 HingeLoss:
                           0.05694101636741567
iteration:
            81 HingeLoss:
                           0.055746454460927006
            82 HingeLoss:
iteration:
                           0.05457695319155842
            83 HingeLoss:
iteration:
                           0.05343198681382161
            84 HingeLoss:
iteration:
                           0.05231104061180891
            85 HingeLoss:
iteration:
                           0.05121361066780449
iteration:
            86 HingeLoss:
                           0.05013920363574963
iteration:
            87 HingeLoss:
                           0.049087336519460845
iteration:
            88 HingeLoss:
                           0.04805753645550038
            89 HingeLoss:
iteration:
                           0.04704934050060199
            90 HingeLoss:
iteration:
                           0.04606229542355634
iteration:
            91 HingeLoss:
                           0.04509595750146232
            92 HingeLoss:
iteration:
                           0.04414989232025304
                           0.04322367457940621
iteration:
            93 HingeLoss:
iteration:
            94 HingeLoss:
                           0.04231688790075167
            95 HingeLoss:
iteration:
                           0.04142912464129013
            96 HingeLoss:
iteration:
                           0.04055998570993842
iteration:
            97 HingeLoss:
                           0.039709080388119385
iteration:
            98 HingeLoss:
                           0.0388760261541158
iteration:
            99 HingeLoss:
                           0.03806044851110869
[-1.29396413e-03 -1.14529142e-04 -3.61847002e-04 ...
                                                       7.60558483e-04
  3.70385027e-04
                  3.45642522e-05]
CROSS VALIDATION 47
iteration:
            0 HingeLoss:
                          11.981523152018388
iteration:
            1 HingeLoss:
                          0.8458163578239775
iteration:
            2 HingeLoss:
                          0.3001359394427635
iteration:
            3 HingeLoss:
                          0.2938394069447647
iteration:
            4 HingeLoss:
                          0.28767496899556233
iteration:
            5 HingeLoss:
                          0.2816398543921451
                          0.2757313500683903
iteration:
            6 HingeLoss:
iteration:
            7 HingeLoss:
                          0.26994679987541403
iteration:
            8 HingeLoss:
                          0.264283603387509
iteration:
            9 HingeLoss:
                          0.2587392147331305
iteration:
            10 HingeLoss: 0.2533111414504087
iteration:
            11 HingeLoss:
                           0.24799694336667052
iteration:
            12 HingeLoss:
                           0.24279423150146767
iteration:
            13 HingeLoss:
                           0.23770066699261888
            14 HingeLoss:
iteration:
                           0.23271396004478118
            15 HingeLoss:
iteration:
                           0.2278318689000804
iteration:
            16 HingeLoss:
                           0.2230521988303359
iteration:
            17 HingeLoss:
                           0.21837280115042848
iteration:
            18 HingeLoss:
                           0.21379157225236456
            19 HingeLoss:
iteration:
                           0.2093064526596075
iteration:
            20 HingeLoss:
                           0.20491542610124566
iteration:
            21 HingeLoss:
                           0.20061651860558466
iteration:
            22 HingeLoss:
                           0.19640779761275468
iteration:
            23 HingeLoss:
                           0.19228737110593527
iteration:
            24 HingeLoss:
                           0.18825338676080428
iteration:
            25 HingeLoss:
                           0.184304031112832
```

Output\_hinge\_test.txt iteration: 26 HingeLoss: 0.18043752874204388 iteration: 27 HingeLoss: 0.1766521414748867 iteration: 28 HingeLoss: 0.17294616760283793 iteration: 29 HingeLoss: 0.16931794111740792 iteration: 30 HingeLoss: 0.16576583096119207 31 HingeLoss: iteration: 0.1622882402946335 32 HingeLoss: iteration: 0.1588836057781694 iteration: 33 HingeLoss: 0.1555503968694367 34 HingeLoss: iteration: 0.1522871151352217 0.14909229357784445 iteration: 35 HingeLoss: iteration: 36 HingeLoss: 0.14596449597567443 iteration: 37 HingeLoss: 0.14290231623748248 38 HingeLoss: iteration: 0.13990437777033587 39 HingeLoss: iteration: 0.1369693328607568 iteration: 40 HingeLoss: 0.134095862068861 41 HingeLoss: iteration: 0.13128267363520865 iteration: 42 HingeLoss: 0.1285285029000978 iteration: 43 HingeLoss: 0.1258321117350406 iteration: 44 HingeLoss: 0.12319228798616691 45 HingeLoss: iteration: 0.12060784492930442 iteration: 46 HingeLoss: 0.11807762073649064 iteration: 47 HingeLoss: 0.11560047795367678 iteration: 48 HingeLoss: 0.11317530298938921 iteration: 49 HingeLoss: 0.11080100561411778 iteration: 50 HingeLoss: 0.10847651847020714 51 HingeLoss: iteration: 0.10620079659202906 52 HingeLoss: iteration: 0.10397281693622179 iteration: 53 HingeLoss: 0.10179157792178428 iteration: 54 HingeLoss: 0.09965609897981863 iteration: 55 HingeLoss: 0.09756542011271849 56 HingeLoss: iteration: 0.09551860146260546 iteration: 57 HingeLoss: 0.09351472288881876 0.09155288355426913 iteration: 58 HingeLoss: iteration: 59 HingeLoss: 0.08963220152047063 iteration: 60 HingeLoss: 0.08775181335106759 iteration: 61 HingeLoss: 0.0859108737236802 iteration: 62 HingeLoss: 0.08410855504989209 iteration: 63 HingeLoss: 0.0823440471032109 iteration: 64 HingeLoss: 0.08061655665483362

65 HingeLoss: iteration: 0.078925307117053 66 HingeLoss: iteration: 0.07726953819414516 67 HingeLoss: iteration: 0.07564850554058125 iteration: 68 HingeLoss: 0.0740614804264091 iteration: 69 HingeLoss: 0.07250774940965518 iteration: 70 HingeLoss: 0.07098661401559912 iteration: 71 HingeLoss: 0.06949739042277658 iteration: 72 HingeLoss: 0.06803940915556955 iteration: 73 HingeLoss: 0.06661201478324584 iteration: 74 HingeLoss: 0.06521456562531229 iteration: 75 HingeLoss: 0.06384643346304932 iteration: 76 HingeLoss: 0.06250700325709732 iteration: 77 HingeLoss: 0.061195672870967784

```
Output_hinge_test.txt
iteration:
            78 HingeLoss:
                           0.05991185280035458
            79 HingeLoss:
iteration:
                           0.05865496590812455
iteration:
            80 HingeLoss:
                           0.05742444716486705
iteration:
            81 HingeLoss:
                           0.05621974339488697
iteration:
            82 HingeLoss:
                           0.05504031302752647
            83 HingeLoss:
iteration:
                           0.05388562585370355
            84 HingeLoss:
iteration:
                           0.052755162787558325
iteration:
            85 HingeLoss:
                           0.051648415633099555
            86 HingeLoss:
iteration:
                           0.05056488685574702
iteration:
            87 HingeLoss:
                           0.049504089358666334
iteration:
            88 HingeLoss:
                           0.04846554626379605
iteration:
            89 HingeLoss:
                           0.0474487906974689
iteration:
            90 HingeLoss:
                           0.046453365580530065
            91 HingeLoss:
iteration:
                           0.045478823422858854
iteration:
            92 HingeLoss: 0.04452472612220088
            93 HingeLoss: 0.04359064476722073
iteration:
iteration:
            94 HingeLoss:
                           0.04267615944468614
iteration:
            95 HingeLoss:
                           0.04178085905069754
            96 HingeLoss:
iteration:
                           0.040904341105877436
            97 HingeLoss:
iteration:
                           0.0400462115744372
iteration:
            98 HingeLoss:
                           0.03920608468703966
            99 HingeLoss:
                           0.03838358276737763
iteration:
[-7.03170585e-04 -8.31937769e-05 -2.11697239e-04 ...
                                                      1.58022044e-04
  4.52212289e-04
                  3.38393781e-05]
CROSS VALIDATION 48
            0 HingeLoss:
iteration:
                          21.05729512960882
iteration:
            1 HingeLoss:
                          1.6388375655443943
iteration:
            2 HingeLoss:
                          1.1013582383494773
iteration:
            3 HingeLoss:
                          0.3086435092875869
iteration:
            4 HingeLoss:
                          0.30216849703102805
iteration:
            5 HingeLoss:
                          0.29582932363859865
iteration:
            6 HingeLoss:
                          0.2896231393555375
iteration:
            7 HingeLoss:
                          0.28354715421190424
iteration:
            8 HingeLoss:
                          0.27759863676835816
            9 HingeLoss:
iteration:
                          0.2717749128882481
iteration:
            10 HingeLoss: 0.2660733645354622
iteration:
            11 HingeLoss:
                           0.26049142859750063
iteration:
            12 HingeLoss:
                           0.25502659573323416
iteration:
            13 HingeLoss:
                           0.2496764092448394
iteration:
            14 HingeLoss:
                           0.2444384639733981
            15 HingeLoss:
iteration:
                           0.23931040521766567
            16 HingeLoss:
iteration:
                           0.2342899276755229
iteration:
            17 HingeLoss:
                           0.2293747744076349
iteration:
            18 HingeLoss:
                           0.22456273582285136
iteration:
            19 HingeLoss:
                           0.2198516486848921
            20 HingeLoss:
                           0.21523939513987123
iteration:
iteration:
            21 HingeLoss:
                           0.21072390176422282
iteration:
            22 HingeLoss:
                           0.2063031386325999
iteration:
            23 HingeLoss:
                           0.2019751184053286
iteration:
            24 HingeLoss:
                           0.1977378954350058
iteration:
            25 HingeLoss:
                           0.19358956489183915
iteration:
            26 HingeLoss:
                           0.1895282619073381
```

Output\_hinge\_test.txt iteration: 27 HingeLoss: 0.18555216073596742 iteration: 28 HingeLoss: 0.1816594739343898 iteration: 29 HingeLoss: 0.17784845155792633 iteration: 30 HingeLoss: 0.1741173803738744 iteration: 31 HingeLoss: 0.1704645830913296 32 HingeLoss: iteration: 0.16688841760716547 33 HingeLoss: iteration: 0.1633872762678307 iteration: 34 HingeLoss: 0.15995958514663425 35 HingeLoss: iteration: 0.15660380333619145 iteration: 36 HingeLoss: 0.15331842225571404 iteration: 37 HingeLoss: 0.15010196497283304 iteration: 38 HingeLoss: 0.14695298553964795 39 HingeLoss: iteration: 0.14387006834270621 40 HingeLoss: iteration: 0.1408518274666184 iteration: 41 HingeLoss: 0.13789690607102448 42 HingeLoss: iteration: 0.13500397578063092 iteration: 43 HingeLoss: 0.13217173608804356 iteration: 44 HingeLoss: 0.12939891376912888 45 HingeLoss: iteration: 0.12668426231064053 46 HingeLoss: iteration: 0.1240265613498528 iteration: 47 HingeLoss: 0.1214246161259509 iteration: 48 HingeLoss: 0.11887725694293015 iteration: 49 HingeLoss: 0.11638333864376268 iteration: 50 HingeLoss: 0.11394174009559611 iteration: 51 HingeLoss: 0.11155136368575168 52 HingeLoss: iteration: 0.10921113482829636 53 HingeLoss: iteration: 0.10692000148096582 iteration: 54 HingeLoss: 0.1046769336722225 iteration: 55 HingeLoss: 0.10248092303823536 iteration: 56 HingeLoss: 0.10033098236957302 57 HingeLoss: iteration: 0.09822614516740706 iteration: 58 HingeLoss: 0.09616546520902543 iteration: 59 HingeLoss: 0.09414801612246147 iteration: 60 HingeLoss: 0.09217289097004618 iteration: 61 HingeLoss: 0.09023920184069721 iteration: 62 HingeLoss: 0.08834607945076169 iteration: 63 HingeLoss: 0.08649267275323222 iteration: 64 HingeLoss: 0.0846781485551618 iteration: 65 HingeLoss: 0.0829016911431042 66 HingeLoss: iteration: 0.08116250191641325 iteration: 67 HingeLoss: 0.07945979902823398 68 HingeLoss: iteration: 0.07779281703402616 iteration: 69 HingeLoss: 0.0761608065474611 iteration: 70 HingeLoss: 0.07456303390353776 iteration: 71 HingeLoss: 0.07299878082876544 iteration: 72 HingeLoss: 0.07146734411826686 iteration: 73 HingeLoss: 0.06996803531965448 iteration: 74 HingeLoss: 0.06850018042353884 iteration: 75 HingeLoss: 0.0670631195605299 iteration: 76 HingeLoss: 0.06565620670459517

iteration:

iteration:

77 HingeLoss:

78 HingeLoss:

0.06427880938264052

```
Output_hinge_test.txt
iteration:
            79 HingeLoss:
                           0.06161009751299418
            80 HingeLoss:
iteration:
                           0.06031758325456955
iteration:
            81 HingeLoss:
                           0.05905218456933286
iteration:
            82 HingeLoss:
                           0.05781333260142468
iteration:
            83 HingeLoss:
                           0.056600470428975966
            84 HingeLoss:
iteration:
                           0.05541305281374551
            85 HingeLoss:
iteration:
                           0.054250545956010095
iteration:
            86 HingeLoss:
                           0.05311242725459634
            87 HingeLoss:
iteration:
                           0.051998185071947145
iteration:
            88 HingeLoss:
                           0.050907318504116755
iteration:
            89 HingeLoss:
                           0.04983933715559094
iteration:
            90 HingeLoss:
                           0.04879376091883122
            91 HingeLoss:
                           0.047770119758444314
iteration:
            92 HingeLoss:
iteration:
                           0.046767953499878986
iteration:
            93 HingeLoss: 0.04578681162255625
            94 HingeLoss:
iteration:
                           0.044826253057339324
iteration:
            95 HingeLoss:
                           0.04388584598825225
iteration:
            96 HingeLoss:
                           0.042965167658358686
            97 HingeLoss:
iteration:
                           0.042063804179712644
            98 HingeLoss:
iteration:
                           0.041181350347296704
iteration:
            99 HingeLoss:
                           0.04031740945686335
[-1.02922529e-03 -1.03762022e-04 -1.84259157e-04 ...
                                                      7.82808681e-04
  4.72389983e-04 7.07289588e-051
CROSS VALIDATION 49
iteration:
            0 HingeLoss:
                          21.05729512960882
            1 HingeLoss:
iteration:
                          1.6388375655443943
            2 HingeLoss:
iteration:
                          1.1013582383494773
iteration:
            3 HingeLoss:
                          0.3086435092875869
iteration:
            4 HingeLoss:
                          0.30216849703102805
iteration:
            5 HingeLoss:
                          0.29582932363859865
iteration:
            6 HingeLoss:
                          0.2896231393555375
iteration:
            7 HingeLoss:
                          0.28354715421190424
                          0.27759863676835816
iteration:
            8 HingeLoss:
iteration:
            9 HingeLoss:
                          0.2717749128882481
            10 HingeLoss: 0.2660733645354622
iteration:
iteration:
            11 HingeLoss: 0.26049142859750063
iteration:
            12 HingeLoss:
                           0.25502659573323416
iteration:
            13 HingeLoss:
                           0.2496764092448394
iteration:
            14 HingeLoss:
                           0.2444384639733981
            15 HingeLoss:
iteration:
                           0.23931040521766567
            16 HingeLoss:
iteration:
                           0.2342899276755229
            17 HingeLoss:
iteration:
                           0.2293747744076349
iteration:
            18 HingeLoss:
                           0.22456273582285136
iteration:
            19 HingeLoss:
                           0.2198516486848921
iteration:
            20 HingeLoss:
                           0.21523939513987123
            21 HingeLoss:
                           0.21072390176422282
iteration:
iteration:
            22 HingeLoss:
                           0.2063031386325999
            23 HingeLoss:
iteration:
                           0.2019751184053286
iteration:
            24 HingeLoss:
                           0.1977378954350058
iteration:
            25 HingeLoss:
                           0.19358956489183915
iteration:
            26 HingeLoss:
                           0.1895282619073381
iteration:
            27 HingeLoss:
                           0.18555216073596742
```

Output\_hinge\_test.txt

iteration: 28 HingeLoss: 0.1816594739343898 iteration: 29 HingeLoss: 0.17784845155792633 iteration: 30 HingeLoss: 0.1741173803738744 iteration: 31 HingeLoss: 0.1704645830913296 iteration: 32 HingeLoss: 0.16688841760716547 33 HingeLoss: iteration: 0.1633872762678307 34 HingeLoss: iteration: 0.15995958514663425 iteration: 35 HingeLoss: 0.15660380333619145 36 HingeLoss: iteration: 0.15331842225571404 0.15010196497283304 iteration: 37 HingeLoss: iteration: 38 HingeLoss: 0.14695298553964795 iteration: 39 HingeLoss: 0.14387006834270621 iteration: 40 HingeLoss: 0.1408518274666184 41 HingeLoss: iteration: 0.13789690607102448 iteration: 42 HingeLoss: 0.13500397578063092 43 HingeLoss: iteration: 0.13217173608804356 iteration: 44 HingeLoss: 0.12939891376912888 iteration: 45 HingeLoss: 0.12668426231064053 iteration: 46 HingeLoss: 0.1240265613498528 47 HingeLoss: iteration: 0.1214246161259509 iteration: 48 HingeLoss: 0.11887725694293015 iteration: 49 HingeLoss: 0.11638333864376268 iteration: 50 HingeLoss: 0.11394174009559611 iteration: 51 HingeLoss: 0.11155136368575168 iteration: 52 HingeLoss: 0.10921113482829636 53 HingeLoss: iteration: 0.10692000148096582 54 HingeLoss: iteration: 0.1046769336722225 iteration: 55 HingeLoss: 0.10248092303823536 iteration: 56 HingeLoss: 0.10033098236957302 iteration: 57 HingeLoss: 0.09822614516740706 58 HingeLoss: iteration: 0.09616546520902543 iteration: 59 HingeLoss: 0.09414801612246147 0.09217289097004618 iteration: 60 HingeLoss: iteration: 61 HingeLoss: 0.09023920184069721 iteration: 62 HingeLoss: 0.08834607945076169 0.08649267275323222 iteration: 63 HingeLoss: iteration: 64 HingeLoss: 0.0846781485551618 iteration: 65 HingeLoss: 0.0829016911431042 iteration: 66 HingeLoss: 0.08116250191641325 iteration: 67 HingeLoss: 0.07945979902823398 iteration: 68 HingeLoss: 0.07779281703402616 69 HingeLoss: iteration: 0.0761608065474611 iteration: 70 HingeLoss: 0.07456303390353776 iteration: 71 HingeLoss: 0.07299878082876544 iteration: 72 HingeLoss: 0.07146734411826686 iteration: 73 HingeLoss: 0.06996803531965448 74 HingeLoss: iteration: 0.06850018042353884 iteration: 75 HingeLoss: 0.0670631195605299 iteration: 76 HingeLoss: 0.06565620670459517 iteration: 77 HingeLoss: 0.06427880938264052 iteration: 78 HingeLoss: 0.0629303083901839 iteration: 79 HingeLoss: 0.06161009751299418

```
Output_hinge_test.txt
iteration:
            80 HingeLoss:
                           0.06031758325456955
            81 HingeLoss:
iteration:
                           0.05905218456933286
iteration:
            82 HingeLoss:
                           0.05781333260142468
iteration:
            83 HingeLoss:
                           0.056600470428975966
iteration:
            84 HingeLoss:
                           0.05541305281374551
            85 HingeLoss:
iteration:
                           0.054250545956010095
            86 HingeLoss:
iteration:
                           0.05311242725459634
iteration:
            87 HingeLoss:
                           0.051998185071947145
            88 HingeLoss:
iteration:
                           0.050907318504116755
iteration:
            89 HingeLoss:
                           0.04983933715559094
iteration:
            90 HingeLoss:
                           0.04879376091883122
iteration:
            91 HingeLoss:
                           0.047770119758444314
            92 HingeLoss:
iteration:
                           0.046767953499878986
            93 HingeLoss:
iteration:
                           0.04578681162255625
iteration:
            94 HingeLoss: 0.044826253057339324
            95 HingeLoss:
iteration:
                           0.04388584598825225
iteration:
            96 HingeLoss:
                           0.042965167658358686
iteration:
            97 HingeLoss:
                           0.042063804179712644
            98 HingeLoss:
iteration:
                           0.041181350347296704
iteration:
            99 HingeLoss:
                           0.04031740945686335
[-1.02922529e-03 -1.03762022e-04 -1.84259157e-04 ...
                                                      7.82808681e-04
  4.72389983e-04
                 7.07289588e-051
CROSS VALIDATION 50
iteration:
            0 HingeLoss:
                          19.40052178678764
iteration:
            1 HingeLoss:
                          0.28431791428482284
            2 HingeLoss:
iteration:
                          0.2783532271154643
            3 HingeLoss:
iteration:
                          0.2725136727331753
iteration:
            4 HingeLoss:
                          0.26679662598529424
iteration:
            5 HingeLoss:
                          0.26119951679206743
iteration:
            6 HingeLoss:
                          0.2557198289912784
iteration:
            7 HingeLoss:
                          0.2503550992071156
iteration:
            8 HingeLoss:
                          0.24510291574276916
                          0.2399609174962615
iteration:
            9 HingeLoss:
iteration:
            10 HingeLoss: 0.23492679289902055
            11 HingeLoss:
iteration:
                           0.22999827887672217
iteration:
            12 HingeLoss:
                           0.22517315983193265
iteration:
            13 HingeLoss:
                           0.22044926664809333
iteration:
            14 HingeLoss:
                           0.2158244757144022
iteration:
            15 HingeLoss:
                           0.21129670797115127
iteration:
            16 HingeLoss:
                           0.2068639279750913
            17 HingeLoss:
iteration:
                           0.2025241429844063
            18 HingeLoss:
iteration:
                           0.19827540206288166
iteration:
            19 HingeLoss:
                           0.1941157952028681
iteration:
            20 HingeLoss:
                           0.19004345246664325
iteration:
            21 HingeLoss:
                           0.18605654314578754
            22 HingeLoss:
                           0.18215327493819528
iteration:
iteration:
            23 HingeLoss:
                           0.17833189314235076
iteration:
            24 HingeLoss:
                           0.1745906798685081
iteration:
            25 HingeLoss:
                           0.1709279532664198
iteration:
            26 HingeLoss:
                           0.16734206676926583
iteration:
            27 HingeLoss:
                           0.16383140835344512
iteration:
            28 HingeLoss:
                           0.16039439981389594
```

Output\_hinge\_test.txt iteration: 29 HingeLoss: 0.15702949605461847 iteration: 30 HingeLoss: 0.15373518439408224 iteration: 31 HingeLoss: 0.15050998388520484 iteration: 32 HingeLoss: 0.1473524446495973 iteration: 33 HingeLoss: 0.14426114722577535 34 HingeLoss: 0.14123470193104617 iteration: 35 HingeLoss: iteration: 0.1382717482367798 iteration: 36 HingeLoss: 0.13537095415678913 37 HingeLoss: iteration: 0.13253101564853895 0.12975065602691835 iteration: 38 HingeLoss: iteration: 39 HingeLoss: 0.1270286253903109 iteration: 40 HingeLoss: 0.12436370005870544 41 HingeLoss: iteration: 0.12175468202359488 42 HingeLoss: iteration: 0.11920039840941513 iteration: 43 HingeLoss: 0.11669970094628294 44 HingeLoss: iteration: 0.11425146545379497 iteration: 45 HingeLoss: 0.11185459133565556 iteration: 46 HingeLoss: 0.10950800108490803 iteration: 47 HingeLoss: 0.10721063979954443 48 HingeLoss: iteration: 0.10496147470827814 49 HingeLoss: iteration: 0.10275949470626441 iteration: 50 HingeLoss: 0.10060370990056199 iteration: 51 HingeLoss: 0.09849315116512955 iteration: 52 HingeLoss: 0.09642686970515858 iteration: 53 HingeLoss: 0.0944039366305455 54 HingeLoss: iteration: 0.09242344253831222 55 HingeLoss: iteration: 0.09048449710378727 iteration: 56 HingeLoss: 0.08858622868036267 iteration: 57 HingeLoss: 0.08672778390764847 iteration: 58 HingeLoss: 0.08490832732784731 59 HingeLoss: iteration: 0.08312704101017701 iteration: 60 HingeLoss: 0.08138312418317241 iteration: 0.07967579287470129 61 HingeLoss: iteration: 62 HingeLoss: 0.07800427955953215 iteration: 63 HingeLoss: 0.07636783281429571 iteration: 64 HingeLoss: 0.07476571697968518 iteration: 65 HingeLoss: 0.07319721182974279 iteration: 66 HingeLoss: 0.07166161224808466 iteration: 67 HingeLoss: 0.07015822791091794 68 HingeLoss: iteration: 0.06868638297670823 69 HingeLoss: iteration: 0.06724541578235689 70 HingeLoss: iteration: 0.06583467854575278 iteration: 71 HingeLoss: 0.07162764628525807 iteration: 72 HingeLoss: 0.11458329682979806 73 HingeLoss: iteration: 0.11217946124264316 iteration: 74 HingeLoss: 0.10982605556708926 75 HingeLoss: iteration: 0.10752202183727637 iteration: 76 HingeLoss: 0.10526632428234199 iteration: 77 HingeLoss: 0.10305794886079385

iteration:

iteration:

iteration:

78 HingeLoss:

79 HingeLoss:

80 HingeLoss:

0.10089590280465058

0.09877921417314607

```
Output_hinge_test.txt
iteration:
            81 HingeLoss:
                           0.09467812294463608
            82 HingeLoss:
iteration:
                           0.09269187671541992
iteration:
            83 HingeLoss:
                           0.0907472998176224
iteration:
            84 HingeLoss:
                           0.08884351807302976
iteration:
            85 HingeLoss:
                           0.08697967564275637
            86 HingeLoss:
iteration:
                           0.08515493464250551
            87 HingeLoss:
iteration:
                           0.08336847476590097
            88 HingeLoss:
iteration:
                           0.08161949291572104
            89 HingeLoss:
iteration:
                           0.07990720284286879
iteration:
            90 HingeLoss:
                           0.07823083479291632
iteration:
            91 HingeLoss:
                           0.0765896351600642
iteration:
            92 HingeLoss:
                           0.07498286614836049
            93 HingeLoss:
iteration:
                           0.0734098054400267
            94 HingeLoss:
iteration:
                           0.0718697458707426
iteration:
            95 HingeLoss: 0.07036199511174243
            96 HingeLoss:
iteration:
                           0.06888587535858101
iteration:
            97 HingeLoss:
                           0.06744072302642878
iteration:
            98 HingeLoss:
                           0.06602588845175958
            99 HingeLoss:
iteration:
                           0.06464073560029632
[-1.92843371e-03 -6.70393499e-04 -7.82129755e-04 ...
                                                      9.24104899e-04
  9.42538433e-04
                 7.39973553e-051
CROSS VALIDATION 51
iteration:
            0 HingeLoss:
                          21.05729512960882
iteration:
            1 HingeLoss:
                          1.6393264781500663
iteration:
            2 HingeLoss:
                          1.101909926627693
            3 HingeLoss:
iteration:
                          0.3086446056286644
            4 HingeLoss:
iteration:
                          0.30216957037203684
iteration:
            5 HingeLoss:
                          0.29583037446205573
iteration:
            6 HingeLoss:
                          0.2896241681338371
iteration:
            7 HingeLoss:
                          0.2835481614075305
iteration:
            8 HingeLoss:
                          0.27759962283409234
iteration:
            9 HingeLoss:
                          0.2717758782673729
iteration:
            10 HingeLoss: 0.26607430966196055
iteration:
            11 HingeLoss:
                           0.2604923538962512
            12 HingeLoss:
iteration:
                           0.255027501620202
iteration:
            13 HingeLoss: 0.249677296127263
iteration:
            14 HingeLoss:
                           0.2444393322499726
iteration:
            15 HingeLoss:
                           0.239311255278722
iteration:
            16 HingeLoss:
                           0.2342907599032032
iteration:
            17 HingeLoss:
                           0.22937558917606443
            18 HingeLoss:
iteration:
                           0.22456353349830654
            19 HingeLoss:
iteration:
                           0.21985242962596546
iteration:
            20 HingeLoss:
                           0.21524015969763216
iteration:
            21 HingeLoss:
                           0.21072465028237586
iteration:
            22 HingeLoss:
                           0.20630387144763895
            23 HingeLoss:
iteration:
                           0.2019758358466883
            24 HingeLoss:
iteration:
                           0.19773859782520953
iteration:
            25 HingeLoss:
                           0.19359025254664408
iteration:
            26 HingeLoss:
                           0.1895289351358773
iteration:
            27 HingeLoss:
                           0.1855528198408885
iteration:
            28 HingeLoss:
                           0.18166011921199132
iteration:
            29 HingeLoss:
                           0.1778490832982907
```

Output\_hinge\_test.txt iteration: 30 HingeLoss: 0.17411799886099846 iteration: 31 HingeLoss: 0.17046518860325222 iteration: 32 HingeLoss: 0.16688901041609255 iteration: 33 HingeLoss: 0.16338785664025762 iteration: 34 HingeLoss: 0.15996015334346542 35 HingeLoss: iteration: 0.156604359612858 36 HingeLoss: iteration: 0.15331896686228835 iteration: 37 HingeLoss: 0.15010249815414115 38 HingeLoss: iteration: 0.1469535075353798 iteration: 39 HingeLoss: 0.14387057938752335 iteration: 40 HingeLoss: 0.14085232779025927 iteration: 41 HingeLoss: 0.137897395898408 iteration: 42 HingeLoss: 0.13500445533195737 43 HingeLoss: iteration: 0.13217220557889373 iteration: 44 HingeLoss: 0.1293993734105608 45 HingeLoss: iteration: 0.12668471230928452 iteration: 46 HingeLoss: 0.1240270019080043 iteration: 47 HingeLoss: 0.12142504744166135 iteration: 48 HingeLoss: 0.11887767921009616 49 HingeLoss: iteration: 0.11638375205221305 iteration: 50 HingeLoss: 0.11394214483117732 iteration: 51 HingeLoss: 0.11155175993041125 iteration: 52 HingeLoss: 0.1092115227601648 iteration: 53 HingeLoss: 0.10692038127443663 iteration: 54 HingeLoss: 0.10467730549803059 55 HingeLoss: iteration: 0.10248128706353385 56 HingeLoss: iteration: 0.10033133875800827 iteration: 57 HingeLoss: 0.09822649407919233 iteration: 58 HingeLoss: 0.09616580680101287 iteration: 59 HingeLoss: 0.09414835054821265 60 HingeLoss: iteration: 0.0921732183799011 iteration: 61 HingeLoss: 0.09023952238184196 iteration: 0.08834639326729446 62 HingeLoss: iteration: 63 HingeLoss: 0.0864929799862282 iteration: 64 HingeLoss: 0.08467844934273656 iteration: 65 HingeLoss: 0.08290198562047588 iteration: 66 HingeLoss: 0.08116279021596315 iteration: 67 HingeLoss: 0.07946008127956622 iteration: 68 HingeLoss: 0.07779309336402593 69 HingeLoss: iteration: 0.07616107708035166 70 HingeLoss: iteration: 0.07456329876093627 71 HingeLoss: iteration: 0.0729990401297377 iteration: 72 HingeLoss: 0.07146759797938076 iteration: 73 HingeLoss: 0.06996828385503245 74 HingeLoss: iteration: 0.06850042374490913 iteration: 75 HingeLoss: 0.0670633577772769 iteration: 76 HingeLoss: 0.06565643992380842 iteration: 77 HingeLoss: 0.06427903770916293 78 HingeLoss: iteration: 0.06293053192665893

iteration:

iteration:

iteration:

79 HingeLoss:

80 HingeLoss:

81 HingeLoss:

0.06161031635991194

0.06031779751031195

```
Output_hinge_test.txt
iteration:
                           0.057813537961749636
            82 HingeLoss:
            83 HingeLoss:
iteration:
                           0.056600671481059905
iteration:
            84 HingeLoss:
                           0.05541324964797079
iteration:
            85 HingeLoss:
                           0.054250738660862836
iteration:
            86 HingeLoss:
                           0.05311261591670643
            87 HingeLoss:
iteration:
                           0.05199836977612701
            88 HingeLoss:
iteration:
                           0.050907499333399546
iteration:
            89 HingeLoss:
                           0.04983951419126787
            90 HingeLoss:
iteration:
                           0.04879393424048812
iteration:
            91 HingeLoss:
                           0.04777028944399737
iteration:
            92 HingeLoss:
                           0.04676811962560977
iteration:
            93 HingeLoss:
                           0.04578697426314606
            94 HingeLoss:
iteration:
                           0.044826412285902714
            95 HingeLoss:
iteration:
                           0.04388600187636987
iteration:
            96 HingeLoss:
                           0.042965320276109546
            97 HingeLoss:
iteration:
                           0.04206395359570556
                           0.04118149662870115
iteration:
            98 HingeLoss:
iteration:
            99 HingeLoss:
                           0.040317552669439656
[-1.02920551e-03 -1.03771989e-04 -1.84224671e-04 ...
                                                      7.82808681e-04
  4.72389983e-04
                  7.07289588e-05]
CROSS VALIDATION 52
iteration:
            0 HingeLoss:
                          21.05729512960882
iteration:
            1 HingeLoss:
                          1.6393264781500663
iteration:
            2 HingeLoss:
                          1.101909926627693
iteration:
            3 HingeLoss:
                          0.3086446056286644
            4 HingeLoss:
iteration:
                          0.30216957037203684
iteration:
            5 HingeLoss:
                          0.29583037446205573
iteration:
            6 HingeLoss:
                          0.2896241681338371
iteration:
            7 HingeLoss:
                          0.2835481614075305
iteration:
            8 HingeLoss:
                          0.27759962283409234
iteration:
            9 HingeLoss:
                          0.2717758782673729
iteration:
            10 HingeLoss:
                           0.26607430966196055
                           0.2604923538962512
iteration:
            11 HingeLoss:
iteration:
            12 HingeLoss:
                           0.255027501620202
            13 HingeLoss:
iteration:
                           0.249677296127263
iteration:
            14 HingeLoss:
                           0.2444393322499726
iteration:
            15 HingeLoss:
                           0.239311255278722
iteration:
            16 HingeLoss:
                           0.2342907599032032
iteration:
            17 HingeLoss:
                           0.22937558917606443
iteration:
            18 HingeLoss:
                           0.22456353349830654
            19 HingeLoss:
iteration:
                           0.21985242962596546
            20 HingeLoss:
iteration:
                           0.21524015969763216
iteration:
            21 HingeLoss:
                           0.21072465028237586
iteration:
            22 HingeLoss:
                           0.20630387144763895
iteration:
            23 HingeLoss:
                           0.2019758358466883
            24 HingeLoss:
iteration:
                           0.19773859782520953
            25 HingeLoss:
iteration:
                           0.19359025254664408
iteration:
            26 HingeLoss:
                           0.1895289351358773
iteration:
            27 HingeLoss:
                           0.1855528198408885
iteration:
            28 HingeLoss:
                           0.18166011921199132
iteration:
            29 HingeLoss:
                           0.1778490832982907
iteration:
            30 HingeLoss:
                           0.17411799886099846
```

Output\_hinge\_test.txt iteration: 31 HingeLoss: 0.17046518860325222 iteration: 32 HingeLoss: 0.16688901041609255 iteration: 33 HingeLoss: 0.16338785664025762 iteration: 34 HingeLoss: 0.15996015334346542 iteration: 35 HingeLoss: 0.156604359612858 36 HingeLoss: iteration: 0.15331896686228835 37 HingeLoss: iteration: 0.15010249815414115 38 HingeLoss: iteration: 0.1469535075353798 39 HingeLoss: iteration: 0.14387057938752335 iteration: 40 HingeLoss: 0.14085232779025927 iteration: 41 HingeLoss: 0.137897395898408 iteration: 42 HingeLoss: 0.13500445533195737 43 HingeLoss: iteration: 0.13217220557889373 44 HingeLoss: iteration: 0.1293993734105608 iteration: 45 HingeLoss: 0.12668471230928452 46 HingeLoss: iteration: 0.1240270019080043 iteration: 0.12142504744166135 47 HingeLoss: iteration: 48 HingeLoss: 0.11887767921009616 iteration: 49 HingeLoss: 0.11638375205221305 50 HingeLoss: iteration: 0.11394214483117732 iteration: 51 HingeLoss: 0.11155175993041125 iteration: 52 HingeLoss: 0.1092115227601648 iteration: 53 HingeLoss: 0.10692038127443663 iteration: 54 HingeLoss: 0.10467730549803059 iteration: 55 HingeLoss: 0.10248128706353385 56 HingeLoss: iteration: 0.10033133875800827 57 HingeLoss: iteration: 0.09822649407919233 iteration: 58 HingeLoss: 0.09616580680101287 iteration: 59 HingeLoss: 0.09414835054821265 iteration: 60 HingeLoss: 0.0921732183799011 61 HingeLoss: iteration: 0.09023952238184196 iteration: 62 HingeLoss: 0.08834639326729446 iteration: 63 HingeLoss: 0.0864929799862282 iteration: 64 HingeLoss: 0.08467844934273656 iteration: 65 HingeLoss: 0.08290198562047588 iteration: 66 HingeLoss: 0.08116279021596315 iteration: 67 HingeLoss: 0.07946008127956622 iteration: 68 HingeLoss: 0.07779309336402593 iteration: 69 HingeLoss: 0.07616107708035166 70 HingeLoss: iteration: 0.07456329876093627 71 HingeLoss: iteration: 0.0729990401297377 72 HingeLoss: iteration: 0.07146759797938076 0.06996828385503245 iteration: 73 HingeLoss: iteration: 74 HingeLoss: 0.06850042374490913 iteration: 75 HingeLoss: 0.0670633577772769 iteration: 76 HingeLoss: 0.06565643992380842 iteration: 77 HingeLoss: 0.06427903770916293 iteration: 78 HingeLoss: 0.06293053192665893 iteration: 79 HingeLoss: 0.06161031635991194

iteration:

iteration:

iteration:

80 HingeLoss:

81 HingeLoss:

82 HingeLoss:

0.06031779751031195

0.05905239433021788

```
Output_hinge_test.txt
iteration:
            83 HingeLoss:
                           0.056600671481059905
            84 HingeLoss:
iteration:
                           0.05541324964797079
iteration:
            85 HingeLoss:
                           0.054250738660862836
iteration:
            86 HingeLoss:
                           0.05311261591670643
iteration:
            87 HingeLoss:
                           0.05199836977612701
            88 HingeLoss:
                           0.050907499333399546
iteration:
            89 HingeLoss:
iteration:
                           0.04983951419126787
iteration:
            90 HingeLoss: 0.04879393424048812
            91 HingeLoss: 0.04777028944399737
iteration:
iteration:
            92 HingeLoss:
                           0.04676811962560977
iteration:
            93 HingeLoss:
                           0.04578697426314606
iteration:
            94 HingeLoss:
                           0.044826412285902714
iteration:
            95 HingeLoss:
                           0.04388600187636987
            96 HingeLoss:
iteration:
                           0.042965320276109546
iteration:
            97 HingeLoss:
                           0.04206395359570556
            98 HingeLoss:
iteration:
                           0.04118149662870115
                           0.040317552669439656
iteration:
            99 HingeLoss:
[-1.02920551e-03 -1.03771989e-04 -1.84224671e-04 ...
                                                      7.82808681e-04
  4.72389983e-04
                 7.07289588e-05]
CROSS VALIDATION 53
           0 HingeLoss:
                          40.59010039173594
iteration:
iteration:
            1 HingeLoss:
                          0.30207114258693524
iteration:
            2 HingeLoss:
                          0.2957340115871037
iteration:
            3 HingeLoss:
                          0.2895298268494178
iteration:
            4 HingeLoss:
                          0.2834557993028267
            5 HingeLoss:
iteration:
                          0.27750919838802074
            6 HingeLoss:
iteration:
                          0.2716873508299177
iteration:
            7 HingeLoss:
                          0.2659876394359011
iteration:
            8 HingeLoss:
                          0.2604075019192691
iteration:
            9 HingeLoss:
                          0.25494442974736725
            10 HingeLoss: 0.24959596701388567
iteration:
iteration:
            11 HingeLoss:
                           0.24435970933481455
                           0.2392333027675609
iteration:
            12 HingeLoss:
            13 HingeLoss:
iteration:
                           0.23421444275274153
iteration:
            14 HingeLoss:
                           0.22930087307817548
iteration:
            15 HingeLoss: 0.22449038486461192
            16 HingeLoss:
iteration:
                           0.21978081557273482
iteration:
            17 HingeLoss:
                           0.21517004803100115
iteration:
            18 HingeLoss:
                           0.21065600948387295
            19 HingeLoss:
iteration:
                           0.20623667066001666
            20 HingeLoss:
iteration:
                           0.20191004486005132
            21 HingeLoss:
iteration:
                           0.1976741870634339
iteration:
            22 HingeLoss:
                           0.19352719305408178
iteration:
            23 HingeLoss:
                           0.18946719856433858
iteration:
            24 HingeLoss:
                           0.18549237843689864
iteration:
            25 HingeLoss:
                           0.18160094580431402
            26 HingeLoss:
iteration:
                           0.177791151285713
iteration:
            27 HingeLoss:
                           0.1740612822003727
            28 HingeLoss:
iteration:
                           0.17040966179778833
iteration:
            29 HingeLoss:
                           0.16683464850389595
iteration:
            30 HingeLoss:
                           0.1633346351831076
iteration:
            31 HingeLoss:
                           0.15990804841582923
```

Output\_hinge\_test.txt

iteration: 32 HingeLoss: 0.156553347791135 iteration: 33 HingeLoss: 0.15326902521428007 iteration: 34 HingeLoss: 0.15005360422874237 iteration: 35 HingeLoss: 0.1469056393524856 iteration: 36 HingeLoss: 0.14382371542814792 37 HingeLoss: iteration: 0.1408064469868623 iteration: 38 HingeLoss: 0.1378524776254235 iteration: 39 HingeLoss: 0.13496047939652217 40 HingeLoss: iteration: 0.13212915221176905 iteration: 41 HingeLoss: 0.1293572232572457 iteration: 42 HingeLoss: 0.12664344642131475 iteration: 43 HingeLoss: 0.12398660173443428 44 HingeLoss: iteration: 0.12138549482072464 45 HingeLoss: iteration: 0.11883895636104068 iteration: 46 HingeLoss: 0.11634584156730812 47 HingeLoss: iteration: 0.11390502966788785 iteration: 48 HingeLoss: 0.1115154234037365 iteration: 49 HingeLoss: 0.10917594853513737 iteration: 50 HingeLoss: 0.10688555335877953 51 HingeLoss: iteration: 0.10464320823496767 iteration: 52 HingeLoss: 0.10244790512475158 iteration: 53 HingeLoss: 0.10029865713676468 iteration: 54 HingeLoss: 0.09819449808357099 iteration: 55 HingeLoss: 0.09613448204731821 iteration: 56 HingeLoss: 0.09411768295450357 57 HingeLoss: iteration: 0.09214319415966066 58 HingeLoss: iteration: 0.0902101280377797 iteration: 59 HingeLoss: 0.08831761558527865 iteration: 60 HingeLoss: 0.08646480602934567 iteration: 61 HingeLoss: 0.08465086644547665 62 HingeLoss: iteration: 0.08287498138303695 iteration: 63 HingeLoss: 0.08113635249867815 0.07943419819744545 iteration: 64 HingeLoss: iteration: 65 HingeLoss: 0.07776775328141403 iteration: 66 HingeLoss: 0.07613626860569708 iteration: 67 HingeLoss: 0.0745390107416699 iteration: 68 HingeLoss: 0.07297526164725954 iteration: 69 HingeLoss: 0.07144431834415153 iteration: 70 HingeLoss: 0.0699454926017678 71 HingeLoss: iteration: 0.0684781106278754 72 HingeLoss: iteration: 0.067041512765685 73 HingeLoss: iteration: 0.06563505319730455 iteration: 74 HingeLoss: 0.06425809965341372 iteration: 75 HingeLoss: 0.06291003312902957 iteration: 76 HingeLoss: 0.06159024760523474 iteration: 77 HingeLoss: 0.06029814977674354 78 HingeLoss: iteration: 0.05903315878518363 iteration: 79 HingeLoss: 0.05779470595797289 iteration: 80 HingeLoss: 0.05658223455267468 iteration: 81 HingeLoss: 0.055395199506715946 iteration: 82 HingeLoss: 0.05423306719235617 iteration: 83 HingeLoss: 0.05309531517679671

Output\_hinge\_test.txt iteration: 84 HingeLoss: 0.05198143198732304 iteration: 85 HingeLoss: 0.05089091688137346 iteration: 86 HingeLoss: 0.04982327962143232 iteration: 87 HingeLoss: 0.048778040254645084 iteration: 88 HingeLoss: 0.047754728897057265 iteration: 89 HingeLoss: 0.04675288552237943 iteration: 90 HingeLoss: 0.045772059755183975 iteration: 91 HingeLoss: 0.0448118106684403 iteration: 92 HingeLoss: 0.043871706585297605 iteration: 93 HingeLoss: 0.04295132488502583 iteration: 94 HingeLoss: 0.04205025181302788 iteration: 95 HingeLoss: 0.04116808229483775 iteration: 96 HingeLoss: 0.040304419754020396 iteration: 97 HingeLoss: 0.0394588759338923 iteration: 98 HingeLoss: 0.038631070722981734 iteration: 99 HingeLoss: 0.037820631984151046 [-9.69306925e-04 2.62619117e-05 -2.55321231e-04 ... 6.97926175e-04

4.44724355e-04 1.04769145e-04]

Accuracy (Hinge Loss): 0.8529411764705882