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1 /usr/local/bin/python3.12 /Users/lorispalmarin/Library/Application Support/JetBrains/
  PyCharm2023.2/scratches/scratch_7.py
2 First rows of the dataset:
3      x1      x2      x3      x4      ...      x8      x9      x10  y
4 0  1.205492  5.823226  98.837539 -1.075852 ... -1.720267 -0.346191 -54.708330 -1
5 1  1.391530  3.611581  98.857197 -5.020318 ...  4.253865  2.041603 -54.317291  1
6 2  1.692571 -0.887019 100.901276 -0.595548 ...  0.907834  3.126815 -56.397484 -1
7 3  4.289320  1.416843 100.784735 -2.897154 ...  1.336237  2.183829 -56.197728  1
8 4  0.542420 -1.010095 100.015580 -3.070705 ... -0.284683 -2.104145 -55.794045  1
9
10 [5 rows x 11 columns]
11
12 Statistical summary:
13      x1      x2      ...      x10      y
14 count 10000.000000 10000.000000 ... 10000.000000 10000.000000
15 mean  1.591298    0.515879 ... -55.447678 -0.001600
16 std   1.321185    2.054488 ...  0.710082  1.000049
17 min   0.002443   -7.524934 ... -56.773931 -1.000000
18 25%   0.524758   -0.883862 ... -56.137679 -1.000000
19 50%   1.276243    0.492813 ... -55.397208 -1.000000
20 75%   2.352106    1.902003 ... -54.758351  1.000000
21 max   9.384223    8.302375 ... -54.208890  1.000000
22
23 [8 rows x 11 columns]
24 Final dataset shape: (9733, 11)
25
26 Statistical summary of training set after standardisation:
27      0      1      ...      6      7
28 count 7.786000e+03 7.786000e+03 ... 7.786000e+03 7.786000e+03
29 mean -1.108797e-15 -2.628260e-16 ... -9.226287e-16 -2.920289e-17
30 std  1.000064e+00 1.000064e+00 ... 1.000064e+00 1.000064e+00
31 min -1.210816e+00 -2.728141e+00 ... -2.793592e+00 -2.760765e+00
32 25% -8.115617e-01 -6.980145e-01 ... -6.936736e-01 -6.787072e-01
33 50% -2.333511e-01 -1.176852e-02 ... -9.258075e-03 -1.798967e-02
34 75%  5.805372e-01  6.981031e-01 ...  6.718357e-01  6.861826e-01
35 max  5.958668e+00  2.810010e+00 ...  2.756846e+00  2.753401e+00
36
37 [8 rows x 8 columns]
38 Running Kernelised Pegasos SVM with gaussian kernel:
39 Accuracy on training set: 0.8434
40 Accuracy on training set: 0.8446
41 Accuracy on training set: 0.8457
42 Accuracy on training set: 0.8425
43 Accuracy on training set: 0.8379
44 Accuracy on training set: 0.8385
45 Accuracy on training set: 0.8337
46 Accuracy on training set: 0.8457
47 Accuracy on training set: 0.8428
48 Accuracy on training set: 0.8393
49 Accuracy on training set: 0.8410
50 Accuracy on training set: 0.8348
51 Accuracy on training set: 0.8464
52 Accuracy on training set: 0.8430
53 Accuracy on training set: 0.8432
54 Accuracy on training set: 0.8351
55 Accuracy on training set: 0.8411
56 Accuracy on training set: 0.8422
57 Accuracy on training set: 0.8446
58 Accuracy on training set: 0.8375

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59 Accuracy on training set: 0.8434
60 Accuracy on training set: 0.8419
61 Accuracy on training set: 0.8404
62 Accuracy on training set: 0.8417
63 Accuracy on training set: 0.8354
64 Accuracy on training set: 0.8345
65 Accuracy on training set: 0.8358
66 Accuracy on training set: 0.8407
67 Accuracy on training set: 0.8440
68 Accuracy on training set: 0.8330
69 Accuracy on training set: 0.8484
70 Accuracy on training set: 0.8441
71 Accuracy on training set: 0.8388
72 Accuracy on training set: 0.8460
73 Accuracy on training set: 0.8367
74 Accuracy on training set: 0.8455
75 Accuracy on training set: 0.8523
76 Accuracy on training set: 0.8478
77 Accuracy on training set: 0.8398
78 Accuracy on training set: 0.8281
79 Accuracy on training set: 0.8423
80 Accuracy on training set: 0.8358
81 Accuracy on training set: 0.8452
82 Accuracy on training set: 0.8387
83 Accuracy on training set: 0.8398
84 Best Parameters for Pegasos SVM (gaussian kernel): {'gamma': 0.1, 'lambda_param': 0.001}
85 Best Cross-Validation Accuracy for <functions.KernelPegasosSVM object at 0x157c831a0>: 0.82
86 Accuracy on training set: 0.8246
87 Running Kernelised Pegasos SVM with polynomial kernel:
88 Accuracy on training set: 0.8255
89 Accuracy on training set: 0.8183
90 Accuracy on training set: 0.8348
91 Accuracy on training set: 0.8696
92 Accuracy on training set: 0.8141
93 Accuracy on training set: 0.8298
94 Accuracy on training set: 0.8366
95 Accuracy on training set: 0.8358
96 Accuracy on training set: 0.8598
97 Accuracy on training set: 0.8465
98 Accuracy on training set: 0.8589
99 Accuracy on training set: 0.8476
100 Accuracy on training set: 0.8155
101 Accuracy on training set: 0.8499
102 Accuracy on training set: 0.8603
103 Accuracy on training set: 0.7677
104 Accuracy on training set: 0.8436
105 Accuracy on training set: 0.8517
106 Accuracy on training set: 0.8703
107 Accuracy on training set: 0.8708
108 Accuracy on training set: 0.8407
109 Accuracy on training set: 0.8356
110 Accuracy on training set: 0.8080
111 Accuracy on training set: 0.7919
112 Accuracy on training set: 0.7976
113 Accuracy on training set: 0.8314
114 Accuracy on training set: 0.8208
115 Accuracy on training set: 0.8468
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116 Accuracy on training set: 0.8481
117 Accuracy on training set: 0.8544
118 Accuracy on training set: 0.8558
119 Accuracy on training set: 0.8375
120 Accuracy on training set: 0.8359
121 Accuracy on training set: 0.8067
122 Accuracy on training set: 0.8542
123 Accuracy on training set: 0.8585
124 Accuracy on training set: 0.8406
125 Accuracy on training set: 0.8441
126 Accuracy on training set: 0.8544
127 Accuracy on training set: 0.7341
128 Accuracy on training set: 0.8349
129 Accuracy on training set: 0.8454
130 Accuracy on training set: 0.8467
131 Accuracy on training set: 0.8441
132 Accuracy on training set: 0.8603
133 Best Parameters for Pegasos SVM (polynomial kernel): {'degree': 2, 'lambda_param': 0
    .1}
134 Best Cross-Validation Accuracy for <functions.KernelPegasosSVM object at 0x157adae40
    >: 0.84
135 Accuracy on training set: 0.8271
136 Accuracy on test set (polynomial kernel): 0.81
137 Accuracy on test set (gaussian kernel): 0.80
138
139 Process finished with exit code 0
140
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