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1 C:\Users\psiml8\AppData\Local\Programs\Python\Python39\python.exe C:/Users/psiml8/Desktop/Projekat/graph-transformer-psiml/GATTransformer.py
2 Files already downloaded and verified
3 Files already downloaded and verified
4 wandb: Currently logged in as: njmarko. Use `wandb login --relogin` to force relogin
5 wandb: wandb version 0.13.1 is available! To upgrade, please run:
6 wandb: $ pip install wandb --upgrade
7 wandb: Tracking run with wandb version 0.13.0
8 wandb: Run data is saved locally in C:\Users\psiml8\Desktop\Projekat\graph-transformer-psiml\wandb\run-20220805_230153-26qe2pmq
9 wandb: Run `wandb offline` to turn off syncing.
10 wandb: Syncing run worthy-shape-1
11 wandb: View project at https://wandb.ai/njmarko/gat0
12 wandb: View run at https://wandb.ai/njmarko/gat0/runs/26qe2pmq
13 Epoch: 1
14 [    0/50000 (  0%)] Loss: 4.6190
15 [20000/50000 ( 40%)] Loss: 4.6175
16 [40000/50000 ( 80%)] Loss: 4.5996
17 Accuracy: 0.95%
18
19 Average test loss: 4.6089 Accuracy: 100/10000 (1.00 %)
20
21 Epoch: 2
22 [    0/50000 (  0%)] Loss: 4.6019
23 [20000/50000 ( 40%)] Loss: 4.6140
24 [40000/50000 ( 80%)] Loss: 4.6135
25 Accuracy: 0.94%
26
27 Average test loss: 4.6078 Accuracy: 100/10000 (1.00 %)
28
29 Epoch: 3
30 [    0/50000 (  0%)] Loss: 4.6087
31 [20000/50000 ( 40%)] Loss: 4.6054
32 [40000/50000 ( 80%)] Loss: 4.5984
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33 Accuracy: 0.99%
34
35 Average test loss: 4.6094 Accuracy: 100/10000 (1.00
%)
36
37 Epoch: 4
38 [    0/50000 ( 0%)] Loss: 4.6018
39 [20000/50000 ( 40%)] Loss: 4.5988
40 [40000/50000 ( 80%)] Loss: 4.6136
41 Accuracy: 0.96%
42
43 Average test loss: 4.6083 Accuracy: 100/10000 (1.00
%)
44
45 Epoch: 5
46 [    0/50000 ( 0%)] Loss: 4.6083
47 [20000/50000 ( 40%)] Loss: 4.6083
48 [40000/50000 ( 80%)] Loss: 4.6085
49 Accuracy: 0.94%
50
51 Average test loss: 4.6094 Accuracy: 100/10000 (1.00
%)
52
53 Epoch: 6
54 [    0/50000 ( 0%)] Loss: 4.6165
55 [20000/50000 ( 40%)] Loss: 4.6118
56 [40000/50000 ( 80%)] Loss: 4.6114
57 Accuracy: 1.05%
58
59 Average test loss: 4.6085 Accuracy: 100/10000 (1.00
%)
60
61 Epoch: 7
62 [    0/50000 ( 0%)] Loss: 4.6113
63 [20000/50000 ( 40%)] Loss: 4.5985
64 [40000/50000 ( 80%)] Loss: 4.6139
65 Accuracy: 0.84%
66
67 Average test loss: 4.6086 Accuracy: 100/10000 (1.00
%)
68
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69 Epoch: 8
70 [     0/50000 (  0%) ] Loss: 4.6077
71 [20000/50000 ( 40%) ] Loss: 4.6058
72 [40000/50000 ( 80%) ] Loss: 4.6140
73 Accuracy: 0.96%
74
75 Average test loss: 4.6085 Accuracy: 100/10000 (1.
    00%)
76
77 Epoch: 9
78 [     0/50000 (  0%) ] Loss: 4.6047
79 [20000/50000 ( 40%) ] Loss: 4.6140
80 [40000/50000 ( 80%) ] Loss: 4.6226
81 Accuracy: 0.99%
82
83 Average test loss: 4.6094 Accuracy: 100/10000 (1.
    00%)
84
85 Epoch: 10
86 [     0/50000 (  0%) ] Loss: 4.6091
87 [20000/50000 ( 40%) ] Loss: 4.6072
88 [40000/50000 ( 80%) ] Loss: 4.6110
89 Accuracy: 0.94%
90
91 Average test loss: 4.6097 Accuracy: 100/10000 (1.
    00%)
92
93 Epoch: 11
94 [     0/50000 (  0%) ] Loss: 4.6089
95 [20000/50000 ( 40%) ] Loss: 4.6011
96 [40000/50000 ( 80%) ] Loss: 4.6107
97 Accuracy: 0.96%
98
99 Average test loss: 4.6081 Accuracy: 100/10000 (1.
    00%)
100
101 Epoch: 12
102 [     0/50000 (  0%) ] Loss: 4.6201
103 [20000/50000 ( 40%) ] Loss: 4.6100
104 [40000/50000 ( 80%) ] Loss: 4.6149
105 Accuracy: 0.93%
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106
107 Average test loss: 4.6099 Accuracy: 100/10000 (1.
     00%)
108
109 Epoch: 13
110 [    0/50000 (  0%)] Loss: 4.6089
111 [20000/50000 ( 40%)] Loss: 4.6105
112 [40000/50000 ( 80%)] Loss: 4.6113
113 Accuracy: 1.00%
114
115 Average test loss: 4.6095 Accuracy: 100/10000 (1.
     00%)
116
117 Epoch: 14
118 [    0/50000 (  0%)] Loss: 4.6004
119 [20000/50000 ( 40%)] Loss: 4.6146
120 [40000/50000 ( 80%)] Loss: 4.6127
121 Accuracy: 0.95%
122
123 Average test loss: 4.6101 Accuracy: 100/10000 (1.
     00%)
124
125 Epoch: 15
126 [    0/50000 (  0%)] Loss: 4.6106
127 [20000/50000 ( 40%)] Loss: 4.6122
128 [40000/50000 ( 80%)] Loss: 4.6122
129 Accuracy: 0.89%
130
131 Average test loss: 4.6090 Accuracy: 100/10000 (1.
     00%)
132
133 Epoch: 16
134 [    0/50000 (  0%)] Loss: 4.6047
135 [20000/50000 ( 40%)] Loss: 4.5997
136 [40000/50000 ( 80%)] Loss: 4.5948
137 Accuracy: 0.97%
138
139 Average test loss: 4.6094 Accuracy: 100/10000 (1.
     00%)
140
141 Epoch: 17
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142 [    0/50000 ( 0%)] Loss: 4.6129
143 [20000/50000 (40%)] Loss: 4.6114
144 [40000/50000 (80%)] Loss: 4.6081
145 Accuracy: 0.94%
146
147 Average test loss: 4.6098 Accuracy: 100/10000 (1.00%)
148
149 Epoch: 18
150 [    0/50000 ( 0%)] Loss: 4.6098
151 [20000/50000 (40%)] Loss: 4.6132
152 [40000/50000 (80%)] Loss: 4.6143
153 Accuracy: 0.96%
154
155 Average test loss: 4.6108 Accuracy: 100/10000 (1.00%)
156
157 Epoch: 19
158 [    0/50000 ( 0%)] Loss: 4.6169
159 [20000/50000 (40%)] Loss: 4.6201
160 [40000/50000 (80%)] Loss: 4.6141
161 Accuracy: 0.93%
162
163 Average test loss: 4.6093 Accuracy: 100/10000 (1.00%)
164
165 Epoch: 20
166 [    0/50000 ( 0%)] Loss: 4.6104
167 [20000/50000 (40%)] Loss: 4.6069
168 [40000/50000 (80%)] Loss: 4.6031
169 Accuracy: 0.95%
170
171 Average test loss: 4.6105 Accuracy: 100/10000 (1.00%)
172
173 Epoch: 21
174 [    0/50000 ( 0%)] Loss: 4.6073
175 [20000/50000 (40%)] Loss: 4.6110
176 [40000/50000 (80%)] Loss: 4.6049
177 Accuracy: 0.98%
178
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179 Average test loss: 4.6093 Accuracy: 100/10000 (1.00%)
180
181 Epoch: 22
182 [     0/50000 ( 0%) ] Loss: 4.6039
183 [20000/50000 ( 40%) ] Loss: 4.6129
184 [40000/50000 ( 80%) ] Loss: 4.6123
185 Accuracy: 1.00%
186
187 Average test loss: 4.6091 Accuracy: 100/10000 (1.00%)
188
189 Epoch: 23
190 [     0/50000 ( 0%) ] Loss: 4.6119
191 [20000/50000 ( 40%) ] Loss: 4.6082
192 [40000/50000 ( 80%) ] Loss: 4.6044
193 Accuracy: 0.93%
194
195 Average test loss: 4.6094 Accuracy: 100/10000 (1.00%)
196
197 Epoch: 24
198 [     0/50000 ( 0%) ] Loss: 4.6024
199 [20000/50000 ( 40%) ] Loss: 4.6127
200 [40000/50000 ( 80%) ] Loss: 4.6122
201 Accuracy: 0.96%
202
203 Average test loss: 4.6090 Accuracy: 100/10000 (1.00%)
204
205 Epoch: 25
206 [     0/50000 ( 0%) ] Loss: 4.6088
207 [20000/50000 ( 40%) ] Loss: 4.6141
208 [40000/50000 ( 80%) ] Loss: 4.6076
209 Accuracy: 0.96%
210
211 Average test loss: 4.6092 Accuracy: 100/10000 (1.00%)
212
213 Epoch: 26
214 [     0/50000 ( 0%) ] Loss: 4.6087
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215 [20000/50000 ( 40%)] Loss: 4.6100
216 [40000/50000 ( 80%)] Loss: 4.6111
217 Accuracy: 0.99%
218
219 Average test loss: 4.6090 Accuracy: 100/10000 (1.
00%)
220
221 Epoch: 27
222 [     0/50000 ( 0%)] Loss: 4.6122
223 [20000/50000 ( 40%)] Loss: 4.6096
224 [40000/50000 ( 80%)] Loss: 4.6099
225 Accuracy: 0.93%
226
227 Average test loss: 4.6094 Accuracy: 100/10000 (1.
00%)
228
229 Epoch: 28
230 [     0/50000 ( 0%)] Loss: 4.6087
231 [20000/50000 ( 40%)] Loss: 4.6067
232 [40000/50000 ( 80%)] Loss: 4.6129
233 Accuracy: 0.97%
234
235 Average test loss: 4.6097 Accuracy: 100/10000 (1.
00%)
236
237 Epoch: 29
238 [     0/50000 ( 0%)] Loss: 4.6125
239 [20000/50000 ( 40%)] Loss: 4.6157
240 [40000/50000 ( 80%)] Loss: 4.6137
241 Accuracy: 0.99%
242
243 Average test loss: 4.6094 Accuracy: 100/10000 (1.
00%)
244
245 Epoch: 30
246 [     0/50000 ( 0%)] Loss: 4.6119
247 [20000/50000 ( 40%)] Loss: 4.6086
248 [40000/50000 ( 80%)] Loss: 4.6091
249 Accuracy: 0.92%
250
251 Average test loss: 4.6090 Accuracy: 100/10000 (1.
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251 00%)  
252  
253 Epoch: 31  
254 [     0/50000 ( 0%)] Loss: 4.6070  
255 [20000/50000 ( 40%)] Loss: 4.6138  
256 [40000/50000 ( 80%)] Loss: 4.6083  
257 Accuracy: 1.01%  
258  
259 Average test loss: 4.6106 Accuracy: 100/10000 (1.  
00%)  
260  
261 Epoch: 32  
262 [     0/50000 ( 0%)] Loss: 4.6093  
263 [20000/50000 ( 40%)] Loss: 4.6185  
264 [40000/50000 ( 80%)] Loss: 4.6115  
265 Accuracy: 0.96%  
266  
267 Average test loss: 4.6107 Accuracy: 100/10000 (1.  
00%)  
268  
269 Epoch: 33  
270 [     0/50000 ( 0%)] Loss: 4.6130  
271 [20000/50000 ( 40%)] Loss: 4.6172  
272 [40000/50000 ( 80%)] Loss: 4.6001  
273 Accuracy: 0.96%  
274  
275 Average test loss: 4.6094 Accuracy: 100/10000 (1.  
00%)  
276  
277 Epoch: 34  
278 [     0/50000 ( 0%)] Loss: 4.6090  
279 [20000/50000 ( 40%)] Loss: 4.6158  
280 [40000/50000 ( 80%)] Loss: 4.6128  
281 Accuracy: 0.98%  
282  
283 Average test loss: 4.6090 Accuracy: 100/10000 (1.  
00%)  
284  
285 Epoch: 35  
286 [     0/50000 ( 0%)] Loss: 4.6140  
287 [20000/50000 ( 40%)] Loss: 4.6168
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288 [40000/50000 ( 80%)] Loss: 4.6132
289 Accuracy: 0.93%
290
291 Average test loss: 4.6100 Accuracy: 100/10000 (1.
00%)
292
293 Epoch: 36
294 [     0/50000 ( 0%)] Loss: 4.6153
295 [20000/50000 ( 40%)] Loss: 4.6065
296 [40000/50000 ( 80%)] Loss: 4.6132
297 Accuracy: 0.88%
298
299 Average test loss: 4.6089 Accuracy: 100/10000 (1.
00%)
300
301 Epoch: 37
302 [     0/50000 ( 0%)] Loss: 4.6047
303 [20000/50000 ( 40%)] Loss: 4.6079
304 [40000/50000 ( 80%)] Loss: 4.6115
305 Accuracy: 0.95%
306
307 Average test loss: 4.6080 Accuracy: 100/10000 (1.
00%)
308
309 Epoch: 38
310 [     0/50000 ( 0%)] Loss: 4.6151
311 [20000/50000 ( 40%)] Loss: 4.6159
312 [40000/50000 ( 80%)] Loss: 4.6150
313 Accuracy: 0.98%
314
315 Average test loss: 4.6093 Accuracy: 100/10000 (1.
00%)
316
317 Epoch: 39
318 [     0/50000 ( 0%)] Loss: 4.6039
319 [20000/50000 ( 40%)] Loss: 4.6081
320 [40000/50000 ( 80%)] Loss: 4.6032
321 Accuracy: 0.96%
322
323 Average test loss: 4.6092 Accuracy: 100/10000 (1.
00%)
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324
325 Epoch: 40
326 [    0/50000 ( 0%)] Loss: 4.6057
327 [20000/50000 (40%)] Loss: 4.6048
328 [40000/50000 (80%)] Loss: 4.6235
329 Accuracy: 0.92%
330
331 Average test loss: 4.6100 Accuracy: 100/10000 (1.00%)
332
333 Execution time: 10592.64 seconds
334 Epoch: 1
335 [    0/50000 ( 0%)] Loss: 4.6526
336 [20000/50000 (40%)] Loss: 4.0597
337 [40000/50000 (80%)] Loss: 3.7930
338 Accuracy: 7.25%
339
340 Average test loss: 3.7193 Accuracy: 1165/10000 (11.65%)
341
342 Epoch: 2
343 [    0/50000 ( 0%)] Loss: 3.6610
344 [20000/50000 (40%)] Loss: 3.5253
345 [40000/50000 (80%)] Loss: 3.5504
346 Accuracy: 15.15%
347
348 Average test loss: 3.4504 Accuracy: 1699/10000 (16.99%)
349
350 Epoch: 3
351 [    0/50000 ( 0%)] Loss: 3.3658
352 [20000/50000 (40%)] Loss: 3.2441
353 [40000/50000 (80%)] Loss: 3.3497
354 Accuracy: 18.93%
355
356 Average test loss: 3.2615 Accuracy: 2090/10000 (20.90%)
357
358 Epoch: 4
359 [    0/50000 ( 0%)] Loss: 3.3179
360 [20000/50000 (40%)] Loss: 3.0605
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361 [40000/50000 ( 80%)] Loss: 3.1772
362 Accuracy: 21.93%
363
364 Average test loss: 3.1951 Accuracy: 2233/10000 (22.
33%)
365
366 Epoch: 5
367 [ 0/50000 ( 0%)] Loss: 3.0790
368 [20000/50000 ( 40%)] Loss: 3.2215
369 [40000/50000 ( 80%)] Loss: 3.2014
370 Accuracy: 24.16%
371
372 Average test loss: 3.1046 Accuracy: 2401/10000 (24.
01%)
373
374 Epoch: 6
375 [ 0/50000 ( 0%)] Loss: 2.9551
376 [20000/50000 ( 40%)] Loss: 2.9573
377 [40000/50000 ( 80%)] Loss: 2.9176
378 Accuracy: 26.08%
379
380 Average test loss: 3.0697 Accuracy: 2543/10000 (25.
43%)
381
382 Epoch: 7
383 [ 0/50000 ( 0%)] Loss: 2.6529
384 [20000/50000 ( 40%)] Loss: 2.9565
385 [40000/50000 ( 80%)] Loss: 2.8297
386 Accuracy: 27.75%
387
388 Average test loss: 3.0295 Accuracy: 2563/10000 (25.
63%)
389
390 Epoch: 8
391 [ 0/50000 ( 0%)] Loss: 2.5425
392 [20000/50000 ( 40%)] Loss: 2.7173
393 [40000/50000 ( 80%)] Loss: 2.6789
394 Accuracy: 29.52%
395
396 Average test loss: 3.0213 Accuracy: 2628/10000 (26.
28%)
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397
398 Epoch: 9
399 [    0/50000 (  0%)] Loss: 2.6654
400 [20000/50000 ( 40%)] Loss: 2.6794
401 [40000/50000 ( 80%)] Loss: 2.7758
402 Accuracy: 31.50%
403
404 Average test loss: 2.9719 Accuracy: 2777/10000 (27.
77%)
405
406 Epoch: 10
407 [    0/50000 (  0%)] Loss: 2.3279
408 [20000/50000 ( 40%)] Loss: 2.5424
409 [40000/50000 ( 80%)] Loss: 2.5968
410 Accuracy: 33.00%
411
412 Average test loss: 2.9764 Accuracy: 2777/10000 (27.
77%)
413
414 Epoch: 11
415 [    0/50000 (  0%)] Loss: 2.1296
416 [20000/50000 ( 40%)] Loss: 2.5075
417 [40000/50000 ( 80%)] Loss: 2.5929
418 Accuracy: 34.62%
419
420 Average test loss: 2.9703 Accuracy: 2794/10000 (27.
94%)
421
422 Epoch: 12
423 [    0/50000 (  0%)] Loss: 2.2755
424 [20000/50000 ( 40%)] Loss: 2.4667
425 [40000/50000 ( 80%)] Loss: 2.5767
426 Accuracy: 36.27%
427
428 Average test loss: 2.9675 Accuracy: 2830/10000 (28.
30%)
429
430 Epoch: 13
431 [    0/50000 (  0%)] Loss: 2.2764
432 [20000/50000 ( 40%)] Loss: 2.3524
433 [40000/50000 ( 80%)] Loss: 2.4295
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434 Accuracy: 38.68%
435
436 Average test loss: 2.9932 Accuracy: 2849/10000 (28.
49%)
437
438 Epoch: 14
439 [    0/50000 ( 0%)] Loss: 2.3359
440 [20000/50000 ( 40%)] Loss: 2.0914
441 [40000/50000 ( 80%)] Loss: 2.3516
442 Accuracy: 40.27%
443
444 Average test loss: 3.0305 Accuracy: 2954/10000 (29.
54%)
445
446 Epoch: 15
447 [    0/50000 ( 0%)] Loss: 1.8243
448 [20000/50000 ( 40%)] Loss: 2.2574
449 [40000/50000 ( 80%)] Loss: 2.0754
450 Accuracy: 42.19%
451
452 Average test loss: 3.0247 Accuracy: 2928/10000 (29.
28%)
453
454 Epoch: 16
455 [    0/50000 ( 0%)] Loss: 1.7635
456 [20000/50000 ( 40%)] Loss: 2.0154
457 [40000/50000 ( 80%)] Loss: 2.1178
458 Accuracy: 43.74%
459
460 Average test loss: 3.1572 Accuracy: 2859/10000 (28.
59%)
461
462 Epoch: 17
463 [    0/50000 ( 0%)] Loss: 1.8814
464 [20000/50000 ( 40%)] Loss: 2.0953
465 [40000/50000 ( 80%)] Loss: 1.9333
466 Accuracy: 45.80%
467
468 Average test loss: 3.1191 Accuracy: 2922/10000 (29.
22%)
469
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470 Epoch: 18
471 [     0/50000 (  0%) ] Loss: 1.4985
472 [20000/50000 ( 40%) ] Loss: 1.8711
473 [40000/50000 ( 80%) ] Loss: 1.8420
474 Accuracy: 48.34%
475
476 Average test loss: 3.2659 Accuracy: 2821/10000 (28.
21%)
477
478 Epoch: 19
479 [     0/50000 (  0%) ] Loss: 1.5384
480 [20000/50000 ( 40%) ] Loss: 1.9481
481 [40000/50000 ( 80%) ] Loss: 2.0290
482 Accuracy: 50.10%
483
484 Average test loss: 3.3332 Accuracy: 2826/10000 (28.
26%)
485
486 Epoch: 20
487 [     0/50000 (  0%) ] Loss: 1.5455
488 [20000/50000 ( 40%) ] Loss: 1.7835
489 [40000/50000 ( 80%) ] Loss: 1.7834
490 Accuracy: 52.56%
491
492 Average test loss: 3.4316 Accuracy: 2902/10000 (29.
02%)
493
494 Epoch: 21
495 [     0/50000 (  0%) ] Loss: 1.3895
496 [20000/50000 ( 40%) ] Loss: 1.3581
497 [40000/50000 ( 80%) ] Loss: 1.7293
498 Accuracy: 53.99%
499
500 Average test loss: 3.4947 Accuracy: 2782/10000 (27.
82%)
501
502 Epoch: 22
503 [     0/50000 (  0%) ] Loss: 1.3996
504 [20000/50000 ( 40%) ] Loss: 1.5106
505 [40000/50000 ( 80%) ] Loss: 1.4612
506 Accuracy: 55.86%
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507
508 Average test loss: 3.5558 Accuracy: 2846/10000 (28.
      46%)
509
510 Epoch: 23
511 [     0/50000 (  0%)] Loss: 1.3057
512 [20000/50000 ( 40%)] Loss: 1.3138
513 [40000/50000 ( 80%)] Loss: 1.4255
514 Accuracy: 58.33%
515
516 Average test loss: 3.7411 Accuracy: 2810/10000 (28.
      10%)
517
518 Epoch: 24
519 [     0/50000 (  0%)] Loss: 1.1169
520 [20000/50000 ( 40%)] Loss: 1.2220
521 [40000/50000 ( 80%)] Loss: 1.4140
522 Accuracy: 59.61%
523
524 Average test loss: 3.7811 Accuracy: 2841/10000 (28.
      41%)
525
526 Epoch: 25
527 [     0/50000 (  0%)] Loss: 1.1503
528 [20000/50000 ( 40%)] Loss: 1.2362
529 [40000/50000 ( 80%)] Loss: 1.5300
530 Accuracy: 61.74%
531
532 Average test loss: 3.8904 Accuracy: 2755/10000 (27.
      55%)
533
534 Epoch: 26
535 [     0/50000 (  0%)] Loss: 1.0211
536 [20000/50000 ( 40%)] Loss: 1.2467
537 [40000/50000 ( 80%)] Loss: 1.4038
538 Accuracy: 63.51%
539
540 Average test loss: 4.0091 Accuracy: 2781/10000 (27.
      81%)
541
542 Epoch: 27
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543 [    0/50000 ( 0%)] Loss: 1.1132
544 [20000/50000 (40%)] Loss: 1.1342
545 [40000/50000 (80%)] Loss: 1.1250
546 Accuracy: 65.37%
547
548 Average test loss: 4.2925 Accuracy: 2737/10000 (27.37%)
549
550 Epoch: 28
551 [    0/50000 ( 0%)] Loss: 1.0862
552 [20000/50000 (40%)] Loss: 0.9412
553 [40000/50000 (80%)] Loss: 1.2051
554 Accuracy: 66.30%
555
556 Average test loss: 4.3463 Accuracy: 2706/10000 (27.06%)
557
558 Epoch: 29
559 [    0/50000 ( 0%)] Loss: 0.9265
560 [20000/50000 (40%)] Loss: 0.8929
561 [40000/50000 (80%)] Loss: 0.8706
562 Accuracy: 68.24%
563
564 Average test loss: 4.5514 Accuracy: 2730/10000 (27.30%)
565
566 Epoch: 30
567 [    0/50000 ( 0%)] Loss: 0.9603
568 [20000/50000 (40%)] Loss: 0.9323
569 [40000/50000 (80%)] Loss: 1.0019
570 Accuracy: 69.97%
571
572 Average test loss: 4.6643 Accuracy: 2702/10000 (27.02%)
573
574 Epoch: 31
575 [    0/50000 ( 0%)] Loss: 0.8361
576 [20000/50000 (40%)] Loss: 0.9063
577 [40000/50000 (80%)] Loss: 1.1779
578 Accuracy: 70.78%
579
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580 Average test loss: 4.7739 Accuracy: 2803/10000 (28.03%)  
581  
582 Epoch: 32  
583 [ 0/50000 ( 0%) ] Loss: 0.7101  
584 [20000/50000 ( 40%) ] Loss: 0.9156  
585 [40000/50000 ( 80%) ] Loss: 1.1029  
586 Accuracy: 71.81%  
587  
588 Average test loss: 4.9658 Accuracy: 2704/10000 (27.04%)  
589  
590 Epoch: 33  
591 [ 0/50000 ( 0%) ] Loss: 0.8777  
592 [20000/50000 ( 40%) ] Loss: 0.8926  
593 [40000/50000 ( 80%) ] Loss: 0.7946  
594 Accuracy: 73.07%  
595  
596 Average test loss: 5.0175 Accuracy: 2793/10000 (27.93%)  
597  
598 Epoch: 34  
599 [ 0/50000 ( 0%) ] Loss: 0.8927  
600 [20000/50000 ( 40%) ] Loss: 0.8499  
601 [40000/50000 ( 80%) ] Loss: 0.7965  
602 Accuracy: 74.37%  
603  
604 Average test loss: 5.1032 Accuracy: 2683/10000 (26.83%)  
605  
606 Epoch: 35  
607 [ 0/50000 ( 0%) ] Loss: 0.6646  
608 [20000/50000 ( 40%) ] Loss: 0.8077  
609 [40000/50000 ( 80%) ] Loss: 0.8853  
610 Accuracy: 74.69%  
611  
612 Average test loss: 5.2349 Accuracy: 2711/10000 (27.11%)  
613  
614 Epoch: 36  
615 [ 0/50000 ( 0%) ] Loss: 0.5836
```

```
616 [20000/50000 ( 40%)] Loss: 0.5789
617 [40000/50000 ( 80%)] Loss: 0.8162
618 Accuracy: 76.06%
619
620 Average test loss: 5.4539 Accuracy: 2648/10000 (26.
48%)
621
622 Epoch: 37
623 [      0/50000 ( 0%)] Loss: 0.7303
624 [20000/50000 ( 40%)] Loss: 0.6324
625 [40000/50000 ( 80%)] Loss: 0.9448
626 Accuracy: 76.08%
627
628 Average test loss: 5.5567 Accuracy: 2741/10000 (27.
41%)
629
630 Epoch: 38
631 [      0/50000 ( 0%)] Loss: 0.6284
632 [20000/50000 ( 40%)] Loss: 0.7285
633 [40000/50000 ( 80%)] Loss: 0.6655
634 Accuracy: 77.88%
635
636 Average test loss: 5.5840 Accuracy: 2767/10000 (27.
67%)
637
638 Epoch: 39
639 [      0/50000 ( 0%)] Loss: 0.3756
640 [20000/50000 ( 40%)] Loss: 0.6796
641 [40000/50000 ( 80%)] Loss: 0.7577
642 Accuracy: 78.87%
643
644 Average test loss: 5.6947 Accuracy: 2680/10000 (26.
80%)
645
646 Epoch: 40
647 [      0/50000 ( 0%)] Loss: 0.5718
648 [20000/50000 ( 40%)] Loss: 0.5685
649 [40000/50000 ( 80%)] Loss: 0.9481
650 Accuracy: 79.34%
651
652 Average test loss: 6.0175 Accuracy: 2641/10000 (26.
```

```
652 41%)
653
654 Execution time: 10580.65 seconds
655 Epoch: 1
656 [      0/50000 (  0%) ] Loss: 4.6512
657 [20000/50000 ( 40%) ] Loss: 4.6040
658 [40000/50000 ( 80%) ] Loss: 4.6082
659 Accuracy: 1.01%
660
661 Average test loss: 4.6056 Accuracy: 100/10000 (1.
00%)
662
663 Epoch: 2
664 [      0/50000 (  0%) ] Loss: 4.6046
665 [20000/50000 ( 40%) ] Loss: 4.6055
666 [40000/50000 ( 80%) ] Loss: 4.6062
667 Accuracy: 0.88%
668
669 Average test loss: 4.6053 Accuracy: 100/10000 (1.
00%)
670
671 Epoch: 3
672 [      0/50000 (  0%) ] Loss: 4.6065
673 [20000/50000 ( 40%) ] Loss: 4.6037
674 [40000/50000 ( 80%) ] Loss: 4.6060
675 Accuracy: 0.90%
676
677 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
678
679 Epoch: 4
680 [      0/50000 (  0%) ] Loss: 4.6038
681 [20000/50000 ( 40%) ] Loss: 4.6071
682 [40000/50000 ( 80%) ] Loss: 4.6061
683 Accuracy: 0.87%
684
685 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
686
687 Epoch: 5
688 [      0/50000 (  0%) ] Loss: 4.6059
```

```
689 [20000/50000 ( 40%)] Loss: 4.6078
690 [40000/50000 ( 80%)] Loss: 4.6055
691 Accuracy: 0.88%
692
693 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
694
695 Epoch: 6
696 [ 0/50000 ( 0%)] Loss: 4.6036
697 [20000/50000 ( 40%)] Loss: 4.6073
698 [40000/50000 ( 80%)] Loss: 4.6070
699 Accuracy: 0.93%
700
701 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
702
703 Epoch: 7
704 [ 0/50000 ( 0%)] Loss: 4.6057
705 [20000/50000 ( 40%)] Loss: 4.6093
706 [40000/50000 ( 80%)] Loss: 4.6072
707 Accuracy: 0.93%
708
709 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
710
711 Epoch: 8
712 [ 0/50000 ( 0%)] Loss: 4.6049
713 [20000/50000 ( 40%)] Loss: 4.6050
714 [40000/50000 ( 80%)] Loss: 4.6080
715 Accuracy: 0.86%
716
717 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
718
719 Epoch: 9
720 [ 0/50000 ( 0%)] Loss: 4.6053
721 [20000/50000 ( 40%)] Loss: 4.6053
722 [40000/50000 ( 80%)] Loss: 4.6070
723 Accuracy: 0.85%
724
725 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
```

```
725 00%)  
726  
727 Epoch: 10  
728 [ 0/50000 ( 0%) ] Loss: 4.6053  
729 [20000/50000 ( 40%) ] Loss: 4.6094  
730 [40000/50000 ( 80%) ] Loss: 4.6071  
731 Accuracy: 0.86%  
732  
733 Average test loss: 4.6052 Accuracy: 100/10000 (1.  
00%)  
734  
735 Epoch: 11  
736 [ 0/50000 ( 0%) ] Loss: 4.6043  
737 [20000/50000 ( 40%) ] Loss: 4.6081  
738 [40000/50000 ( 80%) ] Loss: 4.6052  
739 Accuracy: 0.88%  
740  
741 Average test loss: 4.6052 Accuracy: 100/10000 (1.  
00%)  
742  
743 Epoch: 12  
744 [ 0/50000 ( 0%) ] Loss: 4.6053  
745 [20000/50000 ( 40%) ] Loss: 4.6063  
746 [40000/50000 ( 80%) ] Loss: 4.6062  
747 Accuracy: 0.94%  
748  
749 Average test loss: 4.6052 Accuracy: 100/10000 (1.  
00%)  
750  
751 Epoch: 13  
752 [ 0/50000 ( 0%) ] Loss: 4.6048  
753 [20000/50000 ( 40%) ] Loss: 4.6042  
754 [40000/50000 ( 80%) ] Loss: 4.6067  
755 Accuracy: 0.90%  
756  
757 Average test loss: 4.6052 Accuracy: 100/10000 (1.  
00%)  
758  
759 Epoch: 14  
760 [ 0/50000 ( 0%) ] Loss: 4.6063  
761 [20000/50000 ( 40%) ] Loss: 4.6060
```

```
762 [40000/50000 ( 80%)] Loss: 4.6052
763 Accuracy: 0.92%
764
765 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
766
767 Epoch: 15
768 [ 0/50000 ( 0%)] Loss: 4.6049
769 [20000/50000 ( 40%)] Loss: 4.6070
770 [40000/50000 ( 80%)] Loss: 4.6046
771 Accuracy: 0.90%
772
773 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
774
775 Epoch: 16
776 [ 0/50000 ( 0%)] Loss: 4.6055
777 [20000/50000 ( 40%)] Loss: 4.6043
778 [40000/50000 ( 80%)] Loss: 4.6065
779 Accuracy: 0.82%
780
781 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
782
783 Epoch: 17
784 [ 0/50000 ( 0%)] Loss: 4.6041
785 [20000/50000 ( 40%)] Loss: 4.6060
786 [40000/50000 ( 80%)] Loss: 4.6053
787 Accuracy: 0.92%
788
789 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
790
791 Epoch: 18
792 [ 0/50000 ( 0%)] Loss: 4.6062
793 [20000/50000 ( 40%)] Loss: 4.6051
794 [40000/50000 ( 80%)] Loss: 4.6063
795 Accuracy: 0.86%
796
797 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
```

```
798
799 Epoch: 19
800 [    0/50000 ( 0%)] Loss: 4.6052
801 [20000/50000 (40%)] Loss: 4.6055
802 [40000/50000 (80%)] Loss: 4.6074
803 Accuracy: 0.84%
804
805 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
806
807 Epoch: 20
808 [    0/50000 ( 0%)] Loss: 4.6048
809 [20000/50000 (40%)] Loss: 4.6034
810 [40000/50000 (80%)] Loss: 4.6062
811 Accuracy: 0.89%
812
813 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
814
815 Epoch: 21
816 [    0/50000 ( 0%)] Loss: 4.6041
817 [20000/50000 (40%)] Loss: 4.6056
818 [40000/50000 (80%)] Loss: 4.6077
819 Accuracy: 0.81%
820
821 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
822
823 Epoch: 22
824 [    0/50000 ( 0%)] Loss: 4.6051
825 [20000/50000 (40%)] Loss: 4.6042
826 [40000/50000 (80%)] Loss: 4.6076
827 Accuracy: 0.82%
828
829 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
830
831 Epoch: 23
832 [    0/50000 ( 0%)] Loss: 4.6042
833 [20000/50000 (40%)] Loss: 4.6033
834 [40000/50000 (80%)] Loss: 4.6048
```

```
835 Accuracy: 0.93%
836
837 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
838
839 Epoch: 24
840 [    0/50000 ( 0%)] Loss: 4.6056
841 [20000/50000 ( 40%)] Loss: 4.6046
842 [40000/50000 ( 80%)] Loss: 4.6098
843 Accuracy: 0.87%
844
845 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
846
847 Epoch: 25
848 [    0/50000 ( 0%)] Loss: 4.6056
849 [20000/50000 ( 40%)] Loss: 4.6082
850 [40000/50000 ( 80%)] Loss: 4.6065
851 Accuracy: 0.86%
852
853 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
854
855 Epoch: 26
856 [    0/50000 ( 0%)] Loss: 4.6037
857 [20000/50000 ( 40%)] Loss: 4.6049
858 [40000/50000 ( 80%)] Loss: 4.6064
859 Accuracy: 0.91%
860
861 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
862
863 Epoch: 27
864 [    0/50000 ( 0%)] Loss: 4.6065
865 [20000/50000 ( 40%)] Loss: 4.6055
866 [40000/50000 ( 80%)] Loss: 4.6073
867 Accuracy: 0.85%
868
869 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
870
```

```
871 Epoch: 28
872 [     0/50000 (  0%) ] Loss: 4.6057
873 [20000/50000 ( 40%) ] Loss: 4.6096
874 [40000/50000 ( 80%) ] Loss: 4.6073
875 Accuracy: 0.89%
876
877 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
878
879 Epoch: 29
880 [     0/50000 (  0%) ] Loss: 4.6061
881 [20000/50000 ( 40%) ] Loss: 4.6059
882 [40000/50000 ( 80%) ] Loss: 4.6062
883 Accuracy: 0.93%
884
885 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
886
887 Epoch: 30
888 [     0/50000 (  0%) ] Loss: 4.6063
889 [20000/50000 ( 40%) ] Loss: 4.6052
890 [40000/50000 ( 80%) ] Loss: 4.6055
891 Accuracy: 0.86%
892
893 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
894
895 Epoch: 31
896 [     0/50000 (  0%) ] Loss: 4.6058
897 [20000/50000 ( 40%) ] Loss: 4.6038
898 [40000/50000 ( 80%) ] Loss: 4.6060
899 Accuracy: 0.90%
900
901 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
902
903 Epoch: 32
904 [     0/50000 (  0%) ] Loss: 4.6050
905 [20000/50000 ( 40%) ] Loss: 4.6088
906 [40000/50000 ( 80%) ] Loss: 4.6071
907 Accuracy: 0.89%
```

```
908
909 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
910
911 Epoch: 33
912 [ 0/50000 ( 0%)] Loss: 4.6050
913 [20000/50000 ( 40%)] Loss: 4.6032
914 [40000/50000 ( 80%)] Loss: 4.6047
915 Accuracy: 0.84%
916
917 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
918
919 Epoch: 34
920 [ 0/50000 ( 0%)] Loss: 4.6048
921 [20000/50000 ( 40%)] Loss: 4.6048
922 [40000/50000 ( 80%)] Loss: 4.6065
923 Accuracy: 0.85%
924
925 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
926
927 Epoch: 35
928 [ 0/50000 ( 0%)] Loss: 4.6058
929 [20000/50000 ( 40%)] Loss: 4.6069
930 [40000/50000 ( 80%)] Loss: 4.6071
931 Accuracy: 0.93%
932
933 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
934
935 Epoch: 36
936 [ 0/50000 ( 0%)] Loss: 4.6053
937 [20000/50000 ( 40%)] Loss: 4.6072
938 [40000/50000 ( 80%)] Loss: 4.6054
939 Accuracy: 0.90%
940
941 Average test loss: 4.6052 Accuracy: 100/10000 (1.
00%)
942
943 Epoch: 37
```

```
944 [    0/50000 ( 0%)] Loss: 4.6055
945 [20000/50000 (40%)] Loss: 4.6047
946 [40000/50000 (80%)] Loss: 4.6049
947 Accuracy: 0.88%
948
949 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
950
951 Epoch: 38
952 [    0/50000 ( 0%)] Loss: 4.6050
953 [20000/50000 (40%)] Loss: 4.6071
954 [40000/50000 (80%)] Loss: 4.6087
955 Accuracy: 0.92%
956
957 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
958
959 Epoch: 39
960 [    0/50000 ( 0%)] Loss: 4.6054
961 [20000/50000 (40%)] Loss: 4.6073
962 [40000/50000 (80%)] Loss: 4.6074
963 Accuracy: 0.95%
964
965 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
966
967 Epoch: 40
968 [    0/50000 ( 0%)] Loss: 4.6042
969 [20000/50000 (40%)] Loss: 4.6073
970 [40000/50000 (80%)] Loss: 4.6073
971 Accuracy: 0.91%
972
973 Average test loss: 4.6052 Accuracy: 100/10000 (1.00%)
974
975 Execution time: 10796.89 seconds
976 wandb: Waiting for W&B process to finish... (success).
977 wandb
:
```

```
978 wandb:  
979 wandb: Run history:  
980 wandb: test_f1_score  
  
981 wandb: test_loss  
  
982 wandb: train_f1_score  
  
983 wandb: train_loss  
  
984 wandb:  
985 wandb: Run summary:  
986 wandb: test_f1_score 0.007  
987 wandb: test_loss 4604.86816  
988 wandb: train_f1_score 0.01  
989 wandb: train_loss 4.60729  
990 wandb:  
991 wandb: Synced worthy-shape-1: https://wandb.ai/  
njmarko/gat0/runs/26qe2pmq  
992 wandb: Synced 5 W&B file(s), 0 media file(s), 0  
artifact file(s) and 0 other file(s)  
993 wandb: Find logs at: .\wandb\run-20220805_230153-  
26qe2pmq\logs  
994  
995 Process finished with exit code 0  
996
```