[-1.3550e+00, -5.3064e-01, -1.9709e+00, -2.3699e+00, -7.4840e-01,

-6.0639e-01, -9.2709e-01, 1.4182e+00, 5.9462e+00, -1.3501e+00,

-2.1384e+00, 3.5387e+00, 2.1690e+00, -6.6056e-02, 2.4938e+00,

-4.7108e+00, -4.8886e+00],

[ 1.4289e+00, 2.1866e+00, 3.1330e+00, -9.7416e-01, 4.5009e+00,

1.9354e+00, 1.5567e-01, -2.8322e+00, -2.0026e+00, 8.4150e-01,

5.3577e+00, -9.5161e-01, -2.3062e+00, 1.2342e-01, -2.6489e+00,

-4.3326e+00, -3.9912e+00],

[-5.8364e-01, 6.5805e-01, 6.7868e+00, -1.2800e+00, 1.6589e+00,

5.6567e+00, -1.2971e+00, -1.8788e+00, -1.9553e+00, -8.6555e-01,

3.7220e+00, -1.3006e+00, -2.2556e+00, -1.0502e+00, -2.6016e+00,

-2.9204e+00, -2.1765e+00]], device='cuda:0', grad\_fn=<AddmmBackward0>)

Loss: 0.7633988857269287

Epoch 0: 30%|████████████████████████████▍ | 1386/4584 [02:02<04:43, 11.28it/s, v\_num=2]Input x shape: torch.Size([32, 1, 1500])

After embedding x shape: torch.Size([32, 1, 512])

After positional encoding x shape: torch.Size([32, 1, 512])

After transformer encoder x shape: torch.Size([32, 1, 512])

After averaging x shape: torch.Size([32, 512])

After output layer x shape: torch.Size([32, 17])

Input x shape: torch.Size([32, 1, 1500])

Input x (sample 0): tensor([[0.2706, 0.0000, 0.0196, ..., 0.0000, 0.0000, 0.0000]],

device='cuda:0')

After embedding x shape: torch.Size([32, 1, 512])

After embedding x (sample 0): tensor([[ 6.6401e-01, -8.0226e-01, 9.3528e-01, -8.3734e-01, 4.8165e-01,

-1.8923e-01, -8.1680e-01, -1.2730e-01, 1.5338e+00, -6.0097e-01,

7.7627e-01, 1.2493e-01, -9.9442e-01, 1.3910e-02, -4.4772e-01,

-8.0419e-01, 6.5931e-01, 4.5600e-01, -4.6872e-01, 9.9191e-01,

5.9315e-01, -5.6767e-02, -3.8005e-01, -3.5948e-01, -8.4539e-01,

-8.8392e-02, -1.6546e-01, -9.5731e-01, -5.7198e-01, 3.3244e-01,

-4.0869e-01, -8.8845e-01, 7.9937e-01, -7.7408e-01, -4.0140e-01,

-7.2348e-01, 4.5807e-01, 7.4334e-01, 8.1783e-01, 1.1188e+00,

1.3848e-01, -3.1524e-01, 3.6156e-01, 1.0363e+00, 6.9683e-01,

-1.4102e+00, 7.6787e-01, 3.7096e-01, -4.1016e-01, -6.0725e-01,

9.2052e-02, -1.9632e-01, -5.3684e-01, -5.3458e-01, -5.7806e-02,

-1.3387e-01, -3.6523e-01, -6.5271e-01, 8.9472e-02, 2.9838e-01,

1.3568e-01, -7.2820e-01, 1.1875e+00, 5.8555e-01, -5.7029e-02,

6.8347e-01, 9.6398e-02, 6.2323e-01, 3.9358e-01, -1.1858e+00,

-5.3085e-01, -2.1562e-01, -8.0998e-01, 1.1287e+00, 1.0149e+00,

-1.5054e-01, -7.3048e-01, 8.8811e-01, -5.9005e-01, -6.2909e-01,

-7.3730e-02, -7.3738e-01, -7.8067e-01, -4.9739e-01, 1.6182e-03,

7.3584e-01, -8.5422e-01, 6.1435e-01, -3.1361e-01, -4.8081e-01,

3.5616e-01, -1.4467e-01, -2.7687e-02, -1.4142e+00, 1.7749e+00,

-7.7442e-01, -6.4126e-01, -2.6751e-01, -6.6367e-01, 1.7966e-01,

6.8759e-01, -5.5158e-01, -2.1027e-01, -1.1498e-01, 4.2775e-01,

-8.0438e-01, 6.1884e-01, -7.1107e-02, 3.1735e-01, -1.5130e-01,

-1.1835e+00, 3.9064e-01, -1.4490e+00, -2.0956e-01, -1.3312e-01,

9.0260e-02, 1.3994e-01, 3.8139e-01, -7.1303e-01, -6.4499e-01,

6.0218e-01, 2.1716e-01, 9.7676e-02, 5.2084e-01, 5.0346e-01,

3.8285e-02, 1.2883e-01, 1.3410e+00, 1.3403e-01, -2.9052e-02,

-3.5204e-01, -1.3512e+00, 1.1948e+00, -1.1262e+00, -1.4939e+00,

1.4271e+00, 7.4731e-01, 2.0938e-01, -9.6886e-02, -5.1024e-01,

5.3421e-01, -6.0044e-01, 1.1798e+00, 2.5492e-01, 6.0253e-01,

-2.1194e-01, 4.1560e-02, -1.0004e+00, 4.2695e-01, -7.5679e-01,

6.5860e-01, -1.2734e-01, -1.1422e-01, -9.7429e-01, 8.1368e-01,

-1.1311e-02, -4.9656e-01, -7.5218e-01, 6.0675e-01, -3.0130e-01,

-8.1253e-01, -1.3600e+00, 2.5445e-01, 1.5221e-01, -1.1473e+00,

6.3452e-01, 1.4875e+00, -4.8992e-01, 2.0042e-01, 3.8874e-02,

3.4292e-01, -3.0209e-01, -5.7212e-01, 1.2195e-01, 3.9450e-01,

6.5898e-01, 4.7562e-01, -1.3155e+00, 2.8580e-01, -1.1049e+00,

-1.2882e+00, 6.2946e-01, 5.5288e-01, 1.0485e+00, 1.1477e+00,

-1.1847e+00, -1.0803e+00, -4.0905e-01, -2.1437e-01, 2.9635e-01,

5.9409e-01, -1.1501e-01, -5.9842e-01, -1.2775e+00, 9.6013e-01,

-4.1005e-01, -2.1419e-02, 1.9566e-01, -9.6134e-02, -4.8209e-02,

1.0553e-01, -8.3260e-01, 3.1798e-01, 7.8894e-01, 3.8626e-01,

1.3292e-01, 5.5200e-01, 4.8494e-01, -1.0065e+00, -7.5123e-01,

1.0380e-01, -9.5996e-01, 4.7706e-01, -3.4650e-01, 5.1754e-01,

1.3678e+00, 3.3795e-01, 5.4409e-01, -2.8210e-01, -6.0097e-01,

-8.3796e-02, -1.4257e+00, 2.2485e-01, -4.1604e-01, -3.8544e-01,

3.3199e-02, -1.1769e+00, -1.9862e-01, -1.0621e-01, -6.8013e-01,

-4.0110e-01, 6.5948e-01, -1.1473e-01, 1.1104e+00, -6.6458e-01,

-1.3572e-01, -1.3688e-01, -1.0586e+00, 1.4113e+00, -3.8058e-01,

-3.7964e-01, 2.9752e-01, 3.3813e-04, -2.0228e-01, 1.1214e+00,

-6.1895e-01, 1.3219e+00, 9.0492e-01, -6.1646e-01, 7.5577e-01,

7.2348e-01, -1.2905e+00, -1.7055e-01, -8.6085e-01, -1.5203e+00,

-5.1138e-02, 6.7002e-01, -4.9726e-01, -7.6907e-01, -1.2374e+00,

1.1599e+00, -7.5767e-01, 2.6736e-01, 4.6984e-03, -5.0467e-01,

9.3666e-02, 4.2986e-01, -4.7068e-02, 3.5870e-01, -9.1253e-01,

-5.2886e-01, -1.4699e-01, 3.3756e-01, -1.9777e-01, -6.4768e-02,

3.8222e-02, 1.4639e-01, -7.6427e-02, 9.0539e-01, -5.2160e-01,

3.8496e-01, 5.0278e-01, 6.5886e-01, 3.2893e-02, 1.0699e+00,

6.8215e-01, 1.0824e+00, -1.3094e+00, 1.3235e+00, 1.3063e-01,

-7.4302e-01, -4.5046e-01, 8.9239e-01, 5.4597e-01, 8.2483e-01,

-2.0449e-01, 5.5184e-01, 1.0184e+00, 4.2709e-01, -3.3312e-01,

-7.2017e-01, -6.5050e-01, 6.9186e-01, -6.2876e-01, -6.2897e-01,

-9.8256e-01, -6.8619e-02, -6.0670e-01, -6.3487e-01, 2.9888e-01,

-2.5231e-01, 6.6519e-01, 3.8041e-01, 4.6073e-01, -3.3896e-01,

-5.9039e-01, 3.2109e-01, 1.4385e-01, 7.9482e-01, -1.2070e-01,

6.4613e-01, -2.8243e-02, -1.4205e-02, 5.5388e-01, -2.9453e-01,

7.7314e-01, -3.1259e-01, -6.0006e-01, -3.5163e-02, 3.4103e-01,

1.1803e+00, -6.4082e-01, 2.0836e-01, -4.3301e-02, 4.7408e-01,

-1.1084e-01, 1.2781e+00, -2.0500e-01, -4.0333e-01, -3.9046e-01,

-5.6386e-01, -4.8146e-01, -3.8716e-01, -7.3176e-01, -1.4796e-01,

2.1251e-01, 1.5503e-01, 6.3839e-01, 3.1726e-01, -3.9537e-01,

-7.9424e-01, -8.1084e-01, -5.6362e-02, 2.3113e+00, 7.7985e-01,

-1.9187e-01, -5.5190e-01, 3.8819e-01, 1.5688e-02, 1.1970e+00,

-1.0504e+00, -7.7799e-02, -1.0460e+00, 5.6023e-01, 2.9000e-01,

5.1137e-01, 7.4223e-01, 1.5907e+00, 8.9813e-02, -4.9664e-01,

2.8370e-01, -4.2637e-01, 3.4590e-01, 3.0259e-01, -1.4567e+00,

3.0659e-01, 8.0529e-01, -2.8556e-01, 4.8675e-01, -3.4630e-01,

5.0416e-01, 2.9963e-01, -5.0118e-02, 4.1397e-01, 8.9382e-01,

8.3854e-02, 5.6418e-01, -6.0994e-01, 1.2704e+00, 9.4655e-01,

-1.0728e+00, 7.1042e-01, 1.3981e-01, 2.7057e-02, 1.7294e+00,

-2.9511e-01, -6.4871e-01, -1.7879e-01, 1.7897e-02, -1.5109e+00,

1.9772e-02, -4.2799e-01, 7.7855e-01, -1.7593e-01, -1.1055e-01,

-8.4001e-02, 1.0848e-01, 6.9220e-01, 1.9204e+00, 2.7804e-01,

9.4018e-02, -3.5806e-02, 8.1707e-01, 6.8412e-01, -7.7525e-01,

-4.5249e-01, -8.2454e-01, -4.7931e-01, 2.0634e-01, 9.1647e-01,

-5.4943e-01, -8.4654e-01, 1.1675e+00, 4.0397e-02, -2.4785e-01,

1.0813e-02, -1.1424e+00, -2.5002e-02, 1.7664e-01, 8.6365e-01,

-7.0358e-01, -1.3698e+00, -3.5305e-01, -6.7393e-01, 1.0120e+00,

3.3673e-01, -1.2743e+00, 3.0313e-01, 6.5063e-01, 8.5944e-01,

4.6171e-01, 1.5788e-01, 2.5314e-01, 7.0905e-01, -3.9445e-01,

-2.3436e-01, -1.5421e-01, 4.4209e-01, 1.1152e+00, -5.1820e-01,

3.5145e-01, -2.3194e-02, -1.3116e-01, -5.0068e-01, -2.7414e-01,

-4.6178e-01, -5.6077e-01, -9.3523e-01, 4.8319e-01, -3.6009e-01,

9.6054e-01, -3.7572e-01, -3.4798e-01, -1.3423e+00, 1.3083e-01,

2.4451e+00, 6.4164e-01, -5.2757e-01, -8.3285e-01, -1.0912e-01,

1.3559e-01, -2.0163e-01, 1.1341e-01, 1.6221e-01, -6.2238e-01,

-4.7052e-02, -6.2281e-01, -1.2601e+00, 5.7589e-01, 2.3472e-01,

-6.4295e-01, -3.2746e-01, 4.1621e-01, -1.4073e+00, 1.0046e-01,

-8.7453e-01, 5.5382e-01, -6.3150e-01, 7.9767e-01, -1.5299e-01,

-5.9701e-02, -2.7324e-01, -4.3893e-01, -3.7461e-01, 8.8202e-01,

1.0948e-01, 3.5245e-02, -9.0640e-01, 5.7833e-01, -1.8435e-02,

-6.3516e-01, -9.0855e-01, -1.6257e-01, -1.0752e+00, 1.5132e-01,

-1.6921e+00, -1.2579e+00, -5.2208e-02, -6.1189e-01, -8.2557e-01,

2.5077e-02, 1.8105e+00]], device='cuda:0',

grad\_fn=<SelectBackward0>)

After positional encoding x shape: torch.Size([32, 1, 512])

After positional encoding x (sample 0): tensor([[ 6.6401e-01, 1.9774e-01, 9.3528e-01, 1.6266e-01, 4.8165e-01,

8.1077e-01, -8.1680e-01, 8.7270e-01, 1.5338e+00, 3.9903e-01,

7.7627e-01, 1.1249e+00, -9.9442e-01, 1.0139e+00, -4.4772e-01,

1.9581e-01, 6.5931e-01, 1.4560e+00, -4.6872e-01, 1.9919e+00,

5.9315e-01, 9.4323e-01, -3.8005e-01, 6.4052e-01, -8.4539e-01,

9.1161e-01, -1.6546e-01, 4.2695e-02, -5.7198e-01, 1.3324e+00,

-4.0869e-01, 1.1155e-01, 7.9937e-01, 2.2592e-01, -4.0140e-01,

2.7652e-01, 4.5807e-01, 1.7433e+00, 8.1783e-01, 2.1188e+00,

1.3848e-01, 6.8476e-01, 3.6156e-01, 2.0363e+00, 6.9683e-01,

-4.1015e-01, 7.6787e-01, 1.3710e+00, -4.1016e-01, 3.9275e-01,

9.2052e-02, 8.0368e-01, -5.3684e-01, 4.6542e-01, -5.7806e-02,

8.6613e-01, -3.6523e-01, 3.4729e-01, 8.9472e-02, 1.2984e+00,

1.3568e-01, 2.7180e-01, 1.1875e+00, 1.5855e+00, -5.7029e-02,

1.6835e+00, 9.6398e-02, 1.6232e+00, 3.9358e-01, -1.8577e-01,

-5.3085e-01, 7.8438e-01, -8.0998e-01, 2.1287e+00, 1.0149e+00,

8.4946e-01, -7.3048e-01, 1.8881e+00, -5.9005e-01, 3.7091e-01,

-7.3730e-02, 2.6262e-01, -7.8067e-01, 5.0261e-01, 1.6182e-03,

1.7358e+00, -8.5422e-01, 1.6144e+00, -3.1361e-01, 5.1919e-01,

3.5616e-01, 8.5533e-01, -2.7687e-02, -4.1418e-01, 1.7749e+00,

2.2558e-01, -6.4126e-01, 7.3249e-01, -6.6367e-01, 1.1797e+00,

6.8759e-01, 4.4842e-01, -2.1027e-01, 8.8502e-01, 4.2775e-01,

1.9562e-01, 6.1884e-01, 9.2889e-01, 3.1735e-01, 8.4870e-01,

-1.1835e+00, 1.3906e+00, -1.4490e+00, 7.9044e-01, -1.3312e-01,

1.0903e+00, 1.3994e-01, 1.3814e+00, -7.1303e-01, 3.5501e-01,

6.0218e-01, 1.2172e+00, 9.7676e-02, 1.5208e+00, 5.0346e-01,

1.0383e+00, 1.2883e-01, 2.3410e+00, 1.3403e-01, 9.7095e-01,

-3.5204e-01, -3.5117e-01, 1.1948e+00, -1.2621e-01, -1.4939e+00,

2.4271e+00, 7.4731e-01, 1.2094e+00, -9.6886e-02, 4.8976e-01,

5.3421e-01, 3.9956e-01, 1.1798e+00, 1.2549e+00, 6.0253e-01,

7.8806e-01, 4.1560e-02, -4.0329e-04, 4.2695e-01, 2.4321e-01,

6.5860e-01, 8.7266e-01, -1.1422e-01, 2.5713e-02, 8.1368e-01,

9.8869e-01, -4.9656e-01, 2.4782e-01, 6.0675e-01, 6.9870e-01,

-8.1253e-01, -3.6004e-01, 2.5445e-01, 1.1522e+00, -1.1473e+00,

1.6345e+00, 1.4875e+00, 5.1008e-01, 2.0042e-01, 1.0389e+00,

3.4292e-01, 6.9791e-01, -5.7212e-01, 1.1219e+00, 3.9450e-01,

1.6590e+00, 4.7562e-01, -3.1547e-01, 2.8580e-01, -1.0490e-01,

-1.2882e+00, 1.6295e+00, 5.5288e-01, 2.0485e+00, 1.1477e+00,

-1.8468e-01, -1.0803e+00, 5.9095e-01, -2.1437e-01, 1.2964e+00,

5.9409e-01, 8.8499e-01, -5.9842e-01, -2.7748e-01, 9.6013e-01,

5.8995e-01, -2.1419e-02, 1.1957e+00, -9.6134e-02, 9.5179e-01,

1.0553e-01, 1.6740e-01, 3.1798e-01, 1.7889e+00, 3.8626e-01,

1.1329e+00, 5.5200e-01, 1.4849e+00, -1.0065e+00, 2.4877e-01,

1.0380e-01, 4.0043e-02, 4.7706e-01, 6.5350e-01, 5.1754e-01,

2.3678e+00, 3.3795e-01, 1.5441e+00, -2.8210e-01, 3.9903e-01,

-8.3796e-02, -4.2574e-01, 2.2485e-01, 5.8396e-01, -3.8544e-01,

1.0332e+00, -1.1769e+00, 8.0138e-01, -1.0621e-01, 3.1987e-01,

-4.0110e-01, 1.6595e+00, -1.1473e-01, 2.1104e+00, -6.6458e-01,

8.6428e-01, -1.3688e-01, -5.8582e-02, 1.4113e+00, 6.1942e-01,

-3.7964e-01, 1.2975e+00, 3.3813e-04, 7.9772e-01, 1.1214e+00,

3.8105e-01, 1.3219e+00, 1.9049e+00, -6.1646e-01, 1.7558e+00,

7.2348e-01, -2.9054e-01, -1.7055e-01, 1.3915e-01, -1.5203e+00,

9.4886e-01, 6.7002e-01, 5.0274e-01, -7.6907e-01, -2.3736e-01,

1.1599e+00, 2.4233e-01, 2.6736e-01, 1.0047e+00, -5.0467e-01,

1.0937e+00, 4.2986e-01, 9.5293e-01, 3.5870e-01, 8.7467e-02,

-5.2886e-01, 8.5301e-01, 3.3756e-01, 8.0223e-01, -6.4768e-02,

1.0382e+00, 1.4639e-01, 9.2357e-01, 9.0539e-01, 4.7840e-01,

3.8496e-01, 1.5028e+00, 6.5886e-01, 1.0329e+00, 1.0699e+00,

1.6822e+00, 1.0824e+00, -3.0937e-01, 1.3235e+00, 1.1306e+00,

-7.4302e-01, 5.4954e-01, 8.9239e-01, 1.5460e+00, 8.2483e-01,

7.9551e-01, 5.5184e-01, 2.0184e+00, 4.2709e-01, 6.6688e-01,

-7.2017e-01, 3.4950e-01, 6.9186e-01, 3.7124e-01, -6.2897e-01,

1.7437e-02, -6.8619e-02, 3.9330e-01, -6.3487e-01, 1.2989e+00,

-2.5231e-01, 1.6652e+00, 3.8041e-01, 1.4607e+00, -3.3896e-01,

4.0961e-01, 3.2109e-01, 1.1439e+00, 7.9482e-01, 8.7930e-01,

6.4613e-01, 9.7176e-01, -1.4205e-02, 1.5539e+00, -2.9453e-01,

1.7731e+00, -3.1259e-01, 3.9994e-01, -3.5163e-02, 1.3410e+00,

1.1803e+00, 3.5918e-01, 2.0836e-01, 9.5670e-01, 4.7408e-01,

8.8916e-01, 1.2781e+00, 7.9500e-01, -4.0333e-01, 6.0954e-01,

-5.6386e-01, 5.1854e-01, -3.8716e-01, 2.6824e-01, -1.4796e-01,

1.2125e+00, 1.5503e-01, 1.6384e+00, 3.1726e-01, 6.0463e-01,

-7.9424e-01, 1.8916e-01, -5.6362e-02, 3.3113e+00, 7.7985e-01,

8.0813e-01, -5.5190e-01, 1.3882e+00, 1.5688e-02, 2.1970e+00,

-1.0504e+00, 9.2220e-01, -1.0460e+00, 1.5602e+00, 2.9000e-01,

1.5114e+00, 7.4223e-01, 2.5907e+00, 8.9813e-02, 5.0336e-01,

2.8370e-01, 5.7363e-01, 3.4590e-01, 1.3026e+00, -1.4567e+00,

1.3066e+00, 8.0529e-01, 7.1444e-01, 4.8675e-01, 6.5370e-01,

5.0416e-01, 1.2996e+00, -5.0118e-02, 1.4140e+00, 8.9382e-01,

1.0839e+00, 5.6418e-01, 3.9006e-01, 1.2704e+00, 1.9465e+00,

-1.0728e+00, 1.7104e+00, 1.3981e-01, 1.0271e+00, 1.7294e+00,

7.0489e-01, -6.4871e-01, 8.2121e-01, 1.7897e-02, -5.1088e-01,

1.9772e-02, 5.7201e-01, 7.7855e-01, 8.2407e-01, -1.1055e-01,

9.1600e-01, 1.0848e-01, 1.6922e+00, 1.9204e+00, 1.2780e+00,

9.4018e-02, 9.6419e-01, 8.1707e-01, 1.6841e+00, -7.7525e-01,

5.4751e-01, -8.2454e-01, 5.2069e-01, 2.0634e-01, 1.9165e+00,

-5.4943e-01, 1.5346e-01, 1.1675e+00, 1.0404e+00, -2.4785e-01,

1.0108e+00, -1.1424e+00, 9.7500e-01, 1.7664e-01, 1.8636e+00,

-7.0358e-01, -3.6984e-01, -3.5305e-01, 3.2607e-01, 1.0120e+00,

1.3367e+00, -1.2743e+00, 1.3031e+00, 6.5063e-01, 1.8594e+00,

4.6171e-01, 1.1579e+00, 2.5314e-01, 1.7091e+00, -3.9445e-01,

7.6564e-01, -1.5421e-01, 1.4421e+00, 1.1152e+00, 4.8180e-01,

3.5145e-01, 9.7681e-01, -1.3116e-01, 4.9932e-01, -2.7414e-01,

5.3822e-01, -5.6077e-01, 6.4775e-02, 4.8319e-01, 6.3991e-01,

9.6054e-01, 6.2428e-01, -3.4798e-01, -3.4230e-01, 1.3083e-01,

3.4451e+00, 6.4164e-01, 4.7243e-01, -8.3285e-01, 8.9088e-01,

1.3559e-01, 7.9837e-01, 1.1341e-01, 1.1622e+00, -6.2238e-01,

9.5295e-01, -6.2281e-01, -2.6006e-01, 5.7589e-01, 1.2347e+00,

-6.4295e-01, 6.7254e-01, 4.1621e-01, -4.0728e-01, 1.0046e-01,

1.2547e-01, 5.5382e-01, 3.6850e-01, 7.9767e-01, 8.4701e-01,

-5.9701e-02, 7.2676e-01, -4.3893e-01, 6.2539e-01, 8.8202e-01,

1.1095e+00, 3.5245e-02, 9.3598e-02, 5.7833e-01, 9.8157e-01,

-6.3516e-01, 9.1448e-02, -1.6257e-01, -7.5225e-02, 1.5132e-01,

-6.9209e-01, -1.2579e+00, 9.4779e-01, -6.1189e-01, 1.7443e-01,

2.5077e-02, 2.8105e+00]], device='cuda:0',

grad\_fn=<SelectBackward0>)

After transformer encoder x shape: torch.Size([32, 1, 512])

After transformer encoder x (sample 0): tensor([[ 3.6102e-02, 2.1616e-02, -6.6913e-01, -2.3399e-01, 2.7177e-01,

1.3855e+00, 1.5895e+00, 1.0015e+00, 2.2689e+00, -7.8036e-01,

2.9641e-03, -7.3155e-01, -1.3918e-01, 2.7215e-01, -3.1259e-02,

-2.5896e-03, -1.5216e-01, 2.5698e+00, -1.3940e-01, 4.4697e-01,

-1.1468e+00, 1.3132e+00, 1.1392e+00, -7.8431e-01, 1.5313e+00,

-6.0766e-01, 9.5209e-01, 9.2339e-01, -1.7054e-01, -1.6881e+00,

-3.8262e-01, -1.0578e+00, 3.1807e-01, -1.0043e+00, 2.6883e-01,

7.9543e-01, -3.1198e-01, -6.5261e-01, -6.2649e-01, -4.3491e-01,

-8.0058e-01, 5.9031e-01, 1.4075e+00, 2.9270e-01, 4.0585e-01,

-1.7343e+00, -9.4361e-01, 9.8676e-01, -2.6070e-01, -2.5079e-01,

-3.6175e-01, -3.1938e-03, -7.9209e-02, -1.2243e+00, -5.7222e-01,

-4.6432e-01, 8.2278e-01, -1.5771e+00, 2.3269e-01, 4.7495e-01,

1.7918e+00, 4.4534e-01, 5.8125e-01, -7.2123e-01, -7.0748e-01,

2.1877e-01, 7.0648e-01, 8.0235e-01, -2.8405e+00, -4.8849e-01,

-1.8193e+00, 1.4481e+00, -1.1173e-01, -5.7531e-01, 1.2311e+00,

2.1067e+00, -3.4180e-01, 2.5959e-02, -3.1700e-01, -3.0628e-03,

-6.2701e-01, -7.5489e-01, -3.5954e-01, 8.5192e-01, 7.3623e-01,

9.7710e-02, -1.5015e-01, 5.9279e-02, -3.0714e+00, -1.0781e+00,

-6.9100e-01, -4.6132e-03, 1.5364e+00, -1.7604e+00, 7.9396e-01,

9.3167e-03, 3.4584e-02, -1.5289e+00, -9.1127e-01, 2.1590e-01,

-4.2780e-01, 4.3352e-01, -9.9226e-01, -2.4326e-01, -8.8402e-01,

-9.8067e-01, 8.5454e-01, 6.4114e-01, -3.4652e-02, 5.8414e-01,

-1.5249e-01, 1.4661e+00, -4.0633e-01, 8.3791e-01, -1.3848e-01,

1.1874e+00, 1.9522e+00, -1.1244e-01, 4.4871e-01, -8.2528e-01,

-6.0661e-01, -2.4252e-01, 1.7877e-02, 1.4642e+00, -8.5176e-01,

-1.1845e+00, -1.3925e+00, 1.4797e+00, 9.2533e-01, -1.1997e+00,

-1.8387e+00, 1.1357e+00, 2.3586e-01, -2.1061e+00, -8.7362e-01,

7.6326e-01, -1.1374e+00, 1.2992e+00, 6.6135e-01, -7.8288e-01,

-5.9250e-01, -1.0121e+00, -2.5763e-01, 3.7498e-01, 5.6474e-01,

3.1235e-01, 4.0389e-01, -4.7671e-01, 5.5838e-01, 1.1954e-01,

2.9034e-01, -1.5449e-01, -2.7553e-01, 6.6372e-01, 7.6961e-01,

1.4852e+00, -7.7860e-01, -5.1568e-01, -7.8163e-01, 5.9365e-01,

-1.0903e+00, -2.6079e+00, 2.0134e-01, 4.8033e-01, 4.2337e-01,

8.0431e-01, 2.0276e+00, 7.4258e-02, -1.5033e+00, -3.5545e-01,

1.0031e+00, 1.0718e+00, -3.7139e-01, 1.1991e+00, -1.7045e-01,

1.8299e+00, 5.2377e-01, -1.6464e+00, -1.4038e-01, -2.3486e-01,

-2.0142e+00, -1.3578e+00, 5.0188e-01, 1.1758e+00, -8.1913e-01,

-5.6428e-03, 1.5041e-01, -7.9554e-01, -6.6825e-01, 6.6140e-01,

8.6206e-01, 3.2961e-01, -4.0423e-01, 6.6339e-01, -2.6395e-01,

3.8033e-01, -8.9321e-01, 1.5005e-01, 1.7675e-02, 4.8653e-01,

-1.9978e-01, -1.6954e-01, 8.9310e-01, 6.0320e-01, -7.2768e-01,

1.2442e+00, 9.8434e-01, 1.0713e+00, 1.7914e+00, -7.3621e-02,

-1.7676e+00, -5.3445e-01, -9.6569e-01, -1.2360e+00, 2.4326e+00,

9.5415e-01, -6.9451e-02, 5.3144e-01, 5.0467e-01, -8.7755e-01,

1.5117e+00, 3.7014e-01, -1.8260e-01, 3.0768e-01, -2.3971e+00,

4.9158e-01, 1.5532e+00, 1.1775e+00, -1.0652e-01, 5.7372e-01,

-1.1294e+00, 3.9514e-01, 2.3986e-01, 1.3537e+00, -6.9633e-01,

-4.2697e-01, -1.0602e+00, -1.1189e-01, -8.6959e-02, -1.5341e-01,

7.1899e-01, -4.2325e-01, -3.5882e-01, -1.8562e-01, -1.7447e+00,

7.7796e-01, -4.9139e-01, 1.0027e+00, -8.0804e-01, 9.1157e-01,

1.5252e+00, -9.2350e-01, -1.2058e+00, -1.6133e+00, -3.0937e+00,

2.7281e-01, 2.3949e+00, -1.5285e+00, -1.1632e+00, -6.3434e-01,

1.9311e+00, -1.4747e+00, 2.1763e-01, 2.0321e-01, -1.3778e+00,

-4.4384e-03, 9.1910e-01, -8.7266e-01, 7.4522e-01, -1.3925e+00,

2.9596e-01, -1.8638e+00, 9.3303e-01, 1.7155e+00, 2.7762e-01,

7.9494e-01, 1.2278e-01, -9.4663e-02, -1.2252e+00, 4.5307e-02,

7.1756e-01, -6.1511e-01, -3.6805e-01, 2.0716e-01, 2.5759e-01,

-1.3516e+00, -2.9414e-01, 6.6325e-01, 1.2795e-01, -5.0166e-01,

-5.6510e-02, 4.1360e-01, 2.0349e+00, 3.7596e-02, 9.7189e-02,

-2.3919e-01, 2.2328e+00, 2.3388e+00, -4.6075e-01, -1.2142e+00,

-1.1356e+00, -2.4146e+00, 1.0193e+00, 4.1289e-01, -3.5073e-01,

1.5118e+00, -3.3964e-01, 9.8109e-01, -1.3784e+00, -1.1032e+00,

-1.8799e+00, 4.5195e-01, -3.6338e-01, -1.0299e+00, 1.3112e+00,

-1.7820e-01, -2.2721e-01, -6.9484e-01, 5.2653e-02, -2.5648e-01,

-1.6773e+00, -1.9147e+00, -2.7607e+00, 2.8291e-01, -1.4699e-01,

6.2590e-01, -3.5344e-01, 7.4168e-01, -7.9029e-01, 2.5111e-02,

-6.3756e-01, -1.9569e+00, -4.5923e-02, -1.3871e+00, 7.6651e-01,

2.9439e-01, -2.8420e-01, 3.4513e-01, 4.1008e-01, -5.3755e-01,

1.4301e+00, -8.8426e-01, -1.1563e+00, -9.2305e-01, -2.7529e-01,

5.9333e-01, 4.0929e-01, 6.0940e-02, -6.5865e-01, -1.6108e+00,

1.5103e-01, 4.8886e-02, 4.5458e-01, 9.3924e-01, 1.1853e-01,

4.5474e-01, -5.7778e-01, -2.0714e+00, 1.0624e+00, -2.0821e-02,

-1.9016e+00, 7.7955e-01, 8.6184e-01, -2.6333e-01, 2.2202e+00,

9.5085e-01, -2.2142e-02, -7.9922e-01, 3.1996e-01, -1.1776e+00,

-5.8940e-01, 2.7619e+00, -3.7879e-01, 9.7171e-01, -5.6624e-01,

-4.9264e-01, 1.4405e+00, 1.0294e+00, 1.5880e-01, -1.6847e+00,

-1.5609e+00, -1.7302e+00, -1.5866e+00, 1.3296e+00, 1.7211e+00,

9.1190e-01, 7.1419e-01, 1.1460e+00, 3.2775e-01, -5.9892e-01,

-2.2809e-02, 7.7586e-01, -2.2262e-01, 2.6826e-01, -6.3179e-01,

-5.6888e-01, -2.1923e+00, -6.3433e-03, 5.1526e-01, 2.4175e-01,

-7.6865e-01, -1.3919e+00, 1.7143e+00, 3.5849e-01, -7.6696e-01,

9.0098e-01, 1.1737e+00, -5.3477e-02, 1.4788e+00, 7.9050e-01,

-9.9364e-02, 1.0124e+00, -1.6186e+00, 1.2385e-01, -9.3874e-01,

1.7321e+00, -6.4605e-02, 7.5022e-01, 1.6290e-02, 4.8470e-01,

-2.6578e-01, -5.7416e-01, -1.6525e-01, 3.6376e-01, 1.2461e+00,

-4.6742e-01, 1.7107e-01, 9.3560e-01, 4.1938e-01, -3.7291e-01,

6.6709e-01, -2.3722e+00, -1.7949e-01, -2.4818e-01, -8.1855e-01,

3.8852e-01, 1.2907e-01, 5.9422e-01, 1.1971e+00, -1.7396e+00,

-5.3587e-02, 1.5842e+00, -2.5225e-01, 5.7995e-01, 1.0813e+00,

5.8788e-01, 1.2685e+00, 1.3919e+00, 9.2479e-01, 1.0551e+00,

-4.9631e-01, -2.2820e-01, 1.9890e+00, 2.9109e-01, -3.1904e-01,

5.2751e-01, -9.4750e-01, -4.1919e-02, 5.9064e-01, -1.8212e+00,

2.4384e-01, -3.5173e-01, -1.5333e+00, -1.1185e+00, -6.5385e-01,

1.1455e+00, -3.5665e-01, -1.5279e-01, 8.6082e-01, -1.3067e-01,

5.8829e-01, 1.0031e+00, -2.5466e-01, 3.2593e-01, 4.7744e-01,

1.2925e+00, 1.9910e+00, -3.4086e-01, -1.8436e-01, 1.6269e+00,

-4.3677e-01, 8.9780e-02, -4.5074e-01, 2.1513e-01, -2.9773e-01,

-9.4783e-01, 9.0187e-01, 1.5254e+00, -7.3835e-02, 4.5241e-01,

3.1851e-01, 1.6720e-01, -1.4353e+00, 7.7470e-01, -7.7616e-01,

1.2062e+00, 1.5510e+00, -2.1193e+00, 6.3814e-01, 2.1412e-01,

-6.0550e-01, 3.9612e-01, -2.0971e+00, -1.9823e+00, 4.2493e-01,

-5.1902e-01, -5.8562e-01, -3.8708e-01, 6.8989e-01, -5.0214e-02,

6.5039e-01, 7.6786e-01]], device='cuda:0',

grad\_fn=<SelectBackward0>)

After averaging x shape: torch.Size([32, 512])

After averaging x (sample 0): tensor([ 3.6102e-02, 2.1616e-02, -6.6913e-01, -2.3399e-01, 2.7177e-01,

1.3855e+00, 1.5895e+00, 1.0015e+00, 2.2689e+00, -7.8036e-01,

2.9641e-03, -7.3155e-01, -1.3918e-01, 2.7215e-01, -3.1259e-02,

-2.5896e-03, -1.5216e-01, 2.5698e+00, -1.3940e-01, 4.4697e-01,

-1.1468e+00, 1.3132e+00, 1.1392e+00, -7.8431e-01, 1.5313e+00,

-6.0766e-01, 9.5209e-01, 9.2339e-01, -1.7054e-01, -1.6881e+00,

-3.8262e-01, -1.0578e+00, 3.1807e-01, -1.0043e+00, 2.6883e-01,

7.9543e-01, -3.1198e-01, -6.5261e-01, -6.2649e-01, -4.3491e-01,

-8.0058e-01, 5.9031e-01, 1.4075e+00, 2.9270e-01, 4.0585e-01,

-1.7343e+00, -9.4361e-01, 9.8676e-01, -2.6070e-01, -2.5079e-01,

-3.6175e-01, -3.1938e-03, -7.9209e-02, -1.2243e+00, -5.7222e-01,

-4.6432e-01, 8.2278e-01, -1.5771e+00, 2.3269e-01, 4.7495e-01,

1.7918e+00, 4.4534e-01, 5.8125e-01, -7.2123e-01, -7.0748e-01,

2.1877e-01, 7.0648e-01, 8.0235e-01, -2.8405e+00, -4.8849e-01,

-1.8193e+00, 1.4481e+00, -1.1173e-01, -5.7531e-01, 1.2311e+00,

2.1067e+00, -3.4180e-01, 2.5959e-02, -3.1700e-01, -3.0628e-03,

-6.2701e-01, -7.5489e-01, -3.5954e-01, 8.5192e-01, 7.3623e-01,

9.7710e-02, -1.5015e-01, 5.9279e-02, -3.0714e+00, -1.0781e+00,

-6.9100e-01, -4.6132e-03, 1.5364e+00, -1.7604e+00, 7.9396e-01,

9.3167e-03, 3.4584e-02, -1.5289e+00, -9.1127e-01, 2.1590e-01,

-4.2780e-01, 4.3352e-01, -9.9226e-01, -2.4326e-01, -8.8402e-01,

-9.8067e-01, 8.5454e-01, 6.4114e-01, -3.4652e-02, 5.8414e-01,

-1.5249e-01, 1.4661e+00, -4.0633e-01, 8.3791e-01, -1.3848e-01,

1.1874e+00, 1.9522e+00, -1.1244e-01, 4.4871e-01, -8.2528e-01,

-6.0661e-01, -2.4252e-01, 1.7877e-02, 1.4642e+00, -8.5176e-01,

-1.1845e+00, -1.3925e+00, 1.4797e+00, 9.2533e-01, -1.1997e+00,

-1.8387e+00, 1.1357e+00, 2.3586e-01, -2.1061e+00, -8.7362e-01,

7.6326e-01, -1.1374e+00, 1.2992e+00, 6.6135e-01, -7.8288e-01,

-5.9250e-01, -1.0121e+00, -2.5763e-01, 3.7498e-01, 5.6474e-01,

3.1235e-01, 4.0389e-01, -4.7671e-01, 5.5838e-01, 1.1954e-01,

2.9034e-01, -1.5449e-01, -2.7553e-01, 6.6372e-01, 7.6961e-01,

1.4852e+00, -7.7860e-01, -5.1568e-01, -7.8163e-01, 5.9365e-01,

-1.0903e+00, -2.6079e+00, 2.0134e-01, 4.8033e-01, 4.2337e-01,

8.0431e-01, 2.0276e+00, 7.4258e-02, -1.5033e+00, -3.5545e-01,

1.0031e+00, 1.0718e+00, -3.7139e-01, 1.1991e+00, -1.7045e-01,

1.8299e+00, 5.2377e-01, -1.6464e+00, -1.4038e-01, -2.3486e-01,

-2.0142e+00, -1.3578e+00, 5.0188e-01, 1.1758e+00, -8.1913e-01,

-5.6428e-03, 1.5041e-01, -7.9554e-01, -6.6825e-01, 6.6140e-01,

8.6206e-01, 3.2961e-01, -4.0423e-01, 6.6339e-01, -2.6395e-01,

3.8033e-01, -8.9321e-01, 1.5005e-01, 1.7675e-02, 4.8653e-01,

-1.9978e-01, -1.6954e-01, 8.9310e-01, 6.0320e-01, -7.2768e-01,

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-5.1902e-01, -5.8562e-01, -3.8708e-01, 6.8989e-01, -5.0214e-02,

6.5039e-01, 7.6786e-01], device='cuda:0', grad\_fn=<SelectBackward0>)

After output layer x shape: torch.Size([32, 17])

After output layer x (sample 0): tensor([-1.0983, -2.0180, -0.5392, 0.5478, 0.5895, -0.0263, -1.9900, 1.2022,

0.9265, 1.5904, 1.6805, 1.5644, 1.3385, -1.6477, 1.7192, -4.5699,

-3.7421], device='cuda:0', grad\_fn=<SelectBackward0>)

Logits: tensor([[-1.0983, -2.0180, -0.5392, 0.5478, 0.5895, -0.0263, -1.9900, 1.2022,

0.9265, 1.5904, 1.6805, 1.5644, 1.3385, -1.6477, 1.7192, -4.5699,

-3.7421],

[ 0.4238, 0.4657, 1.5976, -1.4737, 1.6218, 2.0000, -0.5061, -1.0178,

0.1165, 1.5422, 1.8515, 0.5965, -1.1521, 1.2190, 0.0732, -4.5766,

-3.9063],

[-1.6638, -2.3327, -1.7375, 1.7760, -0.2808, -1.7101, -2.3349, 2.0536,

2.0591, 2.4262, 0.7882, 1.5694, 2.2375, -2.5453, 2.0682, -3.9188,

-3.4516],

[ 0.9614, 0.9421, 1.7363, -1.4445, 1.6243, 1.6409, -0.0904, -1.1882,

0.3528, 1.4615, 1.7343, 0.5946, -1.3566, 1.8602, -0.1811, -4.3914,

-3.9383],

[ 1.3590, 1.7788, 1.6537, -1.7379, 1.6016, 1.3695, 0.1518, -1.1328,

0.6675, 1.7307, 1.5591, 0.2025, -1.5978, 2.5953, -0.7590, -4.2715,

-3.6710],

[ 0.6876, 0.0582, 1.6256, -1.2808, 1.6060, 2.1095, -0.7092, -0.6835,

0.1228, 1.3732, 1.7774, 0.4613, -0.9851, 0.7854, 0.1850, -4.6236,

-3.9186],

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-3.4323],

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0.2220, 1.1448, 1.9829, 0.5874, -0.7961, 0.7892, 0.1349, -4.5865,

-3.9216],

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-3.6565],

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-3.3089],

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-3.4747],

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-3.9115],

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-3.5263],

[ 1.2747, 1.8545, 1.7885, -1.8504, 1.6448, 1.3006, 0.1899, -1.4367,

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-3.6454],

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-3.9468],

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-3.4599],

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-3.5333],

[ 1.3076, 1.7850, 1.7288, -1.8200, 1.5246, 1.3733, 0.0665, -1.5607,

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-3.7762],

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-3.5419],

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[ 1.3601, 1.7307, 1.6140, -1.7977, 1.4805, 1.3693, 0.1553, -1.4471,

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[ 1.3493, 1.7781, 1.8199, -1.8800, 1.5346, 1.3163, 0.2852, -1.5022,

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-3.8052],

[ 1.2199, 1.9142, 1.6322, -2.0019, 1.5617, 1.3173, 0.0478, -1.5577,

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