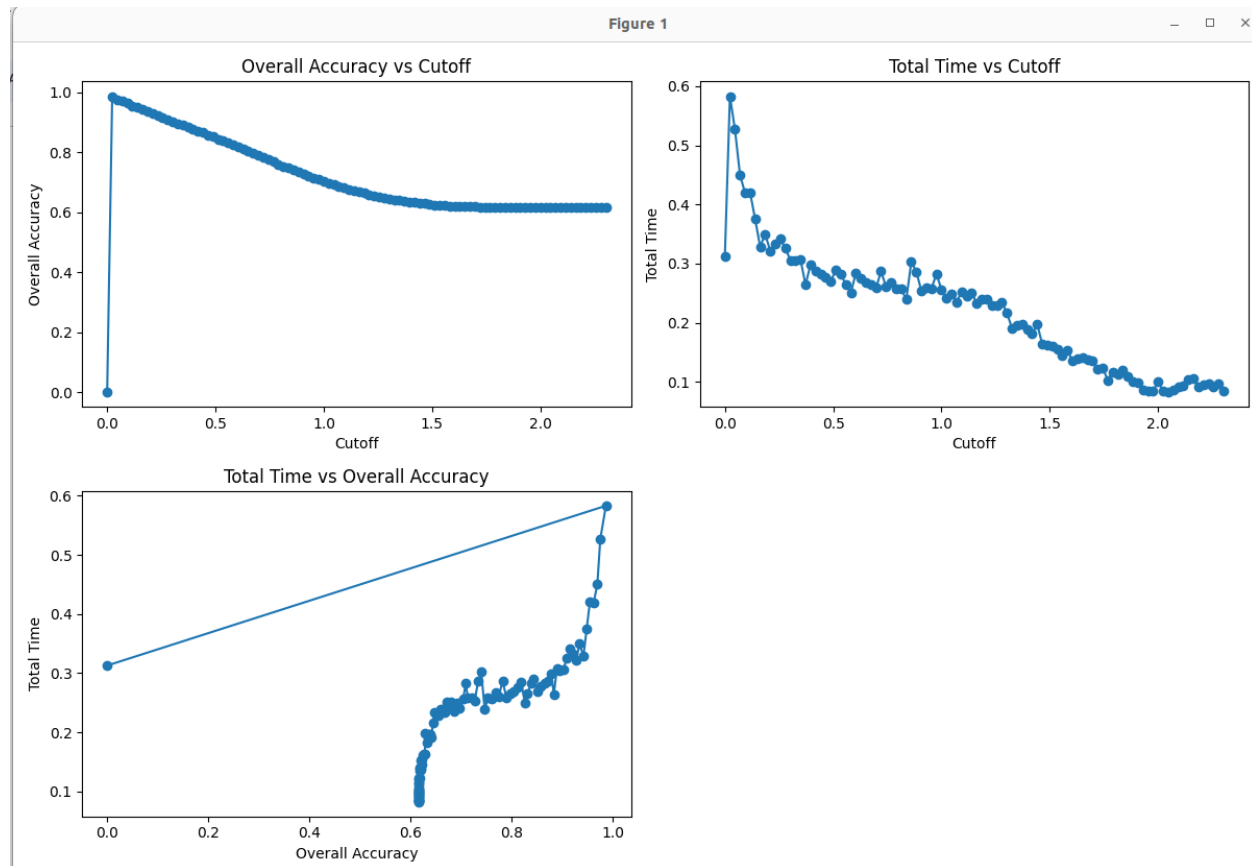


Task1a:

Accuracy per layer: [0.8093042749371333, 0.9236753574432296, 0.9187745483110762, 0.9361171704580866, 0.9336499321573949, 0.93614237110704], per layer inference Time: [2.912333904947439e-05, 6.742894499115427e-06, 1.0031972077542744e-05, 6.155679440639516e-06, 6.3195804404436e-06, 7.994634822475071e-06]

Task1b:



As we can see from the plot Threshold =0.5 works the best in terms of both inference time and accuracy.

Task2a and 2b:

0 indicates not possible to achieve:

Desired Accuracy: 0.8, Estimated Thresholds: [0, 0, 0, 1.7746528, 1.2032502, 1.0206594]
Layer-wise Inference Times on Validation Data: [9.538650512695312e-07, 3.603458404541016e-07, 3.4437179565429685e-07, 3.9043426513671874e-07, 4.880905151367188e-07, 5.502223968505859e-07]

Layer-wise Inference Times on Training Data: [9.021759033203125e-08, 6.111462910970053e-08, 7.255342271592881e-08, 8.820957607693143e-08, 8.318159315321181e-08, 1.1728074815538195e-07]

Accuracy Achieved on Test Data: 0.6324078748107017, Total Inference Time: 0.2094407081604004

Desired Accuracy: 0.85, Estimated Thresholds: [0, 0, 0, 0, 0, 0]

Layer-wise Inference Times on Validation Data: [1.495361328125e-07, 2.7461051940917967e-07, 3.2787322998046874e-07, 3.8933753967285156e-07, 4.78219985961914e-07, 5.526542663574219e-07]

Layer-wise Inference Times on Training Data: [2.826054890950521e-08, 6.155437893337674e-08, 7.189644707573785e-08, 8.486111958821614e-08, 8.553398980034722e-08, 9.494357638888888e-08]

Accuracy Achieved on Test Data: 0.7868421052631579, Total Inference Time: 0.3071775436401367

Desired Accuracy: 0.9, Estimated Thresholds: [0, 0, 0, 0, 0, 0]

Layer-wise Inference Times on Validation Data: [1.6469955444335937e-07, 2.7093887329101564e-07, 3.2224655151367185e-07, 3.790378570556641e-07, 4.143238067626953e-07, 4.78506088256836e-07]

Layer-wise Inference Times on Training Data: [2.776251898871528e-08, 5.974769592285156e-08, 6.919966803656685e-08, 7.867813110351563e-08, 8.380677964952257e-08, 9.204546610514323e-08]

Accuracy Achieved on Test Data: 0.8444097763910556, Total Inference Time: 0.3167445659637451

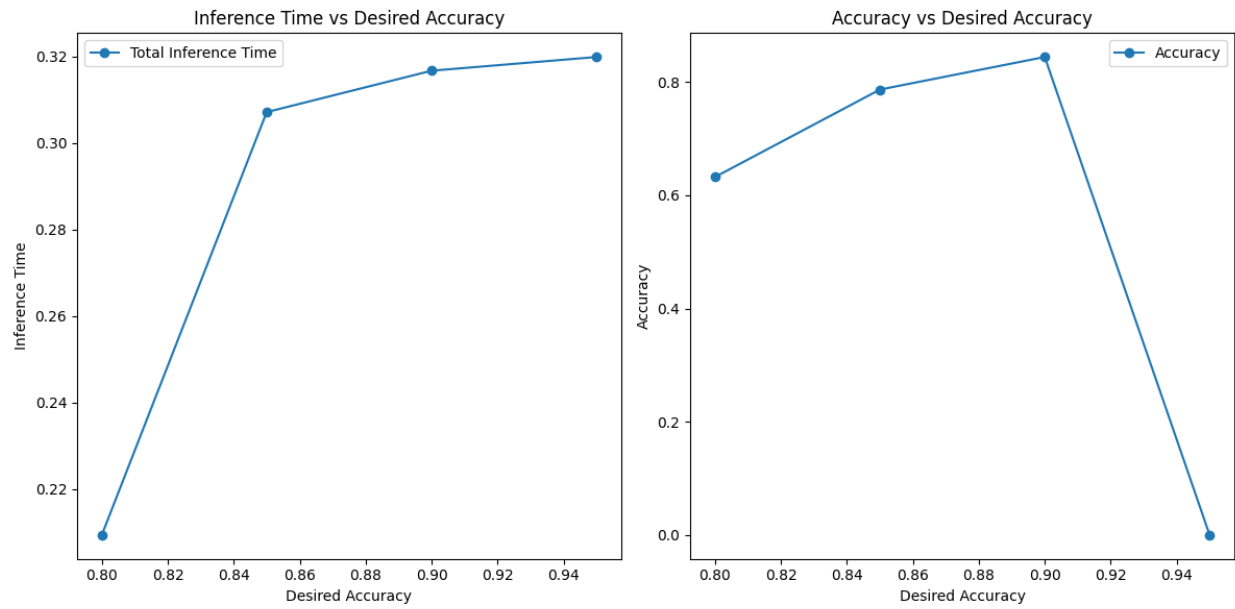
Desired Accuracy: 0.95, Estimated Thresholds: [0, 0, 0, 0, 0, 0]

Layer-wise Inference Times on Validation Data: [1.3885498046875e-07, 2.742767333984375e-07, 3.2825469970703126e-07, 3.829002380371094e-07, 4.147052764892578e-07, 4.786491394042969e-07]

Layer-wise Inference Times on Training Data: [3.1142764621310764e-08, 6.033579508463542e-08, 6.899833679199219e-08, 7.771915859646267e-08, 8.385446336534288e-08, 9.218321906195747e-08]

Accuracy Achieved on Test Data: 0, Total Inference Time: 0.3199138641357422

Figure 1



x=0.8617 y=0.863