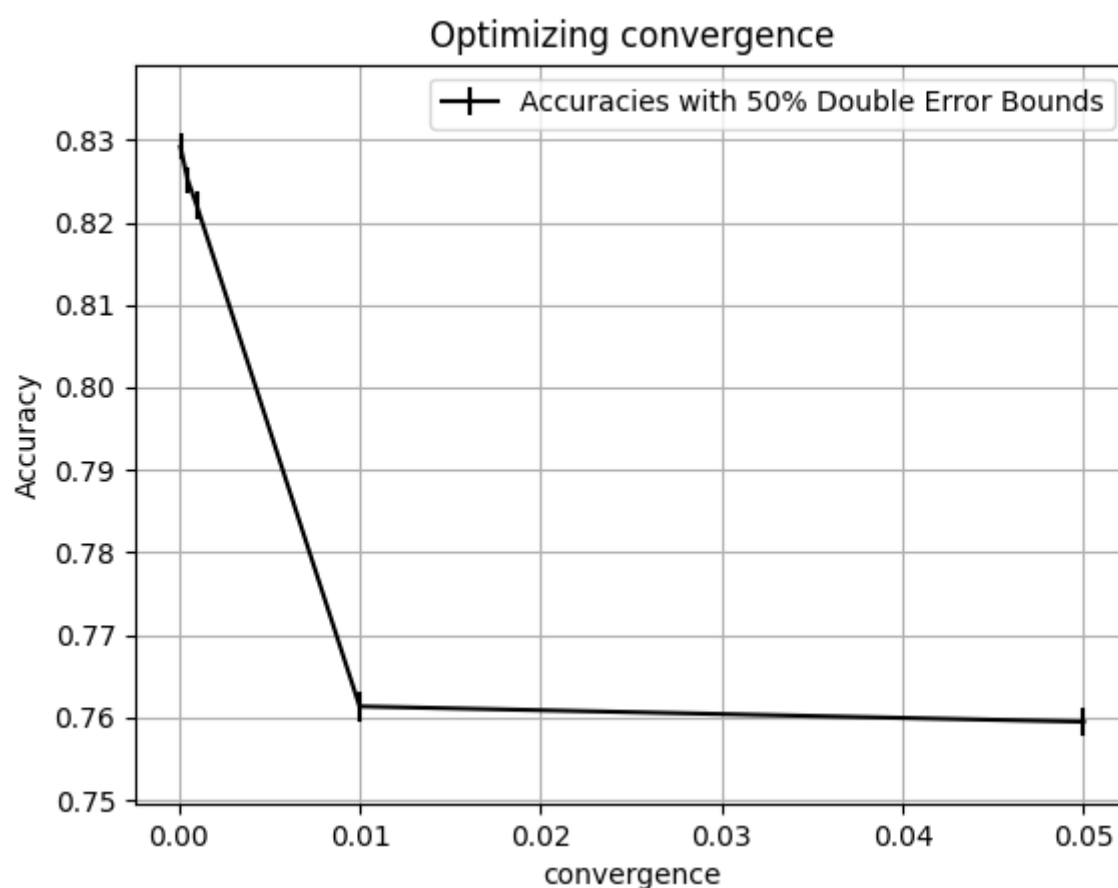


Module 2 -- Assignment 1

Convergence Tuning

stepSize: 1 50% 2 sided error bars

convergence	accuracy	lower bound	upper bound	runtime
0.05	0.759476	0.757673	0.761278	4.28327
0.01	0.761337	0.75954	0.763134	10.1209
0.001	0.822052	0.82044	0.823665	40.202
0.0005	0.825142	0.82354	0.826743	62.518
0.0001	0.829142	0.827555	0.830729	161.093

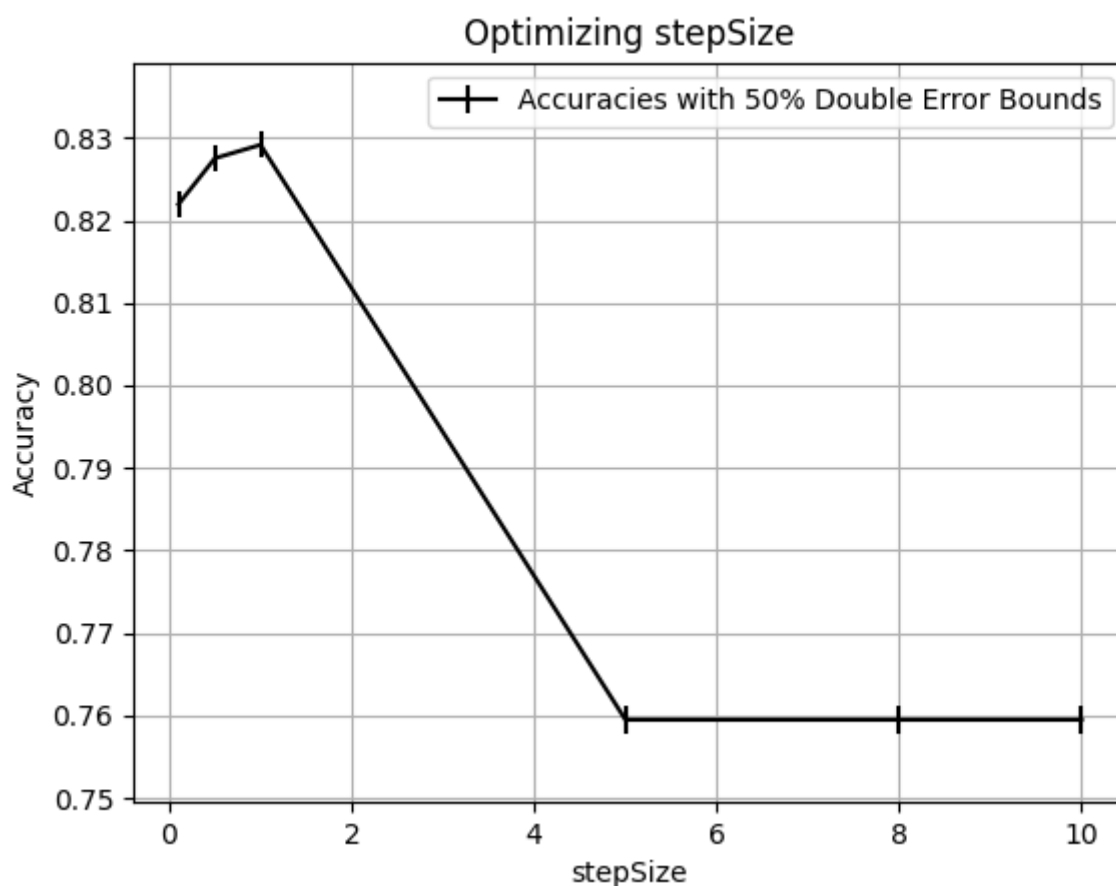


Step Size Tuning

convergence: 0.0001 50% 2 sided error bars

stepSize	accuracy	lower bound	upper bound	runtime
10	0.759476	0.757673	0.761278	3.58102

stepSize	accuracy	lower bound	upper bound	runtime
8	0.759476	0.757673	0.761278	3.76564
5	0.759476	0.757673	0.761278	4.08701
1	0.829142	0.827555	0.830729	181.786
0.5	0.827518	0.825925	0.829111	228.149
0.1	0.821934	0.82032	0.823547	377.726



Analysis

The best hyperparameter settings:

- convergence: **0.0001**
 - Accuracy: 0.829142 (0.827555 - 0.830729)
- stepSize: **1.0**
 - Accuracy: 0.829142 (0.827555 - 0.830729)

Most Common Class model validate set accuracy: 0.7633 (50% 0.7582 - 0.7684)

Best Accuracy found by tuning: 0.829142 (0.827555 - 0.830729)

Our expected accuracy is 0.065842 better than the accuracy of the Most Common Model. Additionally, looking at the error bars above we can say at a 75% one-sided confidence interval that our model is better than the

most common class model.