The results of our program were surprisingly similar for all depths. This finding applies to the range of standard deviations measured among all depths (between ±0.025 and ±0.0003) as well as the mean accuracy, which was close to 0.7 for all results. We would have expected the resulting metrics to become better (i.e. lead to a more precise classification) with a growing depth of the decision tree, at least up to a certain value for the depth, given the limited number of attributes in the car dataset. Our results, however, do not support that assumption.

Output of our program:

Std deviation with depth 3 in step 1 :-0.005902777777777812

Std deviation with depth 3 in step 2 :0.021874999999999978

Std deviation with depth 3 in step 3 :-0.009375000000000022

Std deviation with depth 3 in step 4 :0.007986111111111138

Std deviation with depth 3 in step 5 :-0.014583333333333282

Std deviation with depth 3 in step 6 :0.021874999999999978

Std deviation with depth 3 in step 7 :0.013194444444444509

Std deviation with depth 3 in step 8 :-0.02673611111111107

Std deviation with depth 3 in step 9 :-0.004166666666666652

Std deviation with depth 3 in step 10 :-0.00416666666666665

Mean Accuracy wo depth:0.6916666666666667

Std deviation with depth 5 in step 1 :0.021180555555555536

Std deviation with depth 5 in step 2 :0.009027777777777857

Std deviation with depth 5 in step 3 :-0.027430555555555514

Std deviation with depth 5 in step 4 :-0.006597222222222143

Std deviation with depth 5 in step 5 :0.010763888888888906

Std deviation with depth 5 in step 6 :0.002083333333333326

Std deviation with depth 5 in step 7 :-0.004861111111111094

Std deviation with depth 5 in step 8 :3.472222222222765E-4

Std deviation with depth 5 in step 9 :-0.025694444444444464

Std deviation with depth 5 in step 10 :0.021180555555555536

Mean Accuracy wo depth:0.7114583333333333

Std deviation with depth 10 in step 1 :0.008333333333333304

Std deviation with depth 10 in step 2 :-3.472222222221655E-4

Std deviation with depth 10 in step 3 :-0.014236111111111116

Std deviation with depth 10 in step 4 :-0.005555555555555536

Std deviation with depth 10 in step 5 :0.017013888888888884

Std deviation with depth 10 in step 6 :-0.021180555555555536

Std deviation with depth 10 in step 7 :0.006597222222222254

Std deviation with depth 10 in step 8 :-0.015972222222222165

Std deviation with depth 10 in step 9 :0.015277777777777835

Std deviation with depth 10 in step 10 :0.010069444444444464

Mean Accuracy wo depth:0.7052083333333333

Std deviation with depth 20 in step 1 :-0.004166666666666652

Std deviation with depth 20 in step 2 :-0.016319444444444442

Std deviation with depth 20 in step 3 :-0.012847222222222232

Std deviation with depth 20 in step 4 :0.004513888888888928

Std deviation with depth 20 in step 5 :0.02013888888888893

Std deviation with depth 20 in step 6 :-0.004166666666666652

Std deviation with depth 20 in step 7 :0.004513888888888928

Std deviation with depth 20 in step 8 :-0.012847222222222232

Std deviation with depth 20 in step 9 :0.014930555555555558

Std deviation with depth 20 in step 10 :0.006250000000000089

Mean Accuracy wo depth:0.6986111111111111