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1604905

CSCI 184

HW1, Part 2: Programming

A.

Evaluating MONK's problem 1:

Depth 1: Training error = 0.2661, Testing error = 0.2500

Depth 2: Training error = 0.2661, Testing error = 0.2500

Depth 3: Training error = 0.0887, Testing error = 0.1667

Depth 4: Training error = 0.0887, Testing error = 0.1667

Depth 5: Training error = 0.0806, Testing error = 0.1667

Depth 6: Training error = 0.0484, Testing error = 0.1111

Depth 7: Training error = 0.0323, Testing error = 0.0926

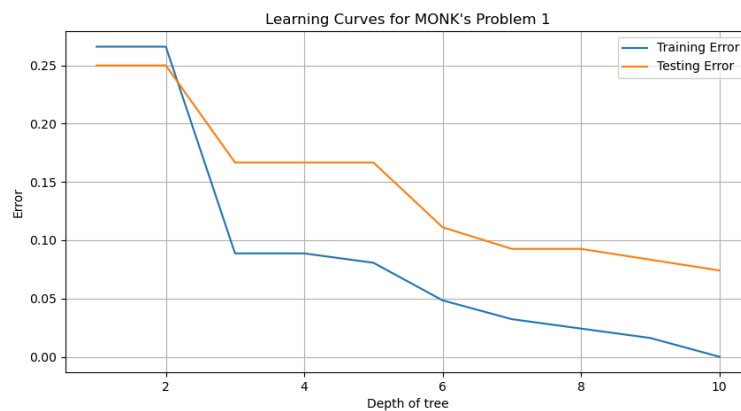
Depth 8: Training error = 0.0242, Testing error = 0.0926

Depth 9: Training error = 0.0161, Testing error = 0.0833

Depth 10: Training error = 0.0000, Testing error = 0.0741

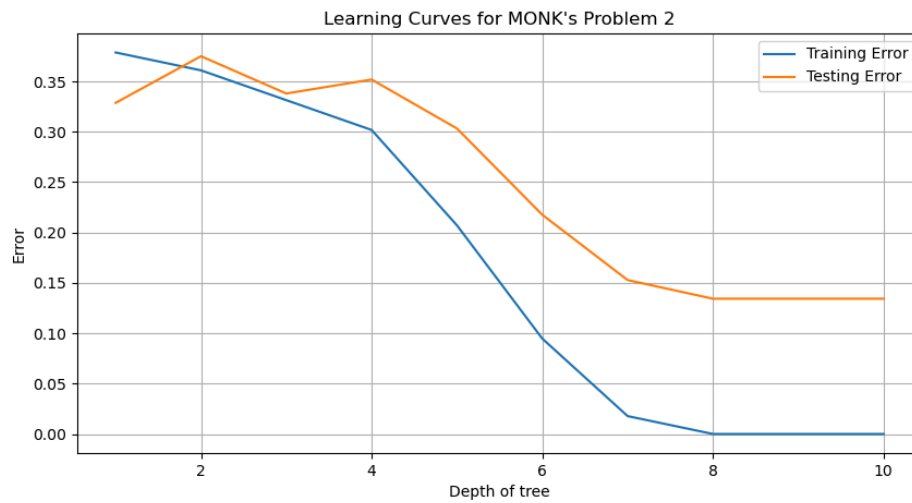
Average training error for MONK's problem 1: 0.0911

Average testing error for MONK's problem 1: 0.1454



Evaluating MONK's problem 2:

Depth 1: Training error = 0.3787, Testing error = 0.3287
Depth 2: Training error = 0.3609, Testing error = 0.3750
Depth 3: Training error = 0.3314, Testing error = 0.3380
Depth 4: Training error = 0.3018, Testing error = 0.3519
Depth 5: Training error = 0.2071, Testing error = 0.3032
Depth 6: Training error = 0.0947, Testing error = 0.2176
Depth 7: Training error = 0.0178, Testing error = 0.1528
Depth 8: Training error = 0.0000, Testing error = 0.1343
Depth 9: Training error = 0.0000, Testing error = 0.1343
Depth 10: Training error = 0.0000, Testing error = 0.1343
Average training error for MONK's problem 2: 0.1692
Average testing error for MONK's problem 2: 0.2470



Evaluating MONK's problem 3:

Depth 1: Training error = 0.2213, Testing error = 0.1944

Depth 2: Training error = 0.0656, Testing error = 0.0278

Depth 3: Training error = 0.0574, Testing error = 0.0556

Depth 4: Training error = 0.0410, Testing error = 0.0463

Depth 5: Training error = 0.0410, Testing error = 0.1019

Depth 6: Training error = 0.0164, Testing error = 0.1019

Depth 7: Training error = 0.0164, Testing error = 0.1019

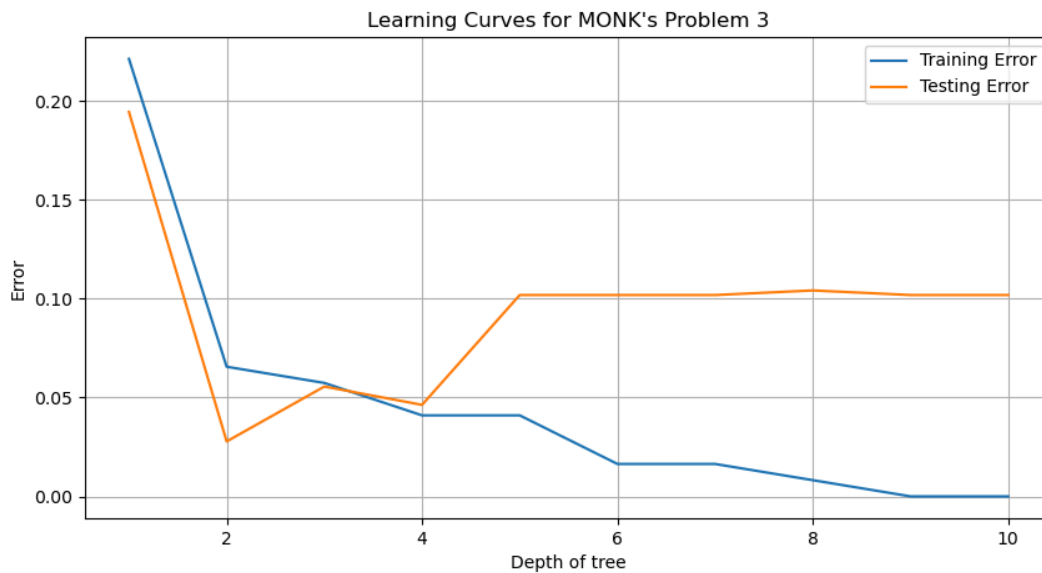
Depth 8: Training error = 0.0082, Testing error = 0.1042

Depth 9: Training error = 0.0000, Testing error = 0.1019

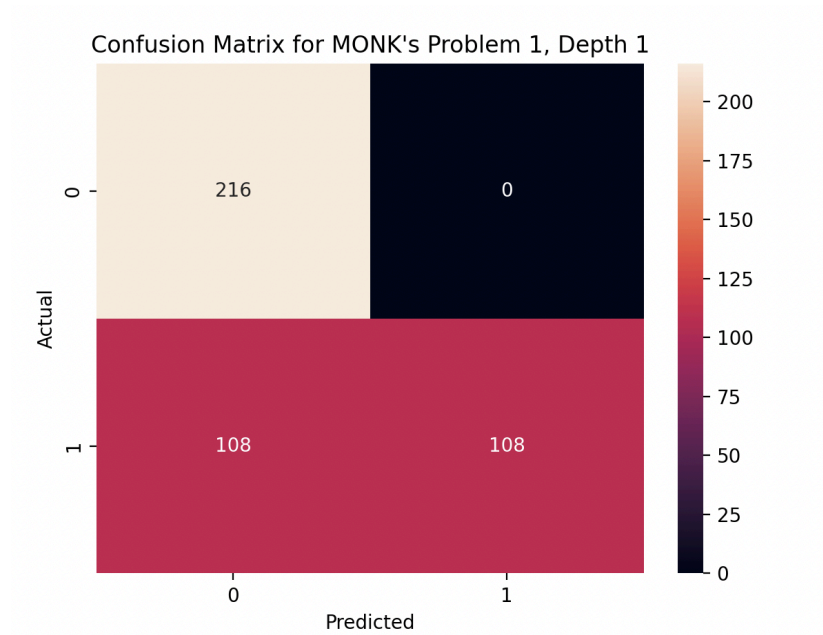
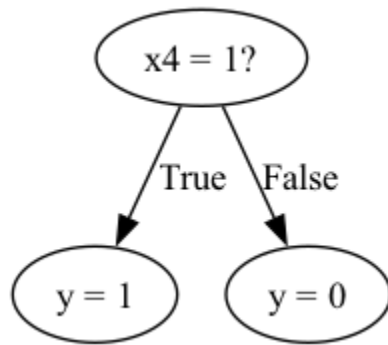
Depth 10: Training error = 0.0000, Testing error = 0.1019

Average training error for MONK's problem 3: 0.0467

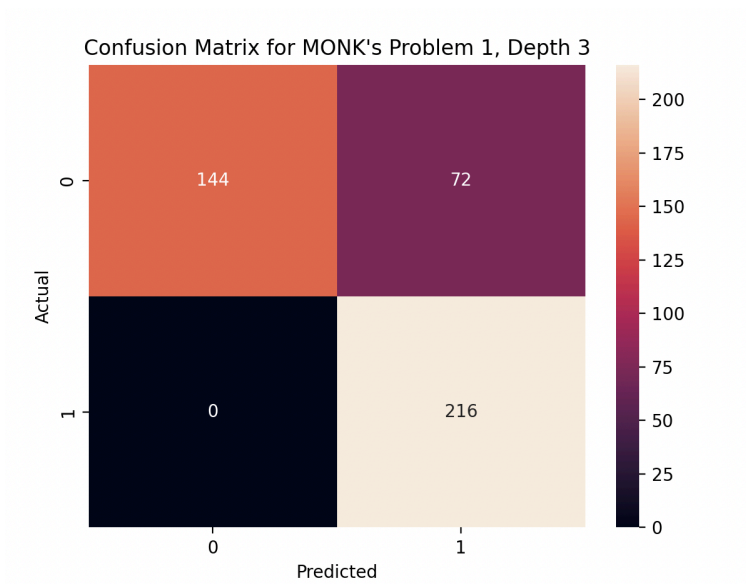
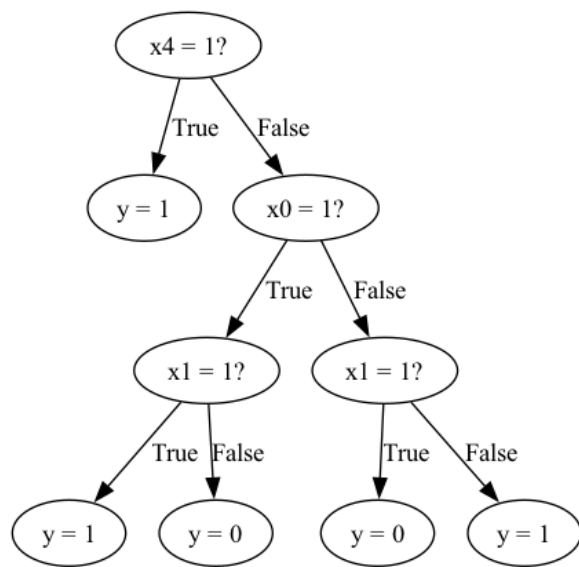
Average testing error for MONK's problem 3: 0.0938



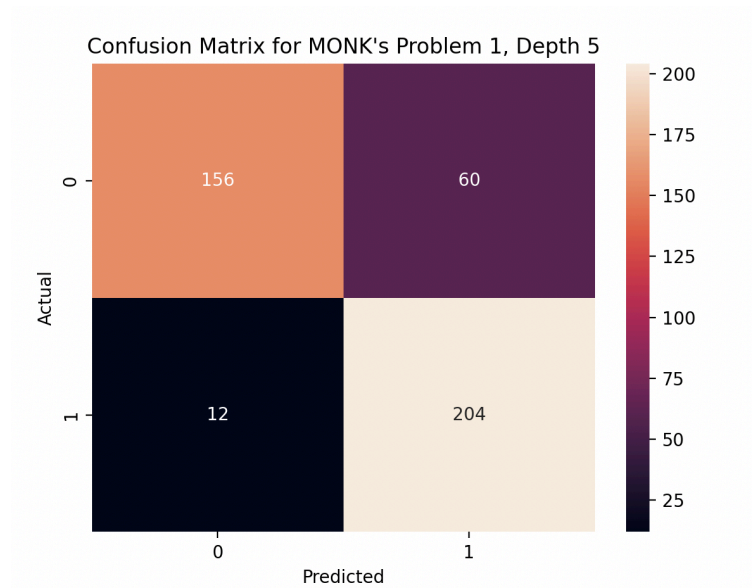
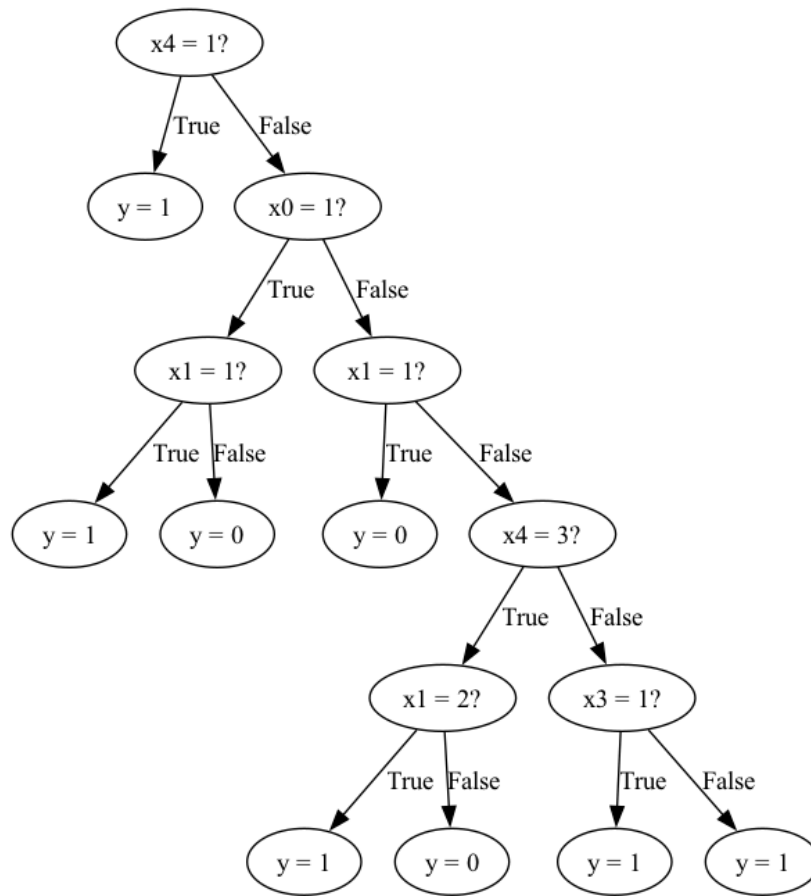
B.
Depth = 1



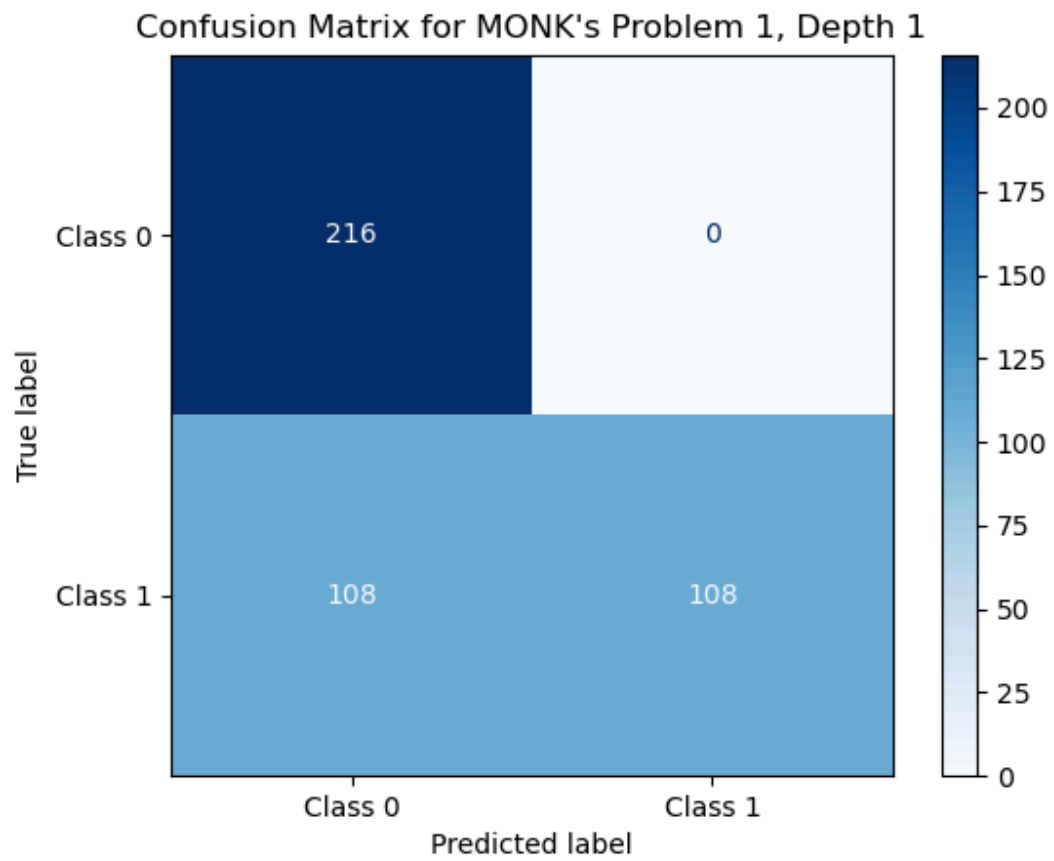
Depth = 3



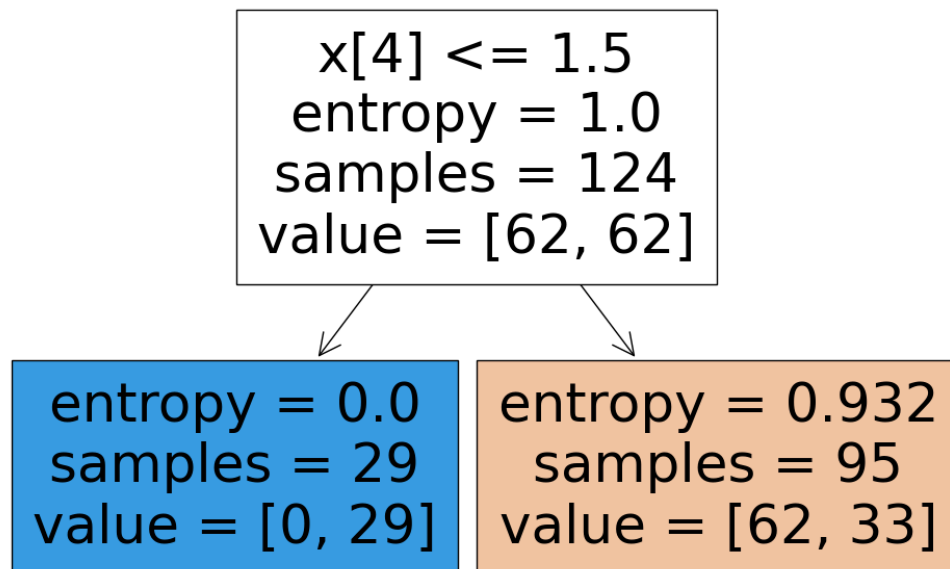
Depth = 5



C.



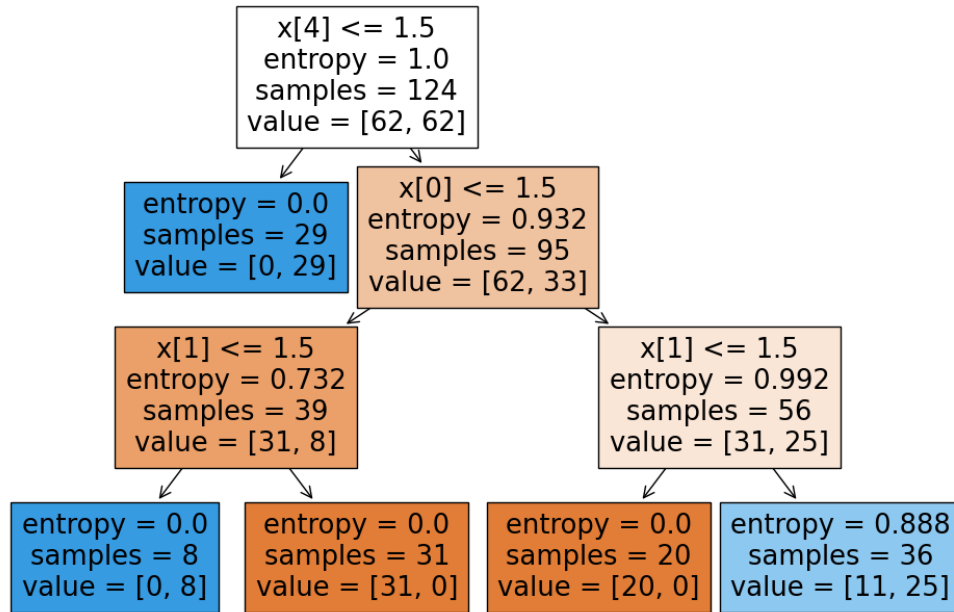
Decision Tree for MONK's Problem 1, Depth 1



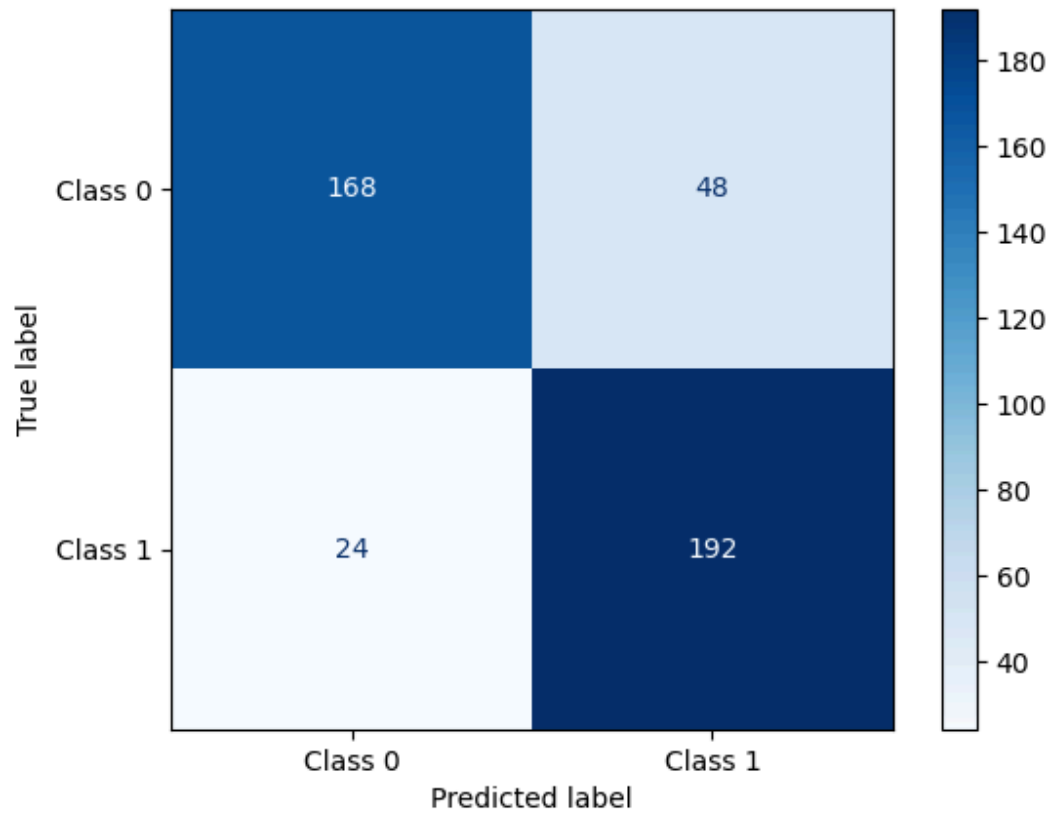
Confusion Matrix for MONK's Problem 1, Depth 3



Decision Tree for MONK's Problem 1, Depth 3



Confusion Matrix for MONK's Problem 1, Depth 5



Decision Tree for MONK's Problem 1, Depth 5

