

Decision Tree Assignment (Easy Problem)

Consider the following dataset, comprised of three binary input attributes (B_1, B_2, B_3) and one binary output (y).

B_1	B_2	B_3	y
1	0	0	0
0	1	0	0
1	1	0	1
0	0	1	1
1	0	1	1

- (i) Construct a decision tree for this dataset using the **information gain heuristic**. Show your entropy and information gain calculations step by step.
- (ii) Based on your constructed tree, classify the new instance ($B_1 = 0, B_2 = 1, B_3 = 1$).