**Algorithm 1** Build Decision Tree

BuildTreedata, depth all labels in data are the same create leaf node with label depth = max_depth create leaf node with majority label best_gini $\leftarrow \infty$ best_split $\leftarrow$ None each feature in data.features each threshold in unique values of feature left_data, right_data $\leftarrow$ split(data, feature, threshold) left_data is empty or right_data is empty **continue** gini $\leftarrow \left(\frac{len(left\_data)}{len(data)}\right) \times GiniIndex(left\_data) + \left(\frac{len(right\_data)}{len(data)}\right) \times GiniIndex(right\_data)$ gini ¡ best_gini best_gini $\leftarrow$ gini best_split $\leftarrow$ (feature, threshold) best_split is None create leaf node with majority label (feature, threshold) $\leftarrow$ best_split left_data, right_data $\leftarrow$ split(data, feature, threshold) left_branch $\leftarrow$ BuildTree(left_data, depth + 1) right_branch $\leftarrow$ BuildTree(right_data, depth + 1) create internal node with feature, threshold, left_branch, right_branch