procedure CART-ID3($S = \{\mathbf{x}_i, y_i\}_i$)
  if all labels are equal to $\overline{y}$ **then** ▷ Base Case #1
    return Leaf$[\overline{y}]$
  else if all data points have the same features $\overline{\mathbf{x}}$ **then** ▷ Base Case #2
    return Leaf[mode $(\{y : (\mathbf{x}, y) \in S)\})$] ▷ Use mean$(\cdot)$ for regression
  else ▷ Recursion on branches
    ▷ Iterate through all possible features f and thresholds t, and find best partition
    $f, t \leftarrow \arg\min_{f,t} \frac{|S_L|}{|S|} I(S_L) + \frac{|S_R|}{|S|} I(S_R)$
    $S_L \leftarrow \{(\mathbf{x}, y) \in S : [\mathbf{x}]_f \leq t\}$
    $S_R \leftarrow \{(\mathbf{x}, y) \in S : [\mathbf{x}]_f > t\}$
    return Node[CART-ID3 (S_L), CART-ID3 (S_R)]
  end if
end procedure