Exercise 2 – Decision Tree Classifier

-- Requirement

Implement the Binary Decision Tree Classifier with the given dataset(“heart\_dataset.csv”).

Fill the function of attachment "DecisionTree.py"

--Coding(85%)

* implement \_entropy (5%)
* implement \_feature\_split(10%)
* implement \_build\_tree (10%)
* implement fit (5%)
* implement predict (5%)
* implement \_find\_leaves (5%)
* implement \_error\_before\_cut (5%)
* Implement \_compute\_alpha (10%)
* Implement \_find\_min\_alpha (20%)
* Implement \_prune(10%)

-- Report(15%)

1. Design \_feature\_split, \_build\_tree, \_find\_min\_alpha, \_prune, and then explain the goal of each function .
2. Decision tree before post pruning accuracy
3. Decision tree after post pruning accuracy
4. The effect of different parameters (Ex: prune tree times、max\_depth)
5. A brief discussion of the results(Ex: After prune tree, will the testing accuracy be better, if yes, why it would be better, if not, why it be worse?)

**- Please upload the zip file, zip file should include**

**- code\_<your\_id>.zip**

**- your zip file should include**

**- code\_<your\_id>.py**

**- heart\_dataset.csv**

**- code\_<your\_id>.pdf (your report)**

**- Ex: if your student id is 109522026, then you should upload**

**code\_109522026.zip file (which must include code\_109522026.py, heart\_dataset.csv, code\_109522026.pdf)**

**- Due date: 10/25 23:59**