Matlab tree guide

'Tree data structure as a MATLAB class' by Jean-Yves Tinevez was used to build the tree and traverse it. Following is the link to the Matlab tree class and tutorial respectively.

https://www.mathworks.com/matlabcentral/fileexchange/35623-tree-data-structure-as-a-matlab-class

http://tinevez.github.io/matlab-tree/TreeDemo/TreeDemo_creating.html

The folder 'tinevez-matlab-tree-3d13d15' needs to be added as sub directory to your HW folder to use it's functions. It contains all the .m files

Setting A from HW 1 is included to help guide you through using trees with and without pruning. Comments have been added in the functions and a brief explanation is given.

It was implemented as follows. On every recursion call of the ID3 function, a new tree is created which is grafted with the original tree on return. When an attribute which has only 1 unique label is encountered, a leaf with the corresponding label is added. The nodes are chosen with the highest information gain as described in class.

`function [ t ] = ID3( S,Attributes,Label)` is the matlab code which builds the tree.

`function [ pred ] = traverse( t,S_test,Att_test )` is the matlab function which returns the prediction by traversing the tree until a leaf node is encountered.

`SettingA.m` contains the datasetA parsed into arrays/cell arrays to be given to the ID3( )to build tree and traverse() to find the prediction.

The feature values(v)in a particular attribute which are not contained in training set, the tree assigns a random value to it from the label.