Assignment-2

1. What do you mean by Gain and Entropy? How is it used to build the Decision tree in algorithm?
2. Describe the ID3 algorithm for decision tree learning.
3. For the following dataset, find the partial decision tree. [Nodes in Level 1 (i.e. root) and Level 2 only]. Last column represents the label.

Species	Green	Legs	Height	Smelly
M	N	3	S	Y
M	Y	2	T	N
M	Y	3	T	N
M	N	2	S	Y
M	Y	3	T	N
H	N	2	T	Y
H	N	2	S	N
H	N	2	T	N
H	Y	2	S	N
H	N	2	T	Y

4. Draw the decision tree for i) A XOR B ii) A AND (NOT B)
5. Define Overfitting. How overfitting can be reduced in decision trees.