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WR2

**Part 0: Questions from the two articles**

1. I am not sure if it is applicable, but I think we should use more machine learning or AI application for environmental issues. For example, calculate the resources left for human use and predict how we can preserve it. Another thing could be AI that recognizes or discover places on earth to grow forest safely to fight against global warming, etc.
2. It might affect humans because we are the one causing all those environmental issues. AI could say depopulation would help the global warming and start fight against us, but other than that I do not see any ethical issues for those application.

**Part 1: Questions from textbooks**

1. Decision tree induction can be applied for classification problems, such as medical diagnosis or prediction.
2. Popular impurity measures used for decision trees:
3. Information gain/entropy reduction: Information gain tells us which of the attribute is most important to distinguish between classes to be learned
4. Gain ratio: information gain measures is biased towards attributes with a large number of values to fix this problem gain ratio is used by normalizing information gain.
5. Gini index: biased towards multivalued attributes, and when number of classes gets higher it gets less information gain/prediction rate
6. If a decision tree is overfitting the training set, it may be a good idea to decrease the maximum depth of the tree, since it will constrain and regularize the model.
7. If a decision tree underfits the training set, scaling the input features is useless.
8. Post pruning models permit the tree to overfit the data to correctly categorize the training examples, and then post-prune the tree.

**Part 2: Reflection**

1. Honestly, this reading assignment was really hard for me to understand on my own because there were lots of calculation needed explaining. I could not even read the whole text because it was very complicated therefore, I got hint from textbook and power point for answering these questions. Some of them does not even make sense, but that is how I understood so far. I hope I will figure out after some example problems or class works.
2. The biggest achievement of last week, in general, is just getting good start of quarter and having my group with Jonathan to start our project. Additionally, thinking that I have already done two writing assignments and team works is amazing accomplishment. I am really glad these class is really pushing us hard, but, on the other hand, it seems it is getting difficult sooner than I thought.