Decision Tree Definition

A **decision tree** is a graphical representation of possible solutions to a decision based on certain conditions. It's called a decision tree because it starts with a single box (or root), which then branches off into a number of solutions, just like a tree.

Decision trees are helpful, not only because they are graphics that help you 'see' what you are thinking, but also because making a decision tree requires a systematic, documented thought process. Often, the biggest limitation of our decision making is that we can only select from the known alternatives. Decision trees help formalize the brainstorming process so we can identify more potential solutions.

Decision Tree Example

Applied in real life, decision trees can be very complex and end up including pages of options. But, regardless of the complexity, decision trees are all based on the same principles. Here is a basic example of a decision tree:

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| http://study.com/cimages/multimages/16/decision_tree.gif |

You are making your weekend plans and find out that your parents might come to town. You'd like to have plans in place, but there are a few unknown factors that will determine what you can, and can't, do. Time for a decision tree.

First, you draw your decision box. This is the box that includes the event that starts your decision tree. In this case it is your parents coming to town. Out of that box, you have a branch for each possible outcome. In our example, it's easy: yes or no - either your parents come or they don't.

Your parents love the movies, so if they come to town, you'll go to the cinema. Since the goal of the decision tree is to decide your weekend plans, you have an answer. But, what about if your parents don't come to town? We can go back up to the 'no branch' from the decision box and finish our decision tree.

If your parents don't come to town, you need to decide what you are going to do. As you think of options, you realize the weather is an important factor. Weather becomes your next box. Since it's spring time, you know it will either be rainy, sunny, or windy. Those three possibilities become your branches.