

Ans 5

Decision Tree

A decision tree is a graphical representation of the decision process indicating decision alternatives, states of nature probabilities attached to the states of nature and conditional benefits and losses.

It consists of a network of nodes and branches. Two types of nodes are used: decision node represented by a square and states of nature node represented by a circle. Strategies originate from the decision node as main branches. At the end of each decision branch, there is a states of nature node from which emanate chance events in the form of sub-branches.

The respective payoffs and probabilities associated with the alternative courses and the chance events are shown as

Decision trees are useful for representing the interrelated sequential and multi-dimensional types of a decision-making problem.

- Decision trees help in decision making in a orderly systematic and sequential manner.
- It requires the decision maker to examine all possible outcomes whether desirable or undesirable.
- It displays the logical relationship b/w the parts of a complex decision and identifies the time sequence in which various actions and subsequent events would occur.
- It is specially useful in situations wherein the initial decision and its outcomes affects the subsequent decision. It can be applied in various fields such as introduction of new product, marketing, make or buy ~~basic~~ decision, investment decision etc.

Advantages of Decision Tree.

1. Decision tree diagram is useful for portraying the inter-related, sequential and multidimensional aspect of any major-decision problem within the system's framework.
2. Focuses attention on the critical element in a decision problem over the duration of its solution apart from bringing to light of relationship b/w the presently available course of action and the network of future events.
3. Decision tree model can be applied in various fields such as introduction of a new product, marketing strategy, pricing, assets acquisition, investment decision and as a strategic area as selecting a life partner.

Disadvantage of Decision Tree:

Though decision tree has its use in effective decision making it is not as easy as it seems to be. A decision tree, while simple in essence, can get complex in application. One of the main difficulties in analyzing decision tree is that even with simple two or three branches forks, tree can be quite complex. It will be just like a bush. There is another problem in the construction of decision tree: making assumption and setting of probabilities from different figure in decision tree. There is often inconsistency in assigning probability for different events.

Decision Tree Approach

Decision tree are excellent tools for helping to choose between several course of action. Thus

Provide a highly effective structure within which we can lay out options and investigate the possible outcomes of choosing those options. They also help us to form a balanced picture of the risk and rewards associated with each possible course of action.

How to use Tool: We start a decision tree with a decision that we need to make. Draw a small square to represent this towards the left of a large piece of paper.

From this box draw outlines towards the right for each possible solution, and write that solution along the line. Keep the line a page or page as possible so that you can expand your thoughts.

At the end of each line, consider the results. If the result of taking that decision is uncertain,

draw a small circle. If the result is another decision that we need to make, draw another square. Squares represents decision and circles represents uncertain outcomes. write the decision or factors above the square or circle. If we have completed the solution at the end of the line, first leave it blank.