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Decision Tree: A new Approach used in Multiple Variable

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ABSTRACT: Decision tree concept is used in variance application among them is credit card Limit fixing, Sanctioning Loan amount. In this paper we will discuss how it is relates to Decision tree, Manual effect, knowledge Management / Expert System, Intelligent Systems.

KEYWORDS: decision trees, knowledge Management / Expert System,

I. INTRODUCTION

Making decisions without knowing what the outcome likely will be is difficult. There are plenty of areas where decision trees are used like Agriculture, Astronomy, Text processing, Manufacturing and Production, Medicine, Financial analysis, Pharmacology etc. Out of this we are discussing here only about Financial Analysis.

II. BACKGROUND

The credit card company literally receives thousands of application for credit cards. Similarly Banks are getting huge amount of the Loan application. Few years back the decision is taken by the Bank manager / Credit Card Officer. Since the task is involving high risk and on top of that it is related to the funds. So if the decision is incorrect then it has huge penalty on the company / Bank. So this responsibility is very heavy.

III. MANUAL EFFECT

There are huge chances of human errors. Most of the time very few people are expert to find correct decision. And the decision is based on one (in some cases a small group of people) person and if he / she fails even judging in one single case then also the penalty is high. In other words the whole responsibility is depending upon a single person. And this ability of taking decision is achieved by experience. And if such experience person is not available / retires then to replace that post is difficult. This expertise must be utilized by the other people. So in such cases the expert system is prepared and kept in the company which can be used by naive user. As Amit Musumdar⁴ says "If you think about the successful decision makers there's a certain set of skills that you commonly associate with that behavior. The most important of those skills is decisiveness. A leader decides and takes action. But the process that a leader uses to make important a decision isn't based on just being impulsive, it's based on a particular set of tools, skills, training and mentoring that they received as part of the process of learning." This technique which these decision makers achieved is by correct judgment which comes through the rich experience.

IV. KNOWLEDGE MANAGEMENT / EXPERT SYSTEM

According to Olivera Grljević "Intelligent systems rely on the expertise and experience of human-expert(s) in solving different problems and as such they simulate their reasoning and behavior in a specific problem domain. Usually a domain expert provides "rules of thumb" about the way problem is being evaluated, either explicitly with the help of experienced system developers, or implicitly, extracting the rules from relevant data sets Intelligent systems can be used to create corporate knowledge, for its transfer and dissemination."



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V. ATTRIBUTES OF THE DECISION MAKING TREE

This decision is depends upon various attributes. The attributes are income, expenditure and responsibilities on the person. And many hidden attributes are present. As we already seen the main attributes are income, expenditure and responsibilities on the person.

A.1 HIDDEN ATTRIBUTES

The attributes which are not visible immediately, it has to be taken in consideration while taking the decisions are as follows:

- Future uncertainty
- Cost of Living differences
- Type of Job
- Age
- Family background
- Bank account History

As it is seen that the topic is very popular and interested to all the people hence so it quite easy to find the hidden attributes. Which is not the case every time i. e. most of the time it is really very difficult to find hidden attributes.

If there are many hidden attributes and complicated case then searching the hidden attributes is very problematic and tricky. According to the “study reported in International Journal of Decision Support Systems”^[13] and Multi-Criteria Decision Making: A Comparative Study^[14] the investigation was undertaken. There are 3 main methods

- The weighted sum model (WSM)
- The weighted product model (WPM)
- Two variants of the analytic hierarchy process (AHP)

These topics are related to statistics which is generally not discussed in computer science. These methods can be used as per need base so that decision tree can be prepared.

There are many soft-wares available for statistical software available which can be used to prepare the decision tree. So to find the solution of multiple criteria of decision making problem WSM is widely accepted and used.

VI. CONCLUSION

The decision making with multiple dependent attributes does not have any unique / single solution. There are multiple solutions with different options and benefits. So based on situation (business need) any solution must be selected from the set of the solutions.

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