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Decision making in share market using pruning algorithm

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Abstract

In this paper we are focusing on removal of uncertain data in share market. The accuracy in decision making can be improved by decision tree classifiers. The paper includes the construction of decision tree and further pruning algorithm is applied. Pruning algorithm deals with removing the uncertain data. In share market uncertain data is the share values of the companies which are in loss. Decision tree is one of application used for decision making but it increase the size of tree structure which is difficult to understand the end user. To reduce this difficulty we use pruning algorithm. This algorithm helps to take decision in share market by removing uncertain data which increases accuracy and reduce the time to take decision. In this paper we are improving the time efficiency by using tree pruning technique. The main outcome of this investigation is a set of simple pruning algorithms that should prove useful in practical data mining applications.

Keywords: "Share market, Binary decision tree, Top down approach, Pruning algorithm,"

1. Introduction

Most of the trading in the Indian stock market takes place on its two stock exchanges: the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE).

The stock market can be a great source of confusion for many people. The average person generally falls into one of two categories. The first believe investing is a form of gambling; they are certain that if you invest, you will more than likely end up losing your money.

As we saw share market update regularly that means the value of shares are changes with respect to the time and continuously. We are design the system which used to help for making decision about investment OT divestment. We are taking data from NSE, BSE and NIFTY which helps us to take reading of stock market. We focusing only the up and down values of share also the reason of up-down of share as well.

The existing system consist the decision table in share market where the different fields are

- 1) Company name.
- 2) Share value.
- 3) Status.
- 4) Website
- 5) Date

But when the size of table increase the complexity in decision increases,so the proposed system consist the Binary decision tree to improve the efficiency in decision making.

2. Binary Decision Tree:

The decision tree is helpful for taking the accurate decision in share market.the decision tree can easily understood by non professional users. Both nominal and numeric input attribute handle by the decision tree. Decision tree representation is rich enough to represent any discrete value classifier.

Decision trees are considered to be a nonparametric method. This means that decision trees have no assumptions about the space distribution and the classifier structure.

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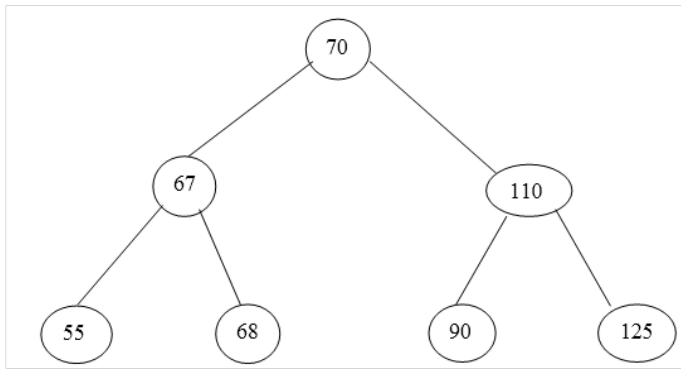


Fig1: Binary decision tree

In above figure if TCS share is taken for comparison then the companies which are having less share value than TCS will move towards left and vice versa. Above share value is come from the invest table. In update table admin add the new company in invest table.

Therefore the following are the Disadvantages:

1. Most of the algorithms require that the target attribute will have only discrete values.

2. As decision trees use the “divide and conquer” method, they tend to perform well if a few highly relevant attributes exist, but less so if many complex interactions are present.
3. If the size of tree increases the complexity of decision tree increases.

3. Authentication:

Here we are using the encryption and decryption technique for login password.

Encryption:

Encryption is a way to enhance the security of a message or file by scrambling the contents so that it can be read only by someone who has the right encryption key to unscramble it. For example, if you purchase something from a website, the information for the transaction (such as your address, phone number, and credit card number) is usually encrypted to help keep it safe. Use encryption when you want a strong level of protection for your information.

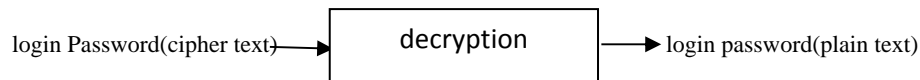


Fig2: Encryption

Decryption:

Decryption is the reverse process to Encryption. Frequently, the same Cipher is used for both Encryption and Decryption. While Encryption creates a Ciphertext from a Plaintext, Decryption creates a Plaintext from a Ciphertext. Decryption is the process of decoding encrypted information so that it can be accessed again by authorized users. Data may be

encrypted to make it difficult for someone to steal the information. Some companies also encrypt data for general protection of company data and trade secrets. If this data needs to be viewable, it may require decryption. If a decryption passcode or key is not available, special software may be needed to decrypt the data using algorithms to crack the decryption and make the data readable.

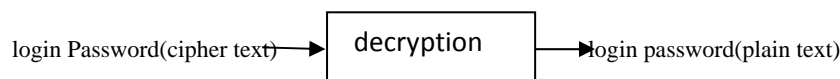


Fig3: Decryption

4. Proposed system

Decision table is very useful for creating binary decision tree

Table 1: update table

Company name	Web site	status	sector	rating	Share value
TCS	www.tcs.com	average	IT	****	110
Wipro	www.wipro.com	loss	IT	**	70
Spytech	www.spytech.com	profit	IT	*****	156
L&t	www.lt.com	average	Finance	****	94

Decision table can be updated by admin. The information of update table is stored in database it consist of company name, web site, status , sector, rating, share values. The companies can be dynamically added in the update table.

5. Pruning algorithm:

If you want to apply pruning algorithm,first substract bear value from your root value. Below pruning algorithm value,they are all remove.Only above value is shown.

Input: Companies share values (15, 35, 84, 75, 22, 56)

Output: a decision tree.

Step I: consider X as root value.

Step 2: for(i=0;i<n;i++)

```
{
if X> company Share value
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Then

Share value is goes to left side.

Else

The share value is goes to right side

Step3:Apply pruning algorithm.

a) Consider b as variable

Where b=Bear value in percentage

b) Calculating the share value

Formula:

$c = (b/100) * \text{root value}$

c) $v = \text{root value} - c$

d) Comparing of share value with v

for(i=0;i<n;i++)

if $v > \text{share value}$

then prune the value from the tree.

Else print the tree

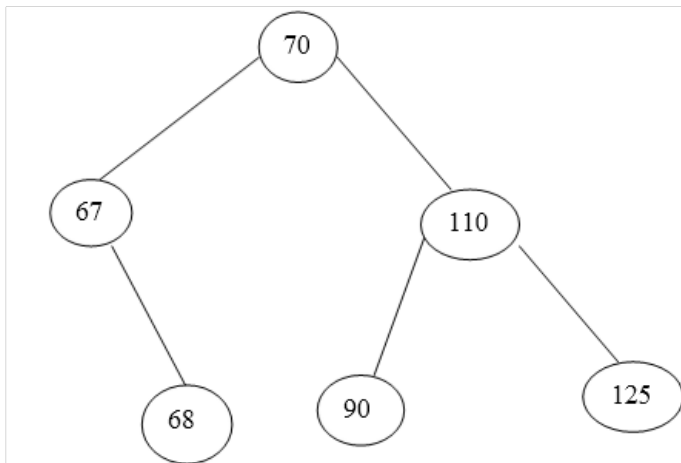


Fig 4: After pruning algorithm

6. Top down approach:

A **top-down** approach is essentially the breaking down of a system to gain insight into its compositional sub-systems. In this approach the comparison is done from up to down.

In this paper the binary decision tree is drawn on the basis of top down approach. This approach has several advantages:

- 1) Easy to implement.
- 2) Time required to draw tree is less

7. Strength:

- 1. Can generate understandable rules perform classification without much computation.
- 2. Provide a clear indication of which fields are most important for prediction or classification.
- 3. Most effective method to deal with over-fit in decision tree based machine learning process.
- 4. Accuracy in decision
- 5. Reduce time to take decision

8. Conclusions:

Pruning perform well and can influence the accuracy of classification and complexity of tree structure. The main thing to be considered while choosing classification algorithm is about high accuracy of classification, in order to describe that

we need some acknowledgement about the circumstances of misclassification of instances that will significantly affect the quality of algorithm. To archive the best algorithm with simple tree and high accuracy we considered about pruning method and how it work inside the algorithm to make sure algorithm generate simple tree with good result and also avoid high percentage of misclassifications.

The main use of paper is to analyze for handling uncertain data in share market and shows different techniques and algorithms to do so. It also shows the accuracy through pruning algorithm, based on rough set theory and decision tree, the problem that is being threshold in the decision tree is solved. Conventional pre pruning methods are very efficient but not always as accurate as post pruning method.

9. Result set:

The existing system in share market consist the large set of data which increases the size of table and time taken for decision making. The perspective of todays world is to get results in seconds so binary decision tree concepts are very helpful in accurate decision taken for shares.

Further we have included the concept of pruning algorithm to reduce the size of binary decision tree. In pruning algorithm the comparison to root values is made and the final tree is drawn. The faster classification can be done and précised shares can selected which will to maximize the profits to end users

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