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Application and Effect Analysis of Think Tank Information Processing Technology in Cultivating Strategic Research Talents in Enterprises

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Abstract: This paper focuses on the application and effectiveness analysis of think tank information processing technology in the cultivation of enterprise strategic research talents, emphasizing the solution to the current problem of insufficient data analysis and value mining of think tank information. By adopting think tank information processing technology based on adjoint data collection and decision tree algorithm, a fully structured think tank information system has been constructed, covering four levels: system, service, data, and application, to provide a more comprehensive and efficient information management and analysis platform. Especially, information processing methods based on decision tree algorithms can efficiently and accurately classify talent quality characteristics and match positions, thereby achieving personalized, precise, and real-time talent cultivation. The experimental results of this method show encouraging results, with an extremely high level of accuracy, providing technological innovation and support for the cultivation of strategic research talents in enterprises.

1. Introduction

The value of think tanks in today's business environment is increasingly prominent, not only because of their crucial role in strategic research, but also because they constitute one of the core pillars of enterprise competitiveness. The management of enterprise think tanks faces various challenges, among which the most significant problem is the lack of systematization and efficiency in data management, which leads to a large amount of precious data not fully realizing its potential. Especially in the field of talent cultivation, the valuable data potential contained in think tanks has not been fully explored, which directly affects the accurate evaluation and precise job matching ability of enterprises for talents. To address this issue, utilizing advanced information processing technology to deeply explore the potential value of think tank data and effectively apply it to various aspects of talent cultivation has become an important issue that enterprises urgently need to solve. This article aims to explore the innovative application of companion data collection and decision tree technology in think tank information processing, in order to achieve accurate classification of talent evaluation and job matching, and provide enterprises with better talent management strategies and practical paths.

2. Related Research

Accompanying data collection technology refers to the system collecting relevant data simultaneously when users engage in certain activities or operations. The advantage of companion data collection technology lies in its ability to achieve real-time, comprehensive, and automated data collection, providing a richer and more accurate foundation for data analysis and application. RW Hapsari used descriptive qualitative data analysis and triangulation methods for validity testing in his research [1]. These methods include the steps of restoring, presenting, and drawing conclusions from the data. In the data analysis stage, researchers first perform data restoration processing, then present the data and finally draw conclusions. YC Chen and his team used lightweight encryption tools to establish an outsourcing decision tree classification model in their research [2], aiming to protect data privacy. They considered the trade-off between communication frequency and computational cost in their design to reduce the cost of cloud servers and users.

RP Hastuti and his team proposed a method to solve the limited corpus problem in their research [3], which involves using reinforcement learning algorithms in the formation of selection trees. This algorithm associates the given seed phrase with the input of the tree LSTM model during sentence generation, effectively addressing the challenges of limited corpus. Wang Y and his team have practical significance in studying a student information management decision system based on decision tree classification algorithm in the article [4] , introducing the optimization of decision tree classification algorithm.

3. Accompanying Data Collection Technology

3.1 Architecture of Think Tank Information System Based on Adjoint Data Collection

Data collection is the foundation for achieving information flow and evaluation accuracy in think tank information processing and talent evaluation. Effective evaluation of talents in think tanks requires systematic dynamic learning and meticulous data analysis in order to obtain accurate information on talent quality. The construction of a think tank information system should be systematic and flexible, including a multi-level system architecture that can adapt to the needs of different training scenarios and data types. From classroom teaching to practical operations and case analysis, data collection and analysis in different scenarios need to be targeted to ensure the comprehensiveness and accuracy of the evaluation. This kind of think tank information processing system can achieve intelligent classification of talent quality characteristics, thereby providing accurate talent evaluation and training plans for enterprises. The implementation of this method helps to improve the efficiency and quality of talent evaluation, providing stronger support for the strategic development and talent management of enterprises.

3.2 The Generation and Calculation Process of Decision Trees

The core of the decision tree algorithm lies in its method of node partitioning selection, aiming to construct an efficient decision tree model based on information gain from data samples. Establishing a high-quality training set is pivotal, directly impacting the accuracy and robustness of the decision tree model in real-world applications. The process involves searching for initial nodes and classifying each node while considering data diversity and complexity to fully leverage data potential. While the decision tree algorithm's flowchart outlines its logic and steps, practical implementations often require fine-tuning and optimizations tailored to specific data characteristics and contextual nuances. This adaptation is crucial for enhancing classification performance and predictive capabilities. Figure 1 illustrates the calculation process of the decision tree algorithm.

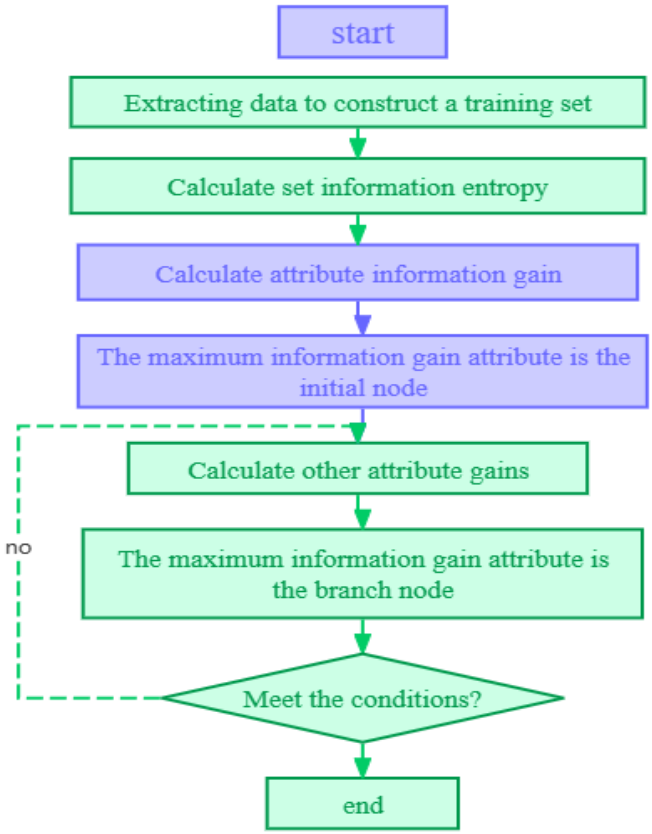

Figure 1: Decision Tree Algorithm Process

3.3 Think Tank Information Processing Based on Decision Tree Algorithm

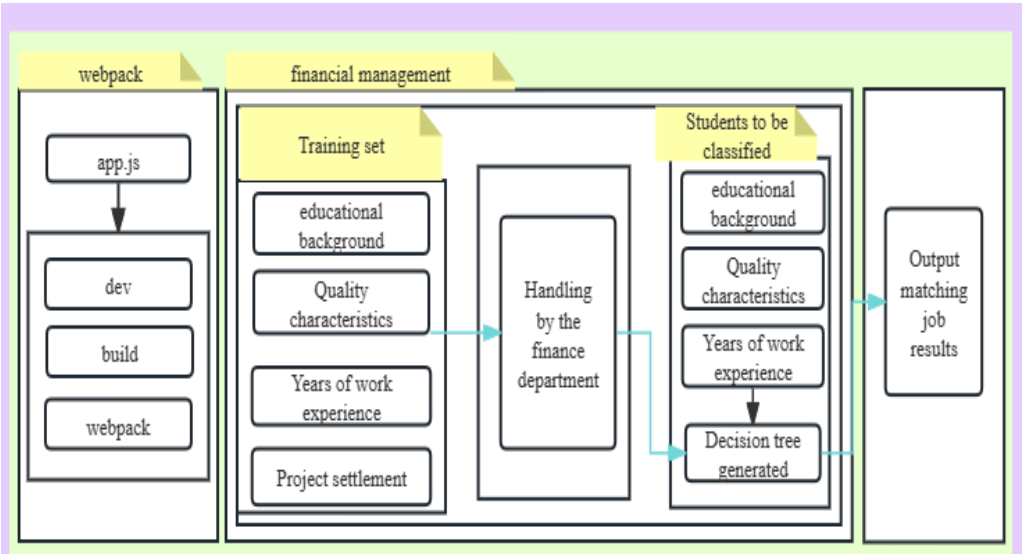

Figure 2: Information processing methods for think tanks

This study explores the application of adjoint data collection and decision tree algorithms in think tank information processing. By using these techniques, researchers have developed a talent classification method based on decision tree algorithms, aiming to more effectively evaluate and

classify the talent characteristics of students, as shown in Figure 2. The uniqueness of this method lies in its utilization of the dynamic nature of adjoint data collection, which can update and adjust the decision tree model in real-time with changes in data, thereby improving the accuracy and practicality of talent classification. And by matching the student's data information with the generated decision tree model, this method can quickly output talent classification results, providing strong support for talent cultivation and management.

4. Example Analysis

4.1 Generation of Decision Trees

In order to evaluate the effectiveness of the think tank information processing method based on adjoint data collection and decision tree algorithm, we selected the power think tank as the experimental object and randomly selected 10 students as the training set. In the process of constructing a decision tree, our focus is on selecting the quality features with the most information gain as the initial nodes, and then determining the branch nodes by calculating the information gain of other descriptive attributes, continuously iterating to generate a complete decision tree structure. The generated decision analysis tree is shown in Figure 3.

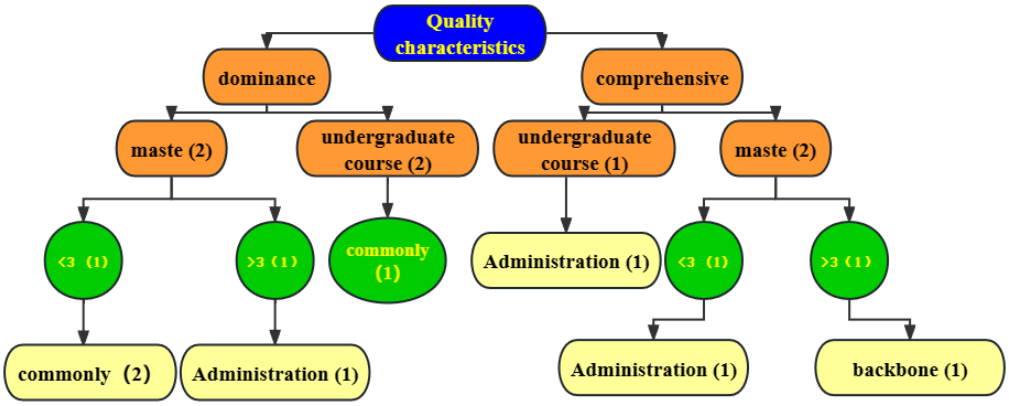

Figure 3: The generated decision analysis tree

4.2 Application of Decision Tree

Table 1: Job Matching Results

Student ID		1	2	3	4	5
Years of work experience		1	0	1	1	0
educational background		0	1	0	1	1
Quality characteristics		2	0	2	0	2
Matching positions	forecast	1	0	1	2	1
	actual	1	0	1	2	1

Using decision trees for job matching is an effective method, which can better understand the adaptability and abilities of students by analyzing their educational background, work experience, and quality characteristics. The advantage of this method is that it can systematically combine various factors to form a comprehensive evaluation system, rather than relying solely on the evaluation of a single factor. During the matching process, it is important to note that the decision tree can gradually refine the matching results based on the characteristics of the learners, which is very helpful for personalized matching. By testing 200 students and verifying the accuracy of the

results, the feasibility and reliability of this method were further confirmed. The job matching results of some students are shown in Table 1.

5. Conclusion

This study aims to explore the practical application and effectiveness of think tank information processing technology in the cultivation of enterprise strategic research talents. A method based on adjoint data collection was established by combining adjoint data collection and decision tree algorithm.Our think tank information system architecture aims to address the challenges faced by enterprises in talent management. The key is to use this technology to achieve precise matching between talent quality and job positions, in order to improve the efficiency and quality of talent cultivation. The experimental results show that the proposed method has a matching accuracy of 99%, providing a feasible technical approach for enterprises. However, it is also recognized that this is only a starting point, and future research needs to further explore the potential applications of think tank information processing technology in talent cultivation, performance evaluation, and other aspects, in order to promote further development in the field of enterprise talent management.

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