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Financial Big Data Mining and Analysis of the Teaching Reform and Exploration based on the Online and Offline

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Abstract

This paper aims to the financial data mining and analysis of the present situation and the problems existing in the teaching process are analyzed, and from education courses, experimental course arrangement, online teaching mode, experimental effect evaluation of curriculum teaching reform, in order to better improve students' interest, cultivate students Internet thinking, enable students to skillfully use big data mining to solve financial problems. The mixed teaching based on online and offline ideas can expand the benefits of high-quality teaching resources, improve students' interest in learning, enhance the teaching effect, and improve the teaching quality of the economics curriculum group.

Keywords

Online and Offline Teaching; Financial Big Data Mining and Analysis; Teaching Reform.

1. Introduction

In the Internet era, every time we tap the keyboard, click the mouse, and visit the network resources, we constitute a part of the big data, which may be mined, analyzed, used, or help enterprises to analyze a certain trend and complete a certain interaction or decision. Big data is the latest trend in the development of human technology. Especially in the financial field, the essence of data analysis is to reveal the laws behind the data and make the data generate value. In addition, the knowledge scope of financial big data mining and data analysis includes computer science, statistics and professional knowledge in various fields, and the research focuses on the modeling, analysis and prediction of data based on practical problems[1]. In addition, with the development of AI and other high technologies, it has had a significant impact on the economic and financial fields, making people have a more profound and comprehensive understanding of artificial intelligence. In order to adapt to the needs of the country for artificial intelligence and financial field, artificial intelligence, especially big data technology talents in the future, many well-known enterprises significantly indicate the need of big data mining technology talents in the process of recruitment. Therefore, many colleges and universities have successively launched the course of big data mining and analysis technology. In the face of students' diversified needs for classroom learning, the online and offline teaching mode is called a teaching mode favored by learning. Therefore, in order to better meet the learning requirements of students and further cultivate high-quality talents, improve students' ability to analyze and solve problems with big data mining technology in the future work, it is imperative to analyze the problems in the teaching process of big data mining and analysis and reform these problems.

2. Introduction to the Financial Big Data Mining and Analysis Course

As the core courses of finance, fintech and Internet finance, financial big data mining and analysis will play an important role in the specific work in the future. Financial big data mining and analysis is to use Python technology to solve practical problems, so that students can

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understand the important application of data analysis and data mining in the financial field, so that they can use the basic methods of data mining and analysis to carry out practical work and research in the financial field, and have the foundation and ability of further learning. Learn the basic methods of data acquisition, refining, cleaning, preservation, visualization and analysis in the financial field, as well as the basic methods of data mining. For finance professional service the first line, heavy application, strong technology training objectives, through the study of this course can let students master the literature retrieval, data query, data processing, the ability to solve practical problems, through the theoretical teaching and practice operation let students more understand and master the main knowledge of financial data mining framework and mainstream analysis tools, to better adapt to the rapid development trend of financial technology, training with theoretical accomplishment and practice of senior specialized talents, boost the goal of financial power.

3. Current Status Quo of Financial Big Data Mining and Analysis Courses

With the rapid development and practical application of artificial intelligence, big data and other new technologies in the financial industry, in order to keep up with the pace of The Times, to cultivate cross-cutting talents to meet the needs of the society[2]. To further cultivate students' ability to use big data mining professional technical tools in practical work, and to lay a solid foundation for the continued development in the field of artificial intelligence and big data in the future. Our school offers a financial big data mining and analysis course based on Python, hoping that students can understand and learn more practical application technologies related to the large data, and be able to skillfully use data mining technology to solve the problems encountered in the future work. However, there are the following problems in the specific teaching process of this course:

3.1. Lack of Thought and Lack of Attention to the Curriculum

Although financial big data mining and analysis is finance professional courses, in the whole undergraduate course stage has a very important position, but because the students are economics students, no computer professional knowledge reserves no computer thinking ability and problem solving way of thinking, some students even the first contact with the course face to write code such courses in psychological fear[3]. At the same time, without further learning, many learning objectives are not high, that is, 60 points. It is difficult to truly understand the importance of financial big data mining and analysis course, and do not correct in thinking, and lack a correct understanding of the course. It can be understood that in the specific teaching practice, students are limited to simple operation of the course, and do not want to study and not practice the complex and difficult operation. In the specific operation process, the chapter tasks cannot be completed in time and successfully, which will affect the teaching practice of the course.

3.2. The Foundation is not Solid to Carry Out In-depth Study

The course content mainly use the software is Python, as finance, financial technology, Internet and other financial professional students have no Python foundation, no Python thinking in the process of learning specific feel difficult, all kinds of code and specific functions do not understand, will not use more not write practical code, also can feel in the specific operation of the abstract logical relationship between code. Especially about regular expression, database interaction cannot really understand, if not in the subsequent teaching of Python foundation have better in-depth study for large data mining and analysis course learning effect cannot achieve the desired goal, more cannot achieve in the specific work for the use of large data mining technology and professional ability to deal with more complex problems[4].

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3.3. The Single Teaching Mode is Unable to Achieve Diversified Learning Needs

The traditional offline financial big data mining and analysis course mode mainly includes two links: classroom teaching and homework. In the teaching process, the teachers can understand the students 'specific ability and level of mastering the knowledge through the students' classroom performance and the operation of the specific code. This teaching method is a more traditional and direct teaching method, but it will reduce students' participation in class and interest in learning. For the key and difficult points, the effect of repeated learning cannot be achieved, and the knowledge points can not be further strengthened and consolidated. In addition, the disadvantages of simply teaching by online learning means are also more obvious. Online teaching relies on superstar learning and other learning. Although it can improve the initiative and enthusiasm of learning, it cannot enable teachers to master the specific learning situation of students and the code operation ability, and cannot ensure the formation of a "learning-feedback-correction" learning closed loop. Further, it is impossible to apply what we have learned, nor to solve specific practical problems, and unable to train application-oriented undergraduate graduates.

3.4. The Experiment Content Cannot Be Connected with the Actual Work, and Cannot Cultivate the Ability to Solve Problems

Current course experiment content is mainly given priority to, due to the textbook and the actual work has a large decoupling, part of the experiment is simple and boring, unable to really grasp the essence of data mining and analysis, and experiment link many students knowledge of book code simple copy, at the same time did not understand the logical meaning of the code there is no way to extrapolate for docking practice. In particular, students are given some specific experimental homework related to real life and work. Students feel that they have no ideas, do not know how to deal with the code grammar and grammar format errors written frequently. It can be seen that the content of the experimental class does not achieve the targeted practice operation for the students, nor can it train the logical thinking ability and big data mining ability.

3.5. The Course Investigation Form is Single and Cannot Reflect the Learning Process of Students

The assessment of financial big data mining and analysis courses is various tests for the course objectives during and after the teaching process, including but not limited to process tests, formative tests and summary tests, and analyzes the test results to determine whether the learners meet the requirements of the course objectives. At present, the financial big data mining and analysis courses are: total score = process score (40%) + final score (60%); process score = student attendance (50%) + completion of experimental projects (50%). Final through the form of experimental report to complete, mainly to let students make the experiment to achieve the purpose to reflect the students for the understanding of large data mining and analysis and code editing, data processing ability, but found in the process of concrete, unable to monitor the student experiment process, unable to ensure that the experiment process is independent, also unable to mobilize the initiative and enthusiasm and innovation ability[5].

Then, in view of the existing problems of financial big data mining and analysis of the course, in order to better implement the talent training program, it is crucial to carry out in-depth teaching reform of the course.

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4. Financial Big Data Mining and Analysis (Python) Curriculum Teaching Reform and Exploration

In order to be able to targeted for students' data mining ability and cultivate learning interest, improve teaching quality, makes the students can not only learn skills offline and can also can learn online Python data mining skills, combined with the work in the enterprise and these years of teaching experience of this course, from the following online explore the course reform:

4.1. Students 'inner Recognition and Teachers' Reasonable Arrangement

In order to be able to better grasp the content of the course, teachers should always let the students understand the importance of this course, especially in the first class combined with realistic demand and future work introduced financial data mining and analysis of the importance of the course, especially in the artificial intelligence, makes the students in the thoughts and inner recognition of this course, only learn the course can stand out in the job, and cause attention and inspire learning enthusiasm. At the same time, as a teacher, I should arrange the teaching content reasonably. The total class hour of the course is 36 hours, including 12 periods of knowledge explanation and 24 hours of experimental course. In order to meet the learning requirements of students, we should try to add some practical operations in the class hours of knowledge explanation to meet the students' enthusiasm for learning and help students to solve the difficulties in the process of actual code operation.

4.2. Mixed Online and Offline Teaching Mode is Adopted

At present many students prefer to accept mobile phones, computers or other electronic devices to learn, in order to adapt to the characteristics of students' learning, combined with the financial data mining and analysis of course characteristics, also in order to further improve the teaching quality, the course should improve the teaching method, adopt the method of combining online and offline, to eliminate the students in learning time and space, make up for the past "teacher-student" teaching mode. The specific approach is as follows: online learning is relying on school learning through. Firstly, explain and design some courses for the key contents of each chapter, theoretical knowledge points and some problem operations; secondly, demonstrate the installation and learning and libraries encountered in the operation; and explain some operations (such as extracting the title, website, date, and source on the company consulting page) as a supplement to offline classes; finally, assign homework and topic discussion to further consolidate the effect of learning. Offline courses are mainly arranged. Firstly, the review of online learning can prevent poor online learning; secondly, the main experimental operations and the students' practice; finally, the problems that the students encounter in online learning. Through the combination of online and offline learning methods, we hope that not only can ensure the time and efficiency of learning, stimulate students' interest in learning, but also can achieve the teaching purpose and talent training requirements.

4.3. Reasonably Select Cases as Experimental Projects According to the Actual Situation

The experimental project of financial big data mining and analysis course should not only reflect the cultivation of students 'programming thinking, but also reflect the students' ability to solve practical work and practical cases. In this way, it can not only stimulate students' enthusiasm for learning, but also can easily deal with similar problems in the future work. For example, can arrange extraction with selenium library web automatically voting case, the Shanghai stock exchange, the tide of net automatically climb PDF file, and then analyze the PDF file, extract the required data and visual analysis and so on these operation cases can not only stimulate students' learning enthusiasm can also test the overall learning effect, also gave the students a lot of independent time for independent innovation.

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4.4. Scientific and Diversified Assessment Methods

The final school effect of a course is directly reflected in the final assessment, and the assessment method not only affects the students' performance, but also affects the learning effect of the course. Therefore, it is very important to design a set of relatively scientific and diversified assessment methods. The characteristics of online and offline teaching should not only include offline results, but also include online results. Total score = process score (40%) + final score (60%); process score = student attendance (50%) + completion of experimental items (50%). In the past, too much attention was paid to offline scoring, hoping that the proportion of online and offline will be equally important after the reform. In the process score, students' attendance should not only include offline roll call but also online learning and learning time. Experimental projects include not only offline operation, but also online assignments and operations. At the same time, in order to ensure fairness, each experimental operator requires that the students not to have the same company when crawling the big data of the company. Can be selected in thousands of listed companies without the same company; the experimental report requires the person to complete independently. In this process, encourage each student to try to various ways to solve the actual financial big data mining and analysis related problems, so as to cultivate their logical thinking ability and can cultivate students' innovation ability. In the learning process of students 'problem solving ability and consciousness is basically need to in the whole course learning process to explore and cultivate, especially in the project of the practice training, can further cultivate students' programming ability and data mining and data visualization, analysis, especially for the cultivation of interdisciplinary thinking ability and solve problems in different areas are of great help. Another financial data mining and analysis (Python) the assessment of the course starting point and the ultimate goal is to improve students 'ability to solve problems, especially the assessment of the experiment report analysis encourages students to learn the theory combined with their own operation language analysis, to trigger the students' deep thinking of the course, improve students of financial data mining and analysis of understanding and application ability.

5. Conclusion

Today, with the rapid development of artificial intelligence, all walks of life are undergoing changes. Only innovation can win through innovation, and only innovation can become stronger, especially in the education industry. In the face of students born after 2000, their proficiency in information technology is unimaginable for us, and they are more dependent on information technology. In order to get closer to the students and enhance their enthusiasm for learning, the curriculum reform of financial big data mining and analysis (Python) is imperative. In this reform, we should not only pay attention to the traditional offline class form and pay more attention to the innovation and excellence of the online class form. As a professional course of finance, technology finance and Internet finance, financial Big data Mining and Analysis (Python) not only reflects its importance, but also lays a foundation for future employment, especially the processing of related data combined with artificial intelligence. Therefore, this paper combines years of teaching experience and process, discusses the reform of online and offline mixed curriculum of this course, deeply cultivates teaching design, reforms teaching methods, integrates the latest teaching methods, and insists on implementing the teaching content into concrete practical practice. Give full play to the teaching advantages of Superstar learning tong, diversified teaching and assessment methods. In the mixed teaching design based on online and offline mode, with the advantages of mixed teaching, online high-quality video resources are organically integrated with offline traditional classroom teaching, and the mixed teaching mode of financial big data mining and analysis course group is

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constructed. Through the idea of "setting expected learning results- -reverse teaching design- -achievement evaluation- -correcting expected learning results and teaching design", the achievement oriented and reverse teaching design are highlighted, and the expected learning results and teaching design are revised according to the evaluation results, so as to form a virtuous circle of online and offline. In short, the mixed teaching based on online and offline ideas can expand the benefits of high-quality teaching resources, improve students' interest in learning, enhance the teaching effect, and improve the teaching quality of the economics curriculum group. Finally, I hope to stimulate students' enthusiasm for learning this course, cultivate compound talents and innovative application ability, and further improve the teaching and research work on the basis of online and offline teaching process.

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