

Research on the Course Teaching Reform of Advanced Application of Databases

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Received: April 1, 2022

Accepted: April 21, 2022

Online Published: April 29, 2022

doi:10.20849/aes.v7i2.1136

URL: <https://doi.org/10.20849/aes.v7i2.1136>

Abstract

Advanced application of databases is a comprehensive new curriculum involving computer science, mathematics, informatics and management. Students are required to master more database-related knowledge. It cultivates students' database programming ability. However, as far as the current arrangement of advanced application courses for the database in undergraduate colleges and universities is concerned, the practical content of some schools is still relatively backward. This paper mainly aims at the problems existing in the practical teaching of the advanced application course of the database, and puts forward specific suggestions for improvement and corresponding measures.

Keywords: database, teaching reform, practice, teaching content

1. Introduction

Advanced application of databases is a very important course as a professional compulsory course for undergraduate university software engineering students (Liu, L.-B., 2021). It aims to cultivate students with professional talents with database application development. Through the study of advanced application of databases course, students are proficient in the design, development and application of the database management system information system and the background database platform, and achieve the professional quality of database application development engineers (Du, X.-J., & Yang, B., 2021). Based on my teaching experience in the advanced application course of databases in recent years, in view of some problems in the teaching process, mainly from the reality of the teaching practice of the course, I put forward some suggestions for the improvement of teaching practice methods, so as to improve students' understanding of the advanced application course of database and their learning interest (Xue, W., 2021).

2. The Current Course Status of the Advanced Applications of Databases

2.1 The Content Is Stale

Traditional database textbooks mainly explain the basic operation of databases, database structured query language, and relational database theory. Due to the early preparation of the textbook, many of these theories and techniques have rarely been applied in practice, and most of the programming and commands in the textbook are difficult for students to understand. Judging from the reactions of students in the teaching process, many students are in a confused state of learning and gradually lose interest in learning.

2.2 Less Time for Practical Teaching

In addition to the outdated teaching content of the database advanced application course, many colleges and universities have not arranged a large number of database advanced application practice teaching content, which is also an important reason for students' unstable grasp of relevant knowledge points and unclear understanding. The course has less practice time, which will make some students go to the Internet to find relevant topics for copying and modifying in order to complete the task, and have not experienced the process of database programming system development. Theory comes from practice and is applied to practice, and practical courses are an important means to exercise students' hands-on ability, and are also the main ways for students to deepen their understanding of database concepts and contents. Therefore, it is necessary to increase the practical teaching time of this professional practice course.

2.3 Students Are Not Strong in Basic Knowledge

In addition to the two reasons mentioned above, there is also a very important reason that many students do not have a solid grasp of the basic knowledge in the early stage. Database advanced application course students need to take advanced courses such as C language, JAVA language, data structures and database principles, etc., some of these courses are opened in the first year, some are opened in the second year (database advanced application is generally opened in the second semester of the third year), students usually encounter these professional basic courses are not well understood or have forgotten a lot of knowledge, so in this case, students learn database advanced application courses will be quite difficult.

3. Practical Teaching Reform Proposals

3.1 Update the Teaching Content of the Theory Class

According to the actual needs of the development of software engineering majors, guided by the development of the times, update the content of the advanced application theory course on databases, focusing on the basics of SQL/PL programming, stored procedures, functions, triggers, packages and advanced queries. In the course of teaching, the introduction of database knowledge is carried out with actual course cases, which is convenient for students to understand and master the knowledge points, and the previous typical addition, deletion, deletion, and correction cases can also be appropriately mentioned. The cases of student practice in the experimental report should also be carefully designed, combined with the actual database application, and cultivate the basic ability of student database management and development. Advanced database application is a course involving cryptography, computer science, mathematics, electronics and other disciplines of professional fields, it requires the teacher's own professional knowledge is very extensive, therefore, the professional quality requirements of the main teacher are also very high. The main teacher must master these professional knowledge in all aspects of his own, and be more updated to understand the latest developments in the database in order to better communicate it to students. This requires the teachers themselves to constantly recharge and update the existing knowledge.

3.2 Arrange Teaching Practice Time Appropriately

While explaining the theoretical courses, the relevant practical course content is arranged to exercise students' practical hands-on ability and deepen their understanding of the knowledge points related to the advanced application of databases. It is best to let students do their own programming, so that students can really theory the working principles and processes of database programming, and deepen their understanding of the physical structure and logical structure of the database and the understanding of the framework.

3.3 Schedule of Courses

Putting the advanced application of databases in the third year of the third year is a bit late in the schedule. After learning java language, data structures and database principles in the first and second year system, students can immediately enter the course of advanced application of databases, so that students can enter the state faster in their understanding of the previous knowledge points. It is beneficial for students to learn advanced database application courses, database programming, database management system development and other content. It is therefore necessary to adjust in the syllabus the academic year required for the study of the course Advanced Application of Databases.

3.4 Improve the Experimental Environment

Opening up the extranet is an issue that needs to be paid attention to. In this era of smartphones, the significance of disconnecting the laboratory extranet is really not so great. On the contrary, if the teacher creates several cases that can be used for students to experiment with, students can access them through the extranet and can practice them, which can greatly arouse the interest of students. At the same time, in the case of more students in the experimental class, and solving the problems of individual students is often time-consuming, the teacher may not be able to answer each student's questions in time. With the opening of the internet, students can easily search for the content they are interested in.

3.5 Reasonable Material Selection

In addition to the update of the teaching content of the theoretical course and the adjustment of the teaching practice, there is also an important aspect of the selection of advanced application professional textbooks in the database. Usually, a university textbook needs to be updated once in three to five years. If you use the same version of the old textbook for a long time, you will not be able to keep up with the trend of the times, especially the rapidly developing profession of software engineering. Therefore, in the selection of professional teaching

materials, it is also necessary to select appropriate teaching materials according to the continuous development of science and technology. Practical textbooks are best based on the cases that students have already learned to deepen the practice, starting from SQL additions, deletions, checks and corrections, to the basics of SQL/PL programming, to stored procedures, functions and packages, and finally to the design and development of database management systems according to JAVA programming. This allows students to have a deep understanding and practice of each stage of the application of the database.

3.6 Invite Relevant Company Personnel Introduces Instance Database

If the school allows, you can make full use of the school teachers' network resources, invite some professionals from database-related companies who understand specific examples, to explain to students the design and development of database systems, as well as the research on related products that are being carried out by related companies, and fully mobilize students' enthusiasm. If conditions permit, students can visit or participate in the development of the project products. Compared to the teaching of individual teachers, the positive impact of this form is enormous.

4. Application Prospect Communication of the Course

In the process of teaching, it is found that students often do not know what is the use of learning this course, nor do they know what aspects of work they can do, or which positions in which companies they can apply for in the future. Therefore, during the course of the class, students can be guided to tell what work they can deal with after studying this course, what kind of research they can do, or which universities they can go to to continue their studies in the field. These questions related to the students' vital interests can arouse great interest in students, so that students can be more active in learning.

5. Summary

The database advanced application course reform method proposed in this paper can not only effectively improve students' understanding of the relevant theoretical knowledge points of advanced application of databases, but also help cultivate students' hands-on operation ability, as well as students' mastery of the physical structure and logical structure of database language, which can help students understand and master the relevant knowledge points more deeply and improve their learning enthusiasm, and improve the teaching effect of teachers.

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