

Application of Case-based Teaching in Higher Vocational Computer Courses —A Case Study of Delphi Programming

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Abstract—The objective of higher technical and vocational education is to cultivate high-quality practical talents. During the teaching process of Delphi programming language, the author adopts the case-based teaching method with the student performance management system as an example, and leads the students to develop a complete small database management system and systematically master the knowledge on object-oriented programming language and database application development in the four-week practice, demonstrating the successful application of case-based teaching in computer teaching.

Keywords-case-based teaching; Delphi; database

I. INTRODUCTION

As a program developing tool towards objects, Delphi not only has a clear definition to encapsulation, inheritance, type and reload, but also has a strong ability in handling unusual questions. Delphi is active in data base sector because it applies component visualization based on the data base engine BDE which could support local and remote data

source, and ODBC connector. When it comes to local data base system, Delphi could visit both four standard data base such as Access, Paradox, Dbase, Text accordingly and other types of data base such as Informix, Oracle, Sybase, SQL Server, InterBase. When it comes to remote data base system, Delphi could rely on ODBC Drivers, SQL Link to load by BDE.

In the Delphi developing data base apply system in Picture One, Delphi visit remote data base by ODBC connector. ODBC is a mutual connector for standard data base provided by Microsoft based on C/S mode. It is able to save the data in different DBMS by standard SQL language. Delphi's mutual-operational capacity is significantly enhanced in this way. It makes the Delphi applying system separate from the DBMS logically which greatly increase the independence and maintainability of Delphi data base management system.

In addition, the version over Delphi 7.0 could visit data base system by ActiveX Data Objects (ADO) from Microsoft.

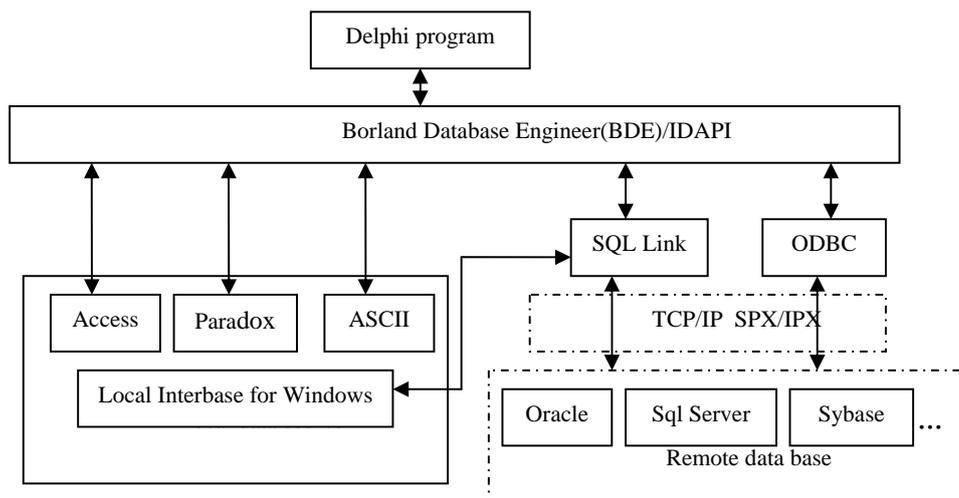


Figure 1. Delphi developing data base apply system

II .THE MEANING OF CASE-TEACHING METHOD

Case-teaching method is enlightening and practical. It's a new method which could develop students' intelligent,

enhance their ability to make decisions and improve their comprehensive quality. It coincides with the requirements that we should cultivate students' creativity and practical capacity and put them as priorities currently.

Case-teaching method has a relatively long history in medicine and jurisprudence, while not in the teaching area. More people start to apply case-teaching method in computing. As one of the teaching method, case-teaching has no certain definition. There only exists one definition raised by Lawrence which is comparatively acknowledged: Case is the record of a complicated situation. A good case is the one which brings a part of the real life to the class. Students and teachers could estimate the case and learn from it. The definition of case from normal education's aspect — pragmatic examples of some principles and key issues. In other words, case-teaching method applies typical examples in education. More specifically, it materializes the teaching principles, contents, and rules and it also makes them more typical which in turn makes students draw the conclusions acknowledged universally by studying and looking into each case. Case-teaching method makes our education put more emphasis on process instead of results. It also changes the stuffed-learning method in the past to active learning, cultivates students' thinking and knowledge-acquiring

ability, and motivates their interests in self-study. In a word, it fully aims at developing students' self-studying ability.

The teaching target in higher professional colleges and universities is to cultivate practical talents mainly with sophisticated techniques, especially in their ability of practice. Instead of applying the stuffed teaching methods, they will use the case-studying method to let the students gradually learn how to write data base system. Thus, they can master and understand the design language facing objects much deeper.

III DELPHI TEACHING PROCESS BASED ON CASE-STUDYING METHOD

Delphi is a visualized developing tool which could develop new ways as per the facing objects. Because of its BDE engine which could provide data base, abundant data base visits, operational controls and data base reporting tools, it makes the development of the data base applying program more sufficient. Delphi supports clients in three different levels to help them with their development of server applying program. Picture Two shows the structure of these clients and the program.

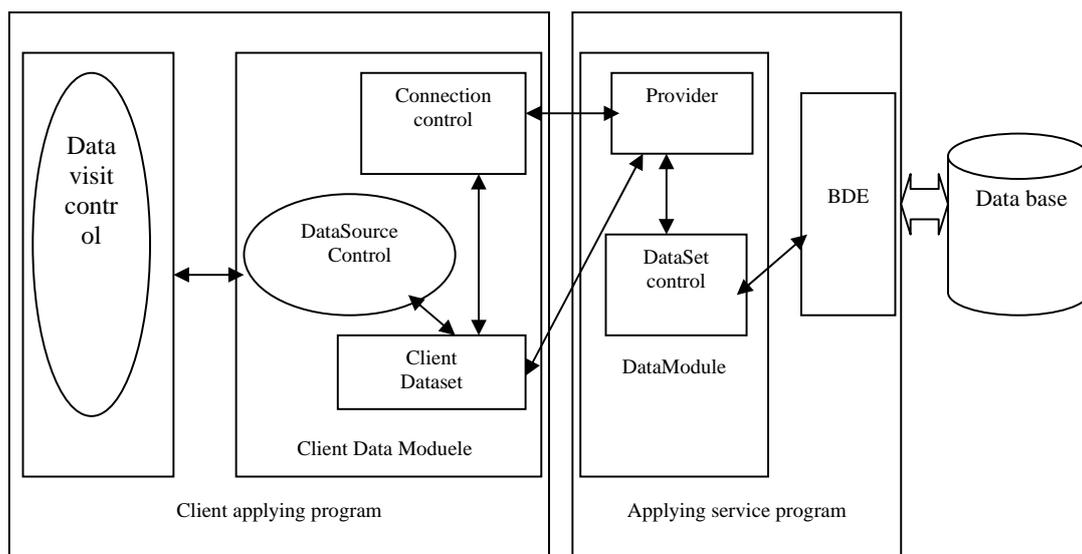


Figure 2. Three-layer client/server applying program structure

Delphi provides a data base engine BDE which makes it get access to nearly all kinds of database transparently. So it is easy to establish the connection between applying server and data base server in Delphi. We make further explanations by using the example of SQL Server data base server: First, create an alias in BDE. Second, set its Server Name, Host Name (Same in normal conditions), Database Name, User Name, Query Mode and so on. Then match the Database Name with the BDE alias in the data visit control in the applying server Remote Data Module. In this way you

can establish the connection between applying server and database server.

You can establish the relationship between applying server and client program in Data Module: First, let the data visit control Remote Server match a connecting component. Then match the Server Name from connecting component with the applying server accordingly. In the end, make settings of Provider Name of data visit control to establish the connection with the "broker"—Provider of applying server. After it the client program can use the applying server's incident-handling and planning programs.

The course of Delphi programming lies in the Picture Two. The author shows students the “Student Grades Management System” written by himself. The system disintegrates the functional parts, fully demonstrates the complete designation of database, let students make comparison between the Picture Two and the connection of database particularly and gives detailed presentation of the storage and operation of basic data

In the process of disintegration, we should focus on how this system reflects the three-layer structure, how they connected with each other, where should students start when they are going to develop a system and the developing procedure. In particular, Picture Two is the studying goal of Delphi. Students are going to learn a complete database management system rather than a single program.

Students will match the catalog with what they separated from Picture Two which gives them the basic knowledge of the development of a complete database system.

Case studying is the main method in the course of Delphi programming language from the beginning to the end. The example of Student Grade Management System is everywhere in this course. The author will give students new knowledge with practical examples, clear the studying goal, then teach them with certain aims according to the contents and attract their attention.

The course of Delphi programming language consists of 64 periods. In four weeks after finishing the course, 90 percent of the students from class one and class two have developed a small and relatively functional management system. They have almost acquired the basic theory and developing knowledge systematically. Especially during the development, they helped and cooperated with each other and made progress together which fully indicates the teamwork spirit. It is consistent with the professional education and higher professional colleges and universities’ goal of cultivating students’ operational ability.

V. CONCLUSION

Education revolution includes the revolution of teaching method, teaching mode and testing mode. The revolution of teaching method is a significant part in improving students’ quality. Here are the reasons:

- Cultivate the practical ability of students in higher professional colleges and universities. The case- studying of Student Grade Management System not only makes students know the principles and rules .etc of the Delphi programming language, but also cultivates their operational and practical ability. What’s more, it develops their ability of finding problems, estimating problems and solving them, equips them with teamwork spirit and self-study ability.

- Cultivate students’ ability of absorbing knowledge. On the one hand, the example of the Student Grade Management System makes students explore the common principles of Delphi programming from a single one to the whole, understand the inner relationship between

the phenomenon and reasons. On the other hand, students start to absorb the knowledge by understanding and mastering the contents. In the training process of case-studying, students not only get the solid knowledge, but also learn how to learn which benefits their whole life.

- Increase teachers’ motivation of self-study. The issues in case-studying have no fixed mode and answer. Teachers need to react to the questions or conclusions or even unusual issues during the discussion and estimation at any time. Thus, it requires teachers to broaden their knowledge and improve teaching ability in order to control the class in case of embarrassment. As a result, case-studying method both provides a good condition to the revolution of the teaching method and a better atmosphere for teachers’ self-development.

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