

DATA WAREHOUSE MANAGEMENT SYSTEM TRAINING METHODOLOGY

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Abstract: In this article, the methodology of training the data warehouse management system (DMS) is studied. With the development of modern information technologies, the development of effective methods of training DWMS specialists is gaining urgent importance. The article analyzes innovative pedagogical technologies, interactive methods and practical training methods used in the DWMS teaching process. In addition, students will be exposed to the directions of connecting theoretical knowledge of DWMS with practice, effective use of software tools, and introduction of problem-based learning methods. The results of the research serve to increase the effectiveness of education in teaching the subject of DWMS.

Keywords: Data warehouse, management system, teaching methodology, interactive education, innovative pedagogy, practical training, information technologies, theoretical and practical education, problem-based education, software tools.

Introduction

With the rapid development of modern information technologies, data warehouse management systems (DWMS) are widely used in various areas of society. The use of DWMS is important for the effective functioning of information systems. Therefore, the issue of DWMS training is one of the urgent issues in the training of specialists working in the field of information technology. This article considers the methodology for effective DWMS training, the importance of using modern teaching technologies, interactive teaching methods and software tools.

The role of DWMS in teaching

The main objectives of DWMS training are:

Teaching the concepts and basic concepts of data warehousing;

Formation of skills in working with Structured Query Language (SQL);

Providing practical knowledge in database design, management and optimization;

Preparing students to work with modern database systems (MySQL, PostgreSQL, Oracle, MS SQL Server, etc.);

Teaching methods for storing, processing and securing data.

DWMS teaching methodology

Effective DWMS teaching can be organized in the following areas:

1. Theoretical and practical integration

To effectively teach DWMS knowledge, theoretical knowledge and practical exercises should be integrated. Students are first taught theoretical concepts such as data models, ER diagrams, normalization and indexing, and then this knowledge is applied to real projects.

2. Interactive teaching methods

The following interactive methods are effective in teaching DWMS:

Case study: students analyze real-life problems and find solutions;

Project-based learning: students are divided into groups and develop data warehouse projects;

Gamification: increasing student motivation by introducing game elements into the learning process;

Table-based discussions: create opportunities for students to exchange ideas and consolidate their knowledge.

3. Independent learning and use of online resources

Independent learning and use of online resources create additional opportunities for students. The following platforms can be used for this:

MOOC (Massive Open Online Courses): SQL and database courses available on platforms such as Coursera, Udemy, edX;

YouTube educational channels: free video lessons on modern programming languages and DWMS;

Interactive exercises: perform practical exercises through sites such as W3Schools, SQLZoo, LeetCode.

Using information technologies in teaching DWMS

Modern information technologies help improve the DWMS teaching process. The following tools can be used for this:

1. Virtual laboratories

Virtual laboratories should be created to provide students with the opportunity to work on real servers. For example:

Working in a visual interface using MySQL Workbench and pgAdmin programs;

Configuring and using various database servers using Docker and VirtualBox;



Cloud services: working with remote databases using AWS RDS, Google Cloud SQL or Azure SQL Database.

2. Coding environments

The following programs and environments are effective in teaching DWMS:

DBeaver - a universal tool that allows you to work with multiple DWMSs;

SQL Server Management Studio (SSMS) - for working with Microsoft SQL Server;

Oracle SQL Developer - a convenient environment for the Oracle system;

DataGrip - a professional SQL environment developed by IntelliJ.

Problems in teaching DWMS and their solutions

The following main problems may be encountered in teaching DWMS:

Difficulties in students' mastering software tools - to solve this problem, video lessons and interactive laboratories should be widely introduced;

Students' difficulties in applying theoretical knowledge in practice - it is recommended to widely use real projects and case-study methods;

Lack of software and infrastructure - cloud technologies and open source tools can be used.

Conclusion

The use of modern pedagogical technologies in teaching DWMS, the combination of theoretical and practical training, the introduction of interactive methods and virtual laboratories play an important role in developing students' knowledge and skills. By applying these methods to the educational process, it is possible to practically prepare students and improve their professional qualifications. This article aims to summarize best practices in effective teaching of DWMS, and in the future, more in-depth research should be conducted in this area.

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