

## 摘要

随着信息技术的发展，信息化逐渐扩展到了校园管理、行政办公中，现有学生管理系统因其适应性问题已不能满足目前实际的需要。随着高校招生的增加，学生管理系统的复杂度越来越高，迫切需要借助计算机来实现学生信息管理和统计，更好的为师生提供服务。

论文在研究基于优先级回溯的排课算法的基础之上，使用UML建模语言进行业务建模与设计，基于Java EE平台研发出具有一定特色的学生管理系统，并具有较好的可靠性、可移植性和安全性。论文的主要工作如下：

(1) 分析当前环境下学生管理的业务应用流程，构建学生管理的业务模型，并进一步应用UML进行用例描述，系统建模与设计。

(2) 在传统优先级回溯算法基础上，提出基于优先级回溯的排课算法；该算法融入了实际院校的优先级选课因素，有效地提升了排课算法在实际中的应用，解决了资源冲突问题。

(3) 在前期需求与数据分析基础上，对系统功能模型进行进一步的设计，将Java EE技术应用到系统的研发过程，完成基础课程维护、学生管理、排课管理等核心功能模块，实现一套完整的学生管理系统。

论文进一步结合本校学校学生管理业务实践，将学生管理系统在全校推广试运行，取得了较好的成效。该管理系统上线运行大大地改善了学生管理工作效率，为学校节约了大量的人力、物力，增强学生、班级、教师、专业间的信息交流和互动，促进学生管理工作的开展，对高校实现信息化具有重要的参考意义。

**关键词：**排课算法；Java EE；优先级回溯；UML

## **Abstract**

With the development of information technology, it gradually extended to the campus management, administrative offices and the existing student management system. Student management system has been unable to meet the current actual needs because of the adaptability. With the increase enrollment of college and the increasing complexity of the system, it's urgent to use computers to achieve student information management and statistics, and to provide the better services for teachers and students.

Based on priority Scheduling algorithms backtracking, this paper used UML modeling language to conduct business modeling and design, and developed student management system based on the Java EE platform. The system has certain characteristics, and has good reliability, portability and security. The main work is as follows:

(1) Analysis of business application processed in the new environment of student management to build the business model and further application of the UML for case descriptions, system modeling and design.

(2) The traditional priority backtracking algorithm is proposed based on priority-based backtracking Scheduling algorithms. This algorithm incorporates factors that the actual priority elective institutions to effectively enhance the Scheduling algorithms used in practice to solve the resource conflicts.

(3) After the early requirements and data analysis, we given a further design of the functional model of the system. Using the Java EE technology to develop the system, this article completed the core function module as basic course maintenance, student management, and course scheduling and management. At last we achieved a complete set of student management system.

Further integrating the school student management practices, the student management system is promoted to test run in the school, and achieved good results. The system line operation greatly improved student management efficiency to save a lot of manpower, material resources, which enhanced information exchange and interaction between students, classes and teachers,

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