摘 要

巨大的机动车保有量，较少的停车位数量以及机动车数量快速增长的背景下，机动车停车问题变得日趋严峻。随着“共性经济”的兴起，“共享车位”的的概念也逐渐被人们所关注。“共享车位”就是利用车位在没有车辆停放的时段，以一定的价格或资源优势，将该时段租给其他有需求的车主，从而减缓停车位的利用率不足问题，降低车位闲置率，对缓解当前日益严峻的停车问题有着重要的研究价值和意义。同时当前市面上研究的后台管理系统技术选型也有待更新。

该后台管理系统采用Java编程语言，前端采用Vue、ElementUI、Echart、Baidumap、Axios技术，后端采用SpringBoot、SpringSecurity、Jwt技术，数据库采用Mysql，缓存采用Redis，最后按前后端分离的形式部署在阿里云服务器ECS上运行。

首先，本文对该系统做了需求分析。对系统业务做了总体性概述，展示了系统业务用例图；然后对系统外部需求中的软件接口和软件平台进行简单介绍；对系统功能性需求进行分模块阐述；最后分角度对系统非功能性需求进行简要说明。

其次，本文对该系统做了系统设计。对系统架构做了总体性概述，展示了系统架构图；然后介绍本系统的数据库设计，分模型与结构进行展示；最后对系统功能设计进行分模块阐述，应用UML统一建模工具绘制相应的流程图对系统功能设计进一步细化。

接着，本文对该系统的系统实现进行了详细讲解。分别介绍了基础模块的认证、授权、注册、退出、修改密码功能的实现；核心功能模块的表单更新与查询、新增与编辑、分配权限、编辑订单、创建订单功能的实现；辅助模块的数据显示功能的实现。对每个功能展示实际系统的示例图、应用UML统一建模工具绘制相应的时序图进一步阐述、并展示实现功能的核心代码。

最后，本文对该系统做了系统测试。将私家车位共享平台APP后端系统项目部署到云服务器上，接着分别对系统进行功能测试与性能测试。

总体而言，该系统将结合当下热门的Vue-Element-Admin框架设计一种基于互联网＋私家车位共享平台APP的后台管理系统，为提高停车位的综合利用率、缓解停车难问题提供了技术途径。

关键词：共享车位，Java，Vue，SpringBoot，Vue-Element-Admin

**ABSTRACT**

With the huge number of motor vehicles, the small number of parking spaces and the rapid growth of the number of motor vehicles, the problem of motor vehicle parking has become increasingly serious. With the rise of "shared economy", the concept of "shared parking" has been gaining attention. The concept of "shared parking" is to rent parking spaces to other car owners who need them at a certain price or resource advantage during the time when there are no vehicles parked, so as to alleviate the underutilization of parking spaces and reduce the idle rate of parking spaces, which has important research value and significance to alleviate the increasingly serious parking problem. At the same time, the technical selection of the backend management system currently studied in the market needs to be updated.

The backend management system uses Java programming language, Vue, ElementUI, Echart, Baidumap, Axios technology for front-end, SpringBoot, SpringSecurity, Jwt technology for back-end, Mysql for database, Redis for cache, and finally deployed in the form of front and back-end separation It runs on AliCloud server ECS.

First of all, this paper does a requirement analysis of the system. A general overview of the system business is given, and the business use case diagram is shown; then the software interface and software platform of the external requirements of the system are briefly introduced; the functional requirements of the system are elaborated in modules; and finally the non-functional requirements of the system are briefly explained in perspectives.

Next, this paper presents the system design of the system. A general overview of the system architecture is given, and the system architecture diagram is shown; then the database design of the system is introduced, and the model and structure are shown; finally, the functional design of the system is elaborated in modules, and the corresponding flowcharts are drawn with UML unified modeling tools to further refine the functional design of the system.

Then, the system implementation of the system is explained in detail in this paper. The implementation of the authentication, authorization, registration, exit and password change functions of the basic module, the implementation of the form update and query, add and edit, assign permission, edit order and create order functions of the core function module, and the implementation of the data display function of the auxiliary module are introduced respectively. For each function, we show a sample diagram of the actual system, apply UML modeling tool to draw the corresponding timing diagram to further elaborate, and show the core code to realize the function.

Finally, this paper does system testing of the system. The back-end system project of the private parking space sharing platform APP was deployed to the cloud server, and then the system was tested for functionality and performance respectively.

Overall, the system will combine the popular Vue-Element-Admin framework to design a back-end management system based on the Internet + private parking space sharing platform APP, which provides a technical way to improve the comprehensive utilization rate of parking spaces and alleviate the parking difficulty problem.

**Key words**：Shared parking，Java，Vue，SpringBoot，Vue-Element-Admin