



Design and Implementation of Hotel Room Management System Based on C#

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Abstract. C# is a very commonly used computer language in today's computer programming. Its powerful operational capabilities and innovative language features make C# a tool for many system development. Nowadays, with the development of computer technology, many fields in our country are trying to use computer technology to improve the efficiency of production and management. Hotel room management can use computer technology to improve the efficiency and accuracy of management. This paper uses C# to design a hotel room management system, which can summarize the hotel management work, and managers can manage hotel rooms and hotel services through the system, which greatly improves management efficiency and reduces management costs for enterprises.

Keywords: C# · Hotel · System · Management

1 Introduction

Since computer technology entered the public eye, many computer programming languages have appeared, and these languages have different applicable directions. The development of the computer industry has led people to seek a way to control computers that is closer to human language, and the computer language was born. Computer language has clear semantics, definite rules, natural and intuitive, universal and easy to understand, and the development of computer language has also contributed to the development of computer technology to a certain extent [4]. Today's widely used high-level languages are BASIC, PASCAL, C, COBOL, FORTRAN, LOGO, VC, VB and so on. Hotel management has always been a problem for many enterprises. An excellent hotel management method can improve the occupancy rate of the hotel and increase the efficiency of the hotel. After the popularization of computer systems, many hotels have applied computer technology to hotel room management, improving the efficiency of hotel room management. Compared with other systems, the hotel room management system constructed in this paper is relatively simple to operate, which can meet the basic requirements of hotel management and operation, and is very practical for small and medium-sized hotels [9].

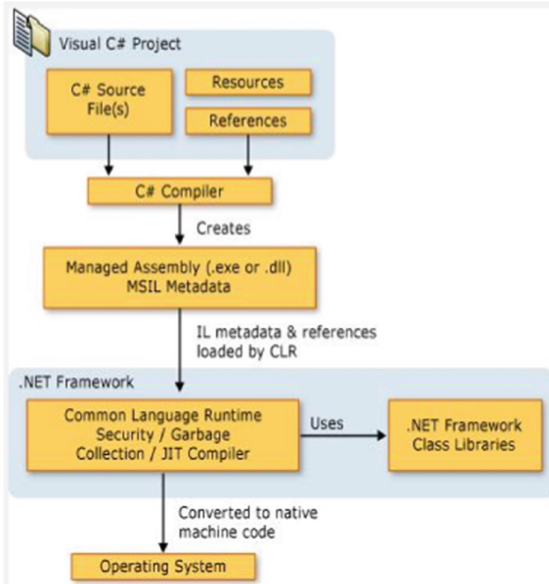


Fig. 1. Structure of C#.

2 C#

C# is a transformation language released by Microsoft in June 2000 [7]. It is the first component-oriented transformation language. Its source code will be compiled into msil and then run. C# draws on the characteristics of Delphi: it is directly integrated with COM (Component Object Model). Not only that, C# is the protagonist of Microsoft's .NET Windows network framework, with a variety of functions and syntax. C# can take into account both system development and application development. It is often used in engineering software and business software customized by enterprises. It is very suitable for hotel room management system development [12].

C# is characterized by simplicity, modernity, and generality. This programming language is an object-oriented programming language that provides strong type checking, array dimension checking, automatic garbage collection, and uninitialized variable reference checking. C# is suitable for writing programs for independent and embedded systems [6]. It can write simple and specific small systems, and it can also write large systems with complex operating systems [6] (Fig. 1).

3 Overall System Modules

This system mainly includes several modules: customer registration, cashier settlement, information inquiry, business inquiry, room management, refreshment service, and user management. Each module has corresponding sub-functions [10] (Fig. 2).

The register customer module is mainly used to register the personal information of the customer and the information about the room to be checked in, and the manager

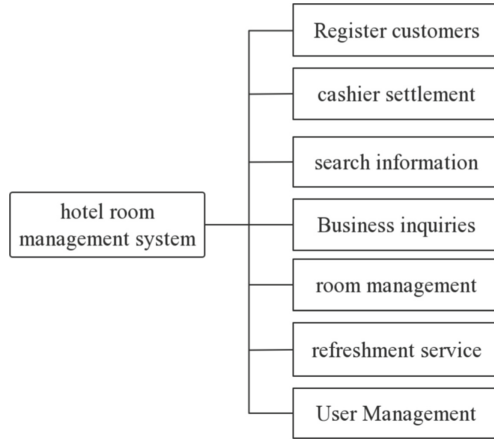


Fig. 2. System Modules.

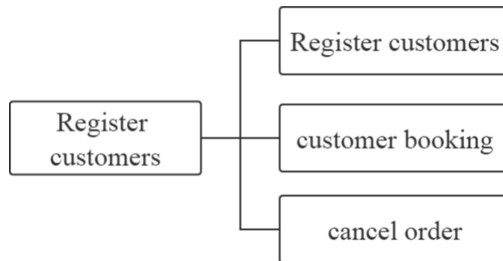


Fig. 3. Register client module.

will book the room for the customer or cancel the room reservation according to the information. This module is the main module of the system [5] (Fig. 3).

The cashier settlement module is mainly used to clear the expenses that the customer needs to pay when checking out and the expenses that the hotel needs to return to ensure the correct financial management of the hotel.

The information query module is mainly a module for hotel managers to view information. Hotel managers can inquire about the usage status of rooms, customer information and room reservations in this module [8].

As long as the order service module is used to provide refreshments to customers, customers can order meals through the collection APP or by calling the front desk.

User management module is to manage system users [1]. Hotel managers can add accounts, modify Trojans, and set account levels according to their needs. The account level can determine the user's operating authority in the system. Users with advanced privileges can add, delete and modify account information of other users [11].

4 Database

The system needs to carry less data, so the database system used needs to be convenient and efficient. This system uses the SQL database. This database has high data management performance, wide application range and fast response speed, which is very practical for hotel management. There are some tables in the database, including room reservation information table, guest information table, room information table, room status information table, management record table, catering table, visitor registration table and so on.

To build the main interface, ToolStrip components, Timer components, and StatusStrip components are used to divide the main interface into three parts. The first part uses the ToolStrip component to place frequently used functions in a prominent position. The second part uses the Timer component to display the windows of each sub-function. When the user clicks a sub-function, the corresponding window will appear. The third part uses the StatusStrip component to display the system's welcome message and the current time [2].

The management window interface of customer registration is divided into two parts: customer information and room information entry. The right side uses the DataGridView control to display all available room information in the current hotel. Click on any room in the DataGridView control, and the information of the room will be automatically displayed in the TextBox component. When the customer checks in, the check-in time recorded by the system defaults to the current time. Click the calendar icon on the DataGridView control to freely select the check-in date. After entering the complete information, click the check-in button to add the customer information and the room information to the database, and the usage status of the room in the database will also be refreshed to the occupied status in real time [3]. In the input information page, there is also a reset button. If the administrator finds that the information he has filled in is wrong, he can click the recharge button to clear all the entered information in the text boxes.

Registering the contents of the client module is relatively simple. Customers will make reservations through mobile phone software or telephone. Managers can click on any room in the DataGridView control, and the room information will be displayed in the TextBox component. Click the DataGridView control to select the check-in date. After entering the complete information, click the reservation button, the customer information and the room information will be added to the database, and the usage status of the room in the database will be instantly refreshed to the occupied state.

The cashier settlement interface consists of TextBox components and DataGridView controls. In this interface, the top is the customer information and room information that need to be entered when checking out, and the middle is the fees and change that the customer needs to pay, and the management staff is not allowed to modify the fee part. At the bottom is the DataGridView control to display all check-in customers and room information. Click on any checked-in customer in the control, and its related information will be automatically displayed in the corresponding TextBox component in the input information box. Click the query information, the queried customer and room information will be displayed in the DataGridView control, and the checkout information

will also display the fee that the customer needs to pay. The code for automatic calculation of actual payment in the background is:

```
textBox3.Text=(days* price).ToString();
textBox4.Text=ds.Tables[0].Rows[0][5].ToString;
```

There are three parts of the management window atmosphere for making up the deposit. The top is the input box of the room number that needs to pay the deposit, the middle is the corresponding information input box queried according to the room number, and the bottom is the amount of the deposit. After clicking the query, the customer information box will display the customer information and the amount of the deposit that has been paid for the room. After clicking OK, the database will add the amount of the deposit to complete the repayment of the deposit.

There are three parts of the window atmosphere of the room status query. The upper left side is the query room information displayed by the DataGridView control, and the right side is the room photo displayed by the ImageList. After entering information about the room, a photo and current status of the room will be displayed.

The management window of customer query is composed of TextBox component and DataGridView control. The interface has two parts. The upper end is the input box of customer information, and the lower end is the DataGridView control to display the customer information to be queried. After inputting the relevant customer information and clicking the query button, the DataGridView control will display the queried customer information. The more accurate the query result, the more complete the information is entered.

5 Conclusion

The hotel management system developed in this paper can basically realize the functions required by hotel management. Using C# can bring high-speed information processing efficiency while running stably. The use of a hotel management system based on a computer system can help the hotel to improve the efficiency of operation and management, improve the competitiveness of the hotel, and bring a good service experience to customers.

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