

**Lab Report**

**实验报告**

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| **Course**: | Class Libraries and Data Structures |
| **Semester**: | 1st semester of the academic year **2024-2025** |
| **Major**: | Software Engineering |
| **Class**: | 2023 |
| **Student Name**: |  |
| **Student ID:** |  |
| **Teacher:** | ZHAO, Hengjun (赵恒军) |

**School of Computer and Information Science**

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| Name | | Review of C++ and Object-Oriented Programming  C++面向对象编程 | | | |
| Date | | Sep，2024 | Type | | ☑Confirmatory （验证确认型）  ☑Design（设计型）  🗆Comprehensive（综合型） |
| 1. **Objective & Requirements（实验目的）**    1. Review the concepts of class, object, inheritance, overriding and overloading in the C++ programming language   复习类、对象、集成、复写、重载等C++面向对象编程概念   * 1. Learn the Data Abstraction Principle, the Open-Closed Principle, and the Subclass Substitution Rule   学习面向对象编程中的数据抽象原则、开闭原则、子类替代原则   * 1. Practice C++ programming skills   锻炼C++编程技巧 | | | | | |
| 1. **Experimental environment (**platform and software**)（实验环境）**   Windows 7 (or higher versions) + Visual Studio 2010 (or higher versions) | | | | | |
| 1. **Experimental content and design** (Main Content, Procedure, Codes and Results)（此部分应包含每一个实验内容的详细设计，含实验思路、详细实验步骤、核心代码说明等） 2. Task 1 （任务1）   Read the source codes of the Employee and Company classes. Compile and run the code to get the best paid employee.  以公司和员工类和查找收入最高员工任务为例，学习建立多文件项目，编译并运行   1. Task 2（任务2）   Declare and define the Employee and Company classes for the case of monthly paid employee by using inheritance.  以月薪制员工为例，学习并实践C++中的继承   * 1. Implement the input() method for the derived Employee2 class   为员工派生类实现input()方法   * 1. Implement the findBestPaid() method for the derived Company2 class   在此基础上为公司派生类实现findBestPaid()方法   * 1. Test your classes implementation to get and output the best paid employee   最后在主函数中测试你的实现，达到查找月薪制最高收入员工的目的   1. Task 3（任务3）   Overload the > and = operators for the Employee class, and use the overloaded operator to rewrite the findBestPaid() method for the Company class. Test your implementation in the main function.  为员工类重载>和=运算符，在此基础上重写公司类的findBestPaid()方法，从而提高程序的可读性。在主函数中进行测试。 | | | | | |
| 1. **Result analysis and discussion**（Analysis of experimental results and summing up the harvest and the existing problems）（此部分应包含实验结果，对实验结果的分析，实验收获的总结，实验中存在问题的讨论等；另外，需要回应一下关于本次实验任务2的思考题：    1. 子类Company2继承了父类Company的类型为Employee的成员bestPaid. 为什么父类Company的bestPaid成员的访问控制关键字定义为protected？    2. 子类Company2的findBestPaid()方法查找到的收入最高的雇员为按月付酬的Employee2类型，为什么能够将其赋值给Company2的类型为Employee的成员bestPaid？ | | | | | |
| Comments & Evaluation | Content & Design (A-E) | | |  | |
| Procedure & Codes (A-E) | | |  | |
| Results (A-E) | | |  | |
| Analysis & Discussion (A-E) | | |  | |
| Score (A-E): | | | | |