

**Lab report**

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| **Course**: | Class Libraries and Data Structures |
| **Semester**: | 1st semester of the academic year **2020-2021** |
| **Major**: | Software Engineering |
| **Class**: | 2019 |
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**School of Computer and Information Science**

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| Name | | Review of C++ | | | |
| Date | | Sep. 18，2020 | Type | | √ Confirmatory  √ Design  □Comprehensive |
| 1. **Objective & Requirements**    1. Review the concepts of class, object, inheritance, overriding and overloading in the C++ programming language    2. Learn the Data Abstraction Principle, the Open-Closed Principle, and the Subclass Substitution Rule    3. Practice C++ programming skills | | | | | |
| 1. **Experimental environment (**platform and software**)**   Windows 7 (or higher versions) + Visual Studio 2010 (or higher versions) | | | | | |
| 1. **Experimental content and design** (Main Content, Procedure, Codes and Results) 2. Task 1    1. Declare and define the Employee and Company classes. The requirements are as stated in the slides;    2. Declare and define the Employee and Company classes for the case of hourly paid employee by using inheritage. The requirements are as stated in the slides and specified in the given source files:       1. Implement the input() method for the derived Employee2 class       2. Implement the findBestPaid() method for the derived Company2 class    3. Test your classes implementation to get and output the best paid employee   **Code：**  Employee2.cpp：  #include "employee2.h"  #include <iostream>  Employee2::Employee2()  {  month = 0;  monthlySalary = 0;  }  void Employee2::input()  {  cout << "please enter a name, worked month and monthly salary:";  cin >> name >> month >> monthlySalary;  grossPay = month \* monthlySalary;  //please implement this  }  Company2.cpp：  #include "company2.h"  #include "employee2.h"  void Company2::findBestPaid()  {  Employee2 employee2;  employee2.input();  while (employee2.getName() != "\*")  {  if (employee2.compare(bestPaid))  bestPaid.copy(employee2);  employee2.input();  } // while  //please implement this  }  **Result：** | | | | | |
| 1. **Result analysis and discussion**（Analysis of experimental results and summing up the harvest and the existing problems）   By completing the implementation of ‘company2’ and ‘employee2’ classes, the program can run and terminate correctly and get expected results, as shown in the picture and code. Through this experiment, I have a better understanding of inheritance and derivation of c++ objects, and can perform some simple applications. I also have a better understanding of the data abstraction principle, the open-closed principle and other programming ideas. | | | | | |
| Comments & Evaluation | Content & Design (A-E) | | |  | |
| Procedure & Codes (A-E) | | |  | |
| Results (A-E) | | |  | |
| Analysis & Discussion (A-E) | | |  | |
| Score (A-E):  Feedback comments: | | | | |