

## Lab 6 PDF

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Lab: Lab 6

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### Program Description:

This program was made to practice class inheritance. This program takes in data provided by the user and then uses class inheritance to streamline reading and outputting the data. The “Instructor” and “Student” Class was inherited from the “Person” class meaning data was able to be quickly exchanged and ran.

### Program Source Code:

InheritanceApp.cpp:

```
C++ InheritanceApp.cpp > main()
1  #include "printMeFirst.h"
2  #include "Inheritance.h"
3  int main()
4  {
5      Person maxwell("Maxwell Smith", "M");
6      Instructor mary;
7      Student jonathan;
8      Instructor ron("Ron Sha", "M", 50000);
9      printMeFirst("Haichuan Wei", "Lab Employee");
10     mary.set_name("Mary Smith");
11     mary.set_gender("F");
12     mary.set_salary(85000);
13     jonathan.set_name("Jonathan Smith");
14     jonathan.set_gender("M");
15     jonathan.set_major("Computer Science");
16     maxwell.display();
17     cout << endl;
18     mary.display();
19     cout << endl;
20     jonathan.display();
21     cout << endl;
22     ron.display();
23     cout << endl;
24
25     return 0;
26 }
27
```

## Lab 6 PDF

### Inheritance.cpp

```
C++ Inheritance.cpp > set_gender(string)
1  #include "Inheritance.h"
2
3  Person::Person()
4  {
5      name = "None";
6      gender = "None";
7  }
8  Person::Person(string pname, string pgender)
9  {
10     name = pname;
11     gender = pgender;
12 }
13 string Person::set_name(string name)
14 {
15     this->name = name;
16     return name;
17 }
18 string Person::set_gender(string pgender)
19 {
20     this->gender = pgender;
21     return gender;
22 }
23
24 void Person::display() const
25 {
26     cout << "Name : " << name << endl;
27     cout << "Gender : " << gender << endl;
28 }
29
30 Instructor::Instructor()
31 {
32     salary = 0;
33 }
34 Instructor::Instructor(string pname, string pgender, double salary) : Person(pname, pgender)
35 {
36     this->salary = salary;
37 }
38
39 double Instructor::set_salary(double amount)
40 {
41     this->salary = amount;
42     return salary;
43 }
44 void Instructor::display() const
45 {
46     Person::display();
47     cout << "Salary : " << salary << endl;
48 }
49
50 Student::Student()
51 {
52     major = "None";
53 }
54 Student::Student(string pname, string pgender, string major) : Person(pname, pgender)
55 {
56     this->major = major;
57 }
58
59 string Student::set_major(string major)
60 {
61     this->major = major;
62     return major;
63 }
64
65 void Student::display() const
66 {
67     Person::display();
68     cout << "Major : " << major << endl;
69 }
```

## Lab 6 PDF

### Inheritance.h

```
h Inheritance.h > Student
1
2 #ifndef _Inheritance_h_
3 #define _Inheritance_h_
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 class Person
8 {
9 private:
10     string name;
11     string gender;
12 public:
13     Person();
14     Person(string pname, string pgender);
15     string set_name(string name);
16     string set_gender(string pgender);
17     // display
18     void display() const;
19 };
20
21 class Instructor : public Person
22 {
23 private:
24     double salary;
25 public:
26     Instructor();
27     Instructor(string pname, string pgender, double salary);
28     double set_salary(double amount);
29     void display() const;
30 };
31
32 class Student : public Person
33 {
34 private:
35     string major;
36 public:
37     Student();
38     Student(string pname, string pgender, string major);
39     string set_major(string major);
40     void display() const;
41 };
42
43 #endif // !_Inheritance_
44
45
46
47
```

### printMeFirst.cpp

```
C++ printMeFirst.cpp > ...
1 #include "printMeFirst.h"
2 #include <string>
3 #include <iostream>
4 #include <iomanip>
5 #include <ctime>
6 using namespace std;
7
8 /*
9  Purpose- Prints the information of the developer.
10 @author Haichuan Wei
11 @version 1.0 9/2/21
12 @using CLion
13 @param name - none
14 @param courseInfo - CS-116 OOP C++
15 @return-
16 */
17
18 void printMeFirst(string name, string courseInfo)
19 {
20     cout << "Program written by: " << name << endl;
21     cout << "Course Info: " << courseInfo << endl;
22     time_t now = time(0);
23     char *dt = ctime(&now);
24     cout << "Date: " << dt << endl;
25 }
26
```

## Lab 6 PDF

### Program Output

All values matched the example

```
arthur@DESKTOP-UP5LF24:/mnt/c/Users/Arthur/Documents/Github/Cpp_Projects/Intermediate C++/Lab 6$ make all
g++ -fsanitize=address -o People Inheritance.cpp InheritanceApp.cpp printMeFirst.cpp
arthur@DESKTOP-UP5LF24:/mnt/c/Users/Arthur/Documents/Github/Cpp_Projects/Intermediate C++/Lab 6$ make run
./People
Program written by: Haichuan Wei
Course Info: Lab Employee
Date: Sat Oct 23 23:03:18 2021

Name : Maxwell Smith
Gender : M

Name : Mary Smith
Gender : F
Salary : 85000

Name : Jonathan Smith
Gender : M
Major : Computer Science

Name : Ron Sha
Gender : M
Salary : 50000

arthur@DESKTOP-UP5LF24:/mnt/c/Users/Arthur/Documents/Github/Cpp_Projects/Intermediate C++/Lab 6$
```