Lab 6 – Person Inheritance – 2021 SPRING CS-116

1. Define a ***class Person*** which contains the following:
   - Private data member of:
     - string name
     - string gender
   - Public member functions:
     - Default constructor which will set name to "None" and gender to "None"
     - Contructor: Person(pname, pgender) which will set name to pname and gender pgender
     - set_name (string name) which will set the name to name (You MUST use the parameter as name as the parameter. That is, you can't use pname BUT must use name as parameter)
     - set_gender (string pgender) which will set the gender to pgender
   - the class definition must be stored in file person.h and class implementation must be stored in file person.cpp

2. Define ***class Instructor*** which will **inherit** ***class Person***, and then add the following to ***class Instructor***:
   - Private data member:
     - Data member: double salary
   - Public member function:
     - Default constructor which will set salary to 0
     - Member function set_salary(double amount) with will set the salary to amount.
   - the class definition must be stored in file instructor.h and class implementation must be stored in file instructor.cpp. Since the class Instructor will use will be using class person, so you have include person definition header file

3. Define ***class Student*** which will inherit ***class Person***, and then add the following to ***class Student***:
   - Private data member:
     - Data member: string major;
   - Public member function:
     - Default constructor which will set major to "None"
     - Member function set_major(string major) with will set the major to major (use this pointer for since the parameter has same name as the variable you are trying to assign to).
   - the class definition must be stored in file student.h and class implementation must be stored in file student.cpp. Since the class Instructor will use will be using class person, so you have include person definition header file

- You MUST use the following test driver program for this lab:

```
int main()
{
  Person maxwell ("Maxwell Smith", "M");
  Instructor mary;
  Student jonathan;
  Instructor ron("Ron Sha", "M", 50000);

  printMeFirst("Ron Sha", "Lab Employee");

  mary.set_name("Mary Smith");
  mary.set_gender("F");
  mary.set_salary(85000);

  jonathan.set_name("Jonathan Smith");
  jonathan.set_gender("M");
  jonathan.set_major("Computer Science");

  maxwell.display();
  cout << endl;
  mary.display();
  cout << endl;
  jonathan.display();
  cout << endl;
  ron.display();
  cout << endl;
  return 0;
}
```

```
int main()
{
   Person maxwell ("Maxwell Smith", "M");
   Instructor mary;
   Student jonathan;
   Instructor ron("Ron Sha", "M", 50000);

   printMeFirst("Ron Sha", "Lab Employee");

   mary.set_name("Mary Smith");
   mary.set_gender("F");
   mary.set_salary(85000);

   jonathan.set_name("Jonathan Smith");
   jonathan.set_gender("M");
   jonathan.set_major("Computer Science");

   maxwell.display();
   cout << endl;
   mary.display();
   cout << endl;
   jonathan.display();
   cout << endl;
   ron.display();
   cout << endl;
   return 0;
}
```

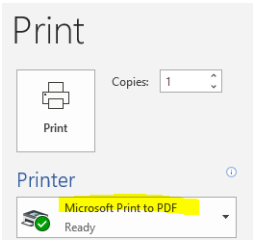
The output of the program is similar to below:

```
Program written by: Ron Sha
Course Info: Lab Employee
Date: Sun Mar 14 12:37:44 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
```

Lab Submission: See the lab submission requirements published in canvas.

To submit your assignment in canvas, you must submit TWO files (one pdf and one zip) as follows:

1. **Attach pdf file** which contains source codes you have written and program output screenshot so I can easily read in one file. You can use a word editor to place all the required programs and screenshots, and then use 'Print' to 'Microsoft Print to PDF' to save to a pdf file



The pdf file MUST have the following sections (1. Program Description, 2. Program Source Code and 3. Program Output).

1. Program Description

- brief *description* of the purpose of the *program and*
- an explanation of what your software does and what problem it solves

2. Program Source Code

- Include all the source codes (program files) you have written for this lab (screenshots are ok)
- Your program must have adequate documentation for your source codes:
  - Program description – see above on Program Description
  - **You must put the following function headers for each function (the function header MUST be placed just above the function declaration in your source code). For Functions, it must have:**
    - *Function name: name of this function*
    - *Function description: the purpose of this function and how to use it*
    - *@param param_name and what the parameter/argument is used for*
    - *@return what is returned from the function*

- Make sure your screenshots are readable (not too small)

Below is an example of source code

File: print_me_first_main.cpp (list the program file individually)

```cpp
//print_me_first_main.cpp
#include <iostream>
#include <string>
#include <iomanip>

using namespace std;

/**
 * @Purpose - this function print out the person who wrote the program,
 * and date/time the program run.
 * @parm - name - the author of the program
 * @parm - courseInfo - the name of the course
 * @return - none
 * @author - Ron Sha
 **/

void PrintMeFirst(string name, string courseInfo)
{
    cout <<" Program written by: "<< name << endl; // put your name here
    cout <<" Course info: "<< courseInfo << endl;
    time_t now = time(0); // current date/time based on current system
    char* dt = ctime(&now); // convert now to string for
    cout << " Date: " << dt << endl;
}
```

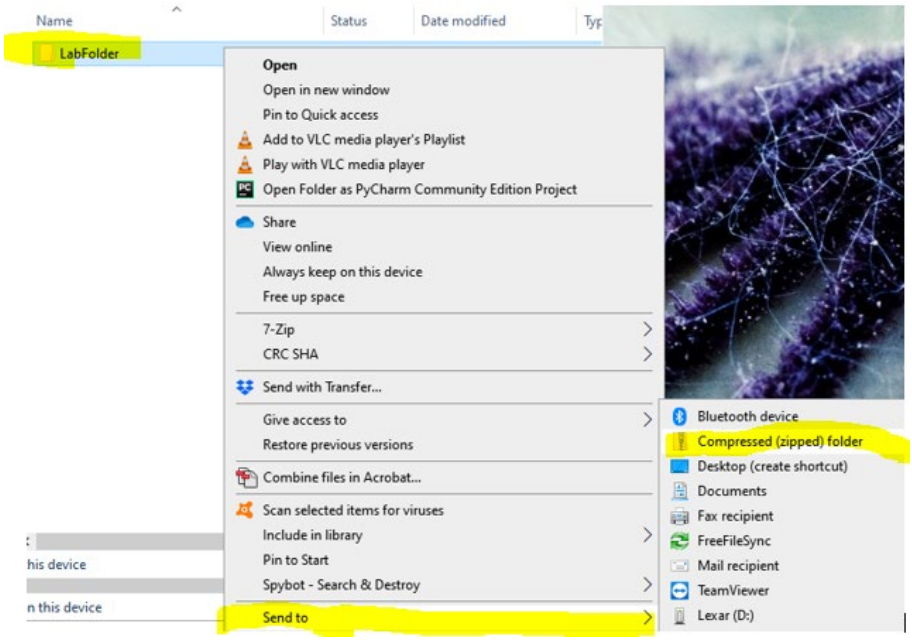
File: list other cpp files separately

3. Program Output

- Attach all the program outputs (screenshots)
- Don't place Source code and program output side by side as it is not readable in screenshot
- Make sure your screenshots are readable (not too small)
- Your main program outputs MUST include your name printout (use the print_me_first function/program).

2. **Attach zip file** which contains all your source code (you can zip the folder) and functions. Even if you only have one source file, you MUST still do a zip file of the folder. I must be able to compile and run your program from all the source code programs after I unzip your zip file.

   You should create a folder for each lab, and place all your programs, functions and all other files related to this lab in this lab folder. To submit the lab folder, you can use "Send to -> compress" in window file explorer to create a zip file of the folder.



3. **Now you can upload both the pdf file and zip file separately as your assignment submission in canvas.**