

CSC 2111 Lab 10

Objectives:

- Learn about inheritance
- Explore how to redefine the member functions of a base class
- Learn about composition/aggregation

Download Lab10.cpp. In this file, the definition of the class `personType` has given. Think of the `personType` as the base class.

Question1 (Inheritance)

- Derive the class `doctorType`, inherited from the class `personType`, with an additional class member variable member to store a doctor's **specialty(string type)** Then, implement following class member function prototypes.

```
doctorType(string,string,string);//Firstname Lastname Specialty  
doctorType();//Default constructor  
void setSpecialty(string);//Set doctor specialty  
string getSpecialty()const;// Get doctor specialty  
void print()const;//Display doctor information the same as given output format
```

- Derive the class `patientType`, inherited from the class `personType`, with additional class member variables to store a patient's **id**, **age**, and **dob** (all are integers). Then, implement following class member function prototypes.

```
patientType(string, string, int, int, int);//Firstname Lastname id age dob  
patientType();Default constructor  
void setId(int);//Set patient id  
void setage(int);//Set patient age  
void setDob(int);//Set patient DOB  
int getId()const;//Get patient id  
int getage()const;//Get patient  
int getDob()const;//Get patient DOB  
void print()const; //Display patient information the same as given output format
```

Question2 (Composition)

- Design a class *billType*, with class member variables to store a patient's information (*patientType*), the patient's doctor's information (*doctorType*), and the hospital **charges**(double). Then, implement following class member function prototypes.

```
billType(doctorType &d, patientType &p); // Constructor  
void setCharge(double); // Set hospital charges  
double getCharge()const; // Get hospital charges  
void print()const; // Display a bill information the same as given output format
```

Use the provided driver program to test your program. You should get the same output.
Submit a single cpp file.

Output:

```
C:\WINDOWS\system32\cmd.exe  
<personType> Printing...  
Person FirstName=Lisa LastName=Regan  
  
<doctorType> Printing...  
Doctor FirstName=Sarah LastName=Conner Specialty=Dentist  
  
<patientType> Printing...  
Patient FirstName=Sam LastName=Fire Id=200 Age=100 DOB=1916  
  
<billType> Printing...  
Patient FirstName=Sam LastName=Fire Id=200 Age=100 DOB=1916  
Patient's doctor FirstName=Sarah LastName=Conner Specialty=Dentist  
Hospital chrge=250.66$  
  
Press any key to continue . . .
```

Write two programs in one single cpp file.