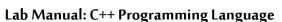


#### University of Khartoum

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## 6.1 Run the following Program.

```
//educational background
class student
{ private:
 string school; //name of school or university
 string degree; //highest degree earned
 public:
 void getedu() {
cout << "Enter name of school or university: ";
cin >> school;
cout<<"Enter highest degree earned \n";</pre>
cout<<"(Highschool, BSc, MSc, PhD): ";
cin >> degree;}
void putedu() const
{ cout << "\nSchool or university: " << school;
cout<<"\nHighest degree got:"<< degree; } };</pre>
class employee {
private:
string name; //employee name
unsigned long number; //employee number
public:
void getdata()
{ cout << "\n Enter last name: ";
cin >> name;
 cout << " Enter number: ";</pre>
cin >> number; }
 void putdata() const
{ cout << "\n Name: " << name;
cout << "\n Number: " << number; } };</pre>
class manager
                        //management
{ private:
 string title;
                 //"vice-president" etc.
 double dues;
                     //golf club dues
 employee emp; //object of class employee
 student stu:
                    //object of class student
 public:
 void getdata()
```

```
class scientist
                   //scientist
{ private:
 int pubs; //number of publications
 employee emp; //object of class employee
 student stu; //object of class student
 public:
 void getdata()
{ emp.getdata();
 cout << " Enter number of pubs: ";</pre>
cin >> pubs;
 stu.getedu(); }
 void putdata() const
{ emp.putdata();
 cout<<"\nNo of pubs:"<< pubs;
 stu.putedu(); } };
class laborer
                       //laborer
{ private:
 employee emp; //object of class employee
 public: void getdata()
      { emp.getdata(); }
void putdata() const
{ emp.putdata(); } };
int main() {
manager m1;
scientist s1, s2;
laborer l1;
cout << endl;
cout << "\nEnter data for manager 1";</pre>
m1.getdata();
                 //several employees
cout << "\nEnter data for scientist 1";</pre>
s1.getdata();
cout << "\nEnter data for scientist 2";</pre>
s2.getdata();
cout << "\nEnter data for laborer 1";</pre>
I1.getdata();
```





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#### Lab Manual: C++ Programming Language

```
cout<<"\nData on manager1";
{ emp.getdata();
                                                                                            //display
 cout << " Enter title: ";</pre>
                                                     data for
                                cin >> title;
                                                     m1.putdata(); //several employees
 cout << " Enter golf club dues: ";
                                                     cout << "\nData on scientist 1";</pre>
cin >> dues;
                                                     s1.putdata();
 stu.getedu(); }
                                                     cout << "\nData on scientist 2";
 void putdata() const
                                                     s2.putdata();
{ emp.putdata();
 cout << "\n Title: " << title;</pre>
                                                     cout << "\nData on laborer 1";
                                                     I1.putdata();
 cout << "\n Golf club dues: " << dues;</pre>
 stu.putedu(); } };
                                                     cout << endl;
                                                     return 0; }
```

- 6.2 Imagine a publishing company that markets both book and audiocassette versions of its works. Create a class **publication** that stores the **title** (a string) and **price** (type float) of a **publication**. From this class derive two classes: **book**, which adds a **page count** (type int), and **tape**, which adds a **playing time** in minutes (type float). Each of these three classes should have a **getdata**() function to get its data from the user at the keyboard, and a **putdata**() function to display its data.
  - Write a main() program to test the book and tape classes by creating instances of them, asking the user to fill in data with getdata(), and then displaying the data with putdata().
- 6.3 Start with the **publication**, **book**, and **tape** classes **of problem 6.2**. Add a base class **sales** that holds an array of three floats so that it can record the **dollar sales** of a particular **publication** for the last three months. Include a **getdata()** function to get three sales amounts from the user, and a **putdata()** function to display the sales figures. Alter the **book** and **tape** classes so they are derived from both **publication** and sales. An object of class **book** or **tape** should input and output sales data along with its other data. Write a **main()** function to create a book object and a tape object and exercise their input/output capabilities.