

Lab #12

Virtual Function

Exercise:

Q1: Create a base class Person and two derived classes Student and Professor and show polymorphism in it.

```
#include <iostream>
using namespace std;

class Person
{
    public:
        string name;

        void get_data(string n){
            name=n;
            cout << "Enter your name: "<<endl;
            cin>> name;
        }

        virtual void display(){
            cout<<"Name : "<<name<<endl;
        }
};

class Student : public Person
{
    public:
        int id_no;
        string dept;

        void get_data(string n, int i, string d ){
            name = n;
            id_no = i;
            dept = d;
        }

        void display(){
            cout<<"-----"<<endl;
            cout<< "    Student Details "<<endl;
            cout<<"Name : "<<name<<endl;
            cout<<"Id number : "<<id_no<<endl;
            cout<<"Department : "<<dept<<endl;
        }
};
```

```

    }

};

class Professor : public Person
{
    public:
        int id_no;
        string dept;
        string faculty;

        void get_data(string n, int i, string d, string f ){
            name = n;
            id_no = i;
            dept = d;
            faculty =f;
        }

        void display2(){
            cout<<" _ _ _ _ _ "<<endl;
            cout<<"    Professor Details "<<endl;
            cout<<"Name : "<<name<<endl;
            cout<<"Id number : "<<id_no<<endl;
            cout<<"Department : "<<dept<<endl;
            cout<<"faculty : "<<faculty<<endl;
        }
};

int main(){
    Student s1;
    Professor p1;

    s1.get_data("Ali", 2466, "SE");
    s1.display();

    p1.get_data("Faizan", 67, "ME", "CS");
    p1.display2();

}

```

Q2: Define a class DATE TIME that has the member variables to hold day, month, year, hours, and seconds value. The class should include the following version of set value() method to set date and time values.

```

Setvalue(day, month, year)
Setvalue(day, month, year, hours)
Setvalue(day, month, year, hours, minutes)
Setvalue(day, month, year, hour, minutes, seconds)

```

```

#include<iostream>
using namespace std;

```

```

class DateTime

```

```

{
    int day, month, year, hours, minutes, seconds;

public:

void SetValue(int d, int m, int y)
{
    day=d;
    month=m;
    year=y;
    cout<<"Date is:"<<day<<"-"<<month<<"-"<<year<<endl;
}

void SetValue(int d, int m, int y, int h)
{
    day=d;
    month=m;
    year=y;
    hours=h;
    cout<<"Date is:"<<day<<"-"<<month<<"-"<<year<<endl;
    cout<<"Time is:"<<hours<<" hours."<<endl;
}

void SetValue(int d, int m, int y, int h, int min)
{
    day=d;
    month=m;
    year=y;
    hours=h;
    minutes=min;
    cout<<"Date is:"<<day<<"-"<<month<<"-"<<year<<endl;
    cout<<"Time is:"<<hours<<":"<<minutes<<endl;
}

void SetValue(int d, int m, int y, int h, int min, int s)
{
    day=d;
    month=m;
    year=y;
    hours=h;
    minutes=min;
    seconds=s;
    cout<<"Date is:"<<day<<"-"<<month<<"-"<<year<<endl;
    cout<<"Time is:"<<hours<<":"<<minutes<<":"<<seconds<<endl;
}

};

int main()
{
    int d, m, y, h, min, s;

```

```
    cout<<"Enter date:";
    cin>>d;
    cout<<"Enter month:";
    cin>>m;
    cout<<"Enter year:";
    cin>>y;
    cout<<"Enter hours:";
    cin>>h;
    cout<<"Enter minutes:";
    cin>>min;
    cout<<"Enter seconds:";
    cin>>s;
    DateTime dt;
    dt.SetValue(d, m, y);
    dt.SetValue(d, m, y, h);
    dt.SetValue(d, m, y, h, min);
    dt.SetValue(d, m, y, h, min, s);
    system("pause");
    return 0;
}
```