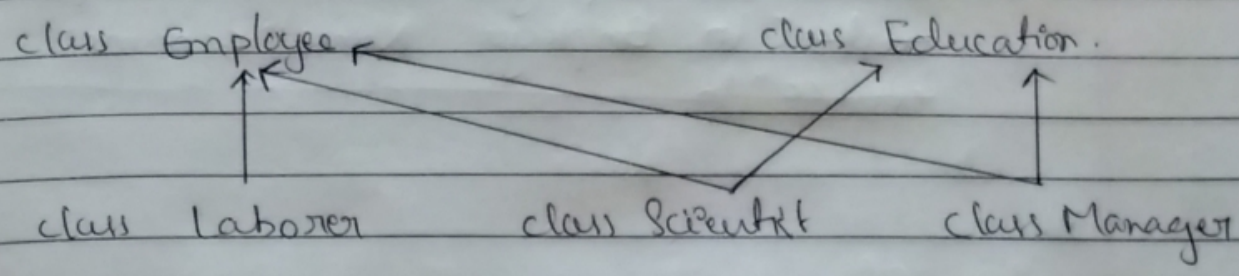
WEEK 7: VIRTUAL FUNCTIONS AND POLYMORPHISM

1 Consider the following class hierarchy:



Write an interactive C++ program to model the above relationship. Assume proper data members and member functions for each class.

Program:

```
// Author Name: Al-Fareed
// Reg No: 21097000H9
// Date of Creation: 11-Jan-22
// Program Name: Program to store details of Labours
// Scientists, and Managers
//- - - - - - - - - - - - - - - - - -
#include<iostream>
using namespace std;
class Emp
{
    public: int empno;
            char name[15];
    void getd()
    {
        cout<<"\n- - - - - - - - - - - - - - - \n";
        cout<<"\n Enter Employee Number:";
        cin>>empno;
        cout<<" Enter Employee Name:";
        cin>>name;
```

```
};
    void show()
    {
    cout<< "\n Employee Number:" << empno;
    cout<< "\n Employee Name:" <<ename;
    cout<< "\n ---------- \n";
    }
};
class Edu
{
    public: float cgpa;
            char degree[50];
    void get()
    {
        cout<< "\n Enter Highest Qualification:";
        cin>> degree;
        cout<< "\n Enter CGPA:";
        cin>> cgpa;
    }
    void show()
    {
        cout<< "\n Highest Qualification:" <<degree;
        cout<< "\n CGPA:" << cgpa;
    }
};
class Labour: public Emp
{
    public:
        void get()
        {
            Emp:: get();
        }
```

```
    void show()
    {
        Emp:: show();
    }
};
class Scientist: public Emp, public Edu
{
    public: void get()
    {
        Emp:: get();
        Edu:: get();
    }
    void show()
    {
        Emp:: show();
        Edu:: show();
    }
};
class Manager: public Emp, public Edu
{
    public: void get()
    {
        Emp:: get();
        Edu:: get();
    }
    void show()
    {
        Emp:: show();
        Edu:: show();
    }
};
```

```
int main()
{
    Manager m;
    Scientist s;
    Labour l;
    int flag=1, ch;
    while(flag)
    {
    cout<<"\n Enter details of ";
cout<<"\n Options: \n1.Labour \n2. Scientist \n3.
    Manager \n4. Exit \n";
    cout<<" Enter your option: ";
    cin>>ch;
    switch(ch)
    {
    case 1: cout<<"\n-- Enter details of Labour--";
            l.get();
            cout<<"\n-- Details of Labour is--";
            l.show();
            break; cout<<"\n ----------\n";
    case 2: cout<<"\n-- Enter details of Scientist--";
            s.get();
            cout<<"\n--Details of scientist is--";
            s.show();
            break; cout<<"\n ----------\n";
    case 3: cout<<"\n-- Enter details of Manager--";
            m.get();
            cout<<"\n--Details of Manager is--";
            m.show(); cout<<"\n ----------\n";
            break;
    case 4: flag=0;
            break;
    }
```

```
}
    cout<<"\n";
    return 0;
}
```

OUTPUT:

```
Enter details of
 Options:
1. Labour
2. Scientist
3. Manager
4. Exit
Enter your Option: 1
-- Enter details of Labour --
- - - - - - - - - - - -

Enter Employee Number: 1
Enter Employee Name: Sam
--
-- Details of Labour is --
   Employee Number: 1
   Employee Name: Sam
- - - - - - - - - - - -
Enter details of
 Options:
 1. Labour
 2. Scientist
 3. Manager
 4 Exit
 Enter your Option: 2

- - Enter details of Scientist --
- - - - - - - - - - - -
```

Enter Employee Number: 201
Enter Employee Name: Shyam

Enter Highest Qualification: Msc
Enter CGPA: 8.9

--Details of Scientist is--
Employee Number: 2
Employee Name: Shyam
Highest Qualification: Msc
CGPA: 8.9

Enter details of
Options:
1 Labour
2. Scientist
3. Manager
4. Exit
Enter your Option: 4