**Lab-6 Assignment**

**1)C++ program to display the information with virtual function**

**Algorithm:** In this program we have given the class reservation and assign the given variables in set\_details function and displaying name and age in display function which is virtual function. Print function for PNR, gender. We have created Sub class named passenger with user id and password and overriding with same function in class reservation. In the main function we have given Reservation a pointer to the subclass and we are going to get results by printing the function which are not virtual in the main class.

**Logic:**

#include<iostream>

using namespace std;

class Reservation

{

public:

int pnr;

string name;

int age;

string gender;

void set\_details()

{

cout<<"Enter name : ";

cin>>name;

cout<<"Enter PNR number : ";

cin>>pnr;

cout<<"Enter age : ";

cin>>age;

cout<<"Enter gender : ";

cin>>gender;

}

virtual void display()

{

cout<<"Name : "<<name<<endl;

cout<<"Age : "<<age<<endl;

}

void print()

{

cout<<"PNR number is : "<<pnr<<endl;

cout<<"Gender is : "<<gender<<endl;

cout<<"Submitted by G.Hruthesh Reddy,Admn.No.20BCB7031"<<endl;

}

};

class Passanger : public Reservation

{

public :

string userid;

string password;

void set\_details()

{

cout<<"Enter User ID : ";

cin>>userid;

cout<<"Enter password : ";

cin>>password;

}

void display()

{

cout<<"User ID is:"<<userid<<endl;

}

void print()

{

cout<<"Password is:"<<password<<endl:

}

};

int main()

{

Passanger p;

Reservation \*r;

r=&p;

r->set\_details();

p.set\_details();

r->display();

r->print();

}

**Output:**

**Text

Description automatically generated**

**2)C++ program to information of student with virtual function**

**Algorithm:** In this program we have created class for students and assign variables to it. And given virtual function to display the values. We have given a Sub class called Hostel which like room .no, floor, etc. We are giving the values to the required section and here the virtual function is not displayed because the same function is in the subclass and it will print the results.

**Logic:**

#include<iostream>

using namespace std;

class Student

{

public:

int rollno;

string name;

string branch;

string gender;

void set\_data()

{

cout<<"Enter the Roll.No of the student : ";

cin>>rollno;

cout<<"Enter the Name of the student : ";

cin>>name;

cout<<"Enter the Branch of the student : ";

cin>>branch;

cout<<"Enter the Gender of the student : ";

cin>>gender;

}

virtual void show()

{

cout<<"Roll.No of the student is : "<<rollno<<endl;

cout<<"Name of the student : "<<name<<endl;

cout<<"Branch of the student : "<<branch<<endl;

cout<<"Gender of the student : "<<gender<<endl;

}

};

class Hostel : public Student

{

public:

int id;

string sname;

int roomno;

int floorno;

void insert()

{

cout<<"Enter ID of the student : ";

cin>>id;

cout<<"Enter Name of the student : ";

cin>>sname;

cout<<"Enter Room number of the student : ";

cin>>roomno;

cout<<"Enter Floor number of the student : ";

cin>>floorno;

}

void show()

{

cout<<"ID of the student : "<<id<<endl;

cout<<"Name of the student : "<<sname<<endl;

cout<<"Room number of the student : "<<roomno<<endl;

cout<<"Floor number of the student : "<<floorno<<endl;

cout<<"Submitted by G.Hruthesh reddy,Admn.no20BCB7031"<<endl;

}

};

int main()

{

Student \*s;

Hostel h;

s=&h;

s->set\_data();

h.insert();

s->show();

}

**Output:**

**Text

Description automatically generated**

**3)C++ program to display Manager details**

**Algorithm:** In this program we have created a class called employee with pure virtual function called set\_details and subclass Manager was created to print the information of the manager. In this program the class employee pure virtual function is zero. So, it will only print the subclass output and functions.

**Logic:**

#include<iostream>

using namespace std;

class Employee

{

public:

virtual void set\_details()=0;

};

class Manager : public Employee

{

public:

int id;

string name;

int experience;

int salary;

void set\_details()

{

cout<<"Enter ID of the Manager : ";

cin>>id;

cout<<"Enter Name of the Manager : ";

cin>>name;

cout<<"Enter Experience in years of the Manager : ";

cin>>experience;

cout<<"Enter Salary of the Manager : ";

cin>>salary;

}

void display()

{

cout<<"ID of the Manager : "<<id<<endl;

cout<<"Name of the Manager : "<<name<<endl;

cout<<"Experience of the Manager : "<<experience<<endl;

cout<<"Salary of the Manager : "<<salary<<endl;

cout<<"Submitted by G.Hruthesh reddy,Admn.no20BCB7031"<<endl;

}

};

int main()

{

Employee \*e;

Manager m;

e=&m;

e->set\_details();

m.display();

}

**Output:**

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**4)C++ program for to display the vehicle information**

**Algorithm:** In this program we are creating the abstract function by making show as the pure virtual function and get functions form the subclass Bike. In the subclass they had given the brand, colour. So, here the colour will denote the price of the bike, so we create an if statement by giving red is 80000, green is 75000, others are 70000. So, when user enter the colour the price will be printed automatically.

**Logic:**

#include<iostream>

using namespace std;

class Vehicle

{

public:

virtual void show()=0;

};

class Bike : public Vehicle

{

public:

string brand;

int price;

string color;

void set\_details()

{

cout<<"Enter Brand of the Bike : ";

cin>>brand;

cout<<"Enter Color of the Bike(only in lowers) : ";

cin>>color;

if(color=="green"){

cout<<"Price of the Bike : 75000"<<endl;

price=75000;

}

else if(color=="red"){

cout<<"Price of the Bike : 80000"<<endl;

price=80000;

}

else{

cout<<"Price of the Bike : 70000"<<endl;

price=70000;

}

}

void show()

{

cout<<"Brand of the Bike : "<<brand<<endl;

cout<<"Color of the Bike : "<<color<<endl;

cout<<"Price of the Bike : "<<price<<endl;

cout<<"Submitted by G.Hruthesh reddy,Admn.no20BCB7031"<<endl;

}

};

int main()

{

Vehicle \*v;

Bike b;

v=&b;

b.set\_details();

v->show();

}

**Output:**

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**Time of Submission:** 24/09/2021-15:00