

Object Oriented Programming with C++

Internal Practical Exam

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20DCS103 DEPSTAR CSE : 3 - Batch : A

1.) Create a Class student having student members:sname, sage. Class has one member function to input the data members and another member function which prints the data members. Write a main() function which takes two students as input. Write a friend function swappdata() which takes two objects by reference of type student and swaps both the data.

Program Code:

```
#include <iostream>
#include <stdio.h>
#include <string.h>
using namespace std;

class student
{
private:
    char sname[50];
    int sage;
public:
    void getdata();
    void printdata();
    friend void swappdata(student &,student &);
};

void student:: getdata()
{
    cout << endl << "Enter Your Name : ";
```

```
    cin >> sname;
    cout << "Enter Your Age : ";
    cin >> sage;
}

void student:: printdata()
{
    cout << "Name : " << sname << endl;
    cout << "Age : " << sage << endl;
}

void swappdata(student &s1,student &s2)
{
    int temp=s1.sage;
    s1.sage=s2.sage;
    s2.sage=temp;
    char samp[20];
    strcpy(samp,s1.sname);
    strcpy(s1.sname,"");
    strcpy(s1.sname,s2.sname);
    strcpy(s2.sname,"");
    strcpy(s2.sname,samp);
}

int main()
{
    student m,n;
```

```
cout << endl << "Enter The Information for student : 1 " << endl;
m.getdata();
cout << endl << "Enter The Information for student : 2 " << endl;
n.getdata();

cout << endl << "*****Before swaping*****" << endl;
cout << endl << "STUDENT - 1" << endl;
m.printdata();
cout << endl << "STUDENT - 2" << endl;
n.printdata();

swaptdata(m,n);

cout << endl << "*****After swaping*****" << endl;
cout << endl << "STUDENT - 1" << endl;
m.printdata();
cout << endl << "STUDENT - 2" << endl;
n.printdata();

cout << "\n\n Made By: RUSHIK RATHOD \n      20DCS103 \n";
return 0;
}
```

Output:

```
Enter The Information for student : 1

Enter Your Name : abc
Enter Your Age : 20

Enter The Information for student : 2

Enter Your Name : xyz
Enter Your Age : 22

*****Before swaping*****

STUDENT - 1
Name : abc
Age : 20

STUDENT - 2
Name : xyz
Age : 22

*****After swaping*****

STUDENT - 1
Name : xyz
Age : 22

STUDENT - 2
Name : abc
Age : 20

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Process returned 0 (0x0)   execution time : 6.742 s
Press any key to continue.
```

2.) Create a class vehicle having data member vname and member function to get and print vname. Derive a Class car which is inherited publicly from class vehicle and having data member carcompany of car and member function to get and print carcompany of car. Derive a Class engine which is inherited publicly from Class car and having data member chesisno and member function display () which displays chesisno. Use object of class engine in main () function and get and display all the information.

Program Code:

```
#include <iostream>
#include <string.h>
using namespace std;

class Vehicle
{
protected:
    string vname;
public:
    void getv()
    {
        cout << endl << "Vehicle Name : ";
        cin >> vname;
    }
    void putv()
    {
        cout << endl << "Vehicle Name : " << vname << endl;
    }
}
```

```
};

class Car:public Vehicle
{
protected:
    string carcompany;
public:
    void getc()
    {
        getv();
        cout << "Name of The Company : ";
        cin >> carcompany;
    }
    void putc()
    {
        putv();
        cout << "Company Name : " << carcompany << endl;
    }
};

class Engine:public Car
{
    int chesisno;
public :
    void getdata()
    {
        getc();
```

```
        cout << "Enter chesis Number : ";
        cin >> chesisno;
    }
    void display()
    {
        putc();
        cout << "Chesis No.  : " << chesisno << endl;
    }
};

int main()
{
    Engine e1;
    cout << endl << "*****Enter The Information*****" << endl;
    e1.getdata();
    cout << endl << "-----Entered Information -----" << endl;
    e1.display();

    cout << "\n\n Made By: RUSHIK RATHOD \n      20DCS103 \n";
    return 0;
}
```


Output:

```
*****Enter The Information*****

Vehicle Name : ABC
Name of The Company : XYZ
Enter chesis Number : 123456

-----Entered Information -----

Vehicle Name : ABC
Company Name : XYZ
Chesis No.   : 123456

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Process returned 0 (0x0)   execution time : 11.749 s
Press any key to continue.
```

Thank you...