
OBJECT ORIENTED PROGRAMMING LABORATORY

LAB ASSIGNMENT 2

Problem Statement:

Develop an object oriented program in C++ to create a database of student information system containing the following information: Name, Roll number, Class, division, Date of Birth, Blood group, Contact address, telephone number, driving licence no.etc Construct the database with suitable member functions for initializing and destroying the data viz constructor, default constructor, Copy constructor, destructor, static member functions, friend class, this pointer, inline code and dynamic memory allocation operators- new and delete.

Main Program

```
#include <iostream>
#include <string>

using namespace std;

class Student {
private:
    string name, DOB, blood_grp, addr, year_class;
    string mob;
    int roll_no;
public:
    int div;

    Student() : roll_no(-1), div(-1) {}

    void add_data() {
        cout << "\nEnter student information: ";
        cout << "\nEnter Name: ";
        cin.ignore(); // Clear the input buffer
        getline(cin, name);

        cout << "\nEnter Roll No: ";
        cin >> roll_no;

        cout << "\nEnter Class Year: ";
        cin >> year_class;

        cout << "\nEnter Division(1/2/3/4/5): ";
        cin >> div;

        cout << "\nEnter Date of Birth: ";
        cin.ignore(); // Clear the input buffer
        getline(cin, DOB);
```

```

    cout << "\nEnter Blood Group: ";
    getline(cin, blood_grp);

    cout << "\nEnter Mobile Number: ";
    getline(cin, mob);

    cout << "\nEnter Address: ";
    getline(cin, addr);
}

void display() const {
    cout << "\n*****";
    cout << "\nName:                " << name;
    cout << "\nRoll No:                " << roll_no;
    cout << "\nYear(FE/SE/TE/BE):        " << year_class;
    cout << "\nDivision(1/2/3/4/5):      " << div;
    cout << "\nDate of Birth:            " << DOB;
    cout << "\nBlood Group:              " << blood_grp;
    cout << "\nMobile Number:            " << mob;
    cout << "\nAddress:                  " << addr;
    cout << "\n-----";
}

static void header() {
    cout << "\nStudent Information System" << endl;
}

};

class Faculty {
private:
    int id;
public:
    Faculty() : id(0) {}

    void f_display(const Student& obj, int f_d) const {
        try {
            if (obj.div == f_d)
                obj.display();
            else
                throw obj.div;
        } catch (int) {
            cout << "Invalid Division" << endl;
        }
    }
};

int main() {
    Student st[5];
    Faculty f;
    int ch = 0, count = 0;

```

```

do {
    cout << "\nStudent Information System";
    cout << "\nMenu";
    cout << "\n1. Add Information";
    cout << "\n2. Display Information";
    cout << "\n3. Faculty Wise Information";
    cout << "\n4. Exit";
    cout << "\nEnter your choice: ";
    cin >> ch;

    switch (ch) {
        case 1:
            if (count < 5) {
                st[count].add_data();
                count++;
            } else {
                cout << "Maximum student limit reached." << endl;
            }
            break;
        case 2:
            for (int j = 0; j < count; j++) {
                Student::header();
                st[j].display();
            }
            break;
        case 3:
            int f_div;
            cout << "\nEnter Division of Faculty: ";
            cin >> f_div;
            for (int j = 0; j < count; j++) {
                cout << "\nStudent Information System" << endl;
                f.f_display(st[j], f_div);
            }
            break;
        case 4:
            exit(0);
            cout<<"Exit";
        default:
            cout << "Invalid choice. Please try again." << endl;
    }
} while (ch != 4);

return 0;
}

```

OUTPUT:

Student Information System

Menu

1. Add Information
2. Display Information
3. Faculty Wise Information
4. Exit

Enter your choice: 1

Enter student information:

Enter Name: Anushka Vinod Patil

Enter Roll No: 25

Enter Class Year: 2024

Enter Division(1/2/3/4/5): 2

Enter Date of Birth: 06-08-2005

Enter Blood Group: b+ve

Enter Mobile Number: 9028121984

Enter Address: Vision heights, Makhmalabad Road, Nashik

Student Information System

Menu

1. Add Information
2. Display Information
3. Faculty Wise Information
4. Exit

Enter your choice: 1

Enter student information:

Enter Name: ABC

Enter Roll No: 11

Enter Class Year: 2024

Enter Division(1/2/3/4/5): 1

Enter Date of Birth: 9-9-2005

Enter Blood Group: a+ve

Enter Mobile Number: 8944510372

Enter Address: Vision Heights, Janata Raja Colony, Nashik

Student Information System

Menu

1. Add Information
2. Display Information
3. Faculty Wise Information
4. Exit

Enter your choice: 2

Student Information System

Name: Anushka Vinod Patil
Roll No: 25
Year(FE/SE/TE/BE): 2024
Division(1/2/3/4/5): 2
Date of Birth: 06-08-2005
Blood Group: b+ve
Mobile Number: 9028121984
Address: Vision heights, Makhmalabad Road, Nashik

Student Information System

Name: ABC
Roll No: 11
Year(FE/SE/TE/BE): 2024
Division(1/2/3/4/5): 1
Date of Birth: 9-9-2005
Blood Group: a+ve
Mobile Number: 8944510372
Address: Vision Heights, Janta Raja Colony, Nashik

Student Information System

Menu

1. Add Information
2. Display Information
3. Faculty Wise Information
4. Exit

Enter your choice: 3

Enter Division of Faculty: 2

Student Information System

Name: Anushka Vinod Patil
Roll No: 25
Year(FE/SE/TE/BE): 2024
Division(1/2/3/4/5): 2

Date of Birth: 06-08-2005
Blood Group: b+ve
Mobile Number: 9028121984
Address: Vision heights, Makhmalabad Road, Nashik

Student Information System

Menu

1. Add Information
2. Display Information
3. Faculty Wise Information
4. Exit

Enter your choice: 3

Enter Division of Faculty: 1

Student Information System

Name: ABC
Roll No: 11
Year(FE/SE/TE/BE): 2024
Division(1/2/3/4/5): 1
Date of Birth: 9-9-2005
Blood Group: a+ve
Mobile Number: 8944510372
Address: Vision Heights, Janta Raja Colony, Nashik

Student Information System

Menu

1. Add Information
2. Display Information
3. Faculty Wise Information
4. Exit

Enter your choice: 4

Exit

