

- ❖ *Develop a program in C++ to create a database of student's information system containing the following information: Name, Roll number, Class, Division, Date of Birth, Blood group, Contact address, Telephone number, Driving license no. and other. Construct the database with suitable member functions. Make use of constructor, default constructor, copy constructor, destructor, static member functions, friend class, this pointer, inline code and dynamic memory allocation operators-new and delete as well as exception handling*

```
#include <iostream>

#include <string>

using namespace std;

class StudData;

class Student
{
    string name;
    int rollNo;
    string cls;
    char *division;
    string dateOfBirth;
    char *bloodGroup;
    string caddress;
    long int *telno;
    long int *dlno;
    static int count;

public:
    Student() // Default Constructor
    {
        name = "";
        rollNo = 0;
        cls = "";
        division = new char;
        dateOfBirth = "dd/mm/yy";
        bloodGroup = new char[4];
        caddress = "";
    }
};
```

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```
        telno = new long;
        dlno = new long;

    }
    ~Student () // Destructor
    {
        delete division;
        delete[] bloodGroup;
        delete telno;
        delete dlno;
    }
    Student (const Student& ref)
    {
        // Copy Constructor
    }

    static int getCount() //Static Member Function
    {
        return count;
    }
    void getData(StudData *);
    void dispData(StudData *);

    friend class StudData; // Friend Class Declaration
};
class StudData
{

public:

    void getStudData(Student &s)
    {
```

```
        cout<<"Enter Contact Address: ";
        cin.get();
        getline(cin, s.caddress);
        cout<<"Enter Telephone Number: "<<endl;
        cin>>*(s.telno);
        cout<<"Enter Driving Licence Number: "<<endl;
        cin>>*(s.dlno);
    }
    void dispStudData(Student &s)
    {
        cout<<"Contact Address: "<<s.caddress<<endl;
        cout<<"Telephone Number: "<<*(s.telno)<<endl;
        cout<<"Driving Licence Number: "<<*(s.dlno)<<endl;
    }
};

inline void Student :: getData(StudData *st) // inline code
{
    cout<<"-----Enter Details-----"<<endl;
    cout<<"Enter Student Name: "<<endl;
    getline(cin, name);

    cout<<"Enter Roll Number: "<<endl;
    cin>>rollNo;
    cout<<"Enter Class: "<<endl;
    cin.get();
    getline(cin, cls);
    cout<<"Enter Division: ";
    cin>>division;
    cout<<"Enter Date of Birth: "<<endl;
    cin.get();
    getline(cin, dateOfBirth);
    cout<<"Enter Blood Group: "<<endl;
```

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```
    cin>>bloodGroup;
    st->getStudData(*this); // this pointer
    count++;
}
inline void Student :: dispData(StudData *st1) // inline code
{
    cout<<"-----Display Database Details-----"<<endl;
    cout<<"Student Name: "<<name<<endl;
    cout<<"Roll Number: "<<rollNo<<endl;
    cout<<"Class: "<<cls<<endl;
    cout<<"Division: "<<division<<endl;
    cout<<"Date of Birth: "<<dateOfBirth<<endl;
    cout<<"Blood Group: "<<bloodGroup<<endl;
    st1->dispStudData(*this); //this pointer
}
int Student :: count;
int main()
{
    // Execption Handling
    try
    {
        Student *stud1[100]; // Dynamic Memory Allocation
        StudData *stud2[100]; // Dynamic Memory Allocation

        int n = 0;
        char ch;
        do
        {
            stud1[n] = new Student; // Dynamic Memory Allocation Operator 'new'
            stud2[n] = new StudData; // Dynamic Memory Allocation Operator 'new'
            stud1[n]->getData(stud2[n]);
```

Practical 2

```
n++;  
  
cout<<"Do yo want to add another student (y/n): "<<endl;  
cin>>ch;  
cin.get();  
  
} while (ch == 'y' || ch == 'Y');  
  
for (int i = 0; i < n ; i++)  
{  
    cout<<"-----"<<endl;  
    stud1[i]->dispData(stud2[i]);  
}  
cout<<"-----"<<endl;  
cout<<"Total Students: "<<Student::getCount();  
cout<<endl;  
cout<<"-----"<<endl;  
  
for (int i = 0; i < n; i++)  
{  
    delete stud1[i]; // Dynamic Memory Allocation Operator 'delete'  
    delete stud2[i]; // Dynamic Memory Allocation Operator 'delete'  
}  
  
}  
catch(const exception& e)  
{  
    cout<<"An error occured: "<<e.what() <<endl;  
}  
  
return 0;  
}
```

// OUTPUT

```

-----Enter Details-----
Enter Student Name:
Mayur Zope
Enter Roll Number:
75
Enter Class:
SE
Enter Division: A
Enter Date of Birth:
06 08 2005
Enter Blood Group:
AB+
Enter Contact Address: NMIET HOSTEL
Enter Telephone Number:
1234567891
Enter Driving Licence Number:
98862147
Do yo want to add another student (y/n):
y
-----Enter Details-----
Enter Student Name:
XYZ
Enter Roll Number:
88
Enter Class:
SE
Enter Division: A
Enter Date of Birth:
04 12 2006
Enter Blood Group:
A+
Enter Contact Address: NMIET
Enter Telephone Number:
564782391
Enter Driving Licence Number:
8745326
Do yo want to add another student (y/n):
n

```

```

-----Display Database Details-----
Student Name: Mayur Zope
Roll Number: 75
Class: SE
Division: A
Date of Birth: 06 08 2005
Blood Group: AB+
Contact Address: NMIET HOSTEL
Telephone Number: 1234567891
Driving Licence Number: 98862147
-----Display Database Details-----
Student Name: XYZ
Roll Number: 88
Class: SE
Division: A
Date of Birth: 04 12 2006
Blood Group: A+
Contact Address: NMIET
Telephone Number: 564782391
Driving Licence Number: 8745326
-----
Total Students: 2
-----

```