

DON BOSCO INSTITUTE OF TECHNOLOGY



Skill Lab: C++ and Java Programming MINI PROJECT REPORT

On

“STUDENT MANAGEMENT SYSTEM” 2021-22

Submitted By:

Sanskar Kumar	35
Suraj Kumar	42

Under the guidance of
Ms. Deepali Kayande

Mini Project Title : Student Management System

Institute Name : Don Bosco Institute of Technology.

Institute Address : Premier Automobiles Road,
Kurla (West), Mumbai – 400070

Department : Electronics and Telecommunication

Class : Second Year (Sem 3)

Project Group Members :

	Names of students	Roll No.
1.	Sanskar Kumar	35
2.	Suraj Kumar	42

Date of Submission : 10|12|2021

Guide : Ms. Deepali Kayande

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CHAPTER 1

INTRODUCTION

1.1 Overview

C++, as we all know is an extension to C language and was developed by Bjarne Stroustrup at Bell Labs. C++ is an intermediate level language, as it comprises a combination of both high level and low level language features.

C++ introduces Object-Oriented Programming, not present in C. Like other things, C++ supports the four primary features of OOP: encapsulation, polymorphism, abstraction, and inheritance.

A function is a minimum requirement for a C++ program to run.

1.2 Project

Our project is based on Student Management System using File Handling.

1.3 The project contains the following scenarios :

- **Getting student details** : Get data from user and add a student data to the list of students.
- **Read data from file** : We can read the input data from the file.
- **Search data from file** : We can search the data from the file as per our requirement.
- **Delete data from the file** : We can delete the data if not required.
- **Modify data in file** : We can modify the data as per our convenience.

1.4 Following Header Filed have been used :

#include<iostream>

- It is used as a stream of Input and Output using cin and cout.

#include<fstream>

- It represents both output Stream and input Stream. So it can read from files and write to files.

#include <iomanip>

- It is used to set basefield flag. It is used to set fill character. It is used to set decimal precision. It is used to set field width.

#include <stdlib.h>

- It is of the general purpose standard header which includes functions of Dynamic Memory allocation and other Standard Functions.

CHAPTER 2

PROBLEM DEFINITION

The technological development and impact of computers and internet have been increased over time. And almost every task we do today is being run through computers.

However, the process of student management system is performed manually sometimes. So, this project aims at creating student management system, which will help in reducing time, effort and improving security.

This project results in the development of Student Management System using File Handling., which is developed using C++ programming language.

CHAPTER 3

IMPLEMENTATION

File Handling :

File handling in C++ is a mechanism to store the output of a program in a file and help perform various operations on it.

Files help store these data permanently on a storage device.

GITHUB CODE LINK:

<https://github.com/SanskarKumar777/Skill-Lab-with-OOPM/commit/d58fa989e81700391b9b98a944f37824ba8e605d>

```
// CODE of our mini project on student management system
```

```
#include <iostream>
#include <fstream>
#include <iomanip>
#include <stdlib.h>
```

```
using namespace std;
```

```
class Student
```

```
{
    int admno;
    char name[20];
    char gender;
    int std;
    float marks;
    float percentage;
```

```
public:
```

```
    void getData();
    void showData();
    int getAdmno() { return admno; }
} s;
```

```
void Student::getData()
```

```
{
    cout << "\n\nEnter Student Details.....\n";
    cout << "Enter Admission No.    : ";
    cin >> admno;
    cout << "Enter Full Name        : ";
    cin.ignore();
    cin.getline(name, 20);
    cout << "Enter Gender (M/F)      : ";
    cin >> gender;
    cout << "Enter Standard          : ";
```

```

        cin >> std;
        cout << "Enter Marks (out of 500): ";
        cin >> marks;
        cout << endl;
        percentage = marks * 100.0 / 500.00;
    }

void Student::showData()
{
    cout << "\n\n.....Student Details.....\n";
    cout << "Admission No.    : " << admno << endl;
    cout << "Full Name        : " << name << endl;
    cout << "Gender            : " << gender << endl;
    cout << "Standard          : " << std << endl;
    cout << "Marks (out of 500): " << marks << endl;
    cout << "Percentage         : " << percentage << endl;
    cout << endl;
}

void addData()
{
    ofstream fout;
    fout.open("Students.dat", ios::binary | ios::out | ios::app);
    s.getData();
    fout.write((char *)&s, sizeof(s));
    fout.close();
    cout << "\n\nData Successfully Saved to File....\n";
}

void displayData()
{
    ifstream fin;
    fin.open("Students.dat", ios::in | ios::binary);
    while (fin.read((char *)&s, sizeof(s)))
    {
        s.showData();
    }
    fin.close();
    cout << "\n\nData Reading from File Successfully Done....\n";
}

void searchData()
{
    int n, flag = 0;
    ifstream fin;
    fin.open("Students.dat", ios::in | ios::binary);
    cout << "Enter Admission Number you want to search : ";
    cin >> n;

    while (fin.read((char *)&s, sizeof(s)))
    {
        if (n == s.getAdmno())

```

```

        {
            cout << "The Details of Admission No. " << n << " shown herewith:\n";
            s.showData();
            flag++;
        }
    }
    fin.close();
    if (flag == 0)
        cout << "The Admission No. " << n << " not found....\n\n";
    cout << "\n\nData Reading from File Successfully Done....\n";
}

```

void deleteData()

```

{
    int n, flag = 0;
    ifstream fin;
    ofstream fout, tout;

    fin.open("Students.dat", ios::in | ios::binary);
    fout.open("TempStud.dat", ios::out | ios::app | ios::binary);
    tout.open("TrashStud.dat", ios::out | ios::app | ios::binary);

    cout << "Enter Admission Number you want to move to Trash : ";
    cin >> n;

    while (fin.read((char *)&s, sizeof(s)))
    {
        if (n == s.getAdmno())
        {
            cout << "The Following Admission No. " << n << " has been moved to
Trash:\n";

            s.showData();
            tout.write((char *)&s, sizeof(s));
            flag++;
        }
        else
        {
            fout.write((char *)&s, sizeof(s));
        }
    }
    fout.close();
    tout.close();
    fin.close();
    if (flag == 0)
        cout << "The Admission No. " << n << " not found....\n\n";
    remove("Students.dat");
    rename("tempStud.dat", "Students.dat");
}

```

void getTrash()

```

{
    ifstream fin;

```



```

        fin.open("TrashStud.dat", ios::in | ios::binary);
        while (fin.read((char *)&s, sizeof(s)))
        {
            s.showData();
        }
        fin.close();
        cout << "\n\nData Reading from Trash File Successfully Done....\n";
    }

void modifyData()
{
    int n, flag = 0, pos;
    fstream fio;

    fio.open("Students.dat", ios::in | ios::out | ios::binary);

    cout << "Enter Admission Number you want to Modify : ";
    cin >> n;

    while (fio.read((char *)&s, sizeof(s)))
    {
        pos = fio.tellg();
        if (n == s.getAdmno())
        {
            cout << "The Following Admission No. " << n << " will be modified with
new data:\n";

            s.showData();
            cout << "\n\nNow Enter the New Details....\n";
            s.getData();
            fio.seekg(pos - sizeof(s));
            fio.write((char *)&s, sizeof(s));
            flag++;
        }
    }
    fio.close();

    if (flag == 0)
        cout << "The Admission No. " << n << " not found....\n\n";
}

void project()
{
    int ch;
    do
    {
        system("cls");
        cout << ".....STUDENT MANAGEMENT SYSTEM.....\n";
        cout <<
"=====
        cout << "0. Exit from Program\n";
        cout << "1. Write Data to File\n";
        cout << "2. Read Data From File\n";
    }

```

```

        cout << "3. Search Data From File\n";
        cout << "4. Delete Data From File\n";
        cout << "5. Get Deleted Records from Trash file\n";
        cout << "6. Modify Data in File\n";
        cout << "Enter your choice : ";
        cin >> ch;
        system("cls");
        switch (ch)
        {
        case 1:
            addData();
            break;
        case 2:
            displayData();
            break;
        case 3:
            searchData();
            break;
        case 4:
            deleteData();
            break;
        case 5:
            getTrash();
            break;
        case 6:
            modifyData();
            break;
        }
        system("pause");
    } while (ch);
}

int main()
{
    system("color B0");
    project();
}

```

CHAPTER 4

RESULT SNAP SHOTS

WINDOW

C:\Users\sansk\MINI PROJECT C++\Student Management System.exe

```
.....STUDENT MANAGEMENT SYSTEM.....  
=====
```

0. Exit from Program
1. Write Data to File
2. Read Data From File
3. Search Data From File
4. Delete Data From File
5. Get Deleted Records from Trash file
6. Modify Data in File

Enter your choice :

ENTER DETAILS

C:\Users\sansk\MINI PROJECT C++\Student Management System.exe

```
Enter Student Details.....  
Enter Admission No.      : 1  
Enter Full Name          : Sanskar  
Enter Gender (M/F)       : M  
Enter Standard           : 12  
Enter Marks (out of 500): 478  
  
Data Successfully Saved to File....  
Press any key to continue . . .
```

SEARCH


C:\Users\sansk\MINI PROJECT C++\Student Management System.exe

```
Enter Admission Number you want to search : 1  
The Details of Admission No. 1 shown herewith:
```

```
.....Student Details.....  
Admission No.      : 1  
Full Name          : Sanskar  
Gender             : M  
Standard           : 12  
Marks (out of 500): 478  
Percentage         : 95.6
```

```
Data Reading from File Successfully Done....  
Press any key to continue . . .
```

MOVED TO TRASH

 C:\Users\sansk\MINI PROJECT C++\Student Management System.exe


```
Enter Admission Number you want to move to Trash : 1
The Following Admission No. 1 has been moved to Trash:
```

```
.....Student Details.....
```

```
Admission No.      : 1
Full Name          : Sanskar
Gender             : M
Standard           : 12
Marks (out of 500): 478
Percentage         : 95.6
```

```
Press any key to continue . . .
```

MODIFICATION PROCESS

 C:\Users\sansk\MINI PROJECT C++\Student Management System.exe

```
Enter Admission Number you want to Modify : 2
The Following Admission No. 2 will be modified with new data:
```

```
.....Student Details.....
```

```
Admission No.      : 2
Full Name          : Suraj
Gender             : M
Standard           : 11
Marks (out of 500): 389
Percentage         : 77.8
```

```
Now Enter the New Details....
```

```
Enter Student Details.....
```

```
Enter Admission No.      : 12
Enter Full Name          : Suraj
Enter Gender (M/F)       : 12
Enter Standard           : Enter Marks (out of 500): 401
```

```
Press any key to continue . . .
```

STORING ENTERED DATA

Sanskar Kumar > MINI PROJECT C++				
Name	Date modified	Type	Size	
Student Management System.cpp	10-12-2021 21:29	CPP File	5 KB	
Student Management System.exe	10-12-2021 21:29	Application	1,884 KB	
Students.dat	10-12-2021 22:38	DAT File	1 KB	
TrashStud.dat	10-12-2021 22:37	DAT File	1 KB	

CHAPTER 5 CONCLUSION

- The project Student Management System has been computed successfully.
- It is user friendly and has required options that can be utilized by the user to perform the desired operations.
- Main focus of this project is to lessen human effort and encourage efficient record keeping.
- The code is developed using C++ language.
- This project helps to store all the student data precisely and securely in the system .
- This was an effort to develop simple student management system .

CHAPTER 6

REFERENCES

<https://www.tutorialspoint.com/cplusplus/index.htm>

<https://www.geeksforgeeks.org/introduction-to-c-programming-language/>

<https://www.youtube.com/watch?v=GjzyCUqDMoA>

OUR VIDEO LINK : <https://github.com/SanskarKumar777/Skill-Lab-with-OOPM/commit/3aecc3affcc96cd7250d5ced6dcd04bfc4be4407>

THANKYOU !