

PROJECT

STUDENT LAPTOP

SCHEME

REPORT

In today's technologically advanced world, programming has become an indispensable skill, driving innovation and powering various industries. From mobile apps and websites to complex algorithms and artificial intelligence, the applications of programming are vast and ever-expanding. Understanding programming fundamentals is the key to unlocking this realm of infinite possibilities.

In our completed project on the Student Laptop Scheme application process, we have harnessed the power of programming by employing structure arrays, strings, and functions. By leveraging these essential programming components, we have successfully developed a robust and efficient system that facilitates the application process for students seeking laptops. The use of structure arrays has allowed us to organize and manage the relevant information pertaining to each student, ensuring seamless data handling. Strings have played a vital role in capturing and manipulating textual data, enabling us to collect necessary details such as student names, addresses, and contact information. Moreover, the implementation of functions has provided modularization and code reusability, streamlining the development process and enhancing the overall functionality of our application. Through the judicious utilization of these programming fundamentals, we have created a user-friendly and efficient solution that simplifies the student laptop scheme application process, making it more accessible and inclusive for aspiring learners.

Question:

Students' Laptop Scheme Application Process: Explore the application process for the Students' Laptop Scheme and develop a program that simplifies the application procedure. Utilize user-defined functions, arrays, structures, and at least three built-in string functions to create an efficient system for laptop scheme applications. Format the output using `<iomanip>` functions for improved readability.

PROGRAM:

```
#include <iostream>
#include <iomanip>
#include <string>
#include <limits>
using namespace std;

// Structure to hold student information
struct Student {
    string name;
    int nicnumber;
    string city;
    string fathername;
    string university;
    int regNumber;
    string department;
    int semester;
    int Academic_performance;
};
```

```

void displaymenu()
{

cout<<setw(85)<<"*****"
*****"<<endl;

    cout<<endl;

    cout<<setw(85)<<"__ WELCOME TO THE STUDENT LAPTOP SCHEME
APPLICATION____"<<endl;

    cout<<endl;


cout<<setw(85)<<"*****"
*****"<<endl;

}

void getStudentDetails(Student& student) {
    cout << "Enter student name: ";
    getline(cin, student.name);
    cout << "Enter student NIC number: ";
    cin>>student.nicnumber;
    cout << "Enter your city of residence: ";
    getline(cin>>ws, student.city);
    cout << "Enter your father name: ";
    getline(cin >>ws, student.fathername);
    cout << "Enter your university name: ";
    getline(cin, student.university);
    cout << "Enter roll number: ";
    cin>> student.regNumber;
    cout << "Enter department: ";

```

```

getline(cin >>ws, student.department);
cout << "Enter semester: ";
cin >> student.semester;
cout << "Enter Academic performance of the student(CGPA): ";
cin >> student.Academic_performance;

cin.ignore(numeric_limits<streamsize>::max(), '\n');
}

void displayStudentDetails(const Student& student) {

cout<<setw(70)<<"*****"<<endl;
cout<<endl;
cout<<setw(70)<<"____STUDENT DETAILS____"<<endl;
cout<<endl;
cout<<setw(70)<<"*****"<<endl;
cout << "NAME: " << student.name << endl;
cout << "STUDENT NIC NUMBER: " << student.nicnumber << endl;
cout << "STUDENT CITY: " << student.city << endl;
cout << "FATHER NAME: " << student.fathername << endl;
cout << "UNIVERSITY NAME: " << student.university << endl;
cout << "REGISTRATION NUMBER: " << student.regNumber << endl;
cout << "STUDENT DEPARTMENT: " << student.department << endl;
cout << "SEMESTER: " << student.semester << endl;
}

bool isEligible(const Student& student) {
    if (student.department == "CS" && student.Academic_performance >= 3) {

```

```

        return true; // Student is eligible
    } else {
        cout << "Student is ineligible due to one or more of the following
reasons:\n";

        if (student.department != "CS") {
            cout << "- Student does not belong to the CS department.\n";
        }

        if (student.Academic_performance < 3) {
            cout << "- Student has an Academic performance of less than 3
CGPA.\n";
        }

        return false; // Student is not eligible
    }
}

void submitApplication(const Student& student) {

    cout<<setw(70)<<"*****"<<endl;
    cout<<endl;
    cout<<setw(70)<<"__APPLICATION SUBMITTED SUCCESSFULLY__"<<endl;
    cout<<endl;

    cout<<setw(70)<<"*****"<<endl;

}

int main() {
    const int MAX_STUDENTS = 100;
    Student students[MAX_STUDENTS];

```

```

int numStudents;

displaymenu();

cout<<"_____ "<<endl;

cout<<"_____ "<<endl;

cout<<"HOW MANY STUDENTS WANT TO APPLY FOR THE APPLICATION:";

cin >> numStudents;

cout<<"_____ ";

cin.ignore(numeric_limits<streamsize>::max(), '\n'); // Clear input buffer


// total number of students allowed.
if (numStudents > MAX_STUDENTS) {

cout<<setw(70)<<"_____
_";

    cout<<setw(70)<<"___SORRY! YOUR APPLICATION CANNOT BE
PROCESSED___ ";

    cout<<setw(70)<<"_____MAXIMUM NUMBER OF STUDENTS ALLOWED
IS_____ " << MAX_STUDENTS << endl;

    return 1;

}


// Get details for each student
for (int i = 0; i < numStudents; i++) {

    cout << "\nStudent " << i + 1 << ":" << endl;

    getStudentDetails(students[i]);

}

```

```

// Display details and submit applications for eligible students
cout<<setw(75)<<"_____ "<<endl;
cout<<setw(75)<<"**** APPLICATION RESULTS****" <<endl;
cout<<setw(75)<<"_____ "<<endl;
for (int i = 0; i < numStudents; i++) {
    cout << "\nStudent " << i + 1 << ":" << endl;
    displayStudentDetails(students[i]);

    if (isEligible(students[i])) {
        cout<<endl;
        cout<<endl;

        cout<<setw(70)<<"_____ "<<endl;
        cout<<setw(70)<<"*****CONGRATULATIONS*****" <<endl;
        cout<<setw(70)<<"_YOU ARE ELLIGIBLE FOR THE LAPTOP APPLICATION_"<<endl;

        cout<<setw(70)<<"_____ "<<endl;
        cout<<endl;
        cout<<endl;

        submitApplication(students[i]);
    } else {
        cout<<endl;
        cout<<endl;

```

```
cout<<setw(70)<<"*****"<<endl;
```

```
    cout<<setw(70)<<"_____WE ARE  
SORRY_____"
```

```
    cout<<setw(70)<<"__YOU ARE NOT ELLIGIBLE FOR THE  
APPLICATION__"
```

```
cout<<setw(70)<<"_____"
```

```
cout<<setw(70)<<"*****"<<endl;
```

```
    }
```

```
    }
```

```
    return 0;
```

```
}
```


Output

```
C:\Users\RANA\OneDrive\Do X + v
*****
__WELCOME TO THE STUDENT LAPTOP SCHEME APPLICATION__
*****
-----
HOW MANY STUDENTS WANT TO APPLY FOR THE APPLICATION:5
-----
Student 1:
Enter student name: MARIA SABA
Enter student NIC number: 76543278
Enter your city of residence: ISLAMABAD
Enter your father name: NOOR M AWAN
Enter your university name: IIUI
Enter roll number: 672345
Enter department: CS
Enter semester: 4
Enter Academic performance of the student(CGPA): 4

Student 2:
Enter student name: RABAIL FATIMA
Enter student NIC number: 6734456
Enter your city of residence: MULTAN
Enter your father name: ZULFIKAR
Enter your university name: BZU
Enter roll number: 567
Enter department: CS
Enter semester: 5
Enter Academic performance of the student(CGPA): 2.8
```

```
C:\Users\RANA\OneDrive\Do  X + v - □ X
Student 3:
Enter student name: WAJEEHA NAWAZ
Enter student NIC number: 56781
Enter your city of residence: PESHAWAR
Enter your father name: NAWAZ ALI KHAN
Enter your university name: UNIVERSITY OF PESHAWAR
Enter roll number: 56789
Enter department: MANAGEMENT SCIENCES
Enter semester: 2
Enter Academic performance of the student(CGPA): 3

Student 4:
Enter student name: AIMAN FATIMA
Enter student NIC number: 67777777
Enter your city of residence: LAHORE
Enter your father name: ALI MALIK
Enter your university name: UMT LAHORE
Enter roll number: 566
Enter department: ELECTRICAL ENGINEERING
Enter semester: 4
Enter Academic performance of the student(CGPA): 2.9

Student 5:
Enter student name: AROOJ FATIMA BHATTI
Enter student NIC number: 666666
Enter your city of residence: FAISLABAD
Enter your father name: ASLAM BHATTI
Enter your university name: FAST CFD
Enter roll number: 678
Enter department: CS
Enter semester: 5
Enter Academic performance of the student(CGPA): 4
```

```
C:\Users\RANA\OneDrive\Do  X + v - □ X

**** APPLICATION RESULTS****
-----

Student 1:

*****

___STUDENT DETAILS___

*****

NAME: MARIA SABA
STUDENT NIC NUMBER: 76543278
STUDENT CITY: ISLAMABAD
FATHER NAME: NOOR M AWAN
UNIVERSITY NAME: IIUI
REGISTRATION NUMBER: 672345
STUDENT DEPARTMENT: CS
SEMESTER: 4

-----
*****CONGRATULATIONS*****
_YOU ARE ELLIGIBLE FOR THE LAPTOP APPLICATION_
-----

*****

__APPLICATION SUBMITTED SUCCESSFULLY__

*****
```

```
C:\Users\RANA\OneDrive\Do X + v - [ ] X

Student 2:

*****

____STUDENT DETAILS____

*****

NAME: RABAIL FATIMA
STUDENT NIC NUMBER: 6734456
STUDENT CITY: MULTAN
FATHER NAME: ZULFIKAR
UNIVERSITY NAME: BZU
REGISTRATION NUMBER: 567
STUDENT DEPARTMENT: CS
SEMESTER: 5
Student is ineligible due to one or more of the following reasons:
- Student has an Academic performance of less than 3 CGPA.

*****
_____WE ARE SORRY_____
__YOU ARE NOT ELLIGIBLE FOR THE APPLICATION__
_____
*****
```

```
C:\Users\RANA\OneDrive\Do X + v - [ ] X

Student 3:

*****

____STUDENT DETAILS____

*****

NAME: WAJEEHA NAWAZ
STUDENT NIC NUMBER: 56781
STUDENT CITY: PESHAWAR
FATHER NAME: NAWAZ ALI KHAN
UNIVERSITY NAME: UNIVERSITY OF PESHAWAR
REGISTRATION NUMBER: 56789
STUDENT DEPARTMENT: MANAGEMENT SCIENCES
SEMESTER: 2
Student is ineligible due to one or more of the following reasons:
- Student does not belong to the CS department.

*****
_____WE ARE SORRY_____
__YOU ARE NOT ELLIGIBLE FOR THE APPLICATION__
_____
*****
```

```
C:\Users\RANA\OneDrive\Do  X + v - □ X

Student 4:

*****

___STUDENT DETAILS___

*****

NAME: AIMAN FATIMA
STUDENT NIC NUMBER: 6777777
STUDENT CITY: LAHORE
FATHER NAME: ALI MALIK
UNIVERSITY NAME: UMT LAHORE
REGISTRATION NUMBER: 566
STUDENT DEPARTMENT: ELECTRICAL ENGINEERING
SEMESTER: 4
Student is ineligible due to one or more of the following reasons:
- Student does not belong to the CS department.
- Student has an Academic performance of less than 3 CGPA.

*****
_____WE ARE SORRY_____
__YOU ARE NOT ELLIGIBLE FOR THE APPLICATION__
_____
*****
```

```
C:\Users\RANA\OneDrive\Do  X + v - □ X

Student 5:

*****

___STUDENT DETAILS___

*****

NAME: AROOJ FATIMA BHATTI
STUDENT NIC NUMBER: 666666
STUDENT CITY: FAISLABAD
FATHER NAME: ASLAM BHATTI
UNIVERSITY NAME: FAST CFD
REGISTRATION NUMBER: 678
STUDENT DEPARTMENT: CS
SEMESTER: 5

*****CONGRATULATIONS*****
__YOU ARE ELLIGIBLE FOR THE LAPTOP APPLICATION__
_____

*****
__APPLICATION SUBMITTED SUCCESSFULLY__
_____
*****
```

