

**A
PROJECT REPORT
ON
“STUDENT REPORT CARD SYSTEM”**

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SUBJECT:

**PROGRAMMING AND
PROBLEM SOLVING
USING C++**

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INTRODUCTION

The Student Report Card System is a software application designed to manage and process the academic performance of students. This system allows users, such as teachers or administrators, to input student details, including their names, roll numbers, and marks obtained in various subjects.

The system then automatically calculates the total marks, average marks, and assigns a grade based on the student's performance. It provides a structured and efficient way to generate report cards, making it easier to track and evaluate student progress.

- **The primary goal of the system is to:**
- Simplify the process of calculating and managing student mark.
- Provide an accurate and automated way of calculating grades.
- Allow quick access to individual student performance records.
- Determine the grade based on the average marks.
- This system can be extended to handle multiple students, making it a useful tool in educational institutions.

CODE

```
#include <iostream>
using namespace std;

string name;
int rollNo;
int numSubjects;
float marks[100];
float totalMarks;
float average;
string grade;

void addStudent()
{
    cout << "Enter Student Name: ";
    cin >> name;
    cout << "Enter Roll Number: ";
    cin >> rollNo;
    cout << "Enter number of subjects: ";
    cin >> numSubjects;

    totalMarks = 0;
    for (int i = 0; i < numSubjects; i++)
    {
        cout << "Enter marks for Subject " << i + 1 << ": ";
        cin >> marks[i];
        totalMarks += marks[i];
    }

    average = totalMarks / numSubjects;
```

```

if (average >= 90) {
    grade = "A";
} else if (average >= 80) {
    grade = "B";
} else if (average >= 70) {
    grade = "C";
} else if (average >= 60) {
    grade = "D";
} else {
    grade = "F";
}
cout << "Student added successfully!\n";
}

```

```

void displayReportCard()
{
    cout << "-----\n";
    cout << "Report Card for: " << name << "\n";
    cout << "Roll Number: " << rollNo << "\n";
    cout << "-----\n";
    cout << "Marks:\n";
}

```

```

for (int i = 0; i < numSubjects; i++)
{
    cout << "Subject " << i + 1 << ": " << marks[i] << ".00\n";
}
    cout << "-----\n";
    cout << "Total Marks: " << totalMarks << ".00\n";
    cout << "Average Marks: " << average << ".00\n";
    cout << "Grade: " << grade << "\n";
    cout << "-----\n";
}

```

```

int main() {
    int choice;

    do {
        cout << "Student Report Card System\n";
        cout << "1. Add Student\n";
        cout << "2. Display Report Card\n";
        cout << "3. Exit\n";
        cout << "Enter your choice (1-3): ";
        cin >> choice;

        switch (choice) {

            case 1:
                addStudent();
                break;

            case 2:
                displayReportCard();
                break;

            case 3:
                cout << "Exiting the system..!\n";
                break;
            default:
                cout << "Invalid choice. Please try again.\n";
            }
        }
        while (choice != 3);

        return 0;
    }
}

```

Key Features:

1. **Add student details:** Add a student's name, roll number, and grades for multiple subjects.
2. **Calculate total and average marks:** Automatically compute the total and average marks for each student.
3. **Assign grades:** Grade students based on their average marks.
4. **Display student report card:** Print the complete report card including the total marks, average marks, and grade.

How It Works:

1. Add Student:

The user provides student details such as name, roll number, and marks for each subject. These details are stored and then it automatically calculates total and average marks, as well as assigns a grade.

2. Display Report Card:

The system lists all students and their report cards. Each report card contains subject-wise marks, total marks, average marks, and the final grade.

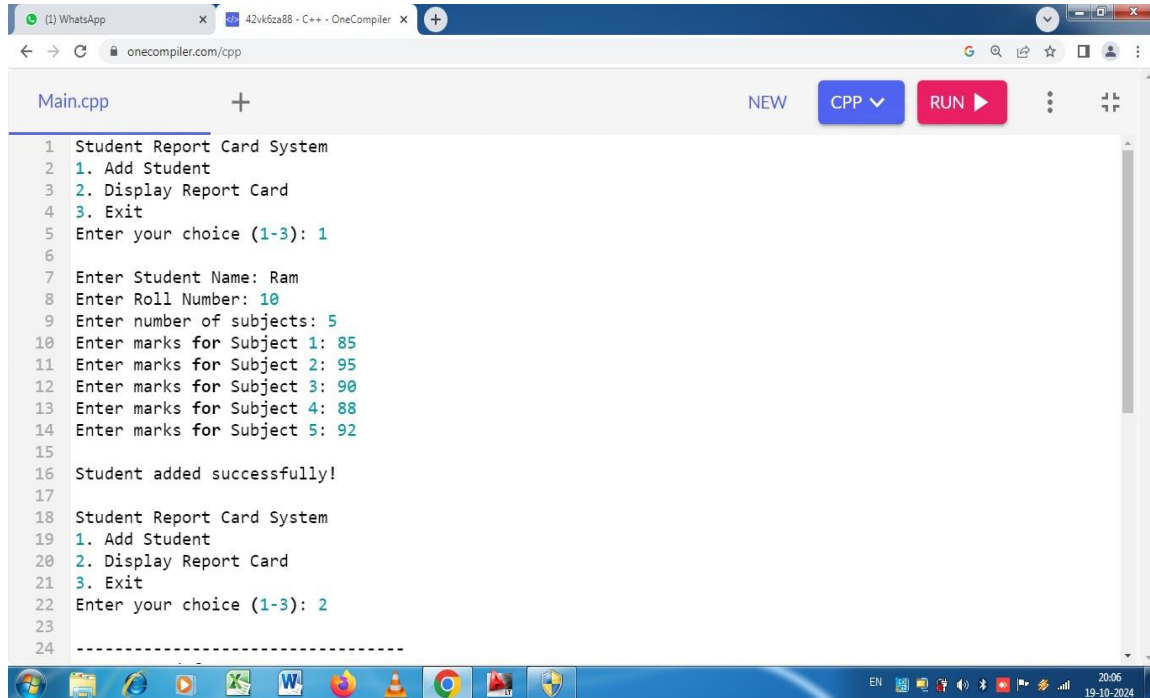
3. Grade Calculation:

The grades are assigned based on average marks, as outlined in the assignGrade() function. Students who score below 45% will receive a failing grade (F).

4. Exit:

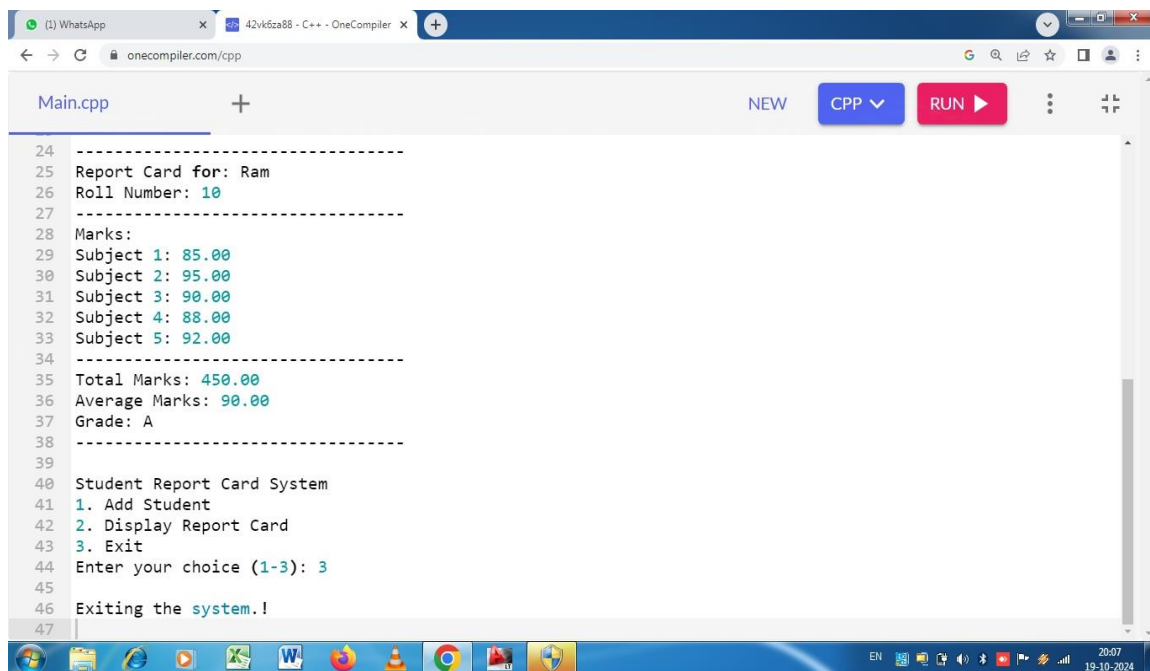
The user can exit the system at any time by selecting option 3.

OUTPUT



The screenshot shows a web browser window with the OneCompiler website. The file 'Main.cpp' is open, and the code is being executed. The output in the terminal shows the 'Student Report Card System' menu with options 1 (Add Student), 2 (Display Report Card), and 3 (Exit). The user has chosen option 1. The program prompts for the student's name (Ram), roll number (10), and the number of subjects (5). It then prompts for marks for each subject: Subject 1 (85), Subject 2 (95), Subject 3 (90), Subject 4 (88), and Subject 5 (92). The output confirms that the student was added successfully.

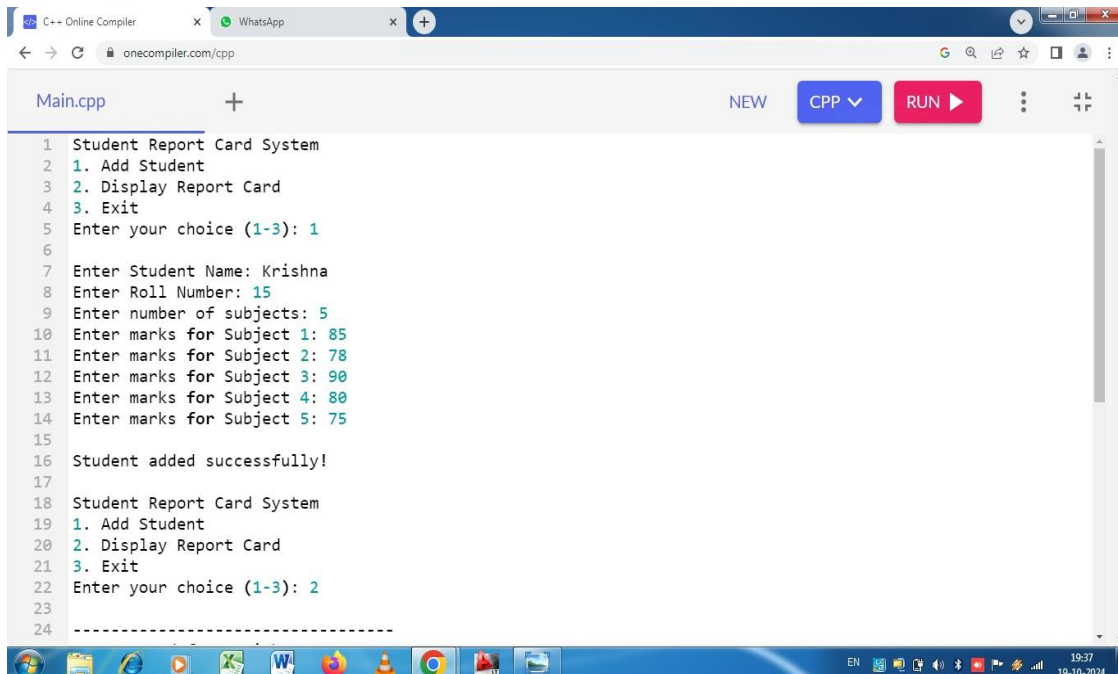
```
1 Student Report Card System
2 1. Add Student
3 2. Display Report Card
4 3. Exit
5 Enter your choice (1-3): 1
6
7 Enter Student Name: Ram
8 Enter Roll Number: 10
9 Enter number of subjects: 5
10 Enter marks for Subject 1: 85
11 Enter marks for Subject 2: 95
12 Enter marks for Subject 3: 90
13 Enter marks for Subject 4: 88
14 Enter marks for Subject 5: 92
15
16 Student added successfully!
17
18 Student Report Card System
19 1. Add Student
20 2. Display Report Card
21 3. Exit
22 Enter your choice (1-3): 2
23
24 -----
```



The screenshot shows the continuation of the C++ program output. The terminal displays the report card for the student 'Ram' with roll number 10. It lists the marks for each subject: Subject 1 (85.00), Subject 2 (95.00), Subject 3 (90.00), Subject 4 (88.00), and Subject 5 (92.00). It also calculates the total marks (450.00), average marks (90.00), and assigns a grade of 'A'. The program then displays the menu again, and the user has chosen option 3 (Exit). The program outputs 'Exiting the system.!'.

```
24 -----
25 Report Card for: Ram
26 Roll Number: 10
27 -----
28 Marks:
29 Subject 1: 85.00
30 Subject 2: 95.00
31 Subject 3: 90.00
32 Subject 4: 88.00
33 Subject 5: 92.00
34 -----
35 Total Marks: 450.00
36 Average Marks: 90.00
37 Grade: A
38 -----
39
40 Student Report Card System
41 1. Add Student
42 2. Display Report Card
43 3. Exit
44 Enter your choice (1-3): 3
45
46 Exiting the system.!
47
```


EXAMPLE



The screenshot shows a web browser window with the C++ Online Compiler. The code in Main.cpp is as follows:

```
1 Student Report Card System
2 1. Add Student
3 2. Display Report Card
4 3. Exit
5 Enter your choice (1-3): 1
6
7 Enter Student Name: Krishna
8 Enter Roll Number: 15
9 Enter number of subjects: 5
10 Enter marks for Subject 1: 85
11 Enter marks for Subject 2: 78
12 Enter marks for Subject 3: 90
13 Enter marks for Subject 4: 80
14 Enter marks for Subject 5: 75
15
16 Student added successfully!
17
18 Student Report Card System
19 1. Add Student
20 2. Display Report Card
21 3. Exit
22 Enter your choice (1-3): 2
23
24
```

The output of the program is visible in the terminal area, showing the successful addition of a student named Krishna with roll number 15 and 5 subjects with marks 85, 78, 90, 80, and 75.



The screenshot shows the same C++ Online Compiler window, but now displaying the output of the program after the second run. The code in Main.cpp is as follows:

```
23
24 -----
25 Report Card for: Krishna
26 Roll Number: 15
27 -----
28 Marks:
29 Subject 1: 85.00
30 Subject 2: 78.00
31 Subject 3: 90.00
32 Subject 4: 80.00
33 Subject 5: 75.00
34 -----
35 Total Marks: 408.00
36 Average Marks: 81.60
37 Grade: B
38 -----
39
40 Student Report Card System
41 1. Add Student
42 2. Display Report Card
43 3. Exit
44 Enter your choice (1-3): 3
45
46 Exiting the system.!
```

The output shows the calculated total marks (408.00), average marks (81.60), and grade (B) for the student Krishna.

CONCLUSION

In conclusion, the Student Report Card System in C++ is an efficient and user-friendly tool designed to automate the process of managing student performance data. It simplifies the tasks of calculating total and average marks, assigning grades, and generating report cards. By reducing manual errors and saving time, it provides an effective solution for educational institutions to track student progress. The system's structured design ensures that it can handle multiple students with ease, making it a valuable resource for teachers and administrators alike.