Student Report Card Generator

Subject: Object Oriented Programming in C++ **Submitted by :** Kirtee Thakur

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ABSTRACT

This mini project is based on the topic **"Student Report Card Generator"**, which is made using the concepts of **Object-Oriented Programming (OOP)** in C++.
The main idea of this project is to make a simple system that can take marks of a student in different subjects and then automatically calculate **total marks, percentage, and grade**.

In real life, teachers often calculate report cards manually which takes time and may cause mistakes. This small project helps to make that process automatic and accurate.
It mainly uses C++ features like **classes, objects, functions, and if-else statements**.

The project is easy to understand and shows how OOP can be used to handle real-life problems like managing student results. Through this, I learned how to use classes and data members properly and how to display results neatly using functions.

OBJECTIVE

- To understand how Object-Oriented Programming can be applied in real situations.
- To make a simple C++ program for generating report cards automatically.

- To practice the use of **classes, functions, and encapsulation**.
- To reduce manual work and calculate grades easily and correctly.

CODE IMPLEMENTATION

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

class Student {
private:
    string name;
    int roll;
    float marks[5];
    float total, percent;
    char grade;

public:
    void getData() {
        cout << "\nEnter Student Name: ";
        getline(cin, name);
        cout << "Enter Roll Number: ";
        cin >> roll;
        cout << "Enter marks of 5 subjects (out of 100):\n";
        total = 0;
        for (int i = 0; i < 5; i++) {
            cout << "Subject " << i + 1 << ": ";
            cin >> marks[i];
            total += marks[i];
        }
```

```
27          calculate();
28      }
29
30      void calculate() {
31          percent = total / 5;
32          if (percent >= 90)
33              grade = 'A';
34          else if (percent >= 75)
35              grade = 'B';
36          else if (percent >= 60)
37              grade = 'C';
38          else if (percent >= 45)
39              grade = 'D';
40          else
41              grade = 'F';
42      }
43
44      void showData() {
45          cout << "\n-------- Student Report Card --------\n";
46          cout << "Name: " << name << endl;
47          cout << "Roll No: " << roll << endl;
48          cout << "-------------------------------------\n";
49          for (int i = 0; i < 5; i++)
50              cout << "Subject " << i + 1 << ": " << marks[i] << endl;
51          cout << "-------------------------------------\n";
52          cout << "Total Marks: " << total << "/500\n";
53          cout << "Percentage: " << fixed << setprecision(2) << percent << "%\n";
54          cout << "Grade: " << grade << endl;
55          cout << "-------------------------------------\n";
56      }
57  };
58
59  int main() {
60      cin.ignore();
61      Student s;
62      s.getData();
63      s.showData();
64      return 0;
65  }
```

OUTPUT

```
Enter Student Name: Kirtee Thakur
Enter Roll Number: 101
Enter marks of 5 subjects (out of 100):
Subject 1: 85
Subject 2: 91
Subject 3: 78
Subject 4: 88
Subject 5: 92

-------- Student Report Card --------
Name: Kirtee Thakur
Roll No: 101
---------------------------------------
Subject 1: 85
Subject 2: 91
Subject 3: 78
Subject 4: 88
Subject 5: 92
---------------------------------------
Total Marks: 434/500
Percentage: 86.80%
Grade: B
---------------------------------------
```

EXPLANATION

In this program, I created a class called **Student**. It has variables like name, roll number, marks, total, percentage, and grade.
I used three main functions in the program:

getData() – to take input of name, roll number, and marks.

calculate() – to find total, percentage, and grade using if-else statements.

showData() – to display all the student details in a report card format.

In main(), I made one object of the Student class and called these functions step by step. The program uses the <iomanip> header to show percentage up to two decimal points.

This project shows how using **classes and functions together** makes the code more organized. It also helped me understand how to separate logic and display parts clearly.

CONCLUSION

The **Student Report Card Generator** project was very useful for understanding the concept of Object-Oriented Programming in a simple way.
It made me realize how OOP helps in building small real-life systems easily by combining data and functions inside a single class.

This project can be improved in the future by adding features like:

Saving data in a file using file handling.

Generating report cards for multiple students.

Showing remarks based on the grade.

Overall, this mini project helped me strengthen my basics of C++ and gave me confidence in using OOP features practically.