

✓ Student Marks and Grades Summary

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def calculate_grades():
    while True:
        try:
            num_students = int(input("Enter the number of students: "))
            break
        except ValueError:
            print("Invalid input. Please enter a number.")

    students = []
    total_marks_all_students = 0

    for i in range(num_students):
        name = input(f"Enter the name of student {i+1}: ")
        marks = []
        for j in range(3):
            while True:
                try:
                    mark = int(input(f"Enter marks for subject {j+1} for {name}: "))
                    marks.append(mark)
                    break
                except ValueError:
                    print("Invalid input. Please enter a number for the marks.")

        total_marks = sum(marks)
        average_marks = total_marks / 3
        total_marks_all_students += total_marks

        grade = ""
        if average_marks >= 90:
            grade = "A"
        elif average_marks >= 80:
            grade = "B"
        elif average_marks >= 70:
            grade = "C"
        elif average_marks >= 60:
            grade = "D"
        else:
            grade = "F"

        students.append({
            "name": name,
            "marks": marks,
            "total": total_marks,
            "average": average_marks,
            "grade": grade
        })

    print("\n--- Student Marks and Grades Summary ---")
    for student in students:
        print(f"\nStudent: {student['name']}")
        print(f"Total Marks: {student['total']}")
        print(f"Average Marks: {student['average']:.2f}")
        print(f"Grade: {student['grade']}")

    class_average = total_marks_all_students / (num_students * 3)

    topper = max(students, key=lambda x: x['total'])

    print("\n--- Class Summary ---")
    print(f"Class Average: {class_average:.2f}")
    print(f"Class Topper: {topper['name']} with {topper['total']} marks")

calculate_grades()
```

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↩ Enter the number of students: 20
Enter the name of student 1: Aman
Enter marks for subject 1 for Aman: 96
Enter marks for subject 2 for Aman: 92
Enter marks for subject 3 for Aman: 95
Enter the name of student 2: Aakash
Enter marks for subject 1 for Aakash: 75
Enter marks for subject 2 for Aakash: 59
Enter marks for subject 3 for Aakash: 56
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Enter the name of student 3: Arpita
Enter marks for subject 1 for Arpita: 96
Enter marks for subject 2 for Arpita: 87
Enter marks for subject 3 for Arpita: 94
Enter the name of student 4: Anshu
Enter marks for subject 1 for Anshu: 86
Enter marks for subject 2 for Anshu: 96
Enter marks for subject 3 for Anshu: 58
Enter the name of student 5: Arush
Enter marks for subject 1 for Arush: 76
Enter marks for subject 2 for Arush: 86
Enter marks for subject 3 for Arush: 87
Enter the name of student 6: Aadarsh
Enter marks for subject 1 for Aadarsh: 95
Enter marks for subject 2 for Aadarsh: 95
Enter marks for subject 3 for Aadarsh: 75
Enter the name of student 7: Sakchi
Enter marks for subject 1 for Sakchi: 86
Enter marks for subject 2 for Sakchi: 96
Enter marks for subject 3 for Sakchi: 68
Enter the name of student 8: Mahi
Enter marks for subject 1 for Mahi: 69
Enter marks for subject 2 for Mahi: 81
Enter marks for subject 3 for Mahi: 73
Enter the name of student 9: Mantu
Enter marks for subject 1 for Mantu: 86
Enter marks for subject 2 for Mantu: 85
Enter marks for subject 3 for Mantu: 57
Enter the name of student 10: Riya
Enter marks for subject 1 for Riya: 97
Enter marks for subject 2 for Riya: 96
Enter marks for subject 3 for Riya: 99
Enter the name of student 11: Chotu
Enter marks for subject 1 for Chotu: 89
Enter marks for subject 2 for Chotu: 67
Enter marks for subject 3 for Chotu: 87
Enter the name of student 12: Nayan
Enter marks for subject 1 for Nayan: 87
Enter marks for subject 2 for Nayan: 87
Enter marks for subject 3 for Nayan: 89
Enter the name of student 13: Ayush
Enter marks for subject 1 for Ayush: 87
Enter marks for subject 2 for Ayush: 79
Enter marks for subject 3 for Ayush: 93
Enter the name of student 14: Juli
Enter marks for subject 1 for Juli: 87
Enter marks for subject 2 for Juli: 95
Enter marks for subject 3 for Juli: 69
Enter the name of student 15: Prince
```