S.No: 1	Exp. Name: ***Project Module***	Date:2024-05-20

Aim:

Project Module.

Source Code:

CTP28132.py

```
def calculate_grade(marks):
    if marks >= 90:
        return "A+"
    elif 80 <= marks < 90:
        return "A"
    elif 70 <= marks < 80:
        return "B+"
    elif 60 <= marks < 70:
        return "B"
    elif 50 <= marks < 60:
        return "C+"
    elif 40 <= marks < 50:
        return "C"
    else:
        return "F"

def add_student(students, name, marks):
    students[name] = {
        'marks': marks,
        'grade': calculate_grade(marks)
    }

def view_all_students(students):
    print("All Students:")
    for name, student in students.items():
        print(f"Name: {name}, Marks: {student['marks']}, Grade: {student['grad
e']}")

def view_grade_statistics(students):
    grades = {}
    for name, student in students.items():
        grade = student['grade']
        if grade not in grades:
            grades[grade] = []
        grades[grade].append(name)

    print("Grade Statistics:")
    for grade, student_names in grades.items():
        print(f"{grade}: {len(student_names)}")
        for student_name in student_names:
            print(f" Name: {student_name}")

def main():
    students = {}

    while True:
```

```
        print("\nOptions:")
        print("1. Add Student")
        print("2. View All Students")
        print("3. View Grade Statistics")
        print("4. Exit")

        choice = input("Enter your choice: ")

        if choice == "1":
            name = input("Enter student's name: ")
            try:
                marks = float(input("Enter student's marks: "))
                if marks < 0 or marks > 100:
                    print("Invalid marks! Marks should be between 0 and 100.")
                else:
                    add_student(students, name, marks)
                    print("Student added successfully!")
            except ValueError:
                print("Invalid input! Please enter numeric value for marks.")
        elif choice == "2":
            view_all_students(students)
        elif choice == "3":
            view_grade_statistics(students)
        elif choice == "4":
            print("Exiting program...")
            break
        else:
            print("Invalid choice! Please enter a valid option.")

if __name__ == "__main__":
    main()
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Hello World
Hello World