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Title

Student Information Management Using Dictionary

Question No : 1 / 1

Problem Statement

Create a **C# program** to **store and retrieve student information using a Dictionary**.
The program should allow users to **add students** to the dictionary and **display the details of all students**.

Write the solution within the **Program.cs** file.

Requirements

The program should have the following classes:

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1. Student Class

Create a **public class** called `Student`.

Properties

- `Id (int)` – Represents the student's ID
- `Name (string)` – Represents the student's name
- `Grade (string)` – Represents the student's grade

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2. StudentManager Class

Create a **public class** called `StudentManager`.

Properties

- `Students (Dictionary<int, Student>)`
  → Represents the collection of students

Methods

- `AddStudent(Student student)`
  → Adds a student to the dictionary
- `DisplayStudents()`
  → Displays the details of all students

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3. Program Class

(Contains the **Main** method)

Main Method Responsibilities

- Create an instance of `StudentManager`
- Prompt the user to enter the **number of students**
- Use a loop to:
  - Read **ID**
  - Read **Name**
  - Read **Grade**
- Create a `Student` object using:
- `Student { Id = id, Name = name, Grade = grade }`
- Add the student to the dictionary using `AddStudent`
- After adding all students, display the student details using `DisplayStudents`

Input Format

- First line: Number of students
- For each student:
  - Line 1: ID
  - Line 2: Name
  - Line 3: Grade

Output Format

Refer to the sample output.

Test Cases

Test Case ID	Input	Expected Output
TC01	2 students entered	Both students displayed
TC02	1 student entered	Single student displayed
TC03	Duplicate IDs	Last added student overwrites previous

Sample Input 1

```
2
1
XYZ
A
2
ABC
C
```

Sample Output 1

```
Student Information:
ID: 1, Name: XYZ, Grade: A
ID: 2, Name: ABC, Grade: C
```

```
using System;

using System.Collections.Generic;



public class Student

{

   public int Id { get; set; }

   public string Name { get; set; }

   public string Grade { get; set; }
```

```
}

public class StudentManager
{
    public Dictionary<int, Student> Students { get; set; }

    public StudentManager()
    {
        Students = new Dictionary<int, Student>();
    }

    public void AddStudent(Student student)
    {
        // If duplicate ID exists, it will overwrite (as required)
        Students[student.Id] = student;
    }

    public void DisplayStudents()
    {
        Console.WriteLine("Student Information:");
        foreach (KeyValuePair<int, Student> entry in Students)
        {
            Student s = entry.Value;
            Console.WriteLine(
                "ID: {0}, Name: {1}, Grade: {2}",
```

```
            s.Id, s.Name, s.Grade
        );
    }
  }
}

public class Program
{
  static void Main()
  {
    StudentManager manager = new StudentManager();

    int count = Convert.ToInt32(Console.ReadLine());

    for (int i = 0; i < count; i++)
    {
      int id = Convert.ToInt32(Console.ReadLine());
      string name = Console.ReadLine();
      string grade = Console.ReadLine();

      Student student = new Student
      {
        Id = id,
        Name = name,
        Grade = grade
```

```
            };

            manager.AddStudent(student);
        }

        manager.DisplayStudents();
    }
}
```