

Project : Student Management System

Introduction

This is a console-based Student Management System built using C# (.NET) and SQL Server. It allows users to perform basic CRUD operations on student records, such as adding, viewing, updating, and deleting students. The application also supports filtering students by grade and age.

OUTPUT:

```
--- Student Management System ---
1. Add Student
2. View Students
3. Update Student
4. Delete Student
5. Filter by Grade
6. Filter by Age
0. Exit
Enter your choice: 1
Name: Moni
Age: 22
Grade: A
Email: moni@gmail.com
Student added successfully.
```

```
--- Student Management System ---
1. Add Student
2. View Students
3. Update Student
4. Delete Student
5. Filter by Grade
6. Filter by Age
0. Exit
Enter your choice: 4
Enter Student ID to Delete: 10
Student deleted successfully.
```

```
--- Student Management System ---
1. Add Student
2. View Students
3. Update Student
4. Delete Student
5. Filter by Grade
6. Filter by Age
0. Exit
Enter your choice: 2
ID: 2, Name: Arun Kumar, Age: 20, Grade: B, Email: arun.k@example.com
ID: 3, Name: Priya S, Age: 22, Grade: A, Email: priya.s@example.com
ID: 4, Name: Ravi M, Age: 19, Grade: C, Email: ravi.m@example.com
ID: 5, Name: Sneha L, Age: 23, Grade: B, Email: sneha.l@example.com
ID: 6, Name: dharsh, Age: 23, Grade: A, Email: Dharsh@gmail.com
ID: 8, Name: Moni, Age: 21, Grade: A, Email: moni123@gmail.com
ID: 11, Name: Moni, Age: 22, Grade: A, Email: moni@gmail.com
```

```

--- Student Management System ---
1. Add Student
2. View Students
3. Update Student
4. Delete Student
5. Filter by Grade
6. Filter by Age
0. Exit
Enter your choice: 5
Enter Grade to Filter: A
Students in Grade A:
3 - Priya S, Age: 22, Email: priya.s@example.com
6 - dharsh, Age: 23, Email: Dharsh@gmail.com
8 - Moni, Age: 21, Email: moni123@gmail.com
11 - Moni, Age: 22, Email: moni@gmail.com

--- Student Management System ---
1. Add Student
2. View Students
3. Update Student
4. Delete Student
5. Filter by Grade
6. Filter by Age
0. Exit
Enter your choice: 6
Enter Age to Filter: 22
Students with Age 22:
3 - Priya S, Grade: A, Email: priya.s@example.com
11 - Moni, Grade: A, Email: moni@gmail.com

--- Student Management System ---
1. Add Student
2. View Students
3. Update Student
4. Delete Student
5. Filter by Grade
6. Filter by Age
0. Exit
Enter your choice: 0
Exiting...

```

TESTING

The screenshot shows the Test Explorer window in Visual Studio. The top bar indicates the test run status: 5 tests passed, 0 failed, and 0 skipped, with a total duration of 4.6 seconds. The test results are displayed in a table with columns for Test, Duration, Traits, and Error Message. The tests are grouped under StudentLibraryClass (5), StudentTests (5), and StudentServiceTests (5). The right pane shows the Group Summary for StudentLibraryClass, indicating that 5 tests passed and the total duration was 2 seconds.

Test	Duration	Traits	Error Message
StudentLibraryClass (5)	2 sec		
StudentTests (5)	2 sec		
StudentServiceTests (5)	2 sec		
AddStudent_ShouldInsertStudent	2 sec		
DeleteStudent_InvalidId_Should...	5 ms		
FilterByAge_ShouldNotThrow	40 ms		
FilterByGrade_ShouldNotThrow	5 ms		
ViewStudents_ShouldNotThrow	4 ms		

Group Summary
StudentLibraryClass
Tests in group: 5
Total Duration: 2 sec
Outcomes
5 Passed