

Waqar Report

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Submission date: 22-Nov-2025 06:51PM (UTC+0500)

Submission ID: 2824085403

File name: COAL_LAB_PROJECT.docx (8.76K)

Word count: 443

Character count: 2296

COAL LAB PROJECT

Student Statistics Management System

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1. Introduction

The Student Statistics Management System is a command-line application implemented in Assembly Language, MASM, using the Irvine32 library. This system allows maintenance of student records and several analytical calculations, such as totals, averages, and grades. It also shows how to use arrays, loops, string manipulation, and arithmetic in the Assembly language.

2. Problem Statement

On one hand, students and teachers need an easy way to store and analyze the performance of students without complicated GUIs. On the other hand, there is a lack of meaningful projects that most learners of Assembly can do. This system tries to fill these gaps by providing a functional and instructive tool that shows real data handling in Assembly.

3. Objectives

- Store information about students, namely student name, ID, and marks.
- Calculate total marks, average, and grade for each student.
- Arrange students in increasing order according to total marks.
- Search records by name or by ID number.
- Display class statistics including highest, lowest, and average marks.

4. Features of the Project

- Menu-driven console interface.
- Add, update, and delete student records.
- Search functionality by name or ID.
- Calculation of total marks, average marks, and grades.
- Sorting of students on the basis of total marks.
- Display class statistics: highest, lowest, and average marks.
- Clean and readable console output.

6. Methodology

- Display a menu in a user-friendly format.

- Save the names, IDs, and marks in arrays.
- Allow the user to insert, update, or delete records.
- Use loops and arithmetic to calculate totals and averages. Assign grades by calculated averages.
- Perform sorting through Assembly level comparison and swapping.
- Use string matching to find student names.
- Show all statistics of an entire class

7. How the Program UI will work:

The Goal is to build a working Student Statistics Management System

that should be able to

- Store records of the students and display them
- Update record of Students
- Analyze records of the students and display them.
- Allow the Admin to Login to the Admin Panel
- Allow the Student to login to the Student Panel
- Allow the Admin to Delete, Add or Edit Student Record
- Show statistics of student Performance
- Allow Users to exit the Program

8. Conclusion

This project shows that along with theoretical exercises, there is enormous scope for using Assembly for some useful applications. It enhances the understanding of MASM programming apart from providing a practical solution to handle performance data of students.

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