

Project Statement

Student Performance Trend Analyzer

(Manual Mode)

Generated Documentation

November 23, 2025

1. Problem Statement

Academic performance comparison between students is often performed manually, making the process time-consuming and prone to inconsistency. Teachers, parents, and learners need a simple and clear method to analyze marks across multiple tests and visualize academic trends over time. Traditional comparison lacks:

- Clear test-by-test performance differences
- Automatic average calculation
- Visual representation of performance growth or decline

This project solves these issues by providing an automated, interactive tool for test comparison and trend visualization.

2. Scope of the Project

The **Student Performance Trend Analyzer (Manual Mode)** enables users to:

- Enter names and marks for two students manually
- Compare performance across any number of tests or subjects
- Generate automatic average scores
- Identify the top performer
- Visualize score trends using a line graph

This version focuses on real-time manual comparison and visualization. It does not include data storage, exporting, machine learning, or advanced analytics.

3. Target Users

This tool is intended for:

- **Teachers** – quick performance comparison between students
- **Parents** – to evaluate their child's academic progress
- **Students** – for tracking improvement or benchmarking
- **Tutors and Coaches** – to analyze test performances over sessions
- **Education Researchers** – simple comparative analysis tool

It is designed for users with basic computer literacy and requires no technical expertise.

4. High-Level Features

- **Manual Input System:** Users enter student names, number of tests, and marks with input validation.
- **Detailed Performance Comparison:** Displays which student scored higher in each test.

- **Automatic Average Calculation:** Computes overall performance for both students.
- **Top Performer Identification:** Indicates who performed best overall.
- **Performance Trend Plot:** Uses `matplotlib` to display score progression visually.
- **User-Friendly Interface:** Clear prompts and smooth printing effects enhance the experience.