CGPA Calculator System – Final Design Report By Mohammed Abdullah & Syed Inthiqhab Alam

1. Introduction

This document presents the finalized design of the CGPA Calculator System. The system is developed as a web-based academic application to calculate SGPA and CGPA automatically. Manual grade calculations often lead to mistakes and delays. The proposed system digitizes the process and ensures accuracy, speed, and reliability.

2. Design Objectives

- Provide automated CGPA and SGPA calculations
- Reduce manual errors
- Provide instant academic results
- Store subject and semester records
- Design a simple, user-friendly interface
- Ensure fast and reliable performance

3. Design Planning Phase

3.1 Target User Considerations

- Students
- Faculty members
- Academic administrators
- Simple navigation and minimal training requirements

3.2 Key Design Suggestions Considered

- Manual vs automated calculation
- Spreadsheet vs web system
- Complex vs simple interface
- Offline vs online centralized system

4. Final Design Structure of the System

4.1 Overall Layout

- Header with navigation
- Main content area
- Footer with system information

4.2 Header and Navigation Bar

- Home / Dashboard
- Add Subjects
- Grade Calculator
- History
- Reports
- Login / Logout

4.3 Dashboard Design

- Current SGPA
- Overall CGPA
- Total credits
- Performance charts
- Recent semester results

4.4 Subject Management Page

- Add subject
- View subjects
- Update grades
- Delete records

4.5 CGPA Calculation Page

- Enter grades and credits
- Automatic formula calculation
- Instant results display
- Reset and recalculate options

4.6 History and Reports Page

- View previous semesters
- Download reports
- Performance analysis charts

5. Visual Design Decisions

- Light background for readability
- Academic color theme
- Clear typography
- Minimal graphics for fast loading

6. Accessibility and Usability Considerations

- Responsive design for mobile and desktop
- Simple forms and labels
- Easy navigation
- Clear validation messages

7. Improvements Over Manual Systems

- Eliminates manual calculations
- Reduces errors
- Saves time
- Stores history
- Provides instant results

8. System Architecture Design

- Presentation Layer – User Interface
- Application Layer – Business logic and calculations
- Data Layer – Database storage

9. Module-Wise Design

- User Management Module
- Subject Management Module
- Grade Calculation Module
- Reporting Module

10. Database Design

- Student Table: Student_ID, Name, Department, Semester
- Subject Table: Subject_ID, Subject_Name, Credits, Grade
- Result Table: Result_ID, SGPA, CGPA, Semester

11. Final Design Justification

The finalized design meets all functional requirements, provides ease of use, ensures accurate calculations, reduces operational effort, and supports future scalability.

Conclusion

The CGPA Calculator System provides a reliable and efficient academic solution for students and institutions. It simplifies grade computation, improves accuracy, and enhances performance tracking.