



**Sir Syed University**  
of Engineering & Technology

## **Project Report: Grade Calculator**

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## **Project Report: Grade Calculator Application**

### **Project Title:**

**Grade Calculator Application** for calculating the grades based on the subject scores and their respective weights.

### **Introduction:**

The Grade Calculator application allows users to input their subject marks and weights, then calculates their total score and corresponding grade. The application also collects basic user information, such as name, roll number, and gender, to provide personalized feedback. This application is developed for the Android platform using Java and XML.

### **Objective:**

The primary objective of this project is to create a mobile application that:

- Accepts user input for subject scores and weights.
- Calculates the weighted average score.
- Determines the corresponding grade based on the calculated score.
- Displays the user's name, roll number, gender, and grade in a formatted result.
- Provides a simple, user-friendly interface for students and educators.

### **Features:**

The Grade Calculator includes the following features:

- **Input Fields:** The application takes user input for:
  - Name of the student.
  - Roll number.
  - Subject scores for three subjects.
  - Weights for each of the three subjects.
- **Gender Selection:** Radio buttons are provided for the user to select their gender (Male or Female).
- **Grade Calculation:** The application calculates the total score by applying the weights to the subject scores and then calculates the grade:
  - A for 80% and above
  - B for 70% to 79%
  - C for 60% to 69%
  - D for 50% to 59%

- F for below 50%
- **Input Validation:** The application ensures that the scores and weights do not exceed 100. It provides an error message if any invalid input is detected.
- **Personalized Result:** After calculation, the application displays a message with the student's name, roll number, gender, grade, and the calculated percentage.

### Technologies Used:

- **Android Studio:** The IDE used for creating the Android application.
- **Java:** The programming language used for the application logic and interaction.
- **XML:** The markup language used for designing the user interface.
- **Android SDK:** The Android Software Development Kit used to build the app.

### System Architecture:

The system architecture consists of two primary components:

- **User Interface (UI):** Built using XML to create a layout that includes text fields, buttons, and radio buttons. The UI is designed to be intuitive and responsive for the user.
- **Backend Logic:** The backend logic is written in Java, handling user inputs, performing calculations, and displaying results. It ensures that the input values are valid and computes the weighted average score.

### User Interface Design:

- The user interface consists of multiple EditText fields for taking the marks and weights of the subjects.
- RadioButton and RadioGroup are used to allow the user to select gender.
- The result is displayed in a TextView, which shows the student's information along with the calculated grade and percentage.
- The Button is provided to trigger the calculation when clicked.

### Flow of the Application:

1. The user opens the app and is presented with the input fields for their name, roll number, and subject marks/weights.
2. The user enters the required information and selects their gender.
3. The user clicks on the "Calculate Grade" button.
4. The application validates the input, checks if the marks and weights are within the allowed range (0 to 100), and ensures that no required field is left empty.
5. The application calculates the weighted average score and determines the grade.
6. The result is displayed, showing the user's name, roll number, gender, grade, and percentage.

### Challenges Faced:

- **Input Validation:** One of the challenges was ensuring that the input marks and weights do not exceed 100 and that all fields are filled in before proceeding.
- **UI Design:** Designing a simple, clear, and user-friendly interface that is both functional and visually appealing.
- **Handling Edge Cases:** Managing edge cases where fields might be left empty or the input is invalid, ensuring the app does not crash and provides proper error messages.

### Conclusion:

The Grade Calculator application successfully meets the objective of providing a simple yet efficient tool for calculating grades. The app allows users to input subject marks, weights, and other personal details to calculate their grades. The user interface is intuitive, and the app ensures that users cannot enter invalid values like marks or weights above 100. The system provides personalized results, making it an effective tool for students and educators.

### Future Improvements:

- **Multi-Subject Support:** The app could be enhanced to support more than three subjects.
- **User Accounts:** Adding login functionality to allow users to save their previous results and access them later.
- **Graphical Display:** The app could include a graphical representation (e.g., bar chart or pie chart) of the student's marks and grade distribution.
- **Detailed Analysis:** The app could provide a more detailed analysis, such as the percentage for each subject, and suggestions for improvement.

### References:

- [Android Developer Documentation](#)
- [Android Studio Official Site](#)
- [Java Documentation](#)

This report summarizes the Grade Calculator Application, detailing its functionality, features, design, and development process. It provides a useful tool for students and educators to calculate grades based on weighted scores.

## Grade Calculator

All

2023F-BCS-000

☒ Male

☐ Female

80

100

44

50

94

100

Calculate Grade

**Name: All**

**Roll No: 2023F-BCS-000**

**Gender: Male**

**Overall Grade: B**

**Percentage: 78.40%**