# GPA CAL — Documentation

## Overview

**GPA CAL** is a web-based Grade Point Average calculator designed for students to quickly compute, track, and plan their GPA performance.

It supports a general GPA calculator, a custom UET BSCS GPA calculator, and a target CGPA planner.

The project is built using:

- **HTML5** for structure

- **CSS3** (with Bootstrap 4) for styling and responsive design

- **JavaScript** for GPA calculations and interactivity

- **Font Awesome** for icons

## Features

### 1. General GPA Calculator ( `index.html` )

- Input **course names**, **credit hours**, and **grades**.

- Supports both **letter grades** (A, B+, C, etc.) and **numeric marks**.

- Calculates GPA using a standard 4.0 scale.

### 2. BSCS@UET Custom GPA Calculator ( `customGPA.html` )

- Tailored for **UET Lahore BSCS students**.

- Implements UET-specific grading policies and GPA rules.

- Handles local variations in grading and credit hours.

### 3. Dream CGPA Calculator ( `target_cgpa.html` )

- Helps you **plan ahead** for your target CGPA.

- Enter current GPA, completed credit hours, and target CGPA.

- Calculates the **required GPA** for upcoming semesters.

# Grade Conversion Table

| Grade | GPA Points |
| --- | --- |
| A | 4.0 |
| A− | 3.7 |
| B+ | 3.3 |
| B | 3.0 |
| B− | 2.7 |
| C+ | 2.3 |
| C | 2.0 |
| C− | 1.7 |
| D+ | 1.3 |
| D | 1.0 |
| F | 0.0 |

*Pass (P), Not Pass (NP), Incomplete (I), and Withdrawal (W) are excluded from GPA calculations.*

# Formulas

## 1. GPA Calculation

The **Grade Point Average (GPA)** is calculated as:

Where:

- **Grade Points** = numeric value assigned to a letter grade

- **Credit Hours** = weight of the course

**Example:**

If you have:

- Course A: 3 CH, Grade = A (4.0)
- Course B: 4 CH, Grade = B+ (3.3)

Then:

$$\text{GPA} = \frac{(3 \times 4.0) + (4 \times 3.3)}{3 + 4} = \frac{12 + 13.2}{7} = 3.6$$

## 2. Target CGPA Calculation

If you want to achieve a **target CGPA**, use:

$$\text{Required GPA} = \frac{(\text{Target CGPA} \times \text{Total Credits After All Semesters}) - (\text{Current GPA} \times \text{Completed Credits})}{\text{Remaining Credits}}$$

Where:

- **Target CGPA** = your goal
- **Completed Credits** = credits already done
- **Remaining Credits** = credits left to complete

**Example:**

If:

- Current GPA = 3.2
- Completed Credits = 60
- Target CGPA = 3.5
- Remaining Credits = 60

Then:

$$\text{Required GPA} = \frac{(3.5 \times 120) - (3.2 \times 60)}{60} = \frac{420 - 192}{60} = \frac{228}{60} = 3.8$$

## Folder Structure

```
gpa-cal/
 |
 ├── index.html          # General GPA Calculator
 ├── pages/
 |   ├── customGPA.html    # UET BSCS-specific calculator
 |   ├── target_cgpa.html   # Dream CGPA planner
 |   ├── about.html        # About page
 |
 ├── css/
 |   └── style.css        # Main CSS styles
 |
 ├── js/
 |   └── index.js        # Core GPA calculation logic
 |
 ├── img/
 |   └── GPA.png          # Logo
 |
 └── README.md           # Documentation
```

## How to Use

1. **Open the calculator** in your browser (index.html for general GPA, customGPA.html for UET version, target_cgpa.html for planner).

2. **Enter course names**, **credit hours**, and **grades**.

3. Click **Add Row** to insert more courses.

4. Click **Calculate** to see your GPA.

5. For **target CGPA**, enter current GPA, total credits completed, and your desired CGPA.

## Technology Stack

- **HTML5**

- **CSS3** + Bootstrap 4.1.3

- **JavaScript** (Vanilla)

- **Font Awesome** icons

# Future Enhancements

- User login and profile saving

- PDF GPA report export

- Mobile-first optimization

- Support for more university grading systems

# Credits

- Developed by: **[Your Name]**

- GitHub Repository: <u>Link to Repo</u>

- Logo: GPA.png

If you want, I can now turn this into a **styled HTML Documentation page** so that when users click "Documentation" in your footer, they see this with headings, tables, and equations nicely formatted. That would make it match the rest of your site's look.

Do you want me to make that HTML version next?