



GPA Pilot: Academic Performance Simulator

Documentation & User Guide

Release Date: February 2026

Platform: Universal (HTML5/JavaScript) - Client-Side Only

Architecture: Single-Page Application (SPA)

1. Introduction

GPA Pilot is an intelligent academic performance simulator designed to empower university students to take control of their academic journey. Unlike static transcript views, GPA Pilot allows students to perform "What-If" scenarios, forecast their cumulative GPA (cGPA) based on future performance, and analyze their standing against graduation requirements.

Key Features

- **Dynamic Simulation:** Instantly see how a specific grade in a current course will affect your overall cGPA.
- **Probation Analytics:** A dedicated engine that calculates exactly what semester GPA is required to lift academic probation or reach a specific target.
- **Graduation Runway:** Visualizes the "Best Case Scenario" (Max possible cGPA) and the "Maintenance Path" (Current average) for the remaining credit hours.
- **Privacy-First:** Runs 100% in the browser. No student data is ever uploaded to a cloud server or database.

2. System Requirements

- **Device:** PC, Mac, or Tablet with a modern web browser.
- **Browser:** Google Chrome (Recommended), Microsoft Edge, Safari, or Firefox.
- **File Format:** Supports .csv, .xlsx, and .xls for study plan uploads.

3. User Guide (Student Workflow)

Step 1: Initial Setup

When you first launch GPA Pilot, you will see a welcome screen.

1. **Student Profile:** Optionally enter your Name and Student ID. These are only used for the display header and the filename of your saved session.



2. Select Study Plan:

A. Select a preloaded study plan

- The application calls and loads some study plans based on users' requests which can be selected, then pressing "Load" to it loads right away, Alternatively, if your study plan is not among the preset list, you can:

B. Upload a custom plan:

- Download the template study plan available on the web page of the application and use it as a template to fill in your study plan specifics making sure to retain the same file structure.
- Use the "custom upload to load your specific study plan.

Step 2: Entering & Updating Grades

Once your plan is loaded, you will see your full curriculum organized by Year and Semester.

- **Letter Grades:** Use the dropdown in the "Letter Grade" column to select your achieved or anticipated grade (A, B+, B, ..F, etc.).
- **Pass/Fail Courses:** For non-graded courses, use the "P" (Pass) or "F" (Fail) buttons in the "Pass/Fail" column.

Note: "Pass" credits count toward graduation progress but do not affect your cGPA. "Fail" (Binary) does not affect cGPA but does not earn credits. Letter Grade "F" (0.0) **does** negatively impact your cGPA.

Step 3: Analyzing Performance

As you enter grades, the dashboard at the top updates in real-time.

- **Current cGPA:** Your cumulative Grade Point Average.
- **Standing Status:** Displays your academic standing based on the following scale:
 - **Excellent:** 3.50 - 4.00
 - **Very Good:** 3.00 - 3.49
 - **Good:** 2.50 - 2.99
 - **Satisfactory:** 2.00 - 2.49
 - **Probation Warning:** 2.00 - 2.49 (Visual Alert)
 - **Under Probation:** < 2.00
 - **Progress Bar:** Shows the total "Earned Credits" vs. the "Total Plan Credits".

Step 4: Using the Analytics Engine

Click the "Run Analysis" button to open the insights modal.

1. Next Semester Simulator:

- Enter the number of credits you plan to register for next semester (e.g., 15).



- Use the slider to estimate your average grade for those courses.
- The tool will predict your **New cGPA** instantly.

2. Graduation Targets:

- **Target:** Automatically reads the minimum graduation cGPA from your study plan file (usually 2.0).
- **Avg Needed:** Calculates the exact average GPA you must maintain in *all* remaining unattempted courses to hit that target. If it says "Impossible," it means even a 4.0 average is insufficient to reach the target mathematically.

Step 5: Saving & Resuming Sessions

Since GPA Pilot does not store data on a server, you must save your own progress.

To Save:

- Click the **"Save"** button in the top navigation bar.
- Click **"Download File"**. This will save a .json file (e.g., GPAPilot_Sarah_Session.json) to your computer.

To Resume (Update Grades):

- Open GPA Pilot.
- On the welcome screen, click the "Load Session" button (top right).
- Select your previously saved .json file.
- All your grades, name, and ID will be restored exactly as you left them.

4. Technical Specifications

- **Language:** HTML5, JavaScript (ES6+).
- **Libraries:**
 - **React 18:** User Interface rendering.
 - **Tailwind CSS:** Responsive styling and design system.
 - **Recharts:** Data visualization (SVG-based charts).
 - **Babel Standalone:** In-browser JSX compilation.
- **Concept & Logic:** Dr Ahmed Thabet; Associate Professor, College of Pharmacy, GMU, Dr. Muhammad AlShorbagy, Dean, College of Pharmacy, GMU.
- **Technical Implementation:** AI-Assisted Development.



- **Privacy Model:** Client-Side Sandbox. The application operates entirely within the user's browser memory (RAM).