

Bicol University Polangui
Polangui, Albay

OOP - Object Oriented Programming
1st Semester, S.Y. 2025-2026

Subject/Course/Block : OOP / BSCS / 2B

Finals Project Title : GWA Calculator

Name of Instructor : Jerry B. Agsunod

Date Submitted :

Group Members : Cabarle, Jose Elijah, H.,
Castillo, Sean Francis Ryan, P.,
De la Cruz, Gabriel O.,
Javier, Angel, H.,
Zuñiga, Mark Jay R.

I. Objectives

- To allow users to register, log in, and securely manage their accounts.
- To store and retrieve student records using a SQLite database.
- To apply object-oriented programming principles such as encapsulation, modularity, and reusability.
- To ensure accurate computation of GWA based on user-inputted grades and units.

II. Introduction

The GWA Calculator System is a Java-based desktop application designed to assist students and administrators in efficiently computing and managing a student's General Weighted Average (GWA). The system integrates a graphical user interface (GUI) developed using Java Swing and a SQLite database for secure data storage and retrieval. The application provides user authentication features such as registration, login, and password management, ensuring that only authorized users can access sensitive academic records. An administrator dashboard is included to manage student records, while regular users can input grades and automatically compute their GWA with accuracy and consistency. By combining object-oriented programming concepts, database connectivity (JDBC), and file handling, the project demonstrates a practical application

of software development principles in solving real-world academic problems.

III. Algorithm/Flowchart

// Attached Separately

IV. Sample Output / Results

// Attached Separately

V. Reflection

- Developing the GWA Calculator System was a valuable learning experience that strengthened our understanding of Java programming, GUI development, and database integration. One of the main challenges encountered was establishing a proper JDBC connection to the SQLite database and ensuring that external libraries were correctly linked to the project. Through debugging errors such as database connection issues and null pointer exceptions, we learned the importance of proper project configuration, error handling, and systematic problem-solving. The project also emphasized the significance of designing intuitive user interfaces that enhance usability while maintaining functionality. Overall, the experience improved our confidence in building complete software applications—from planning and design to implementation and testing—using industry-relevant tools and practices.

VI. Conclusion

- The GWA Calculator System successfully met its intended objectives by providing a reliable and efficient tool for computing and managing students' General Weighted Averages. Through the integration of Java Swing for the user interface and SQLite for database management, the system demonstrates how desktop applications can securely handle academic data. The project highlights the practical application of object-oriented programming concepts and database connectivity using JDBC. It serves as a foundation for future enhancements such as report generation, data export, or migration to a web-based platform. In conclusion, the system proves that well-designed software solutions can significantly simplify academic processes while reinforcing essential programming skills.

Submission. submit the following at google drive class submission bin:

1. A copy of the source code.
2. A copy of the mini project document.
3. A 10-minute video presentation.

Note: You may include any additional evidence/input regarding your mini project for additional points (e.g. codes, OOP application, photo documentation, collaboration and effort (platform used), and gender sensitivity).



SCREENSHOTS OF OUTPUT

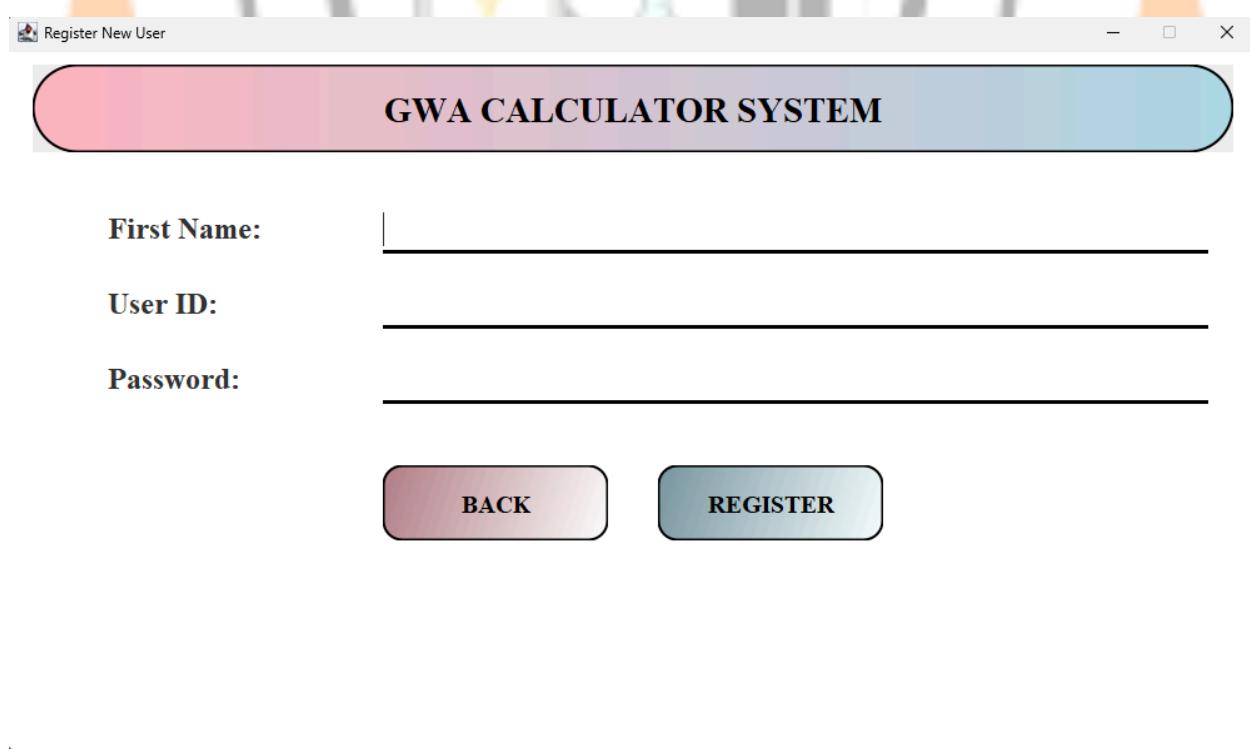
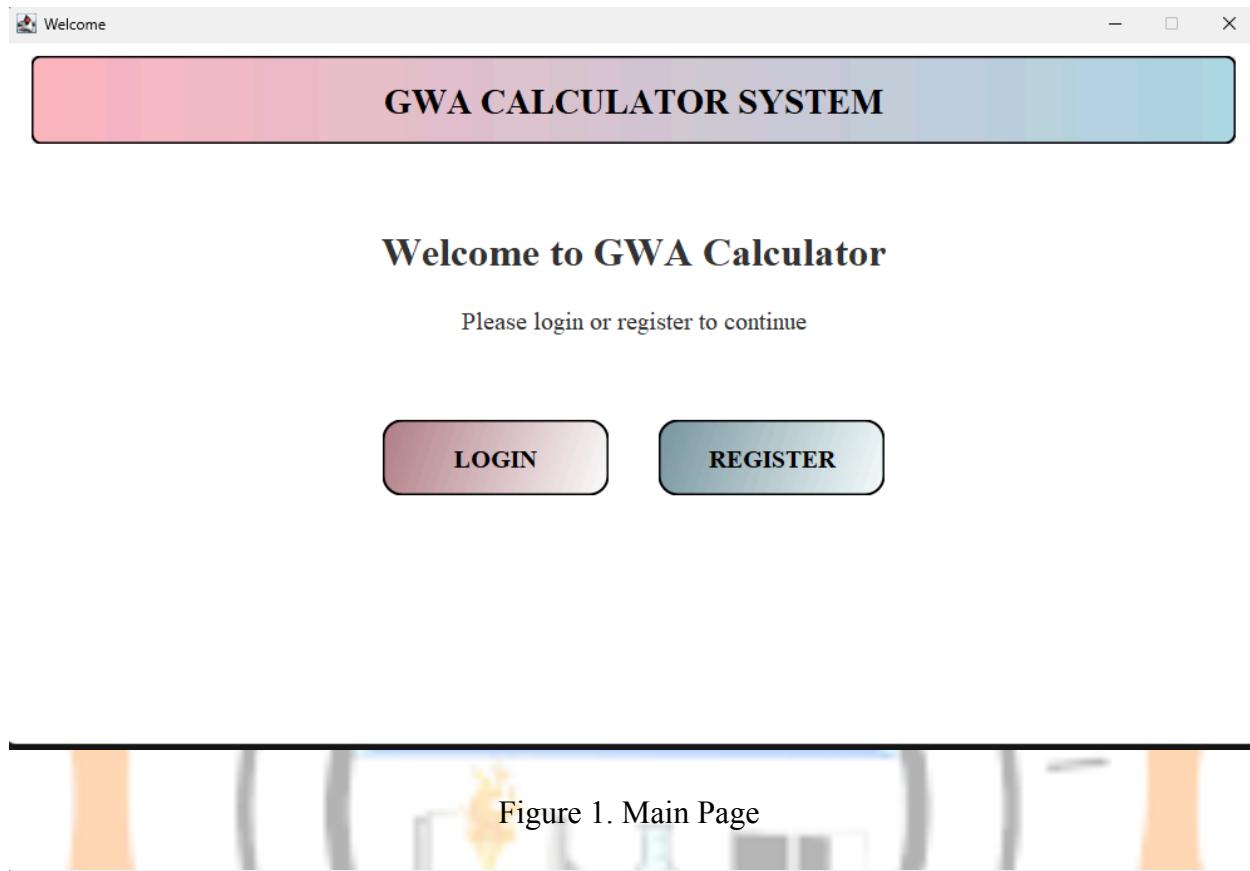


Figure 2. Register Page

The screenshot shows a Windows-style window titled "Login". The main title bar is blue with the text "GWA CALCULATOR SYSTEM" in white. Below the title bar, there are two input fields: "Username:" followed by a long horizontal text input field, and "Password:" followed by another horizontal text input field. At the bottom of the window are two rounded rectangular buttons: a pink one labeled "BACK" and a teal one labeled "LOGIN".

Figure 3. Login Page

The screenshot shows a Windows-style window titled "GWA Calculator - Eli". At the top right are two buttons: "CHANGE PASSWORD" and "LOGOUT". Below the title bar is a large rounded rectangular button labeled "STUDENT DASHBOARD". The main area contains a table with three columns: "Grade", "Units", and "Eli". The "Eli" column has a single entry: "_____". Below this table are four horizontal lines for entering data. At the bottom are four buttons: "COMPUTE" (pink), "CLEAR" (teal), "Remove Row -" (pink), and "Add Row +" (teal). A small link "System Disclaimer" is located at the bottom right.

Figure 4. Student Dashboard

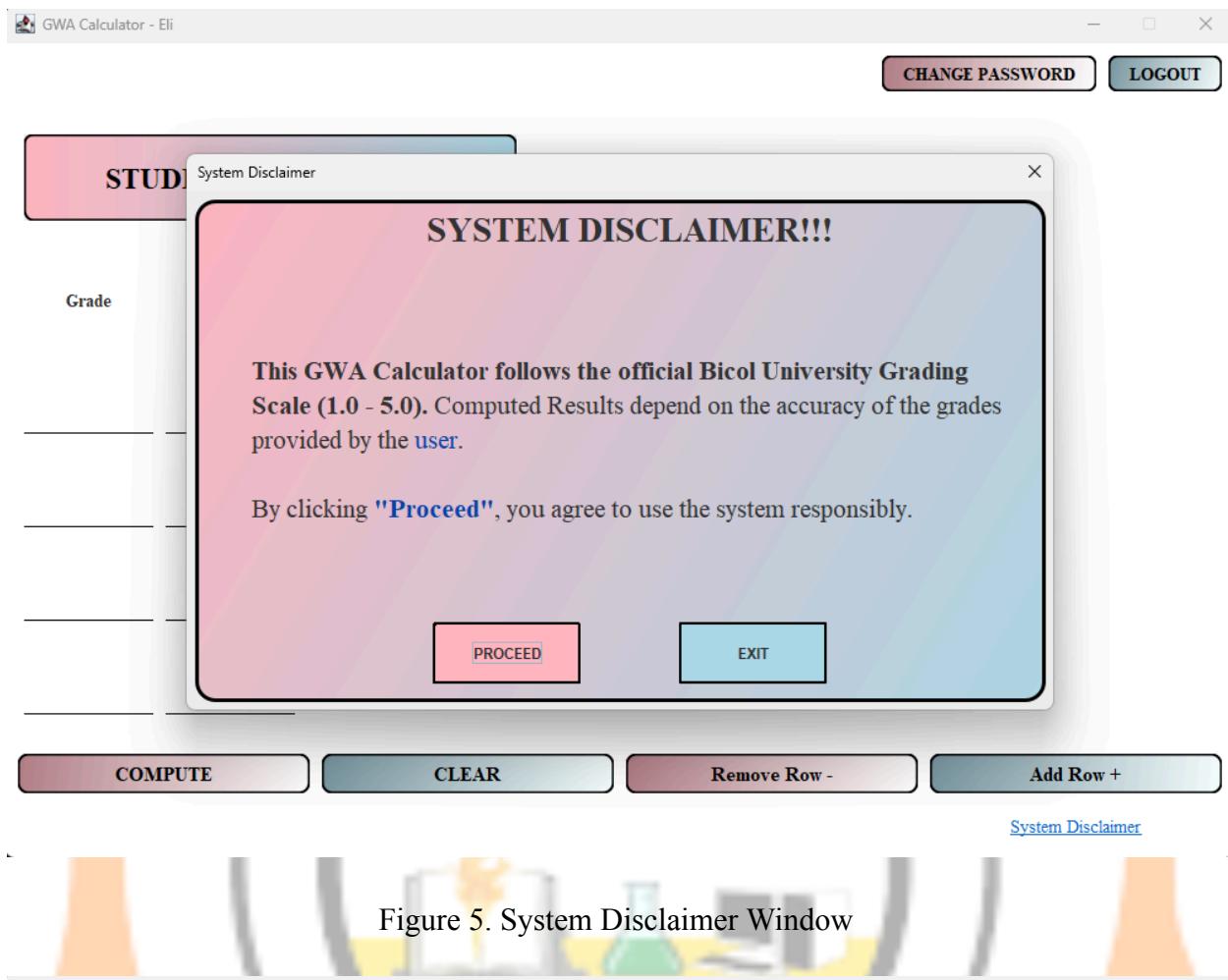


Figure 5. System Disclaimer Window

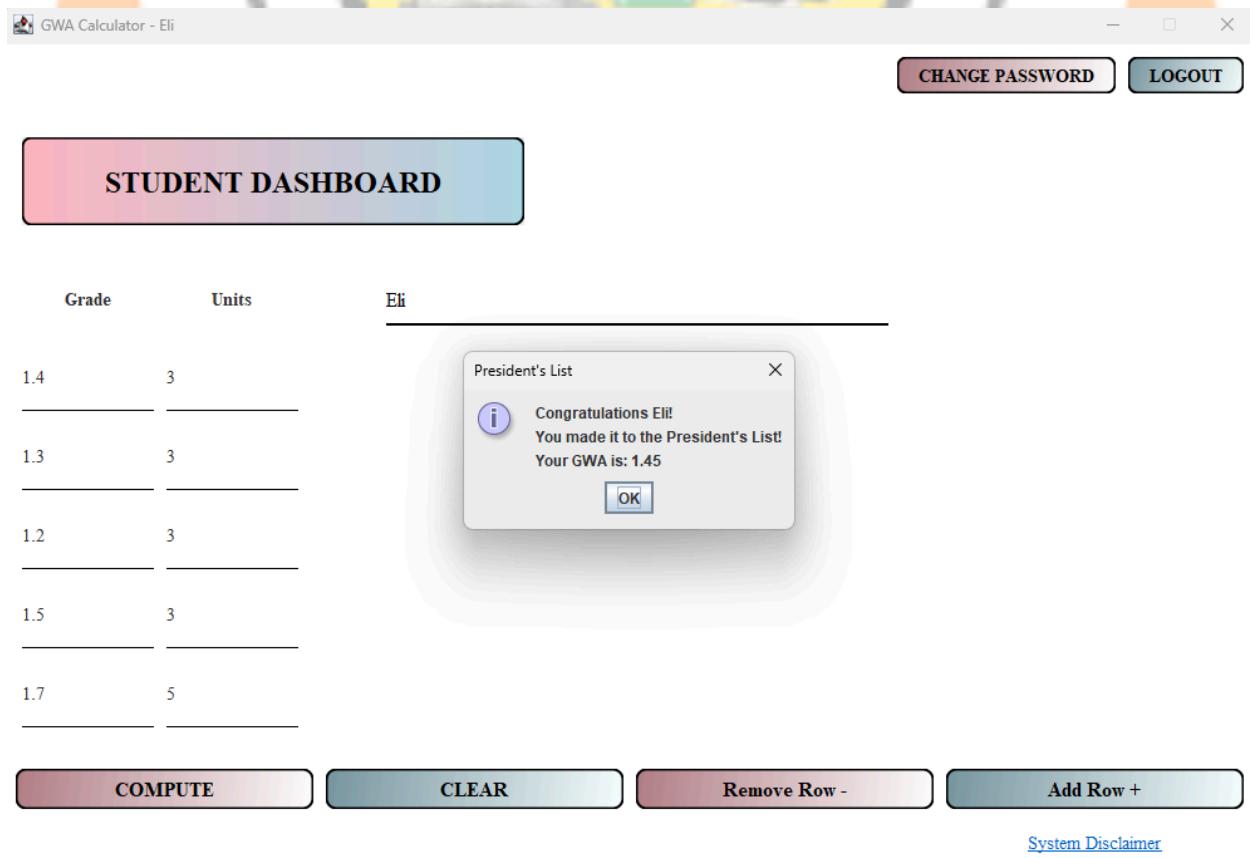


Figure 6. GWA Results Window

GWA Calculator - Eli

[CHANGE PASSWORD](#) [LOGOUT](#)

STUDENT DASHBOARD

Grade	Units	Eli	Eli's Final GWA: 1.45
1.4	3	_____	
1.3	3	_____	
1.2	3	_____	
1.5	3	_____	
1.7	5	_____	

[COMPUTE](#) [CLEAR](#) [Remove Row -](#) [Add Row +](#)

[System Disclaimer](#)

Figure 7. Student Dashboard after computed GWA Result

Admin Dashboard

[Change Password](#) [Logout](#)

ADMIN DASHBOARD

Student ID	Name	GWA	Date
1234	elijah	0.00	2025-12-22 11:44:47
	elijah	0.00	2025-12-22 14:41:59
	Gabriel	0.00	2025-12-22 23:15:10
	Gabriel	0.00	2025-12-22 23:28:00
	Gabriel	0.00	2025-12-22 23:45:02
	Gabriel	0.00	2025-12-23 07:13:00
	Gabriel	0.00	2025-12-23 07:13:06
	Gabriel	0.00	2025-12-23 19:11:22
2024-01-02040	Gabriel	1.49	2025-12-23 19:46:20
2024-01-01790	Eli	1.45	2025-12-25 14:35:01

[Add Student](#) [Edit Grades](#) [Delete Student](#) [Export Records](#)

Figure 8. Admin Dashboard

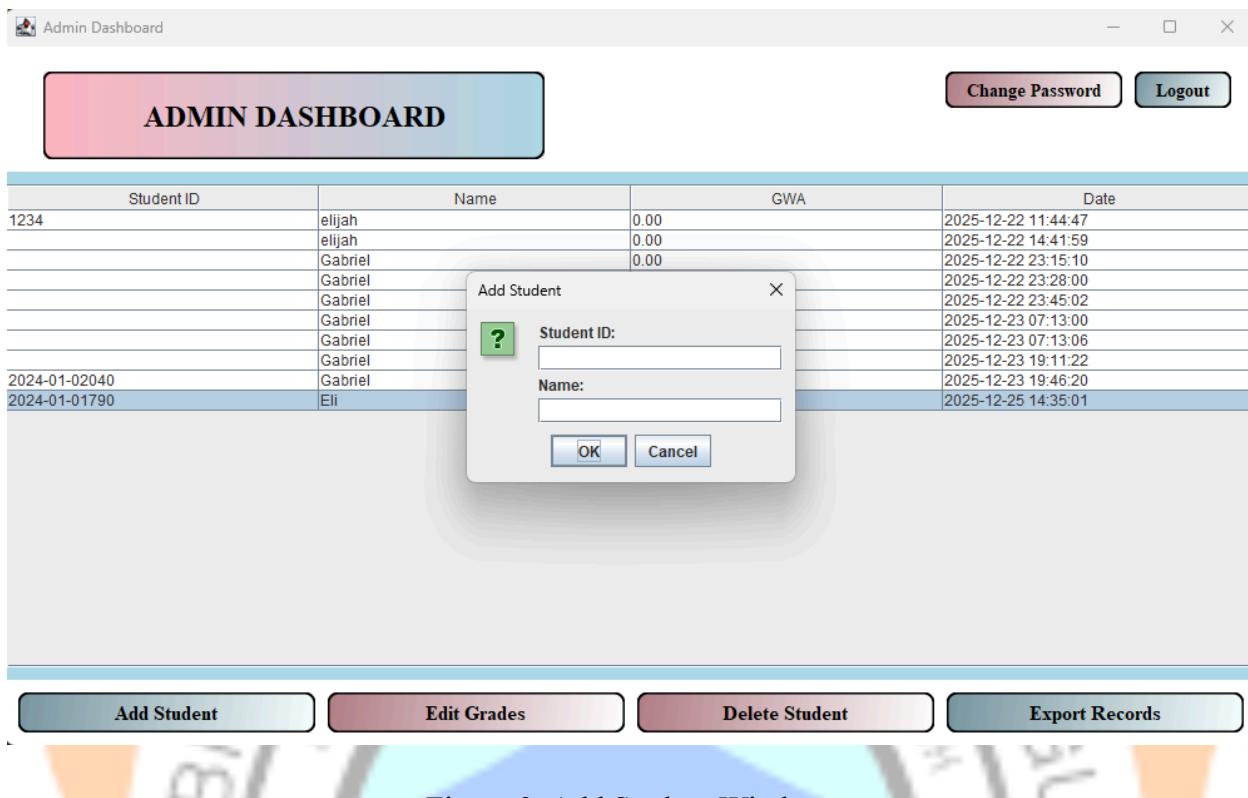


Figure 9. Add Student Window

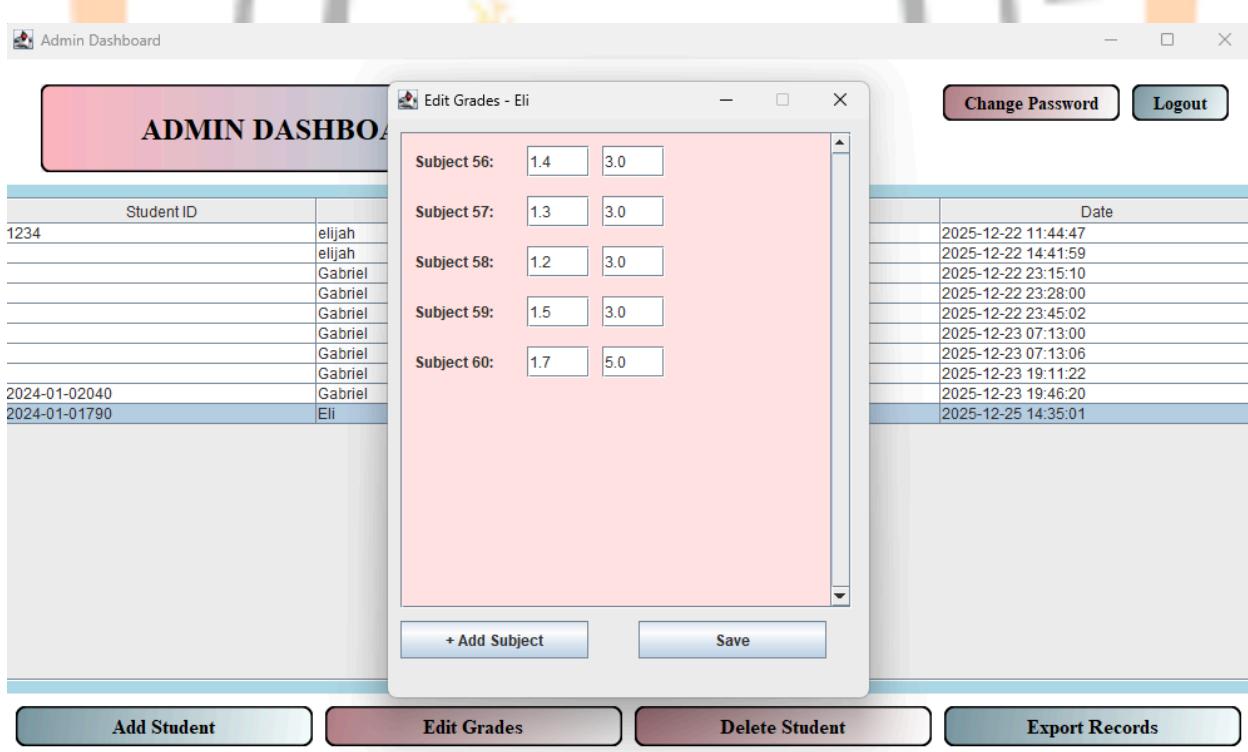


Figure 10. Edit Grades Window

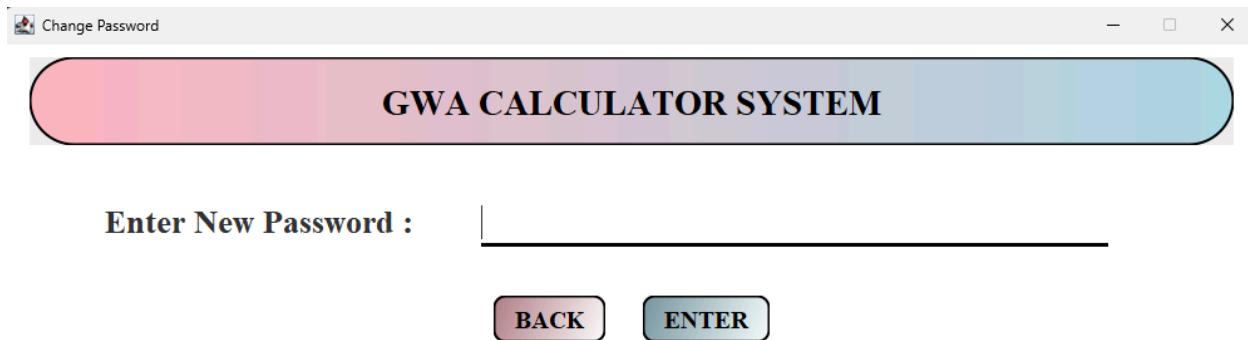


Figure 11. Change Password Page

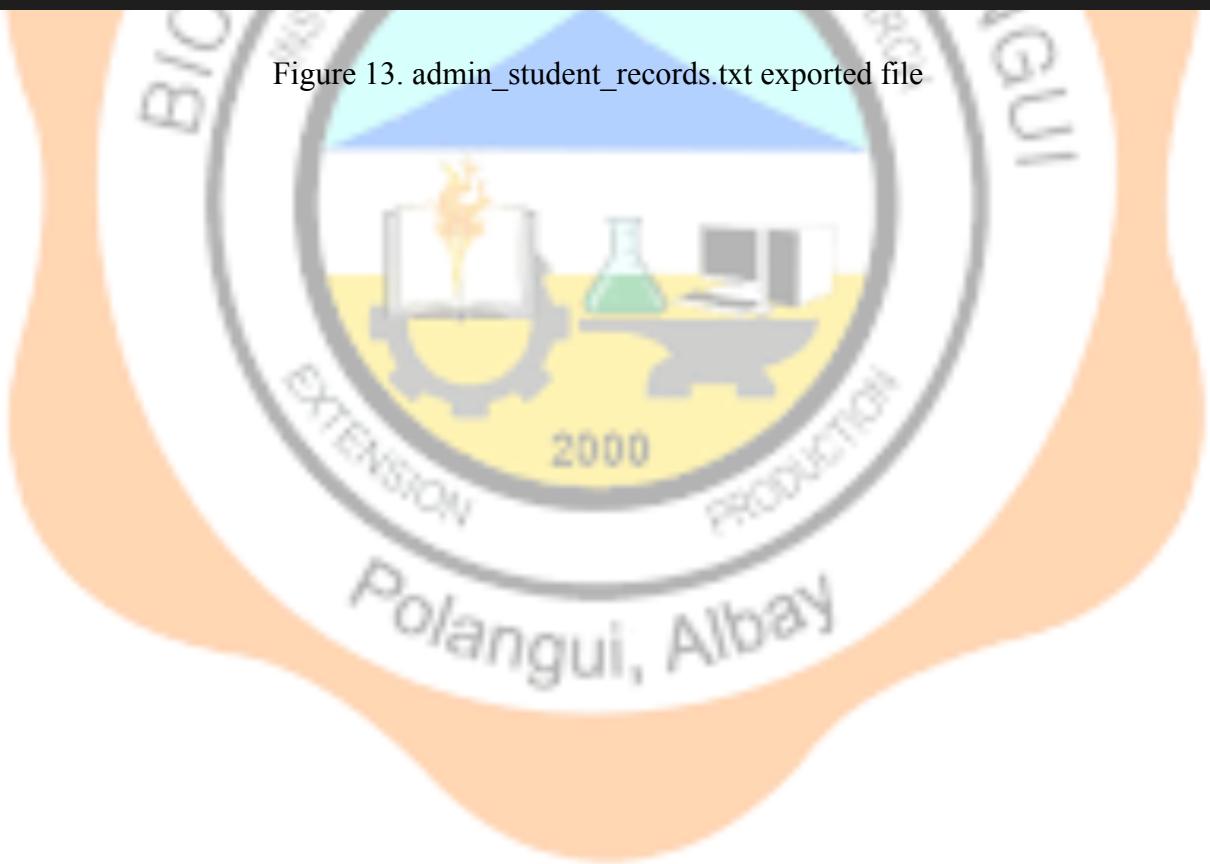
The screenshot shows the "Admin Dashboard". At the top right are "Change Password" and "Logout" buttons. The main area displays a table of student records with columns: Student ID, Name, GWA, and Date. A modal dialog box is overlaid on the table, containing the message "Student records exported successfully to admin_student_records.txt" with an "OK" button. At the bottom are buttons for "Add Student", "Edit Grades", "Delete Student", and "Export Records".

Student ID	Name	GWA	Date
1234	elijah	0.00	2025-12-22 11:44:47
	elijah	0.00	2025-12-22 14:41:59
	Gabriel	0.00	2025-12-22 23:15:10
	Gabriel	0.00	2025-12-22 23:28:00
	Gabriel	0.00	2025-12-22 23:45:02
	Ga Export Complete		2025-12-23 07:13:00
	Ga		2025-12-23 07:13:06
	Ga		2025-12-23 19:11:22
2024-01-02040	Ga		2025-12-23 19:46:20
2024-01-01790	Eli		2025-12-25 14:35:01

Figure 12. Export Records Window

	Student ID	Name	GWA	Date
1				
2				
3	2024-01-01790	Eli	1.45	2025-12-25 14:35:01
4	2024-01-02040	Gabriel	1.49	2025-12-23 19:46:20
5		Gabriel	0.00	2025-12-23 19:11:22
6		Gabriel	0.00	2025-12-23 07:13:06
7		Gabriel	0.00	2025-12-23 07:13:00
8		Gabriel	0.00	2025-12-22 23:45:02
9		Gabriel	0.00	2025-12-22 23:28:00
10		Gabriel	0.00	2025-12-22 23:15:10
11		elijah	0.00	2025-12-22 14:41:59
12	1234	elijah	0.00	2025-12-22 11:44:47
13				

Figure 13. admin_student_records.txt exported file



FLOWCHART OF OUTPUT

