

Student Database Management System

Midterm Project

Submitted By:

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DCIT 55

Edan Belgica

2025

Database Design

Entity-Relationship Diagram (ERD)

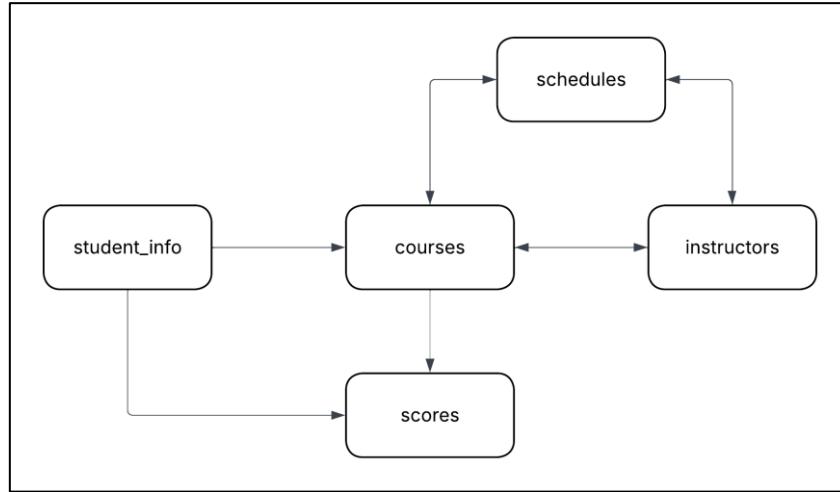


Figure 1. Conceptual Entity-Relationship Diagram (ERD)

This conceptual Entity Relationship Diagram (ERD) represents the design of the Student Database Management System. It focuses on the relationships between key entities such as `student_info`, `courses`, `instructors`, `schedules`, and `scores`. Each entity in this model represents a real-world object used to manage student academic data.

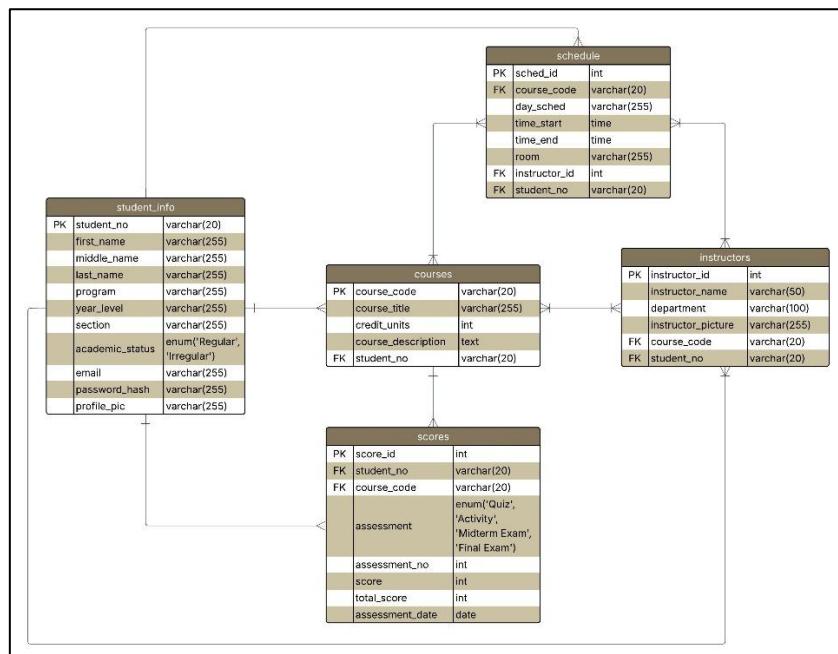


Figure 2. Physical Entity-Relationship Diagram (ERD)

This physical Entity Relationship Diagram (ERD) represents the concrete structure of the system for the Student Database Management System. It specifies the exact fields, data types, primary keys, foreign keys, and relationships between tables.

The ‘student_info’ entity stores the student's personal and academic information. It is the main user of the system. The ‘courses’ entity stores information about the courses the student is currently enrolled or added in. It connects to several other entities such as instructors, schedules, and assessment. The ‘instructors’ entity stores information about the faculty members who teach the courses. The ‘schedules’ entity determines when and where each course session takes place, as well as who will be teaching it. It is essential for organizing schedules and ensuring there are no conflicts. Lastly, the ‘scores’ entity stores the performance or grades of the student in various assessments for each course.

Database Schema

	student_no	first_name	middle_name	last_name	program	year_level	section	academic_status	email	password_hash	profile_picture
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Figure 3. ‘student_info’ Table

Fields: first_name VARCHAR(255), middle_name VARCHAR(255), last_name VARCHAR(255), program VARCHAR(255), year_level VARCHAR(255), section VARCHAR(255), academic_status ENUM('Regular', 'Irregular'), email VARCHAR(255), password_hash VARCHAR(255), profile_picture VARCHAR(255)

Primary Key: student_no VARCHAR(20)

Relationships: student_info table is connected to all tables via student_no (one student to many records in other tables).

	course_code	course_title	credit_units	course_description	student_no
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Figure 4. ‘courses’ Table

Fields: course_title VARCHAR(255), credit_units INT, course_description TEXT

Primary Key: course_code VARCHAR(20)

Foreign Key: student_no VARCHAR(20)

Relationships: courses table connects to instructors and schedules table in a one-or-more relationship. Courses table connects to scores table as one-to-many.

	instructor_id	instructor_name	department	instructor_picture		course_code	student_no
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Figure 5. ‘instructors’ Table

Fields: instructor_name VARCHAR(50), department VARCHAR(100), instructor_picture VARCHAR(255)

Primary Key: instructor_id INT

Foreign Key: course_code VARCHAR(20), student_no VARCHAR(20)

Relationships: instructors table connects to courses and schedules table in one-or-more relationship.

	schedule_id	course_code	day_sched	time_start	time_end	room	instructor_id	student_no
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Figure 6. ‘schedules’ Table

Fields: day_sched VARCHAR(255), time_start TIME, time_end TIME, room VARCHAR(255)

Primary Key: schedule_id INT

Foreign Key: course_code VARCHAR(20), instructor_id INT, student_no VARCHAR(20)

Relationships: schedules table connects to courses and instructors table in one-or-more relationship.

	score_id	student_no	course_code	assessment_type	assessment_no	score	total_score	assessment_date
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Figure 7. ‘scores’ Table

Fields: assessment_type ENUM(‘Quiz’, ‘Activity’, ‘Midterm Exam’, ‘Final Exam’), assessment_no INT, score INT, total_score INT, assessment_date DATE

Primary Key: score_id INT

Foreign Key: course_code VARCHAR(20), student_no VARCHAR(20)

Relationships: scores table connects to courses and student_info table in many-to-one relationship.

Sample Data

	student_no	first_name	middle_name	last_name	program	year_level	section	academic_status	email	password_hash	profile_picture
▶	202311206	Mary	Strelline	Reforrado	Magdamit	BS in Computer Science	2nd Year	2-3	Regular	marystrelline@gmail.com	scrypt:32768:8:1\$5J6NmtPIRAASHETz\$74413... profilepic.jpg

Figure 8. ‘student_info’ Table Sample Data

	course_code	course_title	credit_units	course_description	student_no
▶	COSC65	Architecture and Organization	3	This course emphasizes performance and cost a...	202311206
	COSC70	Software Engineering	3	A teaching-learning program designed to provid...	202311206
	DCIT25	Data Structures and Algorithm	3	This courses equip learners with fundamental a...	202311206
	DCIT55	Advance Database Management System	3	This course is designed to develop the topics of ...	202311206
	FITT4	Physical Activities towards Health and Fitness 2	2	This course is designed to teach students about...	202311206
	GNED08	Understanding the Self	3	This course deals with the nature of identity, as...	202311206
	GNED14	Panitikang Panlipunan	3	This course analyzes how literature becomes a t...	202311206
	MATH2	Calculus	3	This course covers topics of differential and inte...	202311206
*	NULL	NULL	NULL	NULL	NULL

Figure 9. ‘courses’ Table Sample Data

	instructor_id	instructor_name	department	instructor_picture	course_code	student_no
▶	13	Edan Belgica	DCS		DCIT55	202311206
	14	Clarissa Rostrollo	DCS		COSC70	202311206
	15	Mariel Castillo	DCS		MATH2	202311206
	16	Russel Villareal	-		GNED08	202311206
	17	Rachel Onsik Rodriguez	DCS		DCIT25	202311206
	18	Jessica Sambrano	DCS		GNED14	202311206
	19	Cherisma Mendoza	-		FITT4	202311206
	20	Nestor Pimentel	DCS		COSC65	202311206
*	NULL	NULL	NULL	NULL	NULL	NULL

Figure 10. ‘courses’ Table Sample Data

	schedule_id	course_code	day_sched	time_start	time_end	room	instructor_id	student_no
▶	1	DCIT55	Monday	10:00:00	12:00:00	Room 201	13	202311206
	12	GNED14	Monday	16:00:00	17:30:00	Auditorium 2	18	202311206
	13	COSC65	Monday	14:00:00	16:00:00	Auditorium 2	20	202311206
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Figure 11. ‘schedules’ Table Sample Data

	score_id	student_no	course_code	assessment_type	assessment_no	score	total_score	assessment_date
▶	1	202311206	COSC70	Activity	1	8	10	2025-01-01
	2	202311206	GNED08	Quiz	1	9	10	2025-01-02
	3	202311206	GNED14	Activity	1	15	15	2025-02-02
	5	202311206	GNED08	Activity	1	10	10	2025-02-20
	10	202311206	GNED08	Quiz	2	9	10	2025-02-02
*	HULL	HULL	HULL	HULL	HULL	HULL	HULL	HULL

Figure 12. ‘scores’ Table Sample Data

Features and Functionalities

Student Information Management

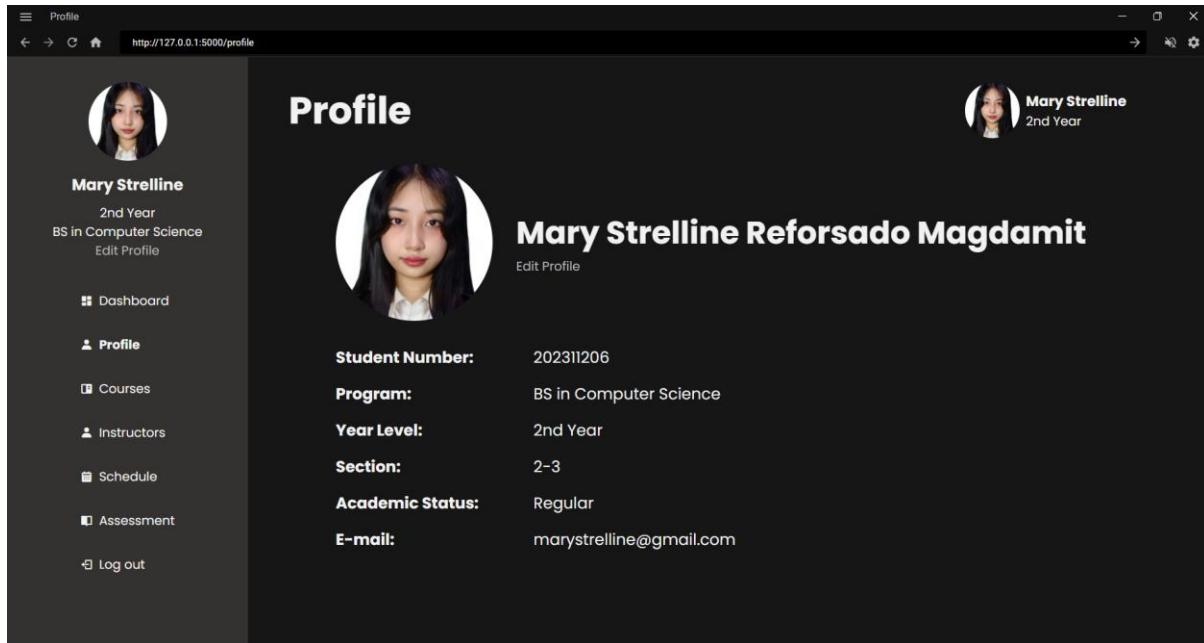


Figure 13. Profile Page

The profile page shows the full information of the user.

Features	Functionalities
Edit Profile Button	The Edit Profile button opens a form that allows the user to update their personal information.
User Information	This section displays details about the user, including their profile picture, full name, academic status, program, year level, and email. The data is fetched dynamically from the database to reflect any updates made by the user.
Side-profile information	Located on the right side of the header, this displays a compact view of the user's profile, such as their profile picture, name, and current year level. When you click on the name, you will be redirected to the Profile Page wherever page you are.

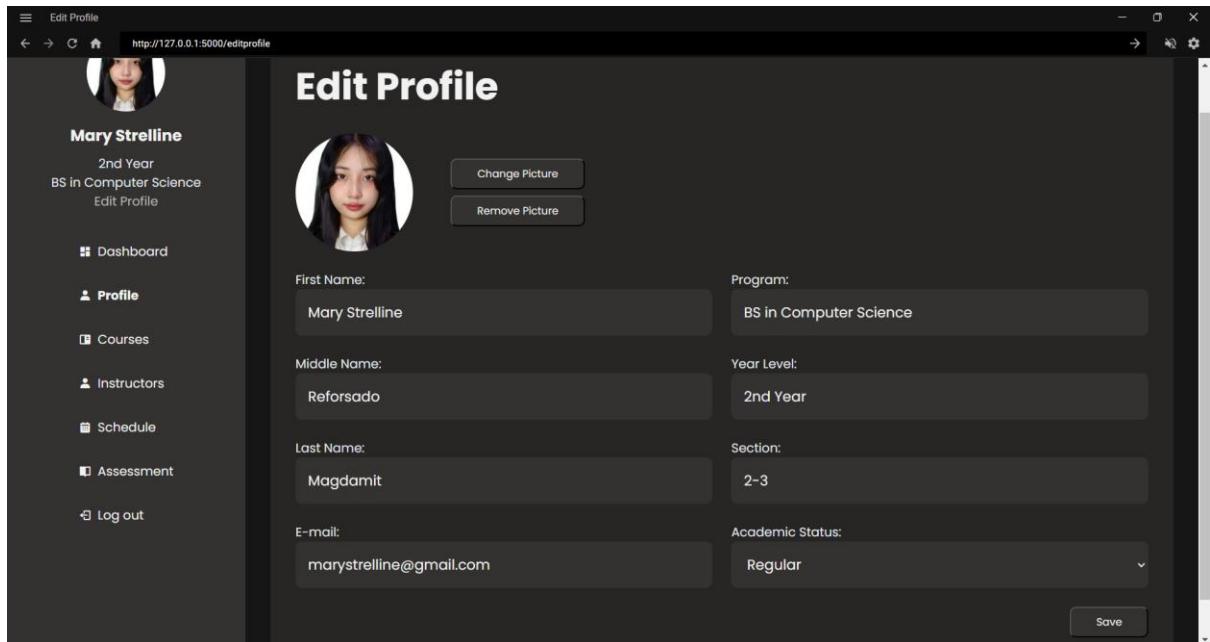


Figure 14. Edit Profile Page

The edit profile page lets the user edit or update their information.

Features	Functionalities
Change Picture Button	Allow users to upload a new profile picture.
Remove Picture Button	Let users remove their current picture and set it to default.
Profile Fields	Editable fields for the user's information.
Save Button	Commits any changes made to the profile fields.

Subject Management

The screenshot shows a dark-themed web application interface for managing courses. At the top right, there's a user profile for 'Mary Strelline' (2nd Year). On the left, a sidebar menu includes 'Dashboard', 'Profile', 'Courses' (which is selected), 'Instructors', 'Schedule', 'Assessment', and 'Log out'. A search bar is at the top center. The main content area is titled 'Courses' and contains a table with course information:

Course Code	Course Title	Actions		
COSC65	Architecture and Organization	View	Edit	Drop
COSC70	Software Engineering	View	Edit	Drop
DCIT25	Data Structures and Algorithm	View	Edit	Drop
DCIT55	Advance Database Management System	View	Edit	Drop
FITT4	Physical Activities towards Health and Fitness 2	View	Edit	Drop
GNED08	Understanding the Self	View	Edit	Drop
GNED14	Panitikang Panlipunan	View	Edit	Drop
MATH2	Calculus	View	Edit	Drop

Figure 15. Courses Page

This screenshot shows the same application interface as Figure 15, but with a modal window open over the 'DCIT55' row. The modal is titled 'Course Details' and contains the following information:

- Course Code:** DCIT55
- Course Title:** Advance Database Management System
- Credit Units:** 3
- Description:** This course is designed to develop the topics of differential and integral calculus. Emphasis is placed on limits, continuity, derivatives and integrals of algebraic and transcendental functions of one variable. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to derivative-related problems with and without technology.

A 'Close' button is located at the bottom right of the modal.

Figure 16. View Course Details Modal

The courses page shows the list of courses the user has added or enrolled.

Features	Functionalities
Search Bar	Allows users to search for specific courses by course code or course title.
Courses Table	Displays the list of Course Code, Course Title, and Actions.

View Button	View detailed information of the selected course inside a modal.
Course Details Modal	Shows the full details of the selected course.
Edit Button	Opens a form to edit the selected course's information.
Drop Button	Remove or unenroll from the course. When a course is dropped, all the information connected to it will also be removed permanently, such as the instructor assigned to that specific course, the schedule created, and the assessments that are recorded. It also has a confirmation message that pops up when you click the drop button, so, think twice before dropping the course.
Add a course Button	Opens a form to enroll in a new course.

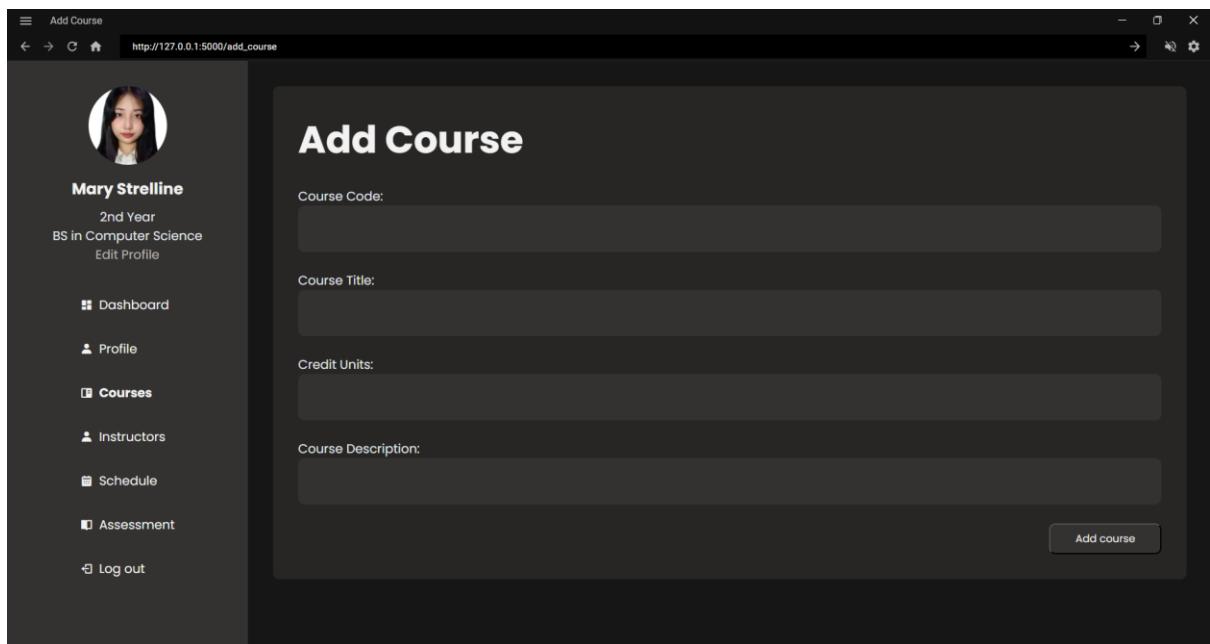


Figure 17. Add Course Page

The add course page lets the user to add more courses.

Figure 18. Edit Course Page

The edit courses page lets the user modify the selected course's information.

Features	Functionalities
Course Fields	Editable fields for the course's information.
Save Button	Commits any changes made to the course fields.
Add Course Button	Commits information made to the course fields.

Instructor Management

Instructor Name	Department	Actions		
Edan Belgica	DCS	View	Edit	Delete
Clarissa Rostrollo	DCS	View	Edit	Delete
Mariel Castillo	DCS	View	Edit	Delete
Russel Villareal	-	View	Edit	Delete
Rachel Onsik Rodriguez	DCS	View	Edit	Delete
Jessica Sambrano	DCS	View	Edit	Delete
Cherisma Mendoza	-	View	Edit	Delete
Nestor Pimentel	DCS	View	Edit	Delete

Figure 19. Instructors Page

The screenshot shows a web application interface for managing instructors. On the left, there is a sidebar with a user profile for 'Mary Strelline' (2nd Year, BS in Computer Science) and links for Dashboard, Profile, Courses, Instructors, Schedule, Assessment, and Log out. The main content area is titled 'Instructors' and displays a table of instructor details. A modal window is open over the table, titled 'Instructor Details', showing the profile of 'Edan Belgica'. The modal includes a placeholder profile picture, Name: Edan Belgica, Department: DCS, and Course: DCIT55. It also features a 'Close' button. To the right of the table, there is a column of 'Actions' with 'Edit' and 'Delete' buttons for each row.

Instructor Name	Course Code	Actions
Edan Belgica	DCS	<button>View</button> <button>Edit</button> <button>Delete</button>
Clarissa Rostrollo	-	<button>View</button> <button>Edit</button> <button>Delete</button>
Mariel Castillo	-	<button>View</button> <button>Edit</button> <button>Delete</button>
Russel Villareal	-	<button>View</button> <button>Edit</button> <button>Delete</button>
Rachel Onsic Rodríguez	-	<button>View</button> <button>Edit</button> <button>Delete</button>
Jessica Sambrano	DCS	<button>View</button> <button>Edit</button> <button>Delete</button>
Cherisma Mendoza	-	<button>View</button> <button>Edit</button> <button>Delete</button>
Nestor Pimentel	DCS	<button>View</button> <button>Edit</button> <button>Delete</button>

Figure 20. View Instructor Details Modal

The instructors page shows the list of instructors the user has added.

Features	Functionalities
Instructor Table	Displays the list of Course Code, Course Title, and Actions.
View Button	View detailed information of the selected instructor inside a modal.
Instructor Details Modal	Shows the full details of the instructor including the profile picture (optional).
Edit Button	Opens a form to edit the selected instructor's information.
Delete Button	Removes the instructor from the list.
Add an instructor Button	Opens a form to add new instructors.

Figure 21. Add Instructor Page

The add instructor page opens a form to add new instructors.

Features	Functionalities
Instructor Field	Editable fields for the instructor's information.
Upload Photo Button	Allows user to upload photos of the instructor, but only optional. By default, the profile picture is blank if the user didn't choose a photo.
Add Instructor Button	Commits information made to the instructor fields.

Figure 22. Edit Instructor Page

The edit instructor page opens a form to modify the selected instructor's information.

Features	Functionalities
Instructor Field	Editable fields for the instructor's information.
Change Picture Button	Allow users to upload a new picture of the instructor.
Remove Picture Button	Let users remove the current picture of the instructor and set it to default.
Save Button	Commits any changes made to the instructor fields.

Schedule Management

The screenshot shows a dark-themed web application interface. On the left, there is a sidebar with a user profile for "Mary Strelline" (2nd Year, BS in Computer Science) and links for Dashboard, Profile, Courses, Instructors, Schedule (which is currently selected), Assessment, and Log out. The main content area is titled "Schedule". It features a weekly grid from Monday to Saturday. Each day has a list of courses with a "View" button. For example, Monday has courses DCIT55, COSC65, GNED14, and GNED08. Tuesday has FITT4, MATH2, and DCIT55. Wednesday has "No schedule". Thursday has DCIT25, COSC65, and GNED14. Friday has GNED08, COSC70, DCIT25, and MATH2. Saturday has "No schedule". A "Add a schedule" button is located in the top right corner of the grid.

Figure 23. Schedule Page

This screenshot shows the same application interface as Figure 23, but with a modal window open over the schedule grid. The modal is titled "Schedule Details" and contains the following course information: Course Code: DCIT55, Course Title: Advance Database Management System, Time: 10:00 AM – 12:00 PM, Room: Room 201, and Instructor: Edan Belgica. At the bottom of the modal are "Edit" and "Delete" buttons, and a "Close" button on the right side.

Figure 24. View Schedule Details Modal

The schedule page shows the list of courses scheduled by day with a View button beside the course code to show its full schedule details.

Features	Functionalities
Schedule Table	Displays the list of courses scheduled by day, from Monday to Saturday.
View Button	Located beside the course code, it views detailed information of the selected instructor inside a modal.
Instructor Details Modal	Shows the full details of the course schedule, with an Edit and Delete button at the bottom left corner.
Edit Button inside the Modal	Opens a form to edit the selected course's schedule.
Delete Button inside the Modal	Deletes the schedule from the table.
Add a schedule Button	Opens a form to add new schedule.

The screenshot shows a web browser window titled "Add Schedule" with the URL "http://127.0.0.1:5000/add_schedule". On the left, there is a sidebar menu for a user named "Mary Strelline" (2nd Year, BS in Computer Science). The menu includes options: Dashboard, Profile, Courses, Instructors, Schedule (which is highlighted), Assessment, and Log out. The main content area is titled "Add Schedule" and contains the following form fields:

- Course Code: A dropdown menu with the placeholder "-Select a course-".
- Day: A dropdown menu with the placeholder "-Select a day-".
- Start Time: A time input field with the placeholder "--:-- --".
- End Time: A time input field with the placeholder "--:-- --".
- Room: An empty input field.
- Instructor: A dropdown menu with the placeholder "-Select an instructor-".

At the bottom right of the form is a blue "Add schedule" button.

Figure 25. Add Schedule Page

The add schedule page opens a form to add new schedules.

Features	Functionalities
Input Fields	Editable fields for adding a new schedule.
Add Schedule Button	Commits information made to the input fields.

Edit Schedule

Mary Strelline
2nd Year
BS in Computer Science
Edit Profile

Course Code: DCIT55

Day: Monday

Start Time: 10:00 am

End Time: 12:00 pm

Room: Room 201

Instructor: Edan Belgica

Save

Figure 26. Edit Schedule Page

The edit instructor page opens a form to modify the selected instructor's information.

Features	Functionalities
Input Fields	Editable fields for adding a new schedule.
Save Button	Commits any changes made to the input fields.

Quiz, Activity, and Exam Tracking

Course Code	Type	No.	Score	Total	Date	Actions
COSC70	Activity	1	8	10	2025-01-01	Edit Delete
GNED08	Quiz	1	9	10	2025-01-02	Edit Delete
GNED08	Quiz	2	9	10	2025-02-02	Edit Delete
GNED08	Activity	1	10	10	2025-02-20	Edit Delete
GNED14	Activity	1	15	15	2025-02-02	Edit Delete

 An 'Add an assessment' button is located in the top right corner of the main area."/>

Assessment

Mary Strelline
2nd Year

Course Code	Type	No.	Score	Total	Date	Actions
COSC70	Activity	1	8	10	2025-01-01	<button>Edit</button> <button>Delete</button>
GNED08	Quiz	1	9	10	2025-01-02	<button>Edit</button> <button>Delete</button>
GNED08	Quiz	2	9	10	2025-02-02	<button>Edit</button> <button>Delete</button>
GNED08	Activity	1	10	10	2025-02-20	<button>Edit</button> <button>Delete</button>
GNED14	Activity	1	15	15	2025-02-02	<button>Edit</button> <button>Delete</button>

Figure 27. Assessment Page

The screenshot shows a dark-themed web application interface titled "Assessment". At the top right, there is a user profile for "Mary Strelline" (2nd Year). A search bar at the top contains the text "gned". Below the header, the word "Assessment" is prominently displayed. On the left side, there is a sidebar with the following menu items:

- Mary Strelline
- 2nd Year
- BS in Computer Science
- Edit Profile
- Dashboard
- Profile
- Courses
- Instructors
- Schedule
- Assessment
- Log out

The main content area features a table titled "Assessments" with the following data:

Course Code	Type	No.	Score	Total	Date	Actions
GNED08	Quiz	1	9	10	01-02-2025	<button>Edit</button> <button>Delete</button>
GNED14	Activity	1	15	15	02-02-2025	<button>Edit</button> <button>Delete</button>
GNED08	Activity	1	10	10	02-20-2025	<button>Edit</button> <button>Delete</button>
GNED08	Quiz	2	9	10	02-02-2025	<button>Edit</button> <button>Delete</button>

At the top right of the main content area, there is a button labeled "Add an assessment".

Figure 28. Assessment Page Search Function

The courses page shows the list of courses the user has added or enrolled.

Features	Functionalities
Search Bar	Allows users to search for specific courses or assessments by course code or assessment type.
Assessment Table	Displays the list of courses with its assessment types, no., score, total score, date, and action buttons.
Edit Button	Opens a form to edit the selected course's assessment.
Delete Button	Deletes the assessment permanently from the table.
Add an assessment Button	Opens a form to add new assessment.

Add Assessment

Mary Strelline
2nd Year
BS in Computer Science
Edit Profile

Dashboard
Profile
Courses
Instructors
Schedule
Assessment
Log out

Course Code:
-Select a course-

Assessment Type:
-Select a type-

Assessment No.:

Score:

Total Score:

Assessment Date:
mm/dd/yyyy

Save

Figure 29. Assessment Page Search Function

The add assessment page opens a form to add new assessment.

Features	Functionalities
Input Fields	Editable fields for adding a new assessment.
Add Assessment Button	Commits information made to the input fields.

Edit Assessment

Mary Strelline
2nd Year
BS in Computer Science
Edit Profile

Dashboard
Profile
Courses
Instructors
Schedule
Assessment
Log out

Course Code:
GNED08

Assessment Type:
Activity

Assessment No.:

Score:

Total Score:

Assessment Date:
02/20/2025

Save

Figure 30. Edit Assessment Page

The edit assessment page opens a form to modify the selected course assessment.

Features	Functionalities
Input Fields	Editable fields for adding a new assessment.
Save Button	Commits any changes made to the input fields.

Additional Pages

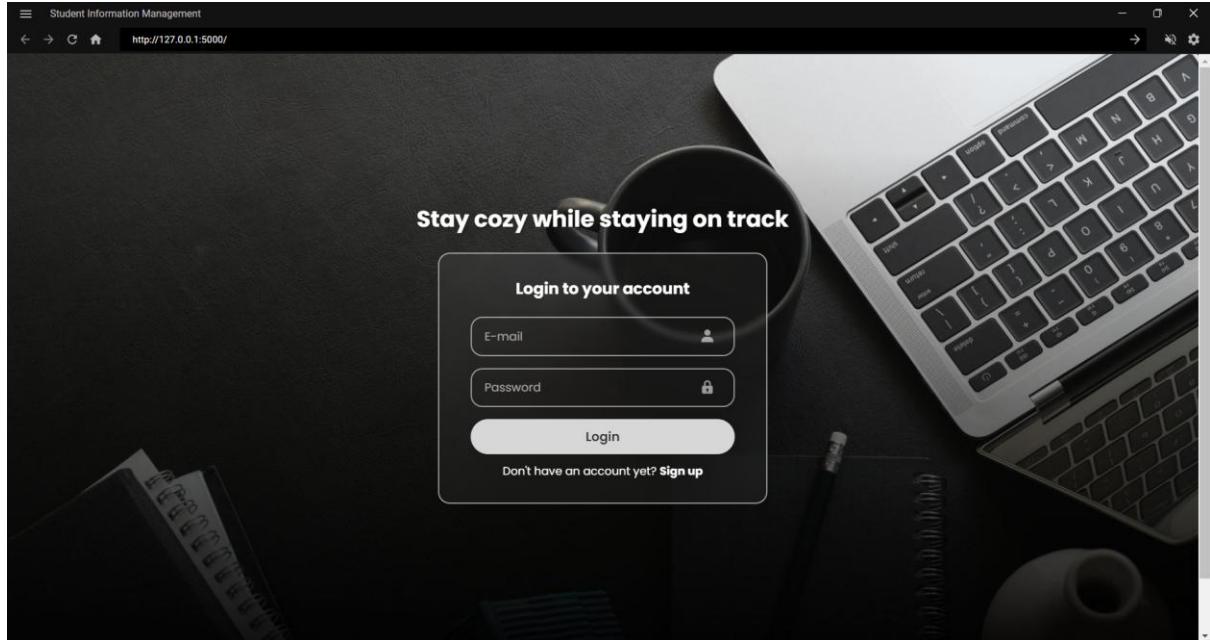


Figure 31. Login Page

The login page is the landing page where the user executes the system. It has a dark minimalistic relaxed vibe that screams classy student portal with the login form at the center and a tagline “Stay cozy while staying on track” where users can be comfortable and relaxed while still being focused and productive.

Features	Functionalities
Tagline	A short and catchy phrase that reflects the purpose and vibes of the web application to create a welcoming atmosphere and establish a connection with users.
Login Form	Provides secure access to the platform by verifying the user's credentials, allowing only authenticated users to view and manage their personalized data.
Dark Theme	Enhances user experience by reducing eye strain in low-light environments, offering a modern look, and optionally conserving battery life on certain devices

Sign Up Link

Redirects to sign up page to create another user account

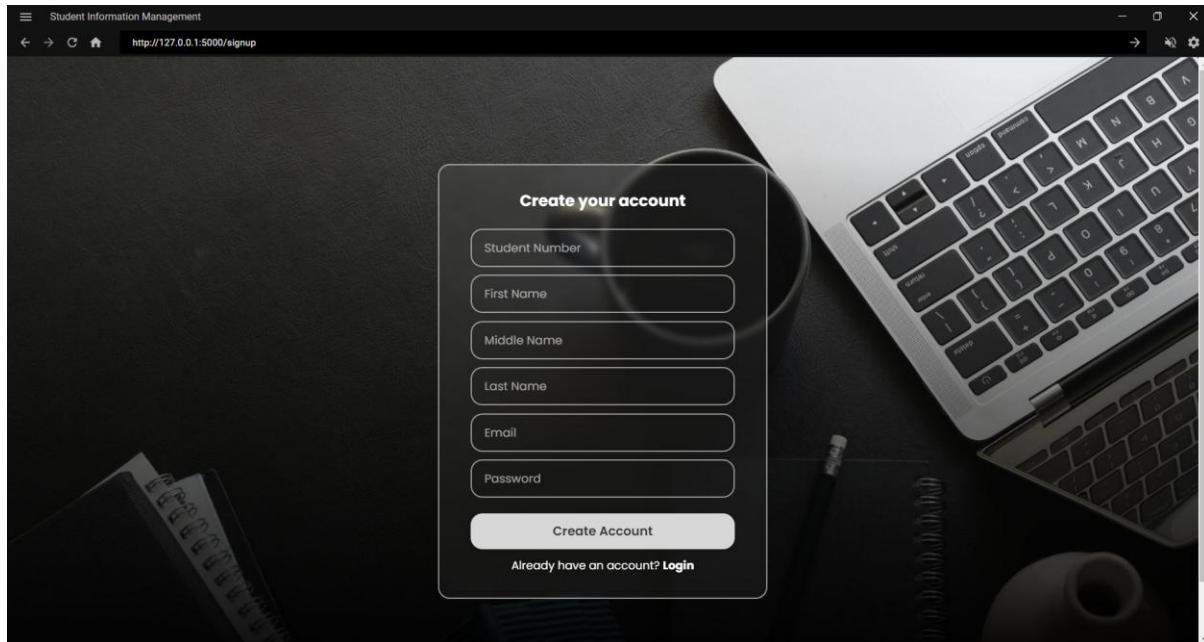


Figure 32. Sign Up Page

The sign up page is where users can create their account that has not been registered in the database. After successfully submitting the information to create an account, it will automatically redirect back to the login page. Or you can just click the Login link below the Create Account button to go back to the login page if you're not going to create an account.

A screenshot of a web browser window showing a dashboard for a user named Mary Strelline. The dashboard includes a profile section with a photo, name, year, and degree, along with links to edit profile and log out. A sidebar on the left lists navigation options: Dashboard, Profile, Courses, Instructors, Schedule, Assessment, and Log out. The main content area features a large "Welcome, Mary Strelline!" message. It also displays three cards: "Courses Enrolled" (listing subjects like Architecture and Organization, Software Engineering, etc.), "Schedule for Tuesday" (listing classes like FITT4, MATH2, DCIT55 with their respective times), and "Assessment" (listing Quiz, Activity, Midterm Exam, and Final Exam). At the bottom of each card is a "View All" link.

Figure 33. Dashboard Page

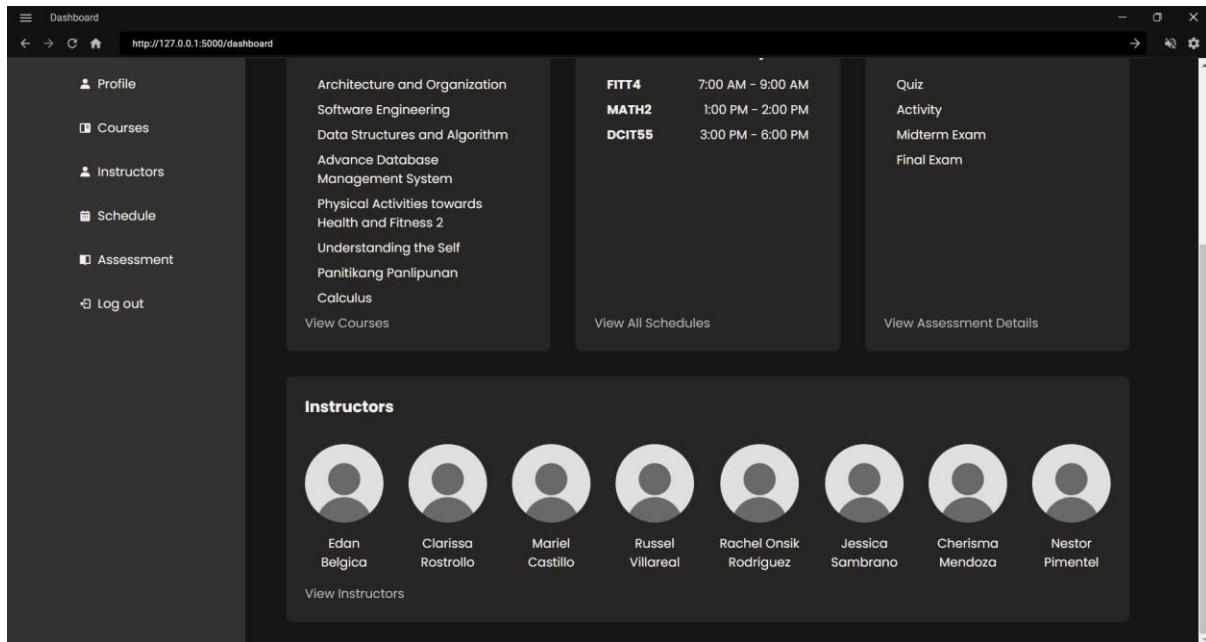


Figure 34. Dashboard Page (lower part)

The dashboard page is the first page you'll see after logging in. It displays a welcome message personalized to the user's name. It also has sections for courses, schedules, assessments, and instructors that displays the up-to-date information.

Features	Functionalities
“Welcome” Message for the User	Displays a personalized greeting on the dashboard to make the user feel recognized and provide a friendly introduction to the web application.
Courses Section	Displays the list of courses the user is currently enrolled in. The View Courses link at the bottom redirects the user to the courses page to see the full details of the courses.
Schedules Section	Updates the user of her scheduled classes for the current day. The View All Schedules link below redirects the user to the schedule page to let them view the full details of the schedules.
Assessment Section	Displays the list of assessment types. The View Assessment Details link below redirects the user to the assessment page to see the full details of the assessments.

Instructors Section	Displays the list of instructors' names along with their picture at the bottom of the dashboard page. The View Instructors link below redirects the user to the instructors page.
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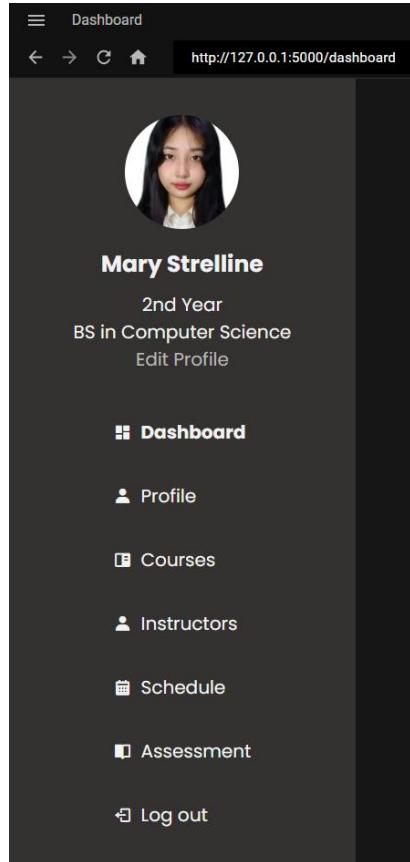


Figure 35. Sidebar Navigation Menu

This serves as the main navigation panel of the system, providing quick access to key pages such as Edit Profile, Dashboard, Profile, Courses, Instructors, Schedule, Assessment, and Logout. It also displays the basic information of the user such as profile picture, first name, current year level, and program.

Features	Functionalities
Profile Picture Display	Shows the user's profile picture at the top of the sidebar, giving a personal touch and quick visual identification.
Basic Information Display	Displays the user's first name, year level, and program under the profile picture to provide at-a-glance personal details.
Edit Profile Link	Redirects the user to a form where they can update their personal information such as name, email, program, year level, and profile picture, etc.

Dashboard Link	Navigates to the main dashboard, where users can view a welcome message and recent updates on the system.
Profile Link	Opens the user's profile page containing detailed student information including full name, student number, program, year and section, academic status, and e-mail.
Courses Link	Navigates to the courses page, where users can manage their enrolled courses by viewing, adding, editing, or dropping course entries.
Instructors Link	Directs to the instructors page, where users can view a list of instructors and open modal windows for detailed instructor profiles.
Schedule Link	Opens the schedule page, showing the user's weekly class timetable and options to manage individual schedule entries.
Assessment Link	Navigates to the assessments page, which displays a breakdown of scores from quizzes, activities, and exams for performance tracking.
Logout Link	Logs the user out of the system and redirects them to the login page.