



**TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT & TECHNOLOGY**

**AMCS1034 Software Development Fundamentals**

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Date Submitted : 14 - SEP - 2025



**TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT  
& TECHNOLOGY**

**AMCS1034 Software Development Fundamentals**

**Year 2 Semester 1**

**Group 5**

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**We confirm that we have read and shall comply with all the terms and conditions of TAR University of Management and Technology's plagiarism policy.**

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## Originality report

COURSE NAME  
AMCS1034 Practical

STUDENT NAME  
JIA TONG LAI

FILE NAME  
Assignment Report

REPORT CREATED  
Sep 16, 2025

### Summary

|                       |   |      |
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#### Web matches

|                 |   |      |
|-----------------|---|------|
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1 of 2 passages

Student passage QUOTED

When the user clicks Logout, a confirmation prompt appears: "Are you sure you want to logout?"

Top web match

**Are You Sure You Want To Logout?** Beathan Hart. \$2.99.

Are You Sure You Want To Logout? by Beathan Hart on Apple Books <https://books.apple.com/us/book/are-you-sure-you-want-to-logout/id6748508309>

2 of 2 passages

Student passage QUOTED

Validation message appears: "CGPA must be between 0.00 and 4.00.".

Top web match

**EXAMPLE : A STUDENT'S CGPA MUST BE BETWEEN 0.00 AND 4.00 EACH TEACH MUST SUPERVISE ONLY ONE STUDENT.** Why is this page out of focus? Because this is a ...

<https://classroom.google.com/g/sr/Nzg3Njg0NzY5ODEy/NzgyNTE0NTc1MTA2/14EMaqKrVqcIqzSlaxPoRJvsAe5dkJD3GXT0hAzDLE>

1/2

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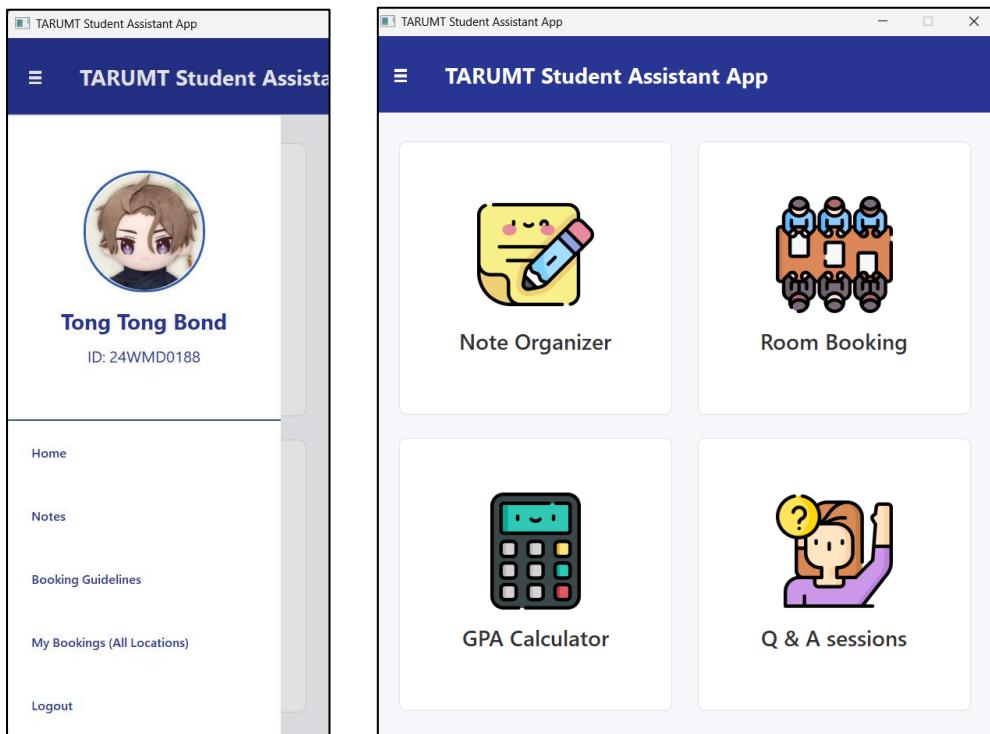
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## Section A: System Description

The TARUMT Student Assistant Application is developed using the **Python** programming language and the **PyQt5** library to design a graphical user interface. The main purpose of the system is to provide TARUMT students with a convenient platform that consolidates essential academic tools into a single application. The system currently integrates three core functions which is a **note organizer** for managing personal study notes, a **discussion room booking** module for reserving collaborative spaces, and a **GPA calculator** for monitoring academic performance. These functions are designed to support student in organizing their academic tasks more efficiently and to enhance overall learning productivity. Access to the application is restricted through a secure login mechanism, where students are required to enter a valid Student ID and password. Only authenticated users will be granted access to the system's functions, thereby ensuring data privacy and system integrity.



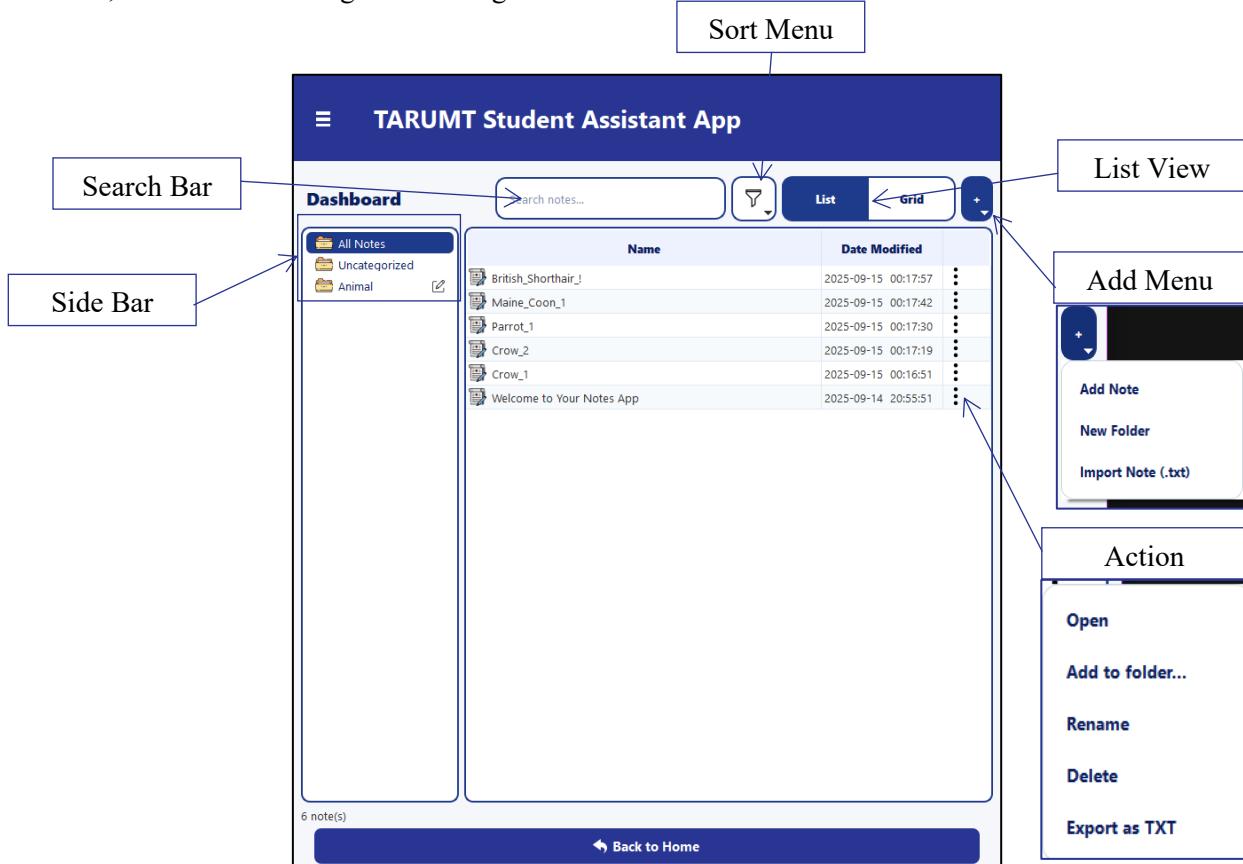
The sliding menu bar displays the user's profile picture, name, and Student ID, allowing quick access to key sections of the application. From here, students can navigate to the Home page, manage their notes, view booking guidelines, check the booking history for all locations, or log out of the system.

## 1.1 Note Organizer

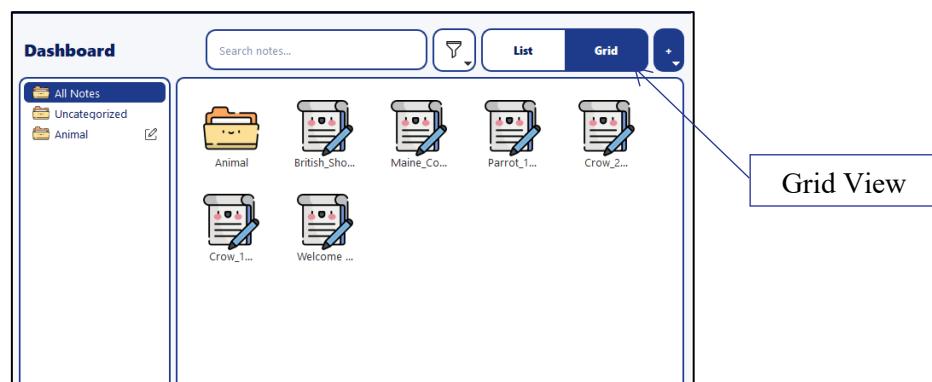
The Note Organizer lets users create, organize, and edit notes with rich text, images, and freehand ink. It's split into a **Dashboard** and a **Notes Editor**.

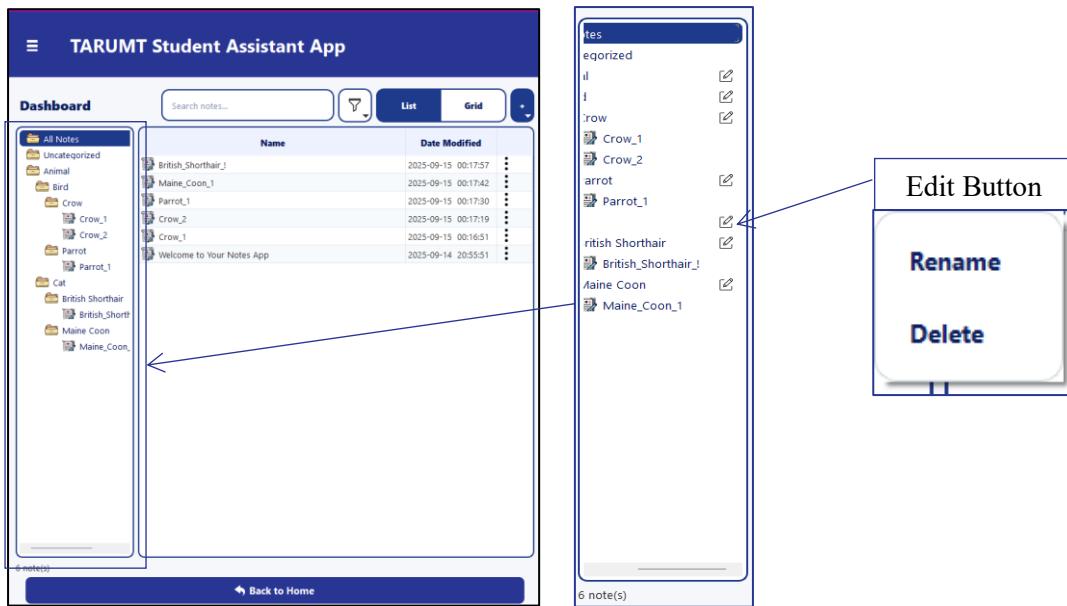
### 1.1.1 Dashboard

The Dashboard functions as a two-panel interface where the left sidebar organizes notes into folders, including default categories such as “All Notes” and “Uncategorized.” The right panel displays notes in either List or Grid format, allowing students to search notes by title, and sort them by date (newest to oldest) or by name (A to Z). From this screen, users can create new notes, add folders, import text files into notes, and perform management operations such as renaming, moving, deleting, or exporting notes, as well as renaming and deleting folders.



The Dashboard consists of the top bar which allows students to search notes by title, sort them by date or name, switch between list and grid views, and add new notes, folders, or import text files. The centre pane shows the notes themselves, either in a list with columns or a grid of icons, both supporting open, add to folder, rename, delete, and export actions. File details show note title, date and time modified.

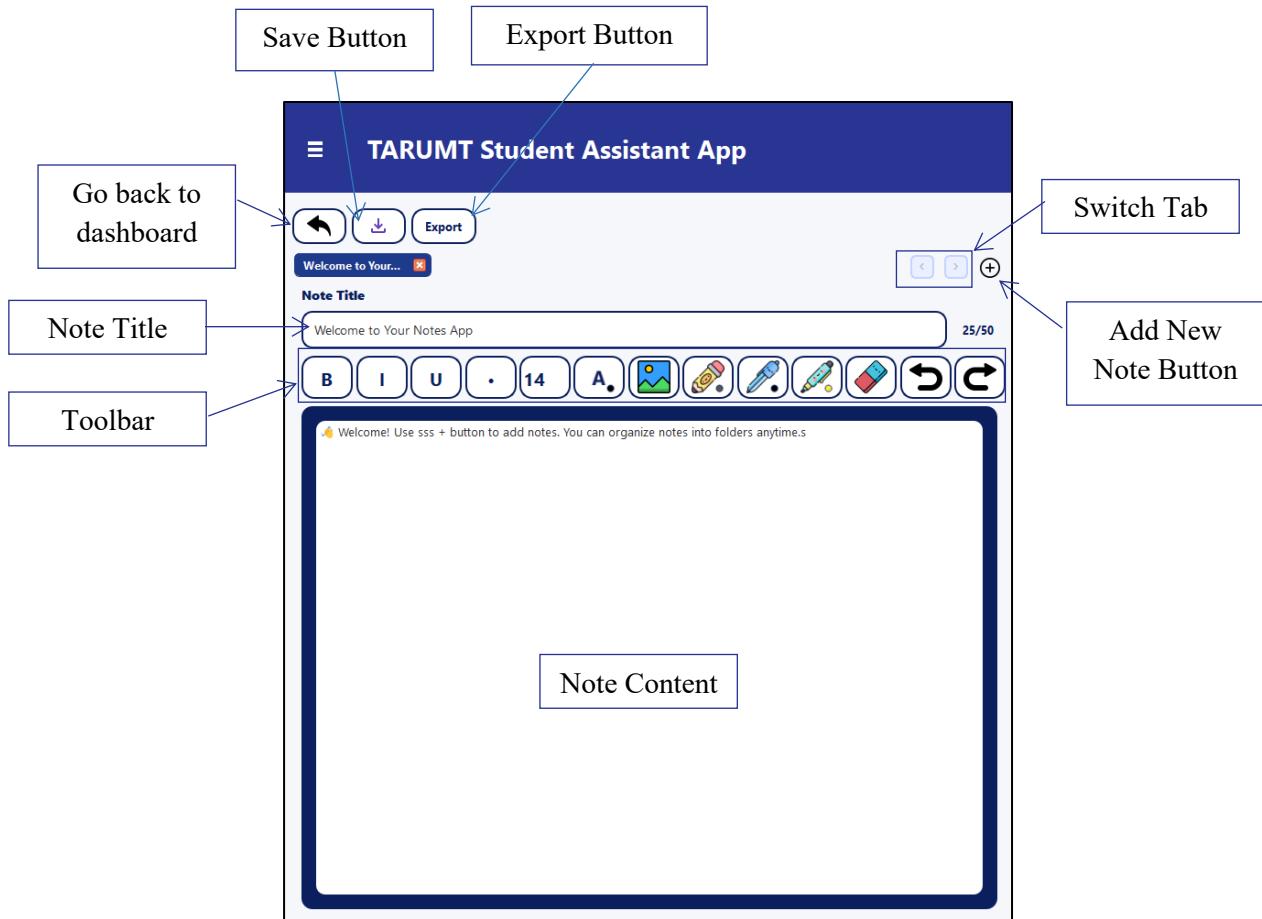




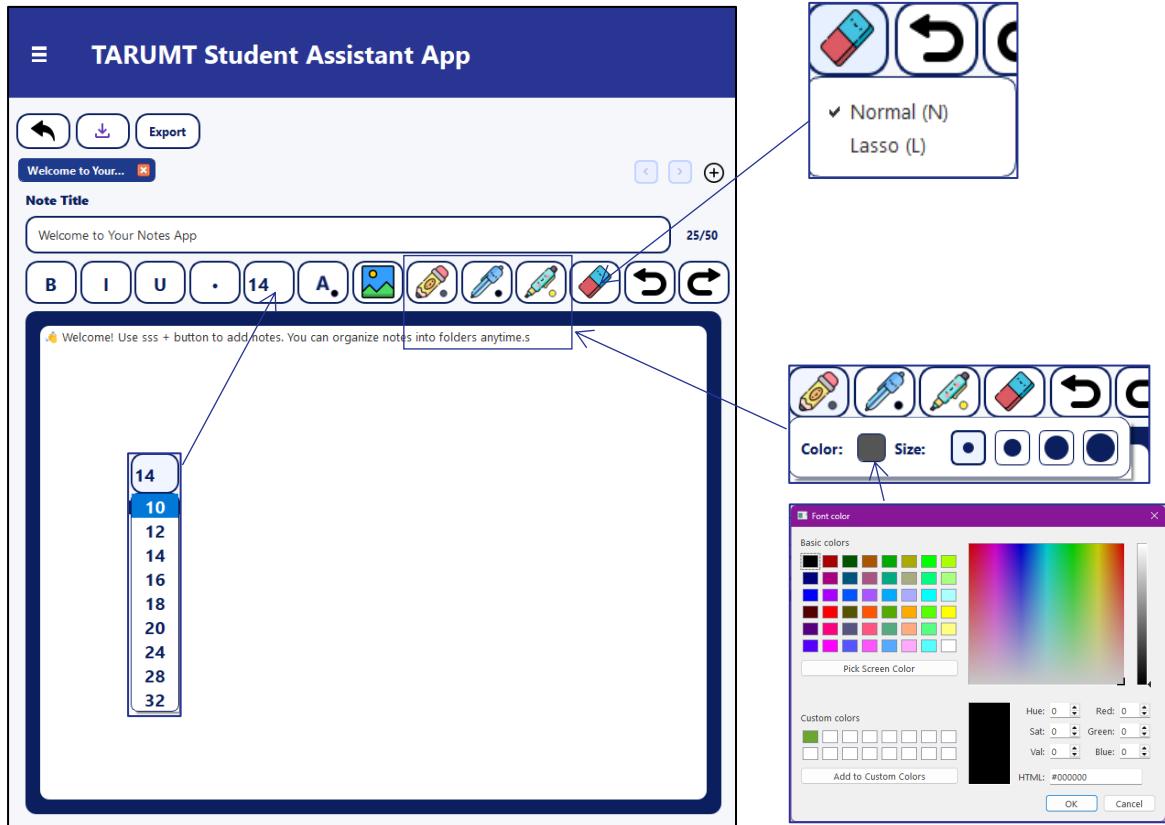
The sidebar displays “All Notes,” “Uncategorized,” and custom folders in a tree format, with options to rename or delete folders, while ensuring deleted folders have their notes moved safely to “Uncategorized.” Clear empty-state messages, a live note counter, and a home button make the dashboard easy to navigate.

## 1.1.2 Notes Editor

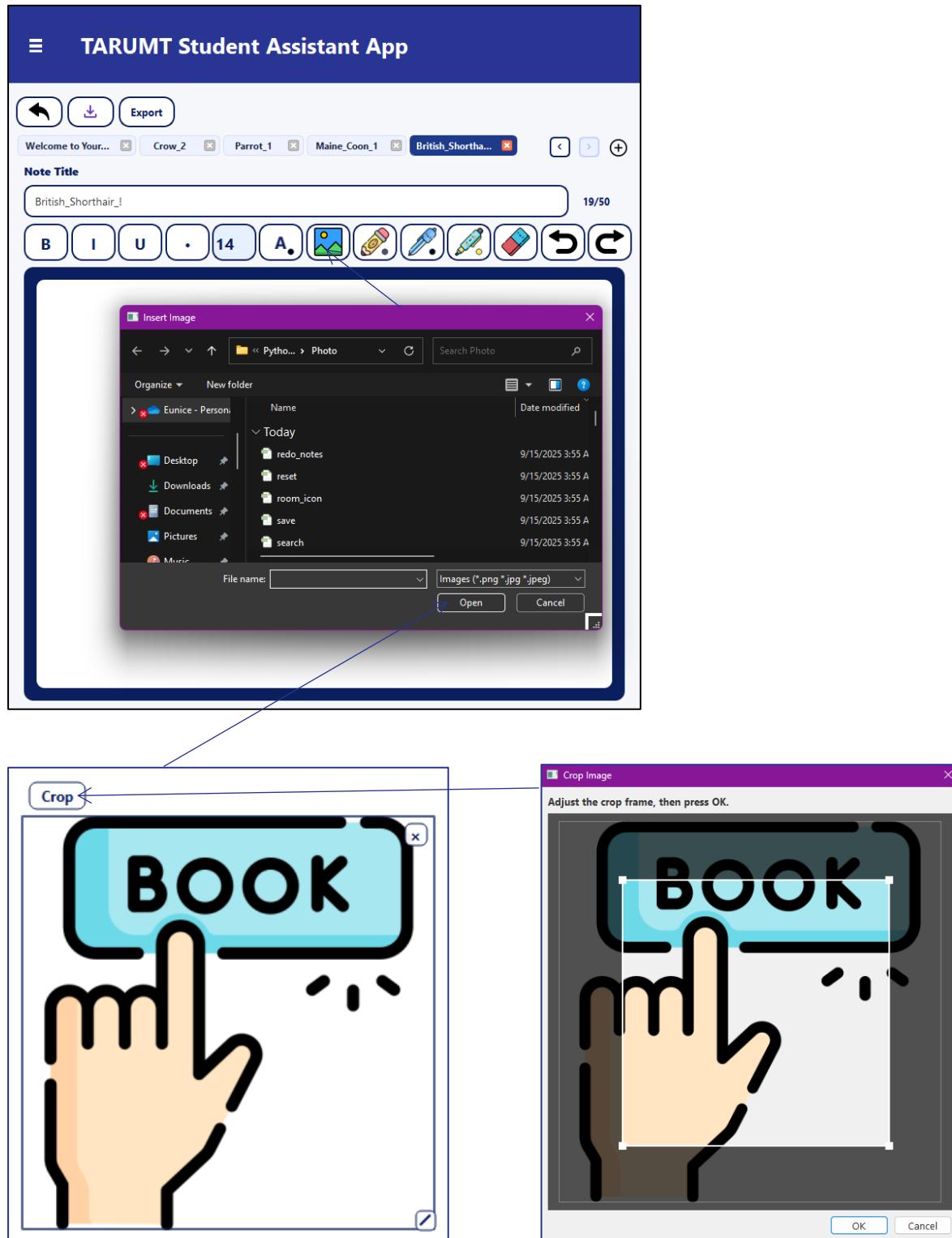
The Notes Editor is a multi-tab workspace that lets students create and manage notes with ease. It supports text formatting tools such as bold, italic, underline, font size, and colour, along with drawing options including pen, pencil, highlighter, and erasers, all backed by undo and redo functions. Images can be inserted, resized, cropped, or deleted, while autosave ensures both text and drawings are stored securely in the database. Multiple notes can be opened in tabs with simple navigation, and content can be exported as text files for external use.



The Notes Editor gives students full control over how they write and draw. For text, the font size and colour can be customized to highlight key points or organize ideas more clearly. For drawing, the pen allows changes in both size and colour, making it suitable for sketching diagrams or marking emphasis. A pencil tool is available for finer, lighter strokes, while the highlighter adds translucent marks to underline important content. The eraser comes in two modes: a normal eraser for quick corrections and a lasso eraser that lets students select and remove larger areas of ink with precision.

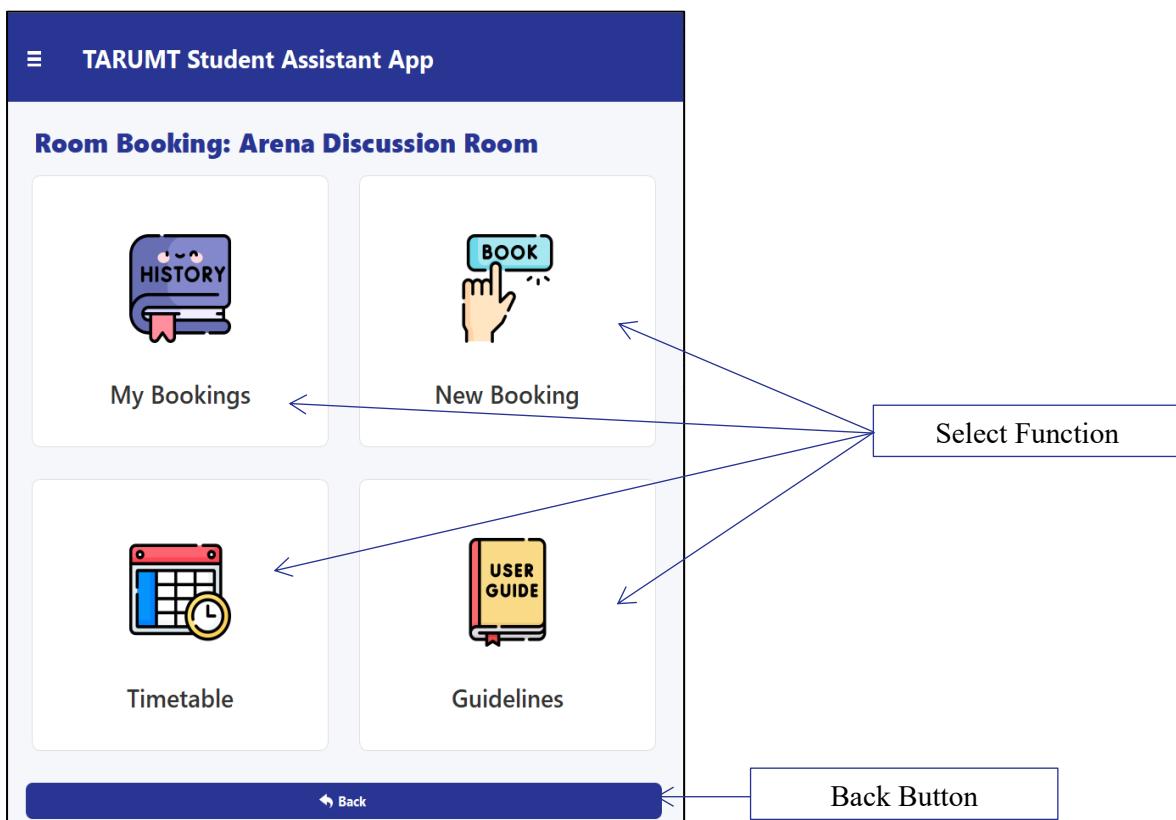
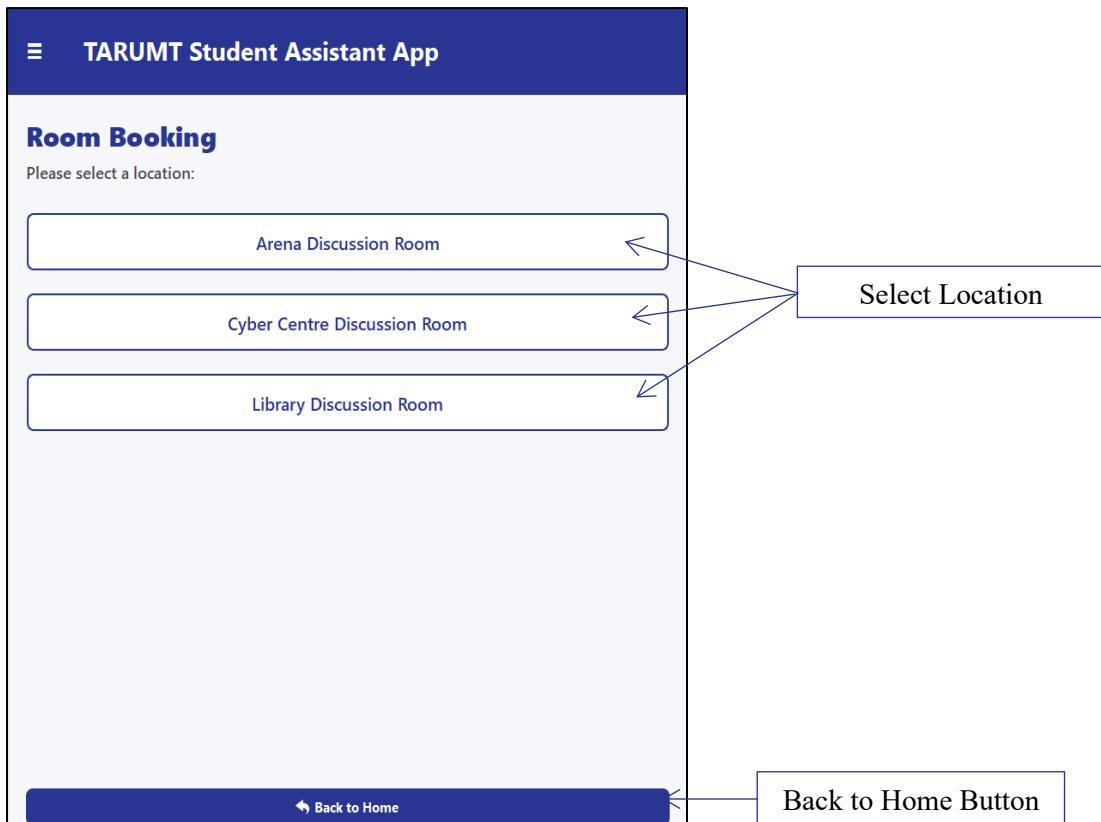


The Notes Editor also supports image handling, allowing students to import pictures directly into their notes. Once inserted, images can be resized freely to fit the layout, deleted using a simple “X” button, or cropped through a dedicated crop mode. In crop mode, the user can drag a transparent frame across the image to select the desired area, making it easy to trim unnecessary parts and keep only what is relevant. This flexibility ensures that visual content can be managed just as smoothly as text or drawings.



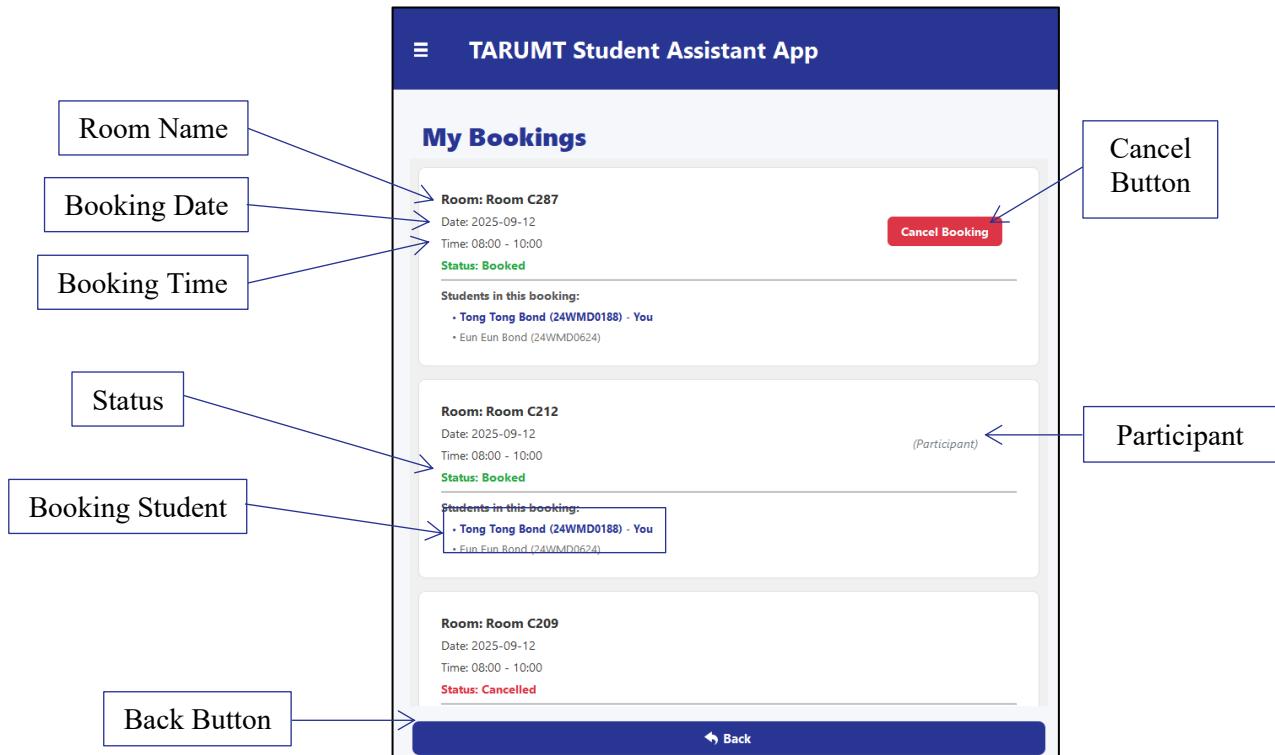
## 1.2 Discussion Room Booking

The **Discussion Room Booking** module requires students to select a venue before they can proceed. Once a venue has been chosen, the module provides four main functions that enable students to manage their reservations efficiently:



## 1.2.1 My Bookings

The My Bookings function allows students to view and manage their existing reservations. Students are permitted to cancel only their own bookings, while other participants may join but are not allowed to remove reservations created by others. Each booking is displayed with a status indicator, which can be one of three types, such as Booked, Cancelled, or Completed. This status tracking provides clarity for students to monitor the progress and outcome of their reservations effectively.



## 1.2.2 New Booking

The New Booking function allows students to make reservations by selecting the desired date, time, room features, and number of students. As part of the booking process, students are required to enter their Student ID, after which the system automatically generates the corresponding student name, validates the entered ID, and checks the availability of the selected room. Prior to confirmation, students must also acknowledge that they have read and agreed to the Terms and Conditions, ensuring compliance with the system's usage policies. This function is designed to streamline the booking process, minimize errors, and ensure that only valid users are able to make reservations efficiently.

Start Time (cannot be earlier than 08:00)

End Time (cannot be later than 18:00)

Expand Student List Button

Student Information List

Submit Button

Back Button

When the user clicks the “View All Students” button, the full list of students will be displayed in a larger view. Any changes made can be saved by clicking “Save Changes”, which will update the previous page. If the user clicks “Cancel”, no changes will be applied.

Generate Name Automatically

Enter Student ID

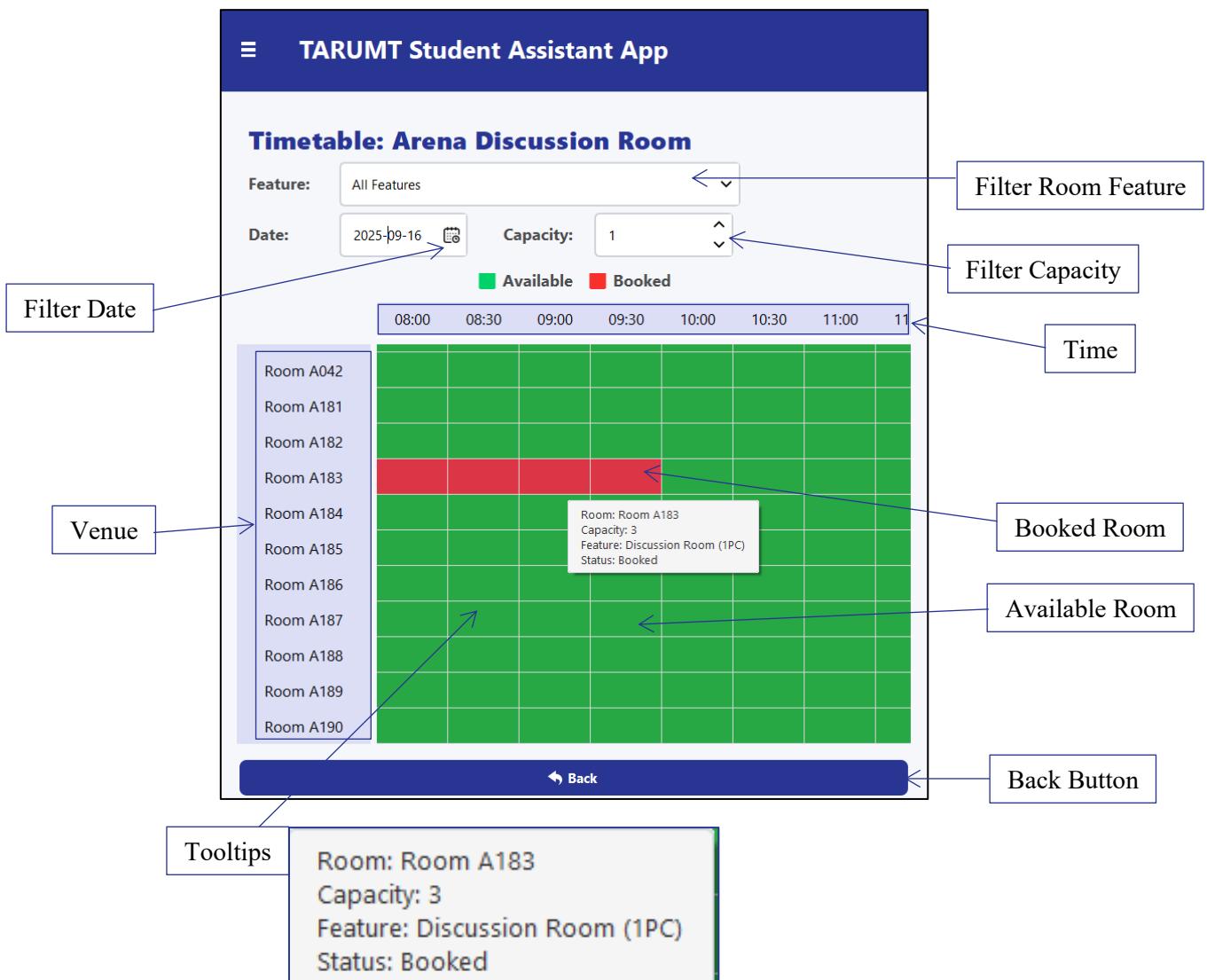
Cancel Button

Save Changes Button

Back Button

### 1.2.3 Timetable

The Timetable function enables users to view room availability in a clear and structured manner. It provides filtering options based on room features, capacity, and date, allowing users to narrow down their search according to specific requirements. Rooms within a selected location are displayed using color-coded indicators, where red signifies that a room has already been booked and green indicates that a room is available. In addition, a tooltip feature is integrated into the timetable, which displays further details such as the room's capacity, available features, and current status when the user hovers over a room. This functionality enhances the efficiency of room selection and improves the overall user experience by providing quick access to essential information.



## 1.2.4 Guidelines

The Guidelines function provides students with access to the rules, policies, and requirements for using the booking system and campus facilities. It presents information such as time restrictions, advance booking policies, cancellation rules, room usage guidelines, student responsibilities, and institutional compliance regulations in a structured and accessible format. The content is displayed in a scrollable interface with clear headings and bullet points, ensuring that users can easily read and understand the terms of use before making a booking. This function is designed to promote responsible usage of facilities, maintain fairness in room allocation, and ensure that all students are aware of their obligations when using the system.

**TARUMT Student Assistant App**

### Booking Guidelines & Terms of Use

**⌚ Time Restrictions**

- Bookings are available from 8:00 AM to 6:00 PM only
- Maximum booking duration: 2 hours per session
- Time slots are in 30-minute intervals (e.g., 08:00, 08:30, 09:00)

**📅 Advance Booking**

- Bookings can be made up to 1 week in advance
- Same-day bookings are allowed subject to availability

**✖ Cancellation Policy**

- Bookings can be cancelled up to 1 hour before the scheduled time

**🏡 Room Usage**

- Please leave the room in the same condition as you found it

**⬅ Back**

**Back Button**

**🏡 Room Usage**

- Please leave the room in the same condition as you found it
- Report any issues or damages immediately to facility staff
- No food or drinks allowed in computer labs and special equipment rooms
- Keep noise levels appropriate for academic environments

**🎓 Student Requirements**

- All attendees must be valid students with active IDs
- The booking student is responsible for the room during the booked time
- Maximum of 10 students per booking (including the booker)
- Student IDs must be presented upon request

**💡 Compliance & Regulations**

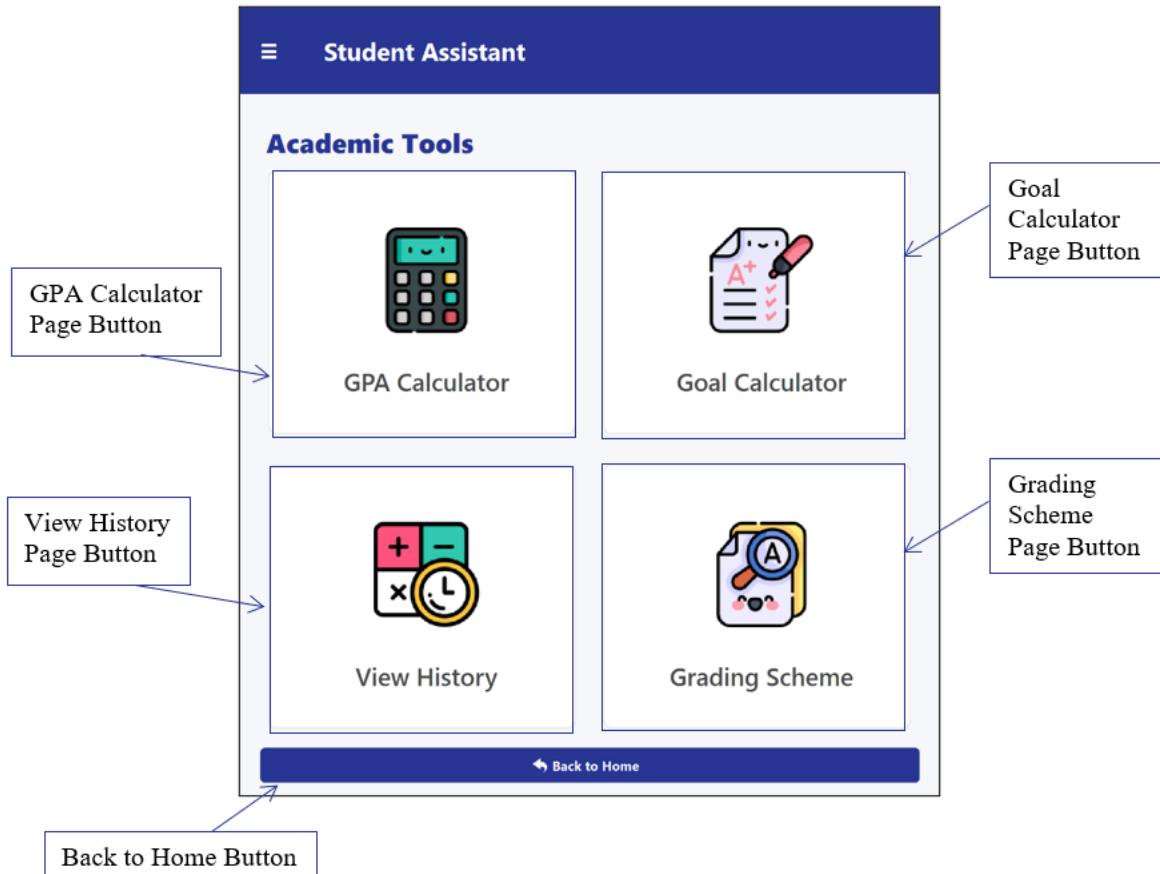
- Users must comply with all institutional policies and codes of conduct
- Misuse of facilities may result in disciplinary action
- Rooms must be used for academic purposes only
- Commercial activities are strictly prohibited

**📚 General Information**

- Technical support available during office hours
- For emergencies, contact campus security at extension 09123456789

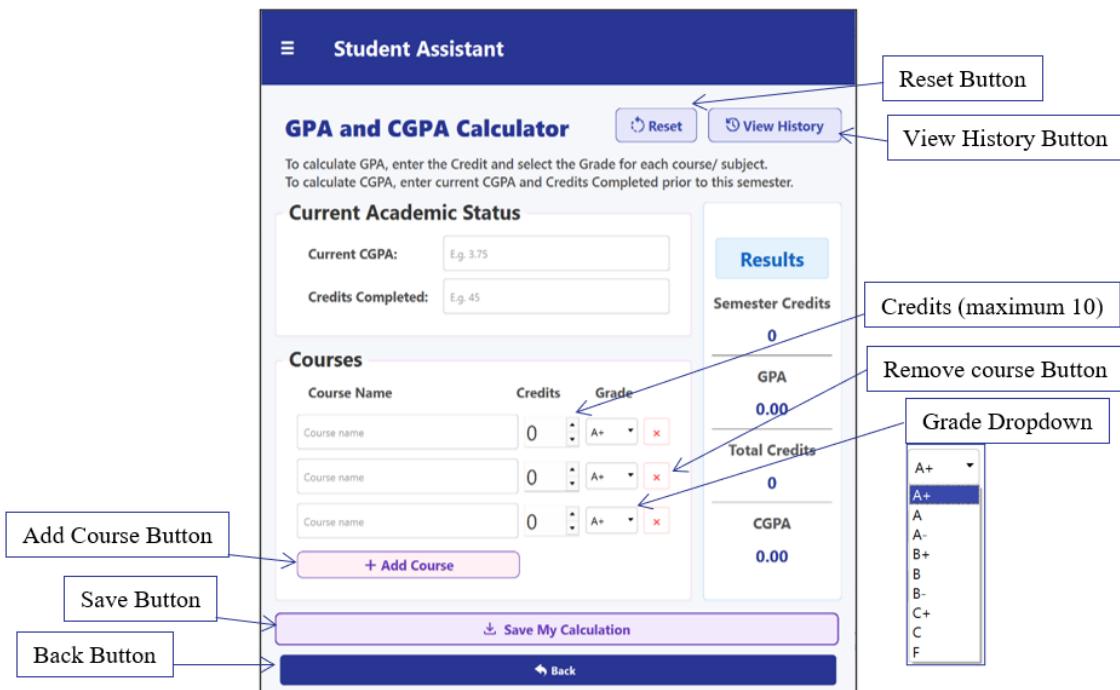
## 1.3 Academic Tools

The Academic Tools consist of four main features: the GPA Calculator module, the Goal Calculator, View History, and the Grading Scheme. Together, these features enable students to calculate and plan their GPA, set goals to reach their target CGPA, review past calculation results, and better understand the grading system.



### 1.3.1 GPA calculator

The GPA Calculator helps students calculate their GPA and CGPA in an easy way. Students start by entering their current CGPA and total credits completed. Next, they can add each course by filling in the course name, credit hours, and grade. As they enter the details, the results panel will update automatically to show the semester GPA, overall CGPA, and total credits. After completing the calculation, students can save their results by clicking the “Save My Calculation” button.



### 1.3.2 Goal Calculator

The Goal Calculator helps students figure out the GPA they need to reach their target CGPA. Students enter their current CGPA, completed credits, target CGPA, and the credits for the next semester.

Student Assistant

CGPA Goal Calculator

Calculate the GPA you need next semester to reach your target CGPA

**Input Parameters**

Current CGPA: 3.22

Completed Credits: 25

Target CGPA: 3.50

Next Semester Credits: 15

Calculate Required GPA

Reset

Back

After clicking the “Calculate Required GPA” button, the result panel will show the GPA students need to achieve in the coming semester, along with a simple scenario analysis that explains how realistic their target CGPA is.

Results

Required GPA: 4.00

To reach your target CGPA of 3.87, you need to get a GPA of 4.00 in your next semester.

⌚ Challenging but possible! Plan for dedicated study time

Back

Scenario Analysis

Back

### 1.3.3 View History

View History allows students to review their saved calculations in a table format. It also provides a Details button that lets them view each input along with a bar chart showing their performance comparison.

**Student Assistant**

**GPA Calculation History**

| Date             | Semester Credits | Semester GPA | Total Credits | Current CGPA | Previous CGPA     | Actions                  |
|------------------|------------------|--------------|---------------|--------------|-------------------|--------------------------|
| 2025-09-10 17:20 | 10               | 3.33         | 32            | 3.24         | 3.20 (22 credits) | <button>Details</button> |
| 2025-09-10 14:28 | 8                | 3.33         | 58            | 3.24         | 3.22 (50 credits) | <button>Details</button> |
| 2025-09-10 14:25 | 7                | 3.52         | 57            | 3.26         | 3.22 (50 credits) | <button>Details</button> |
| 2025-09-10 14:16 | 9                | 3.63         | 29            | 3.35         | 3.23 (20 credits) | <button>Details</button> |
| 2025-09-09 18:42 | 7                | 3.71         | 42            | 3.79         | 3.80 (35 credits) | <button>Details</button> |
| 2025-09-09 18:34 | 7                | 3.28         | 52            | 3.69         | 3.75 (45 credits) | <button>Details</button> |
| 2025-09-07 20:53 | 9                | 4.00         | 31            | 3.22         | 2.90 (22 credits) | <button>Details</button> |
| 2025-09-07 20:37 | 8                | 3.42         | 20            | 3.29         | 3.21 (12 credits) | <button>Details</button> |
| 2025-09-07 20:37 | 8                | 3.42         | 20            | 3.33         | 3.28 (12 credits) | <button>Details</button> |
| 2025-09-07 20:34 | 7                | 3.24         | 52            | 2.34         | 2.20 (45 credits) | <button>Details</button> |

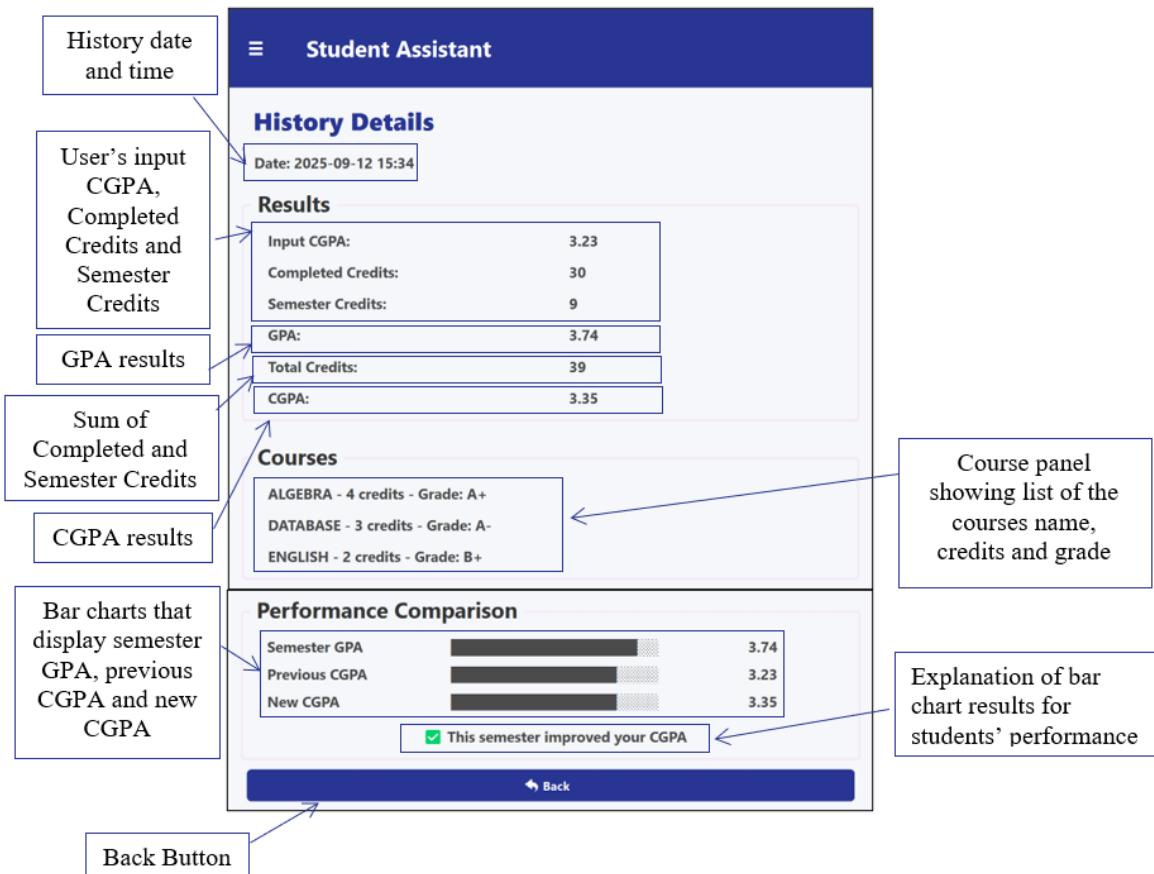
**Back**

**Details Button**

**Back Button**

### 1.3.3.1 Details Button

By clicking the Details button, students are taken to a page with three panels: Results, Courses, and Performance Comparison. The Performance Comparison panel includes bar chart that displays the student's semester GPA, previous CGPA, and new CGPA based on their entered results, along with text-based insights that explain their overall performance.



#### 1.3.3.4 Grading Scheme

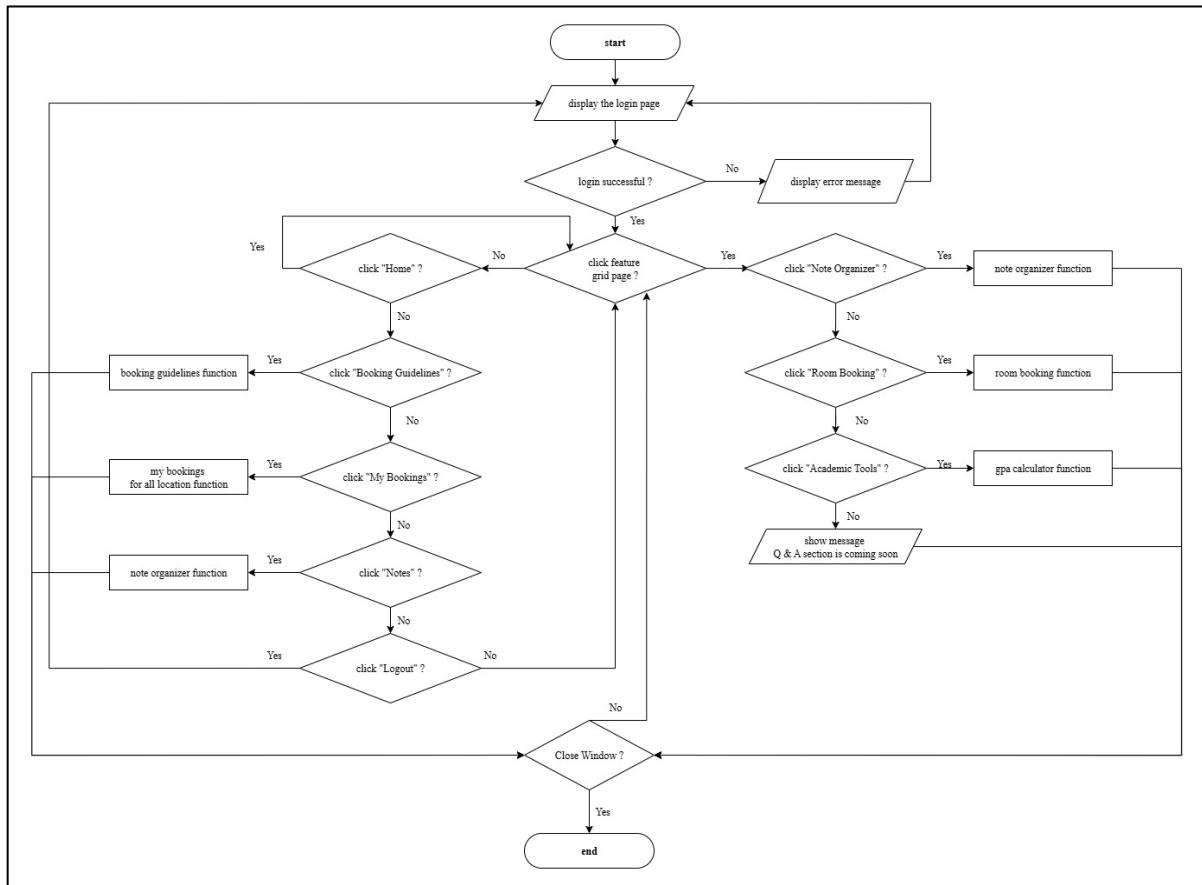
The Grading Scheme shows the grade-to-quality point table used for GPA computation, including a list of marks, grades, and quality points. This helps students clearly understand how their marks are converted into grades and how each grade contributes to their GPA calculation. By referring to the grading scheme, students can better track their performance and know what they need to achieve in future courses.

| Marks    | Grade | Quality Points |
|----------|-------|----------------|
| 90 - 100 | A+    | 4.00           |
| 80 - 89  | A     | 4.00           |
| 75 - 79  | A-    | 3.67           |
| 70 - 74  | B+    | 3.33           |
| 65 - 69  | B     | 3.00           |
| 60 - 64  | B-    | 2.67           |
| 55 - 59  | C+    | 2.33           |
| 50 - 54  | C     | 2.00           |
| 0 - 49   | F     | 0.00           |

## Section B: Stepwise Refinement

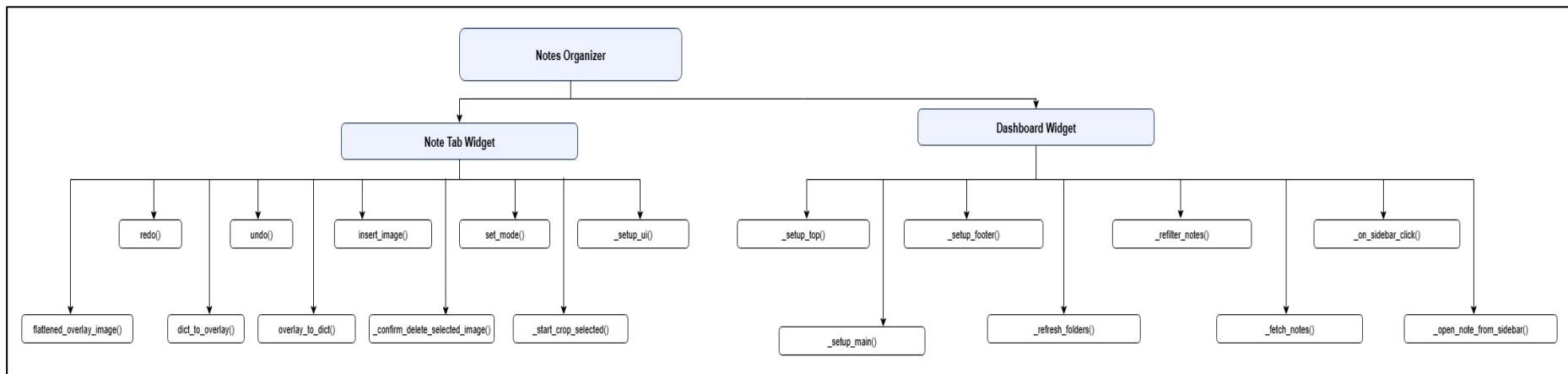
### 2.0 Main Window

- Flowchart



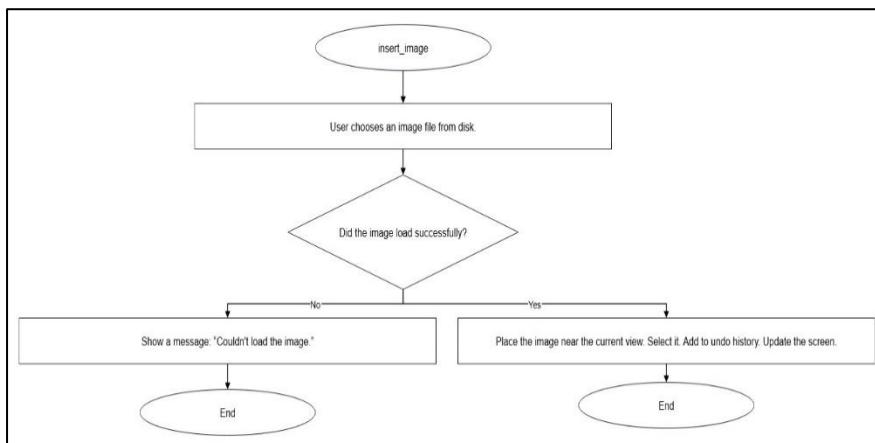
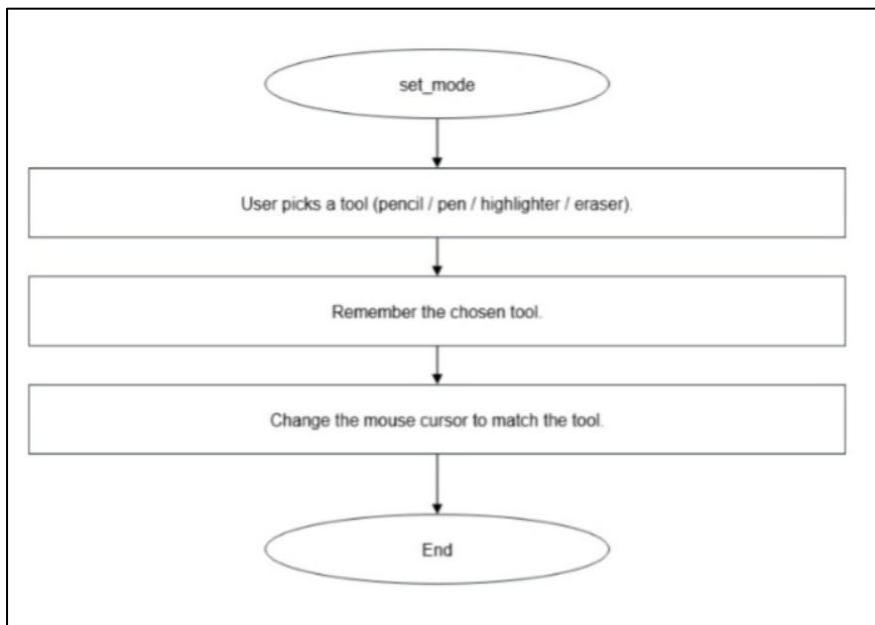
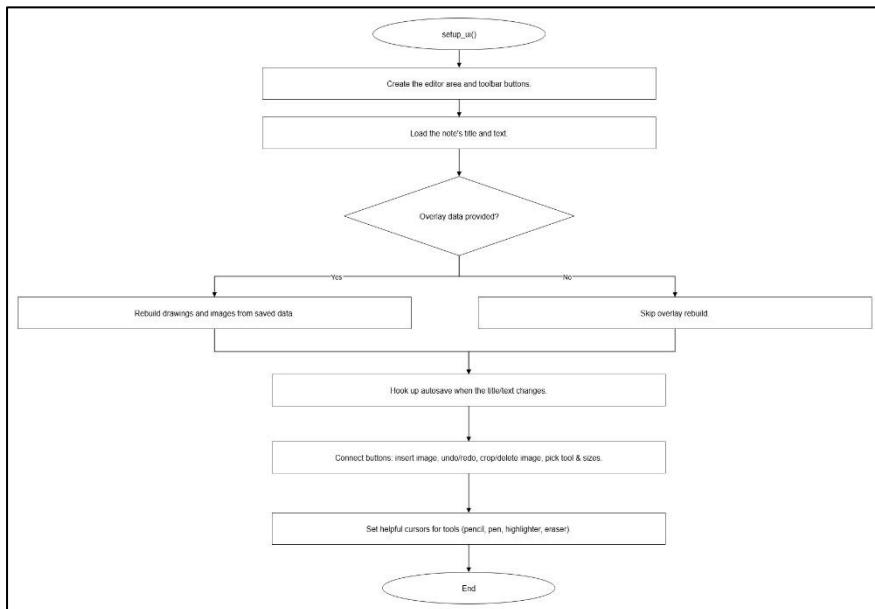
## 2.1 Note Organizer

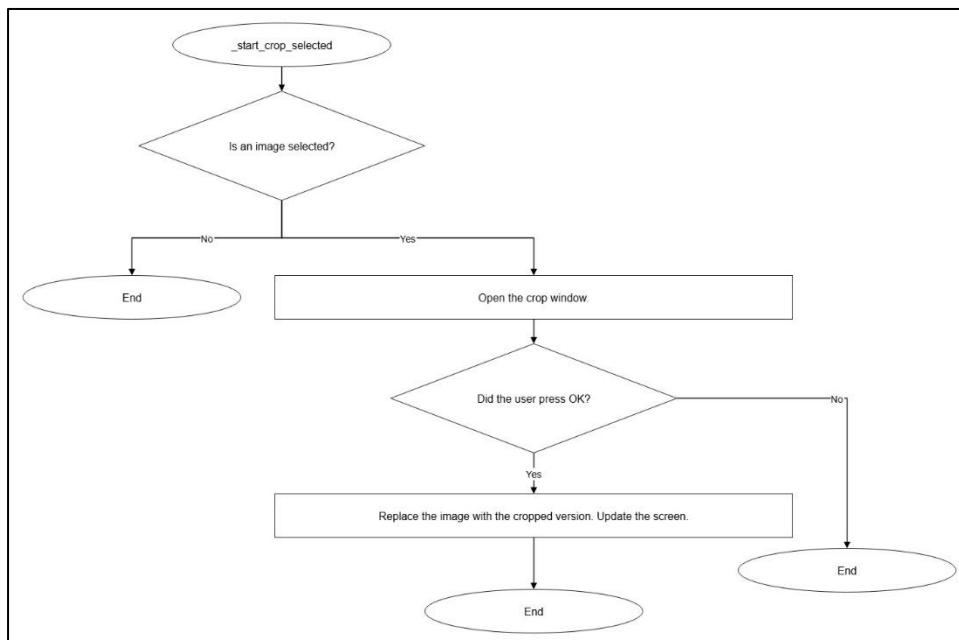
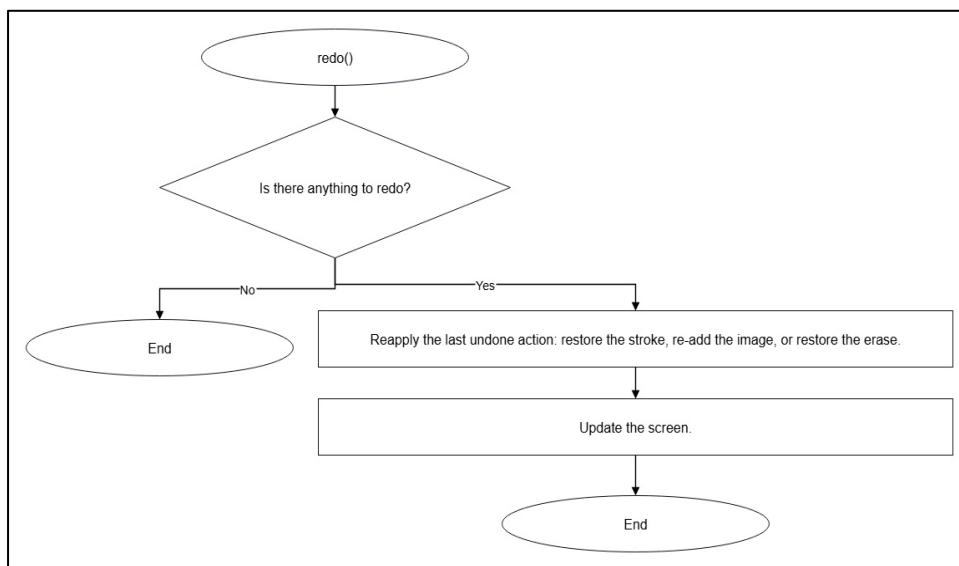
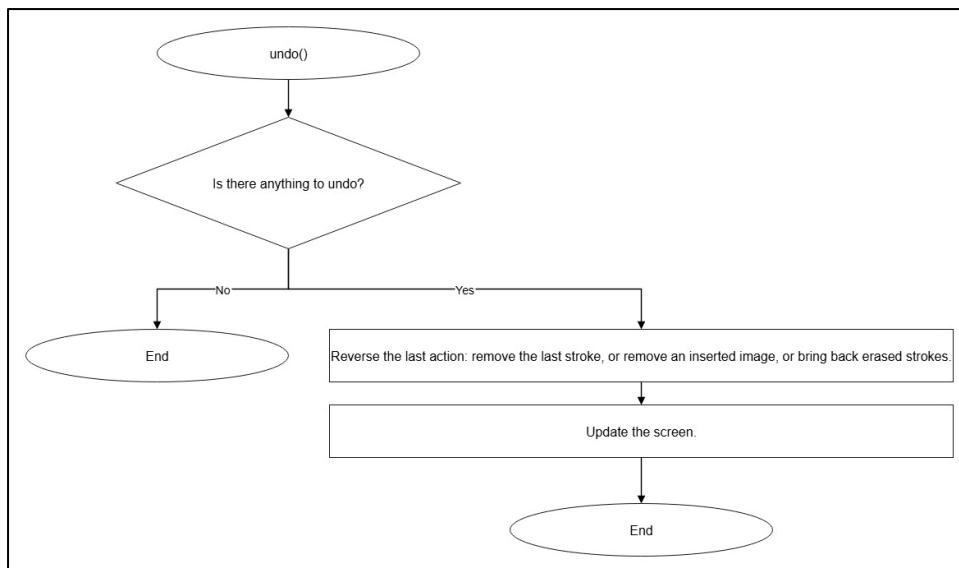
- Top-down Design:

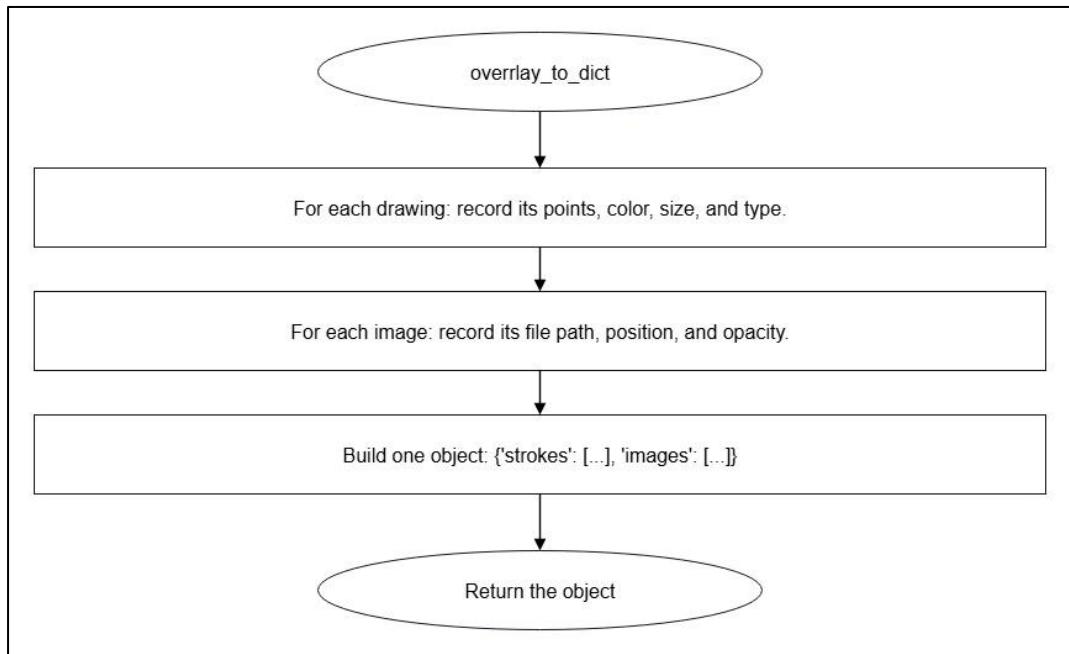
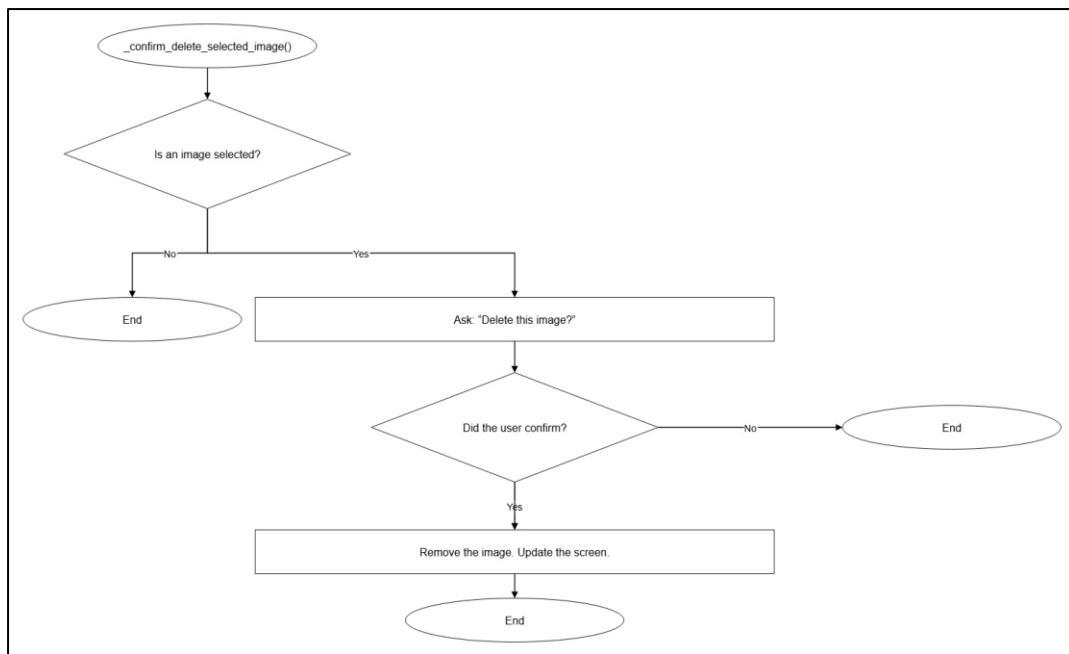


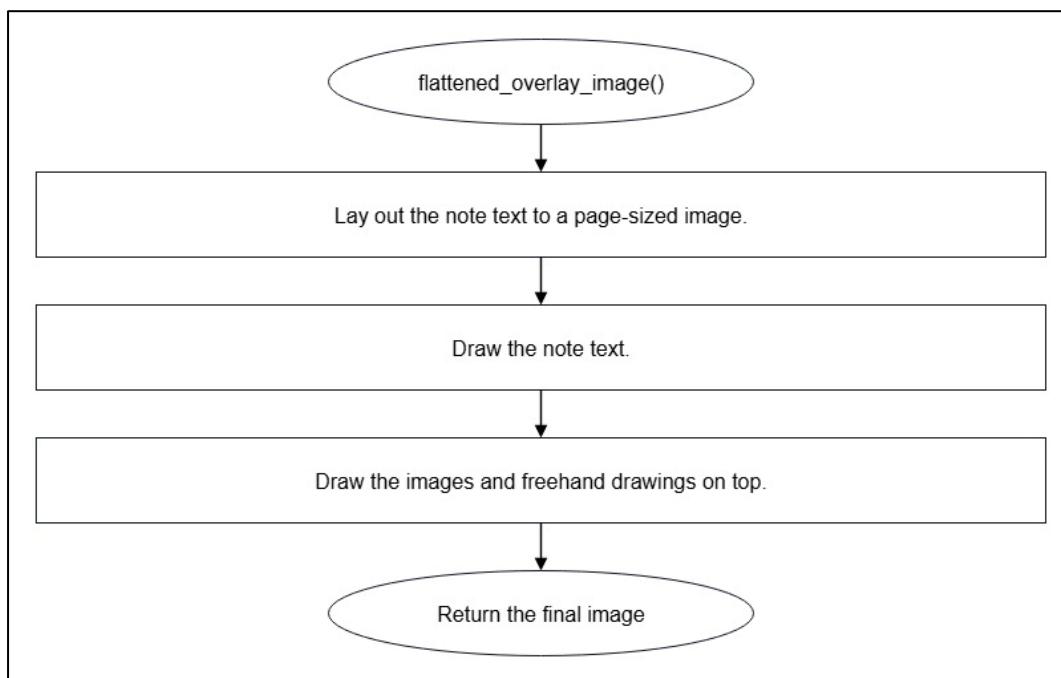
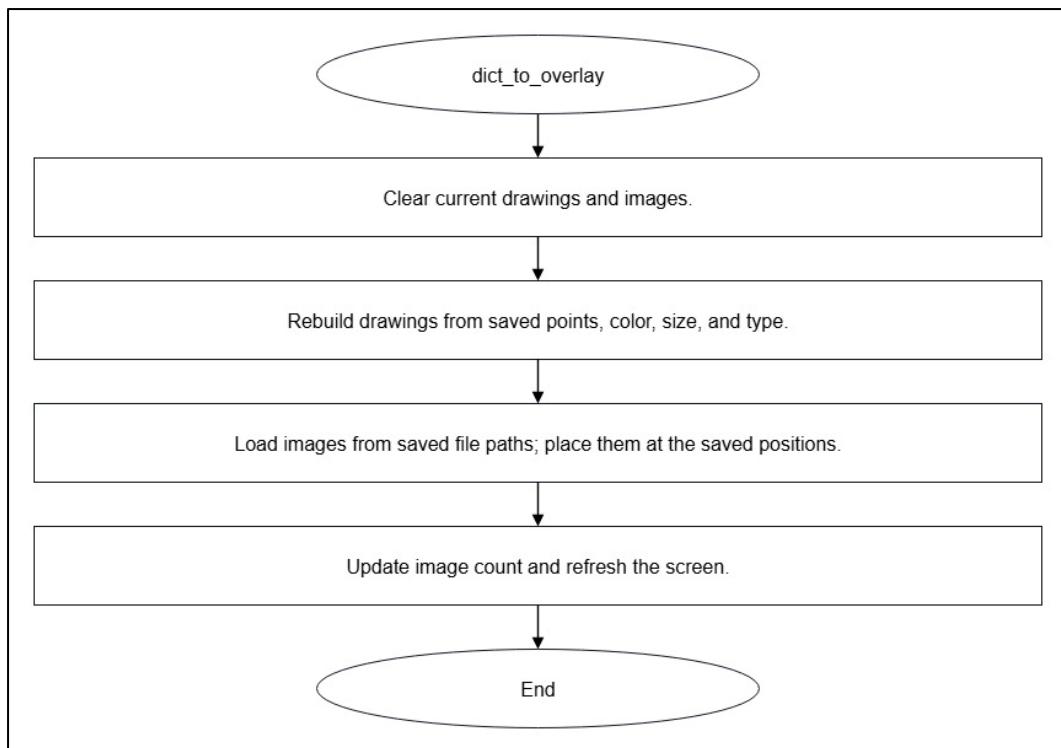
### 2.1.1 Note Organizer Widget

- Flowchart:



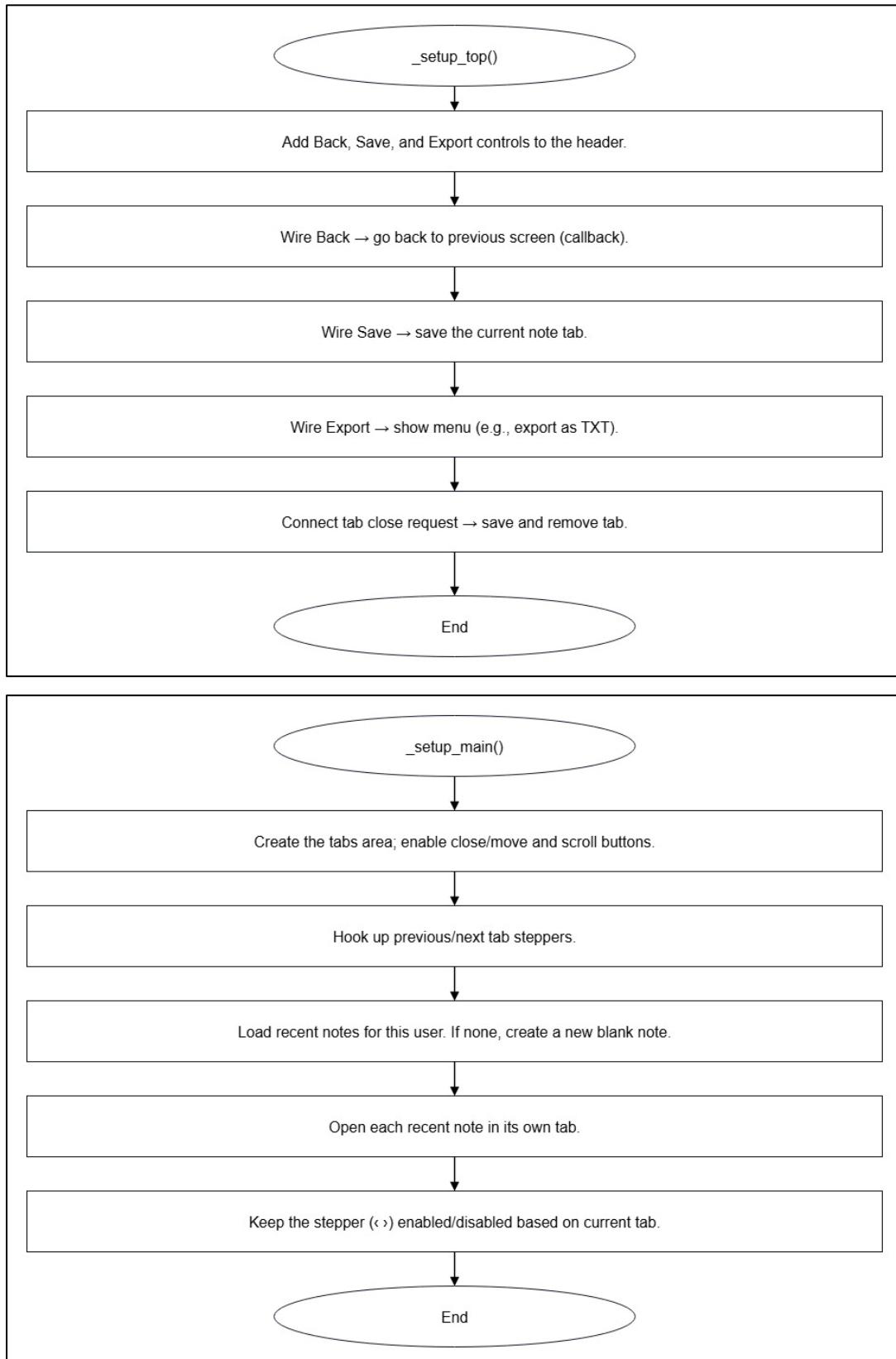


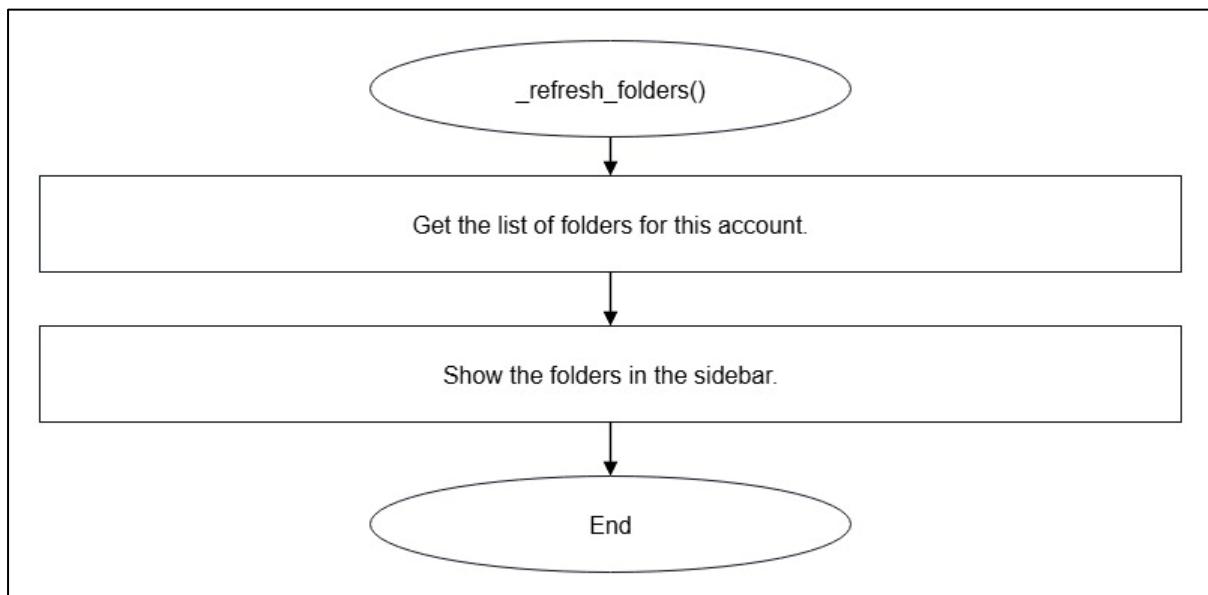
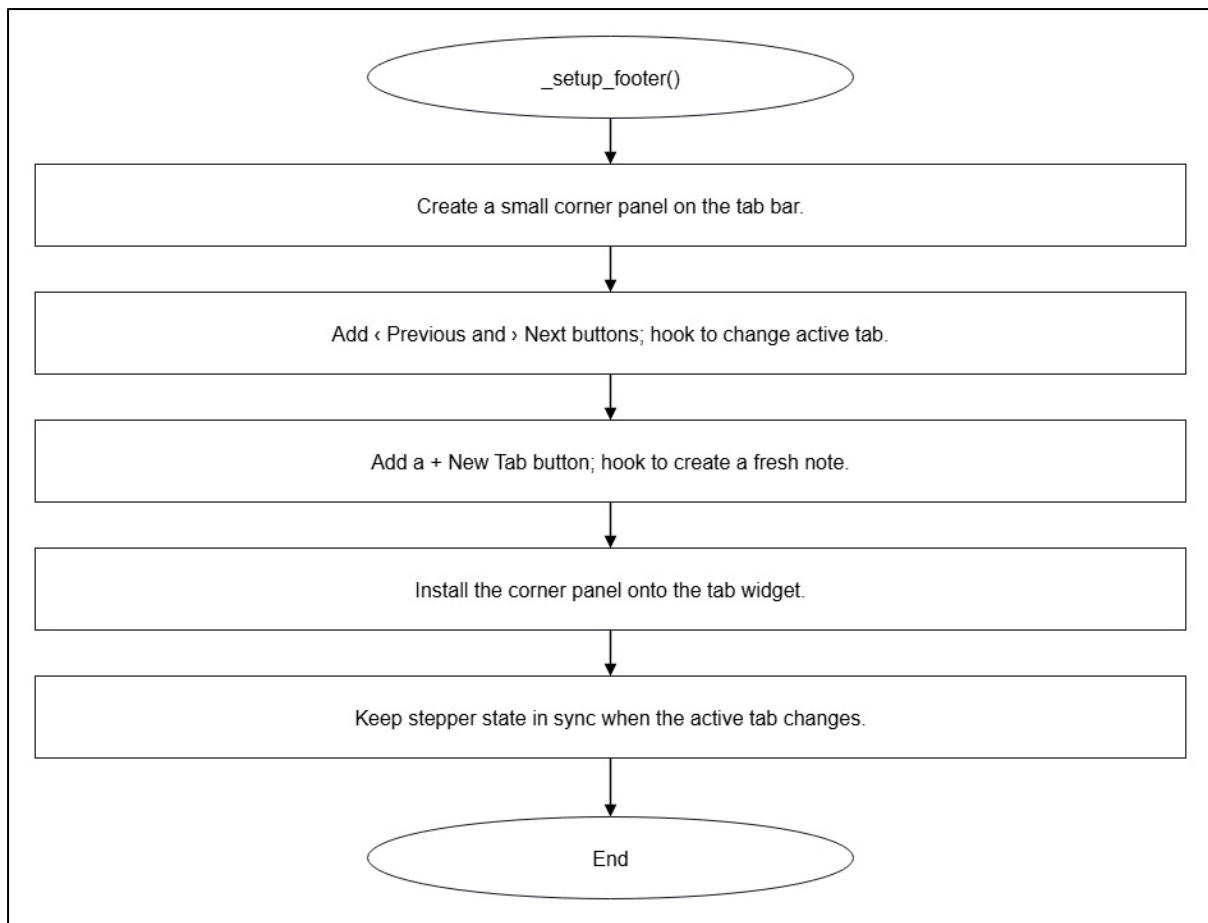


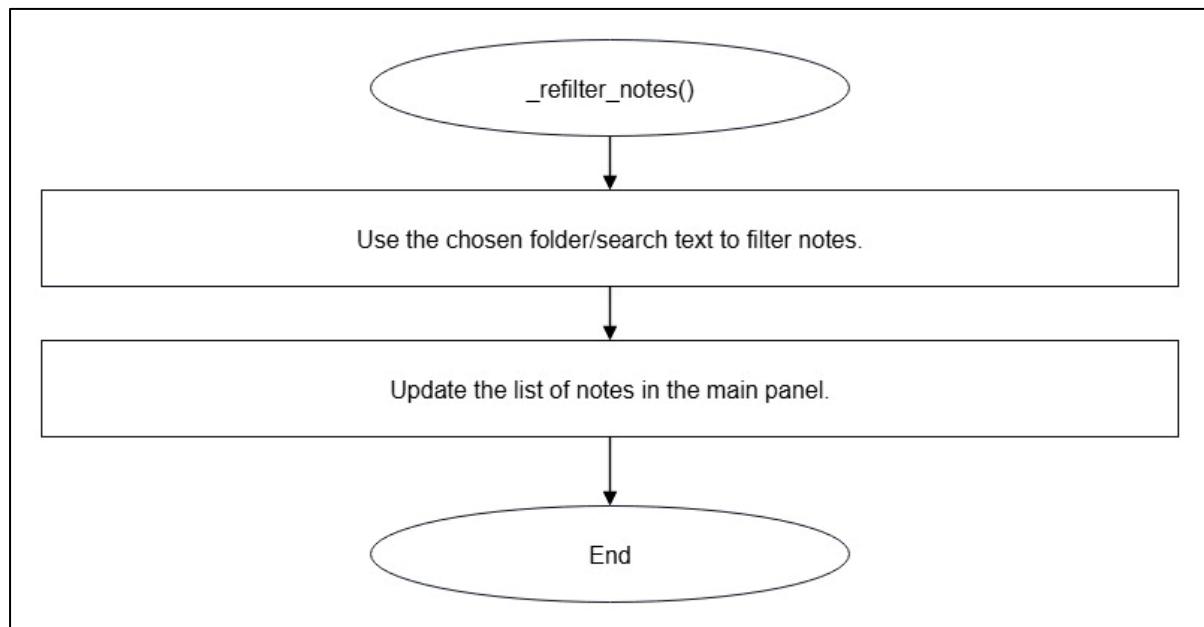
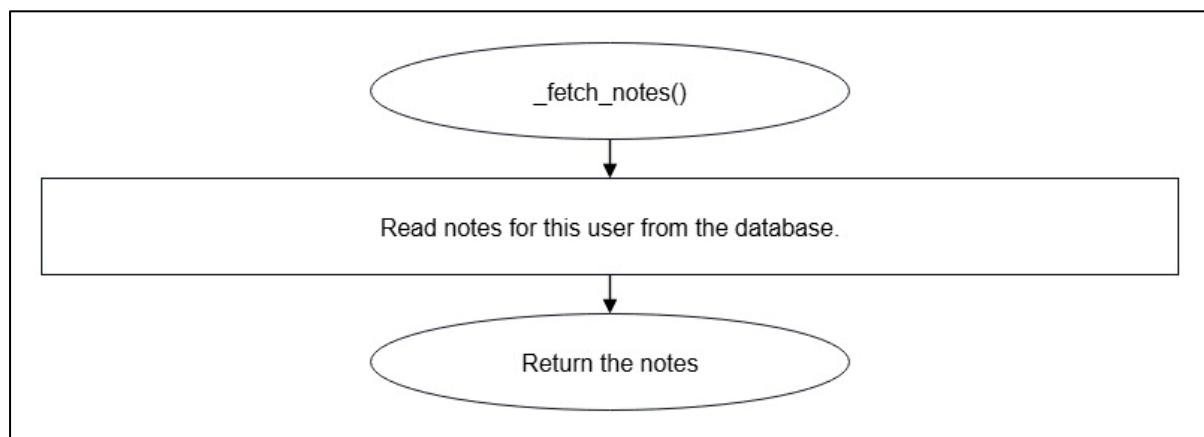
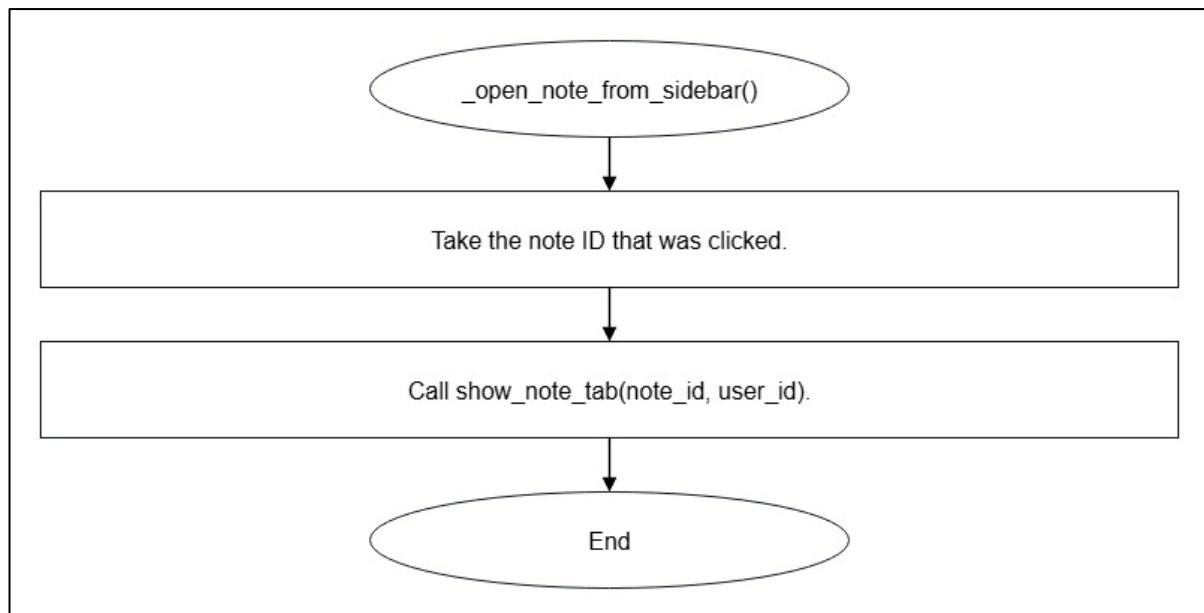


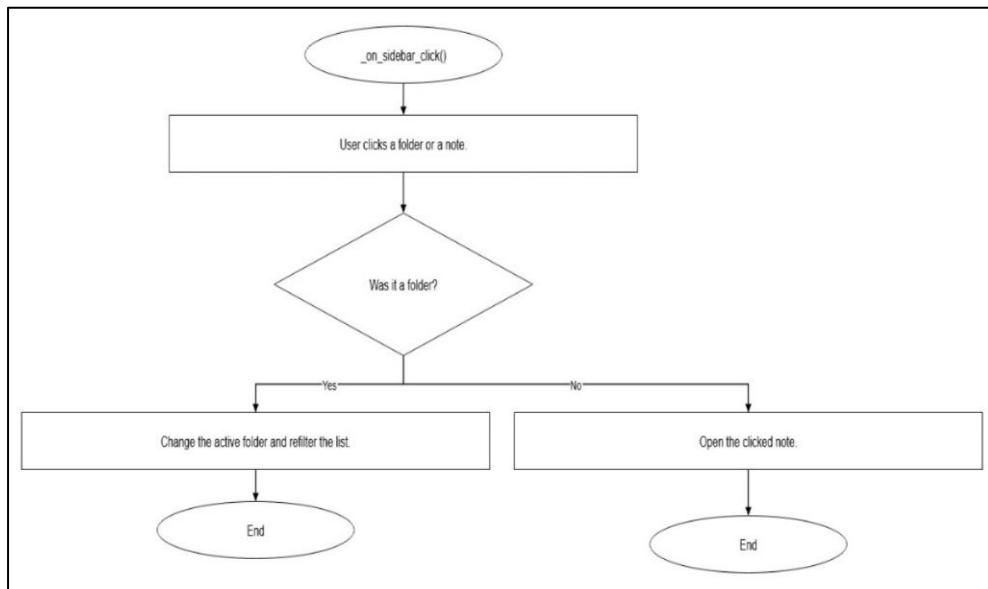
## 2.1.2 Dashboard Widget

- Flowchart:



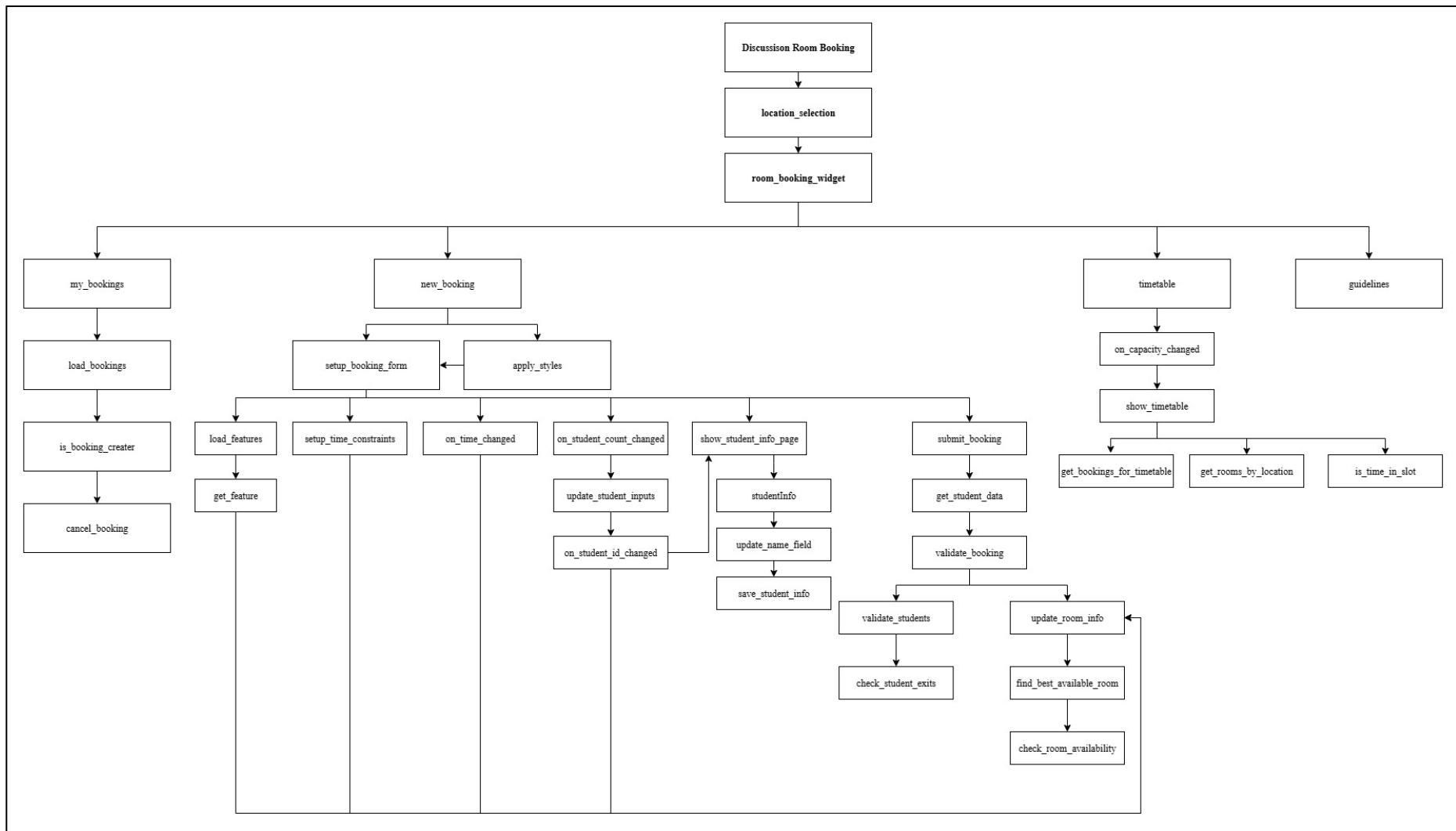




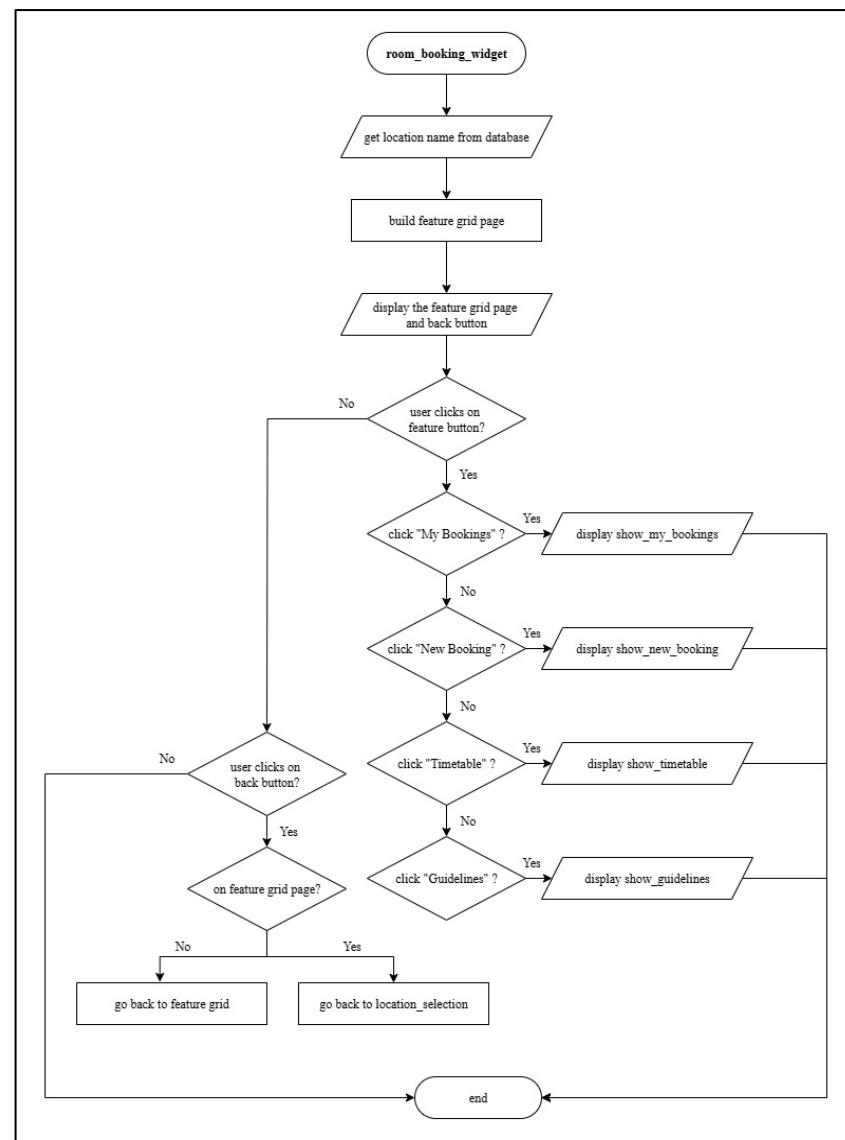
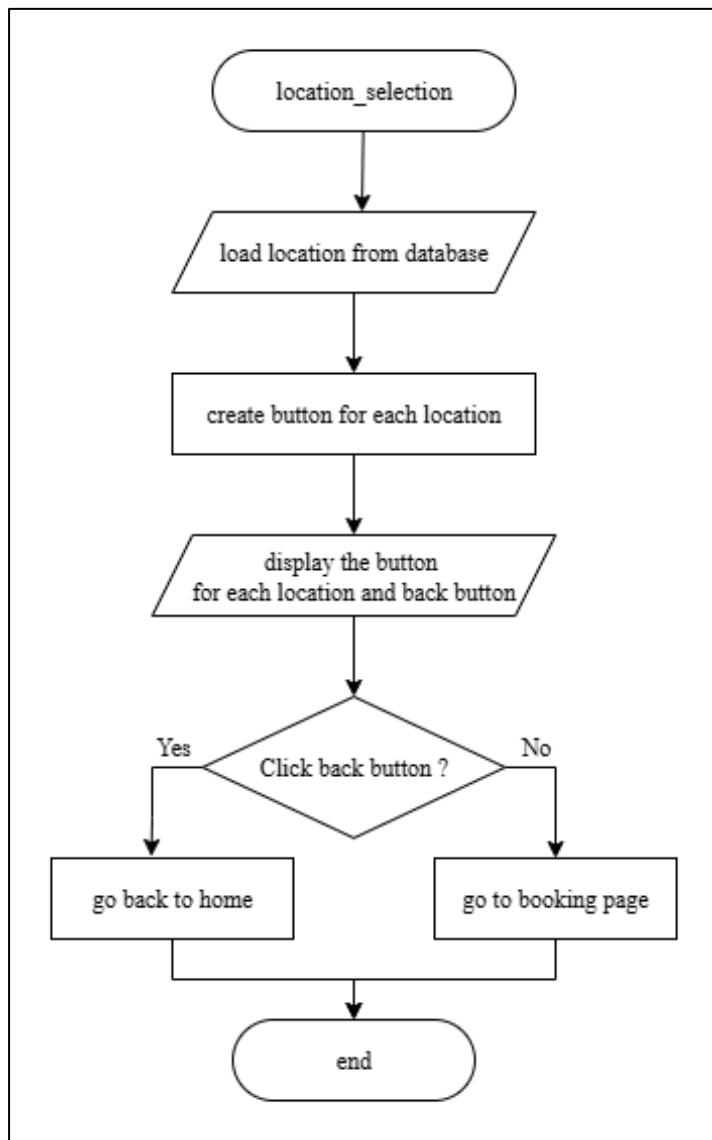


## 2.2 Discussion Room Booking

- Top-down Design:

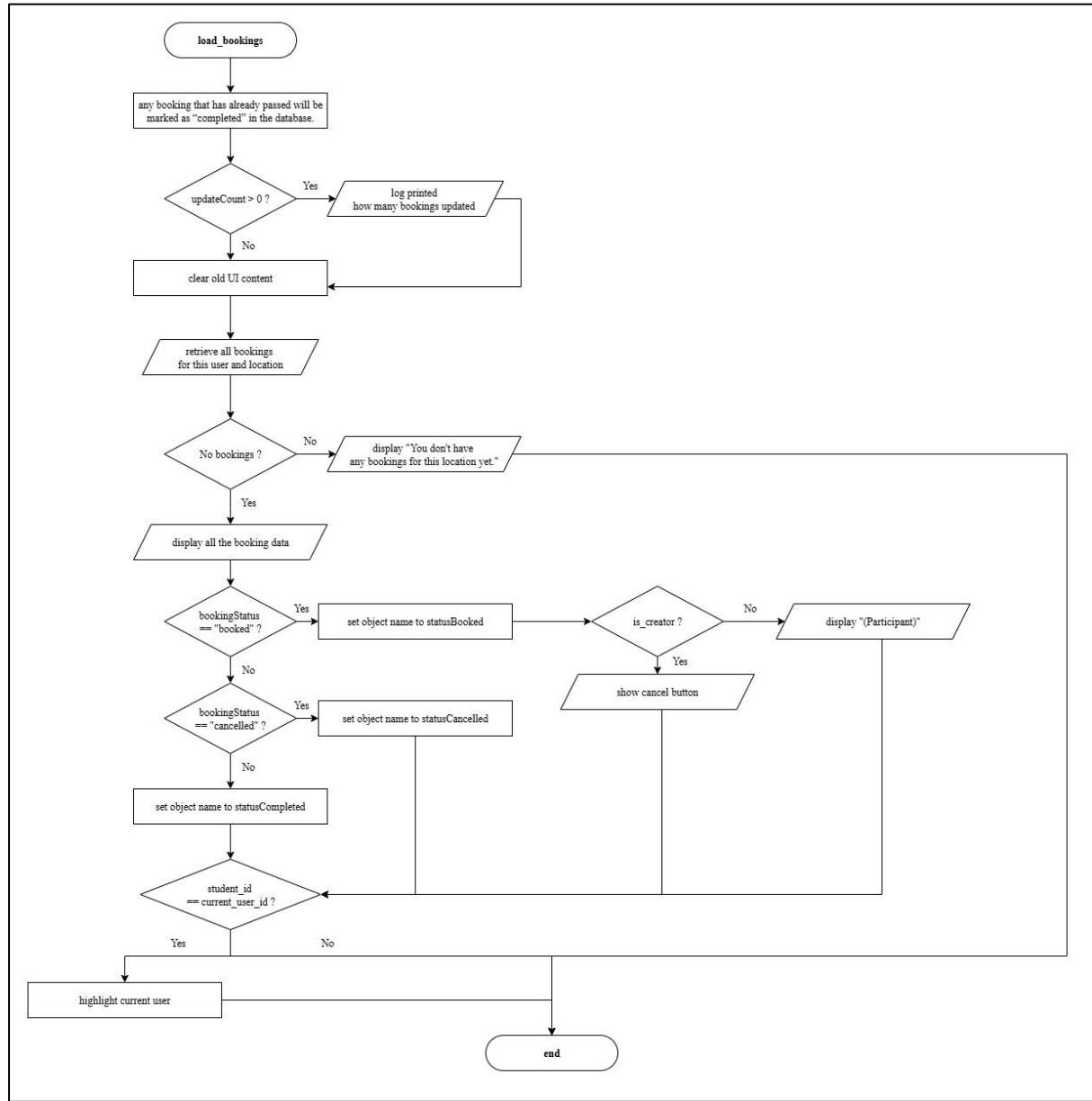


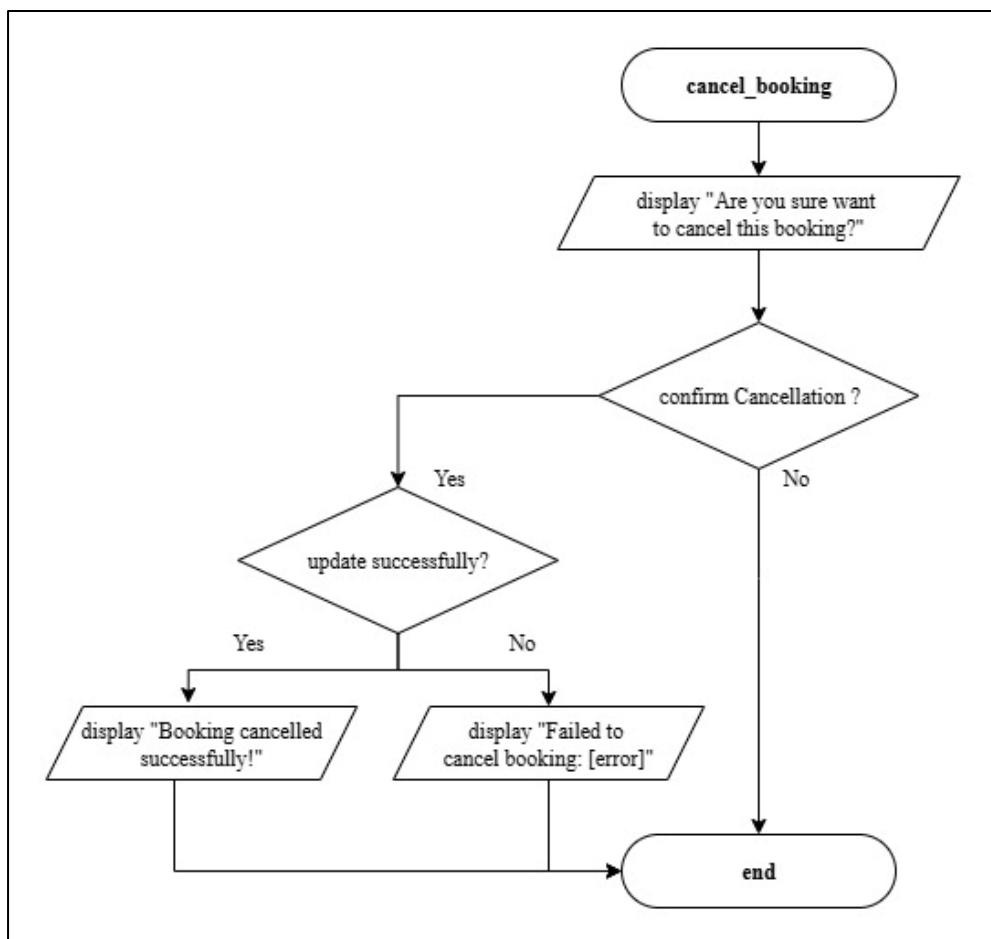
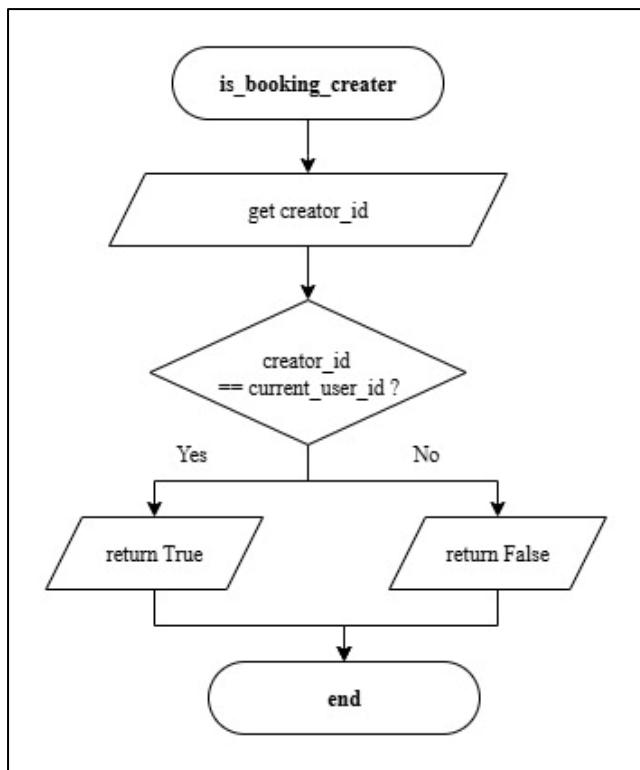
- Flowchart:



## 2.2.1 My Bookings

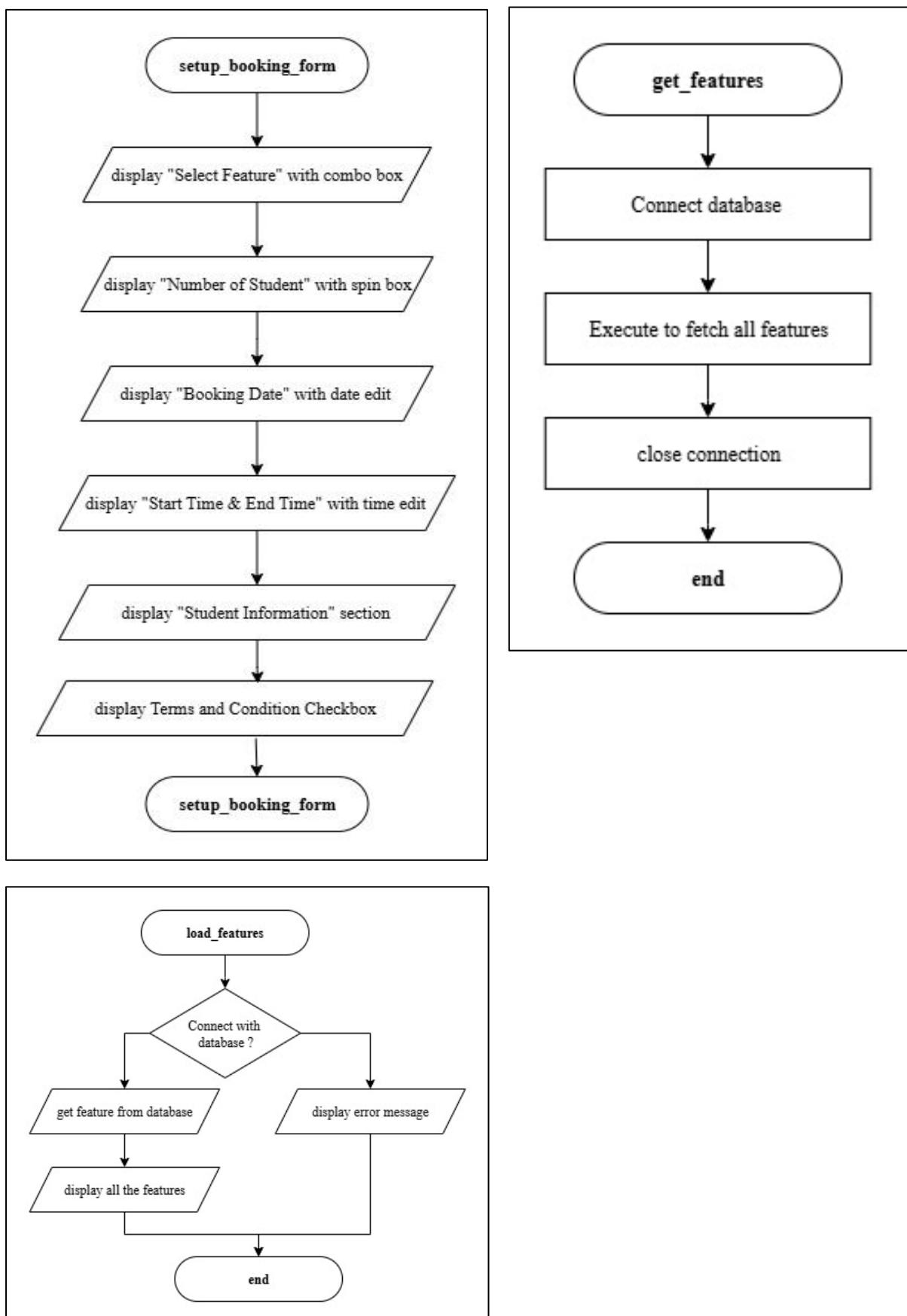
- Flowchart:

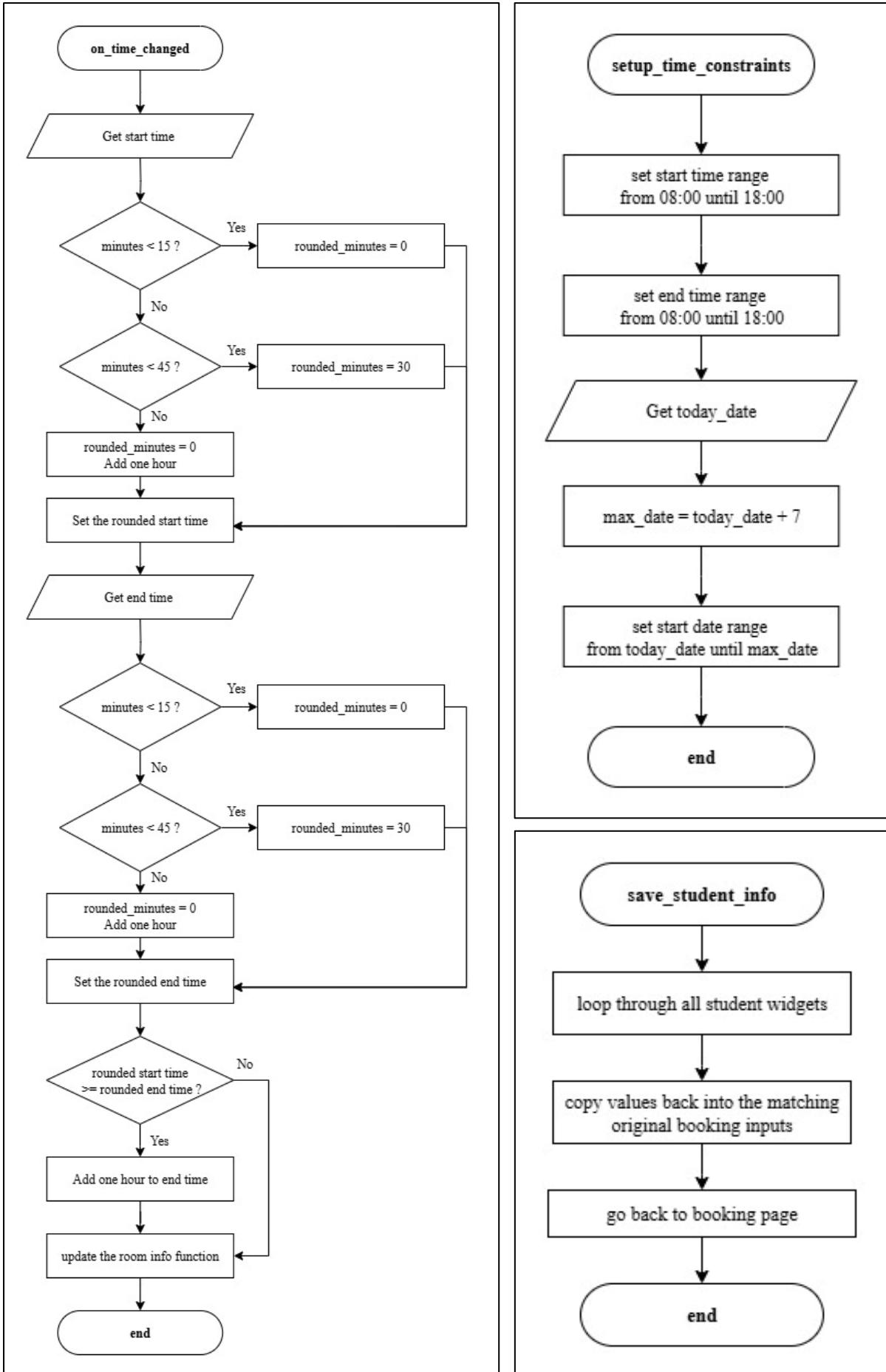


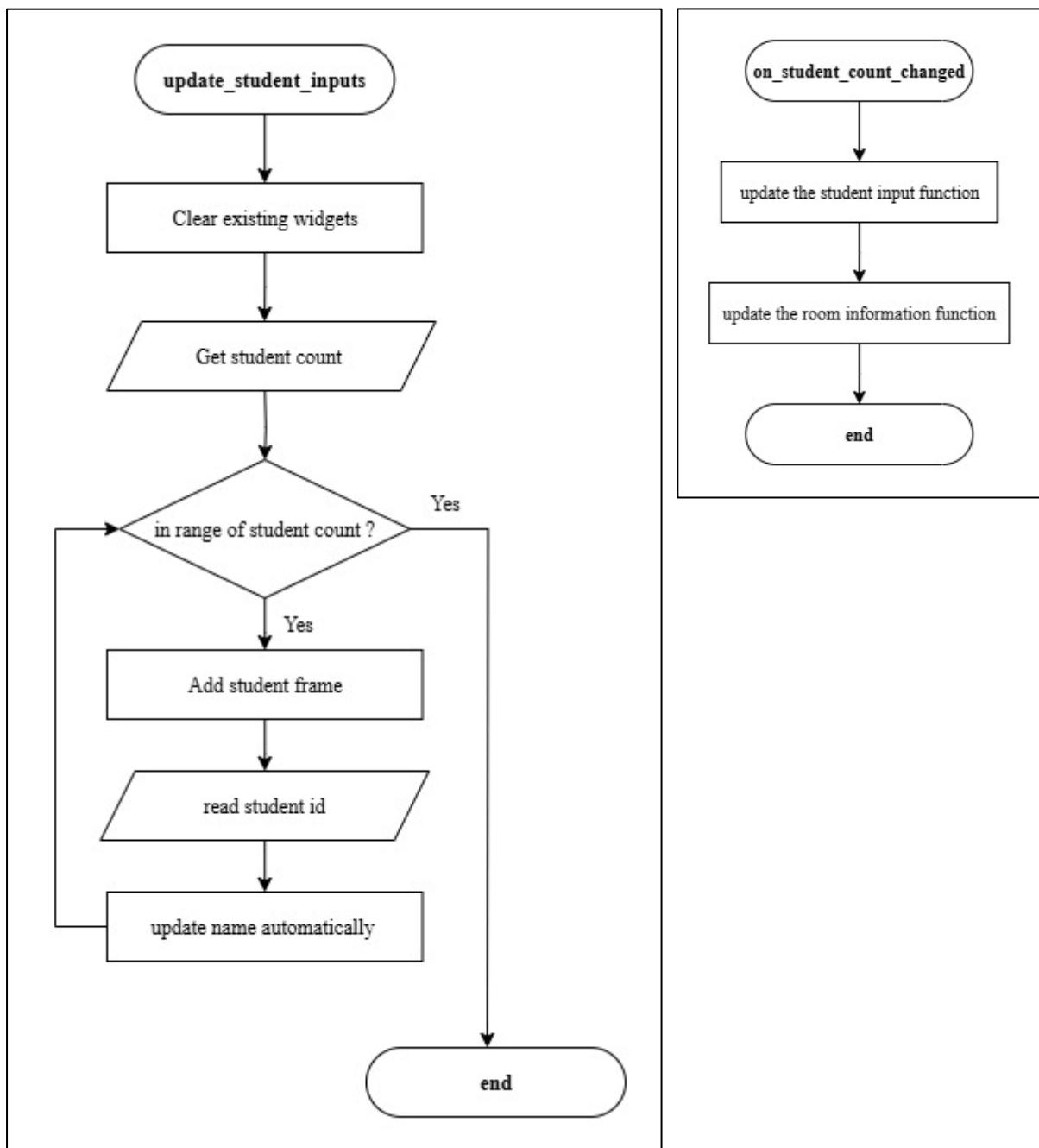


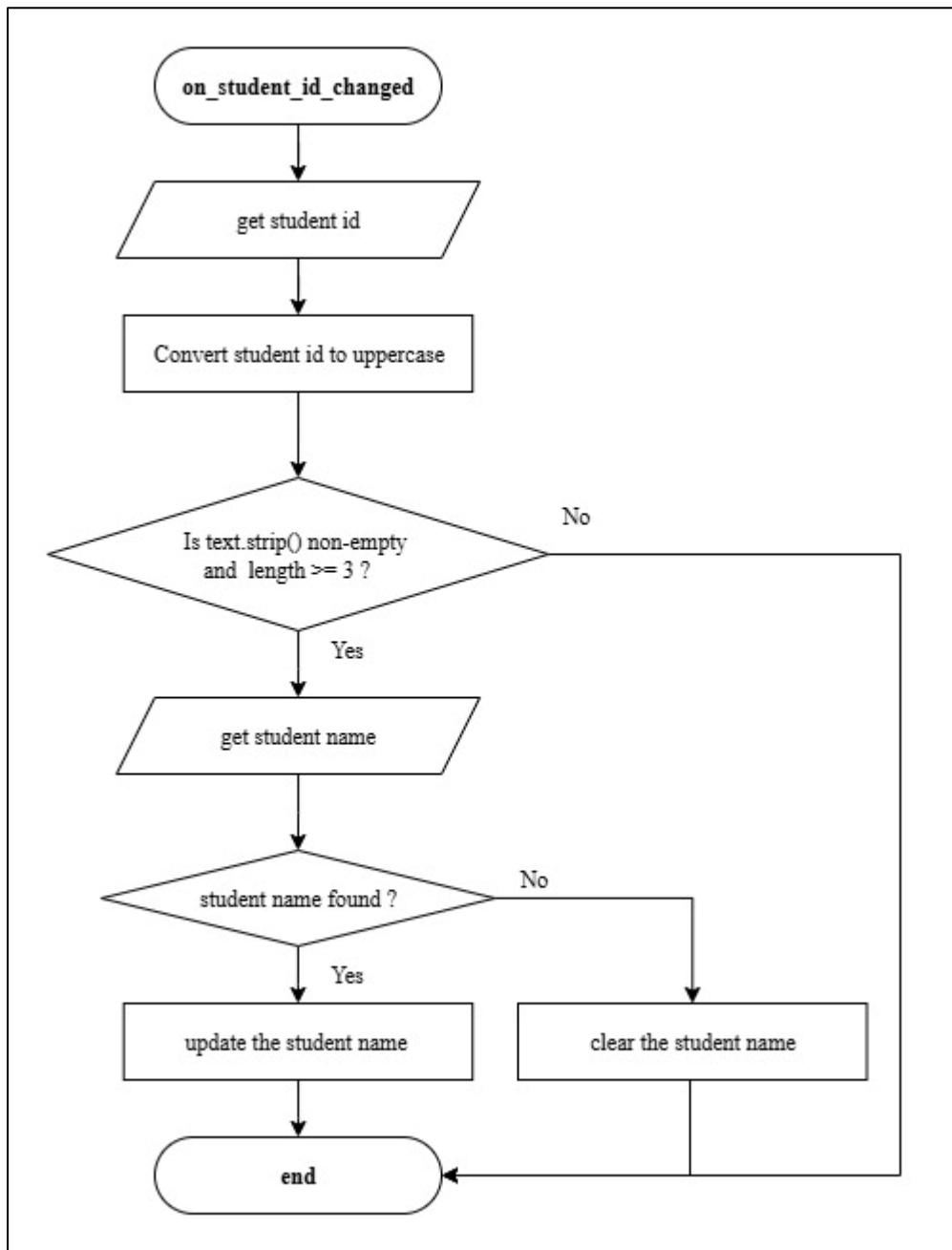
## 2.2.2 New Booking

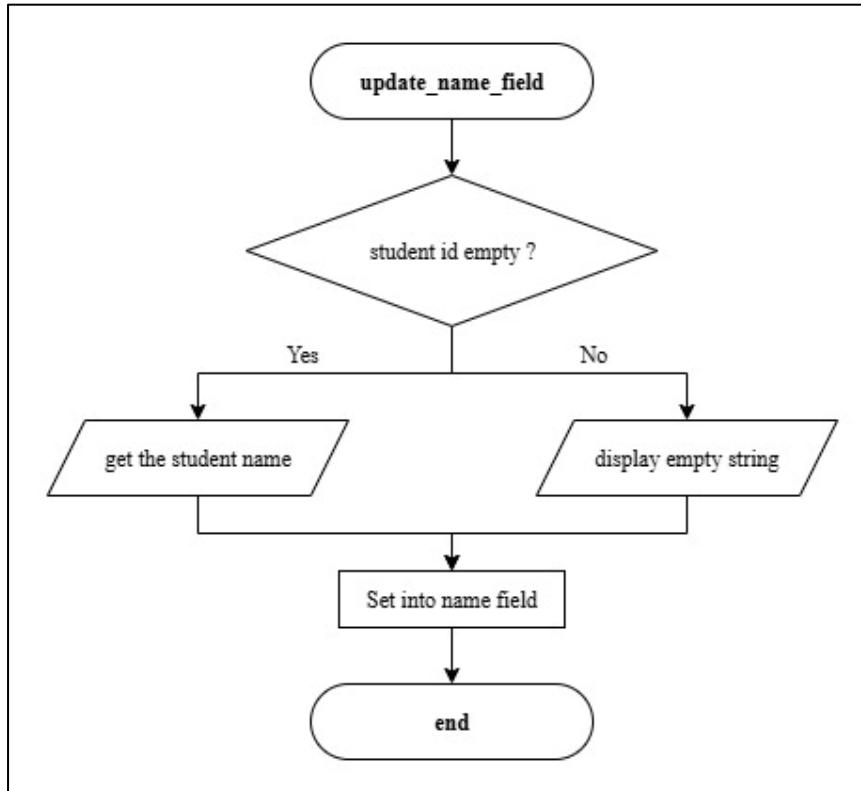
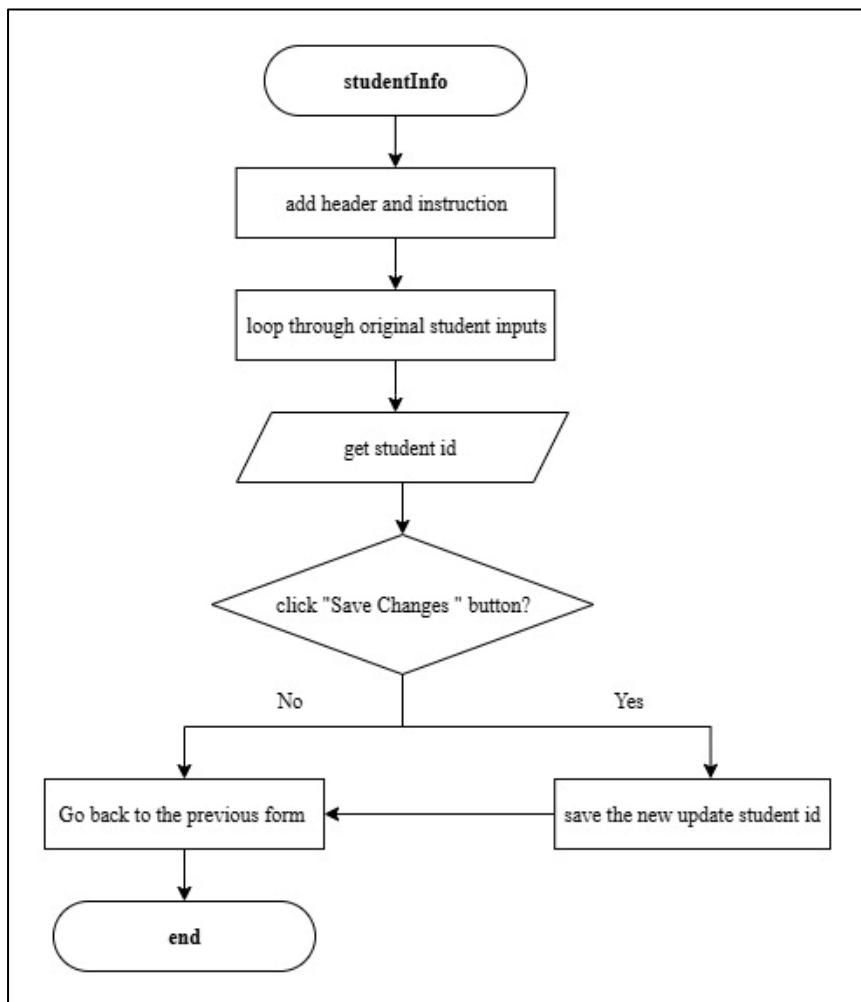
- Flowchart:

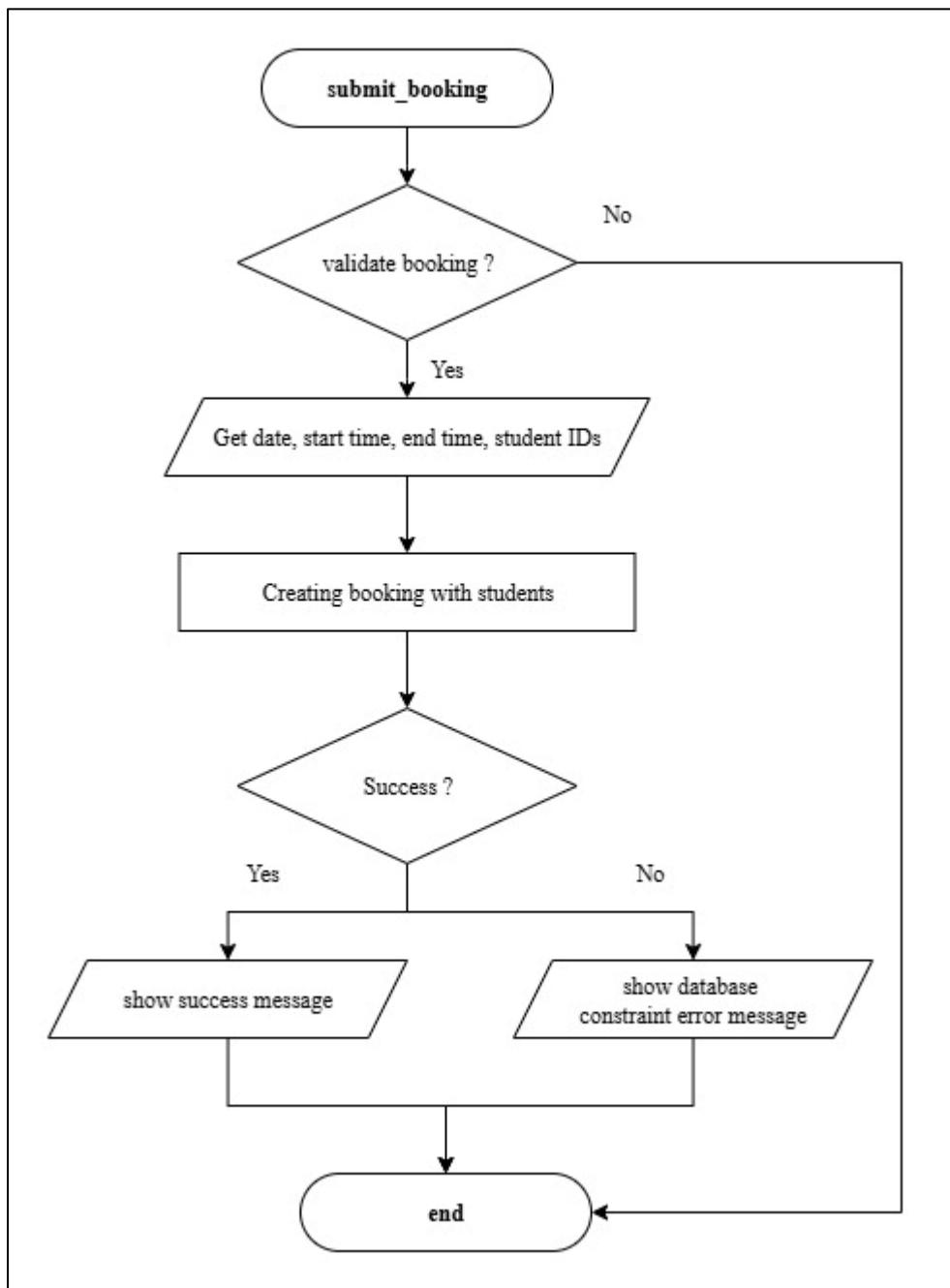


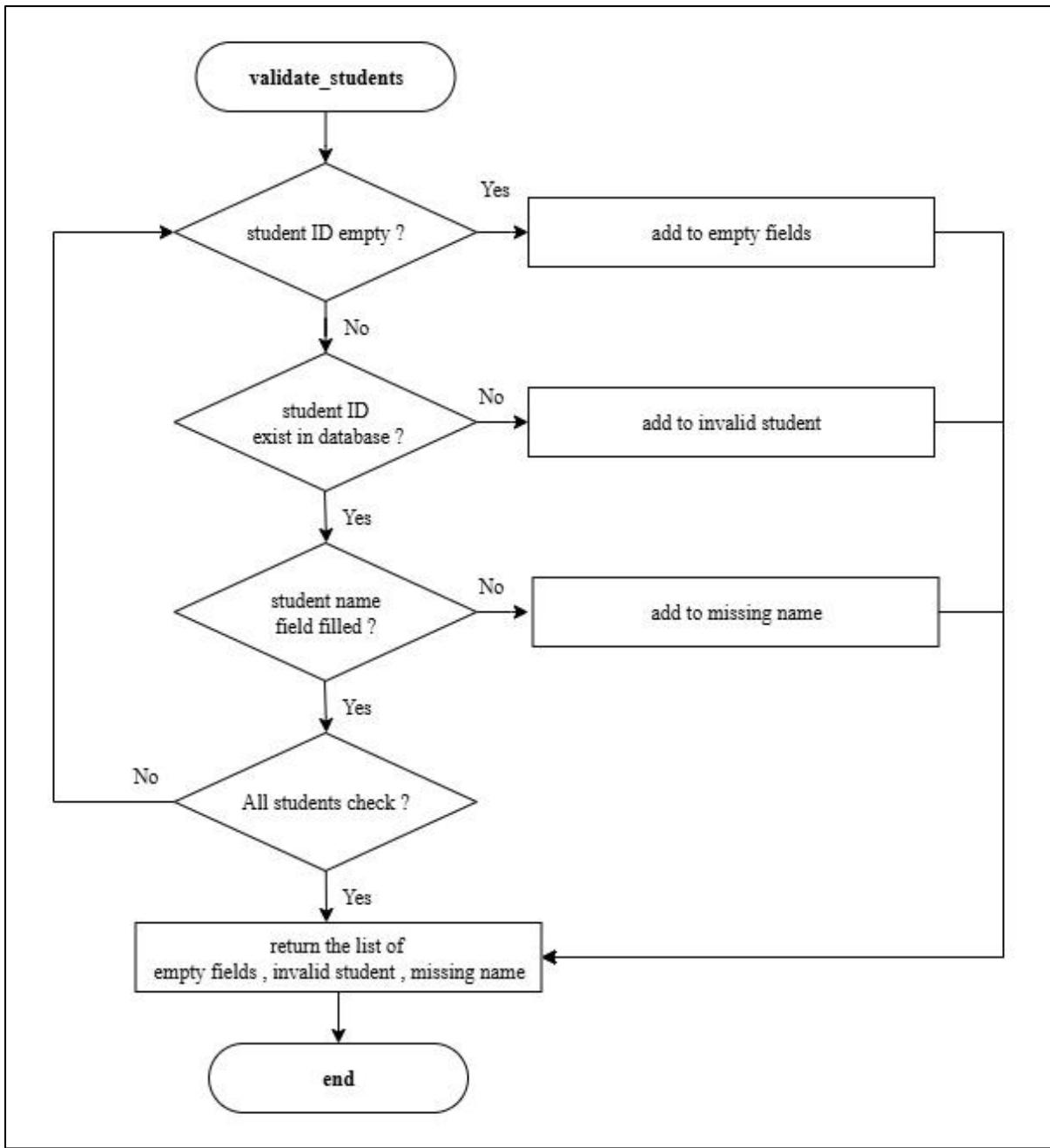


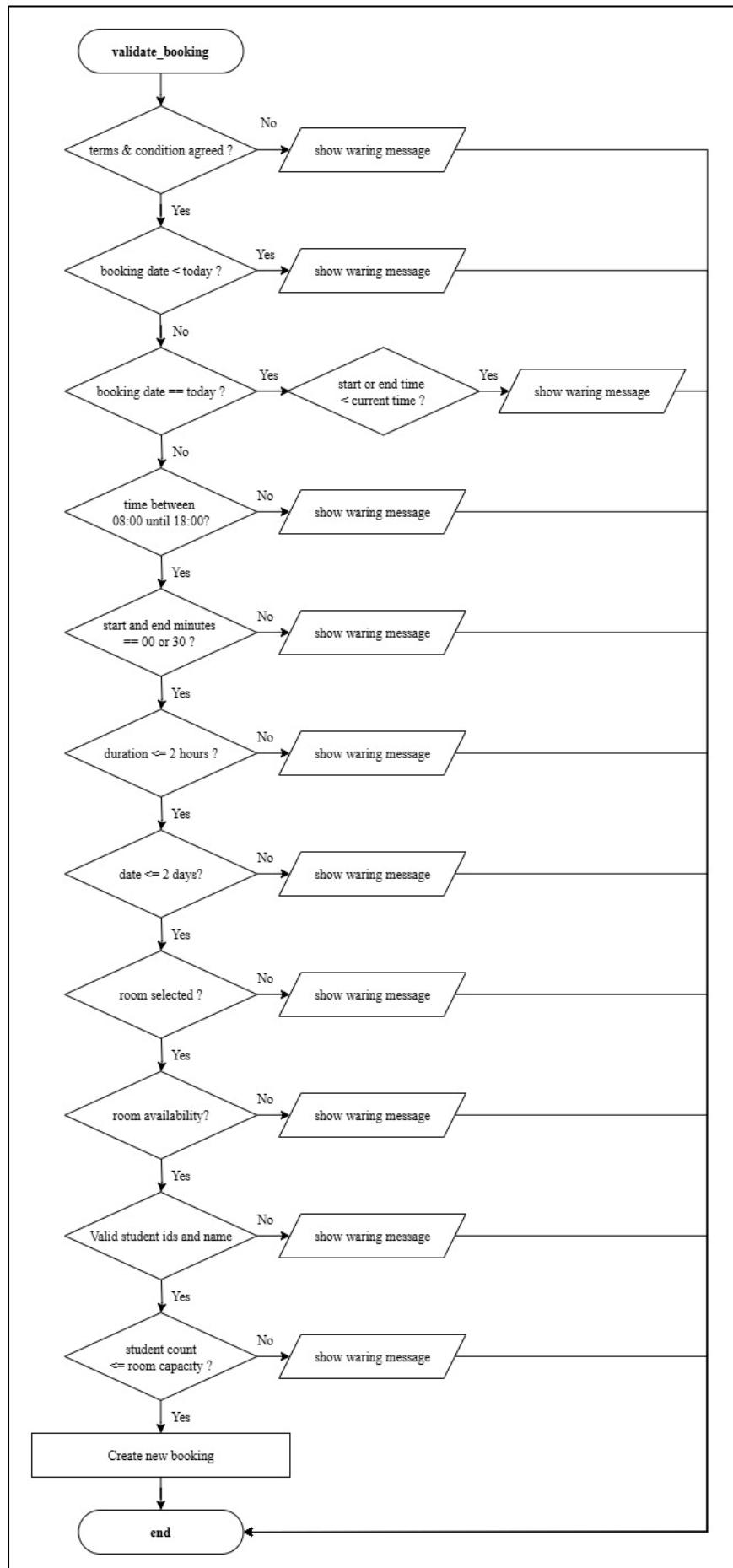


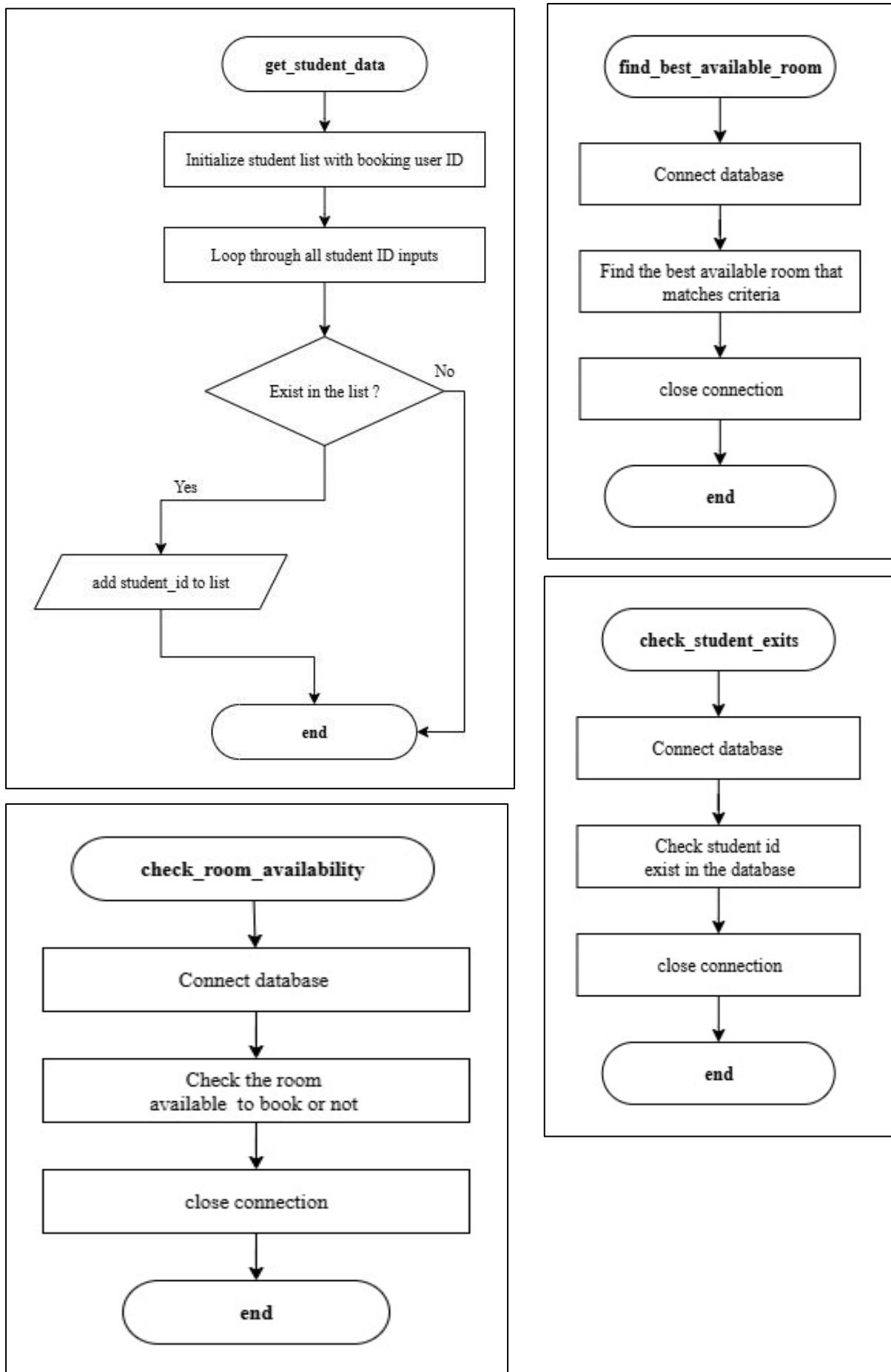


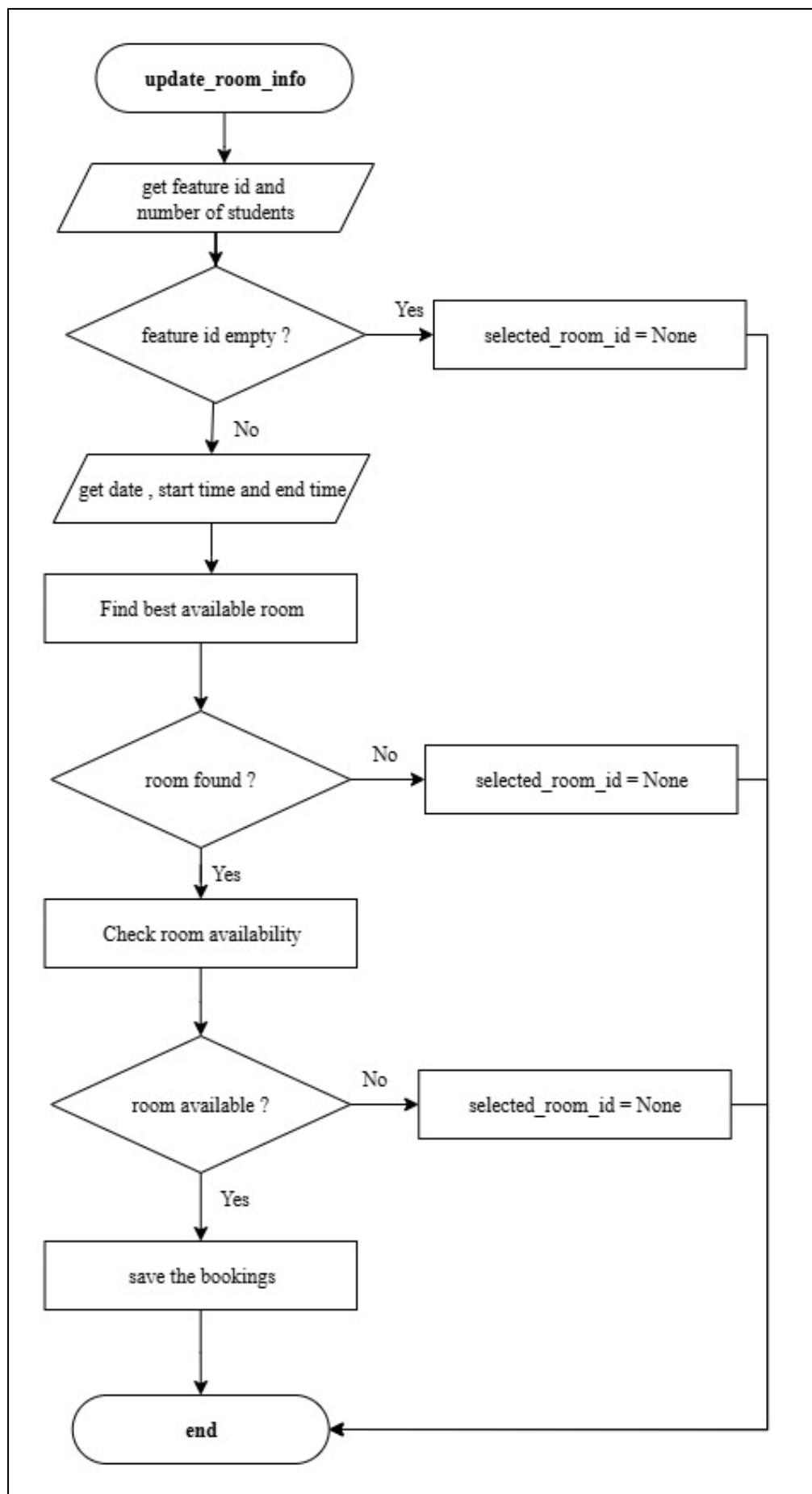






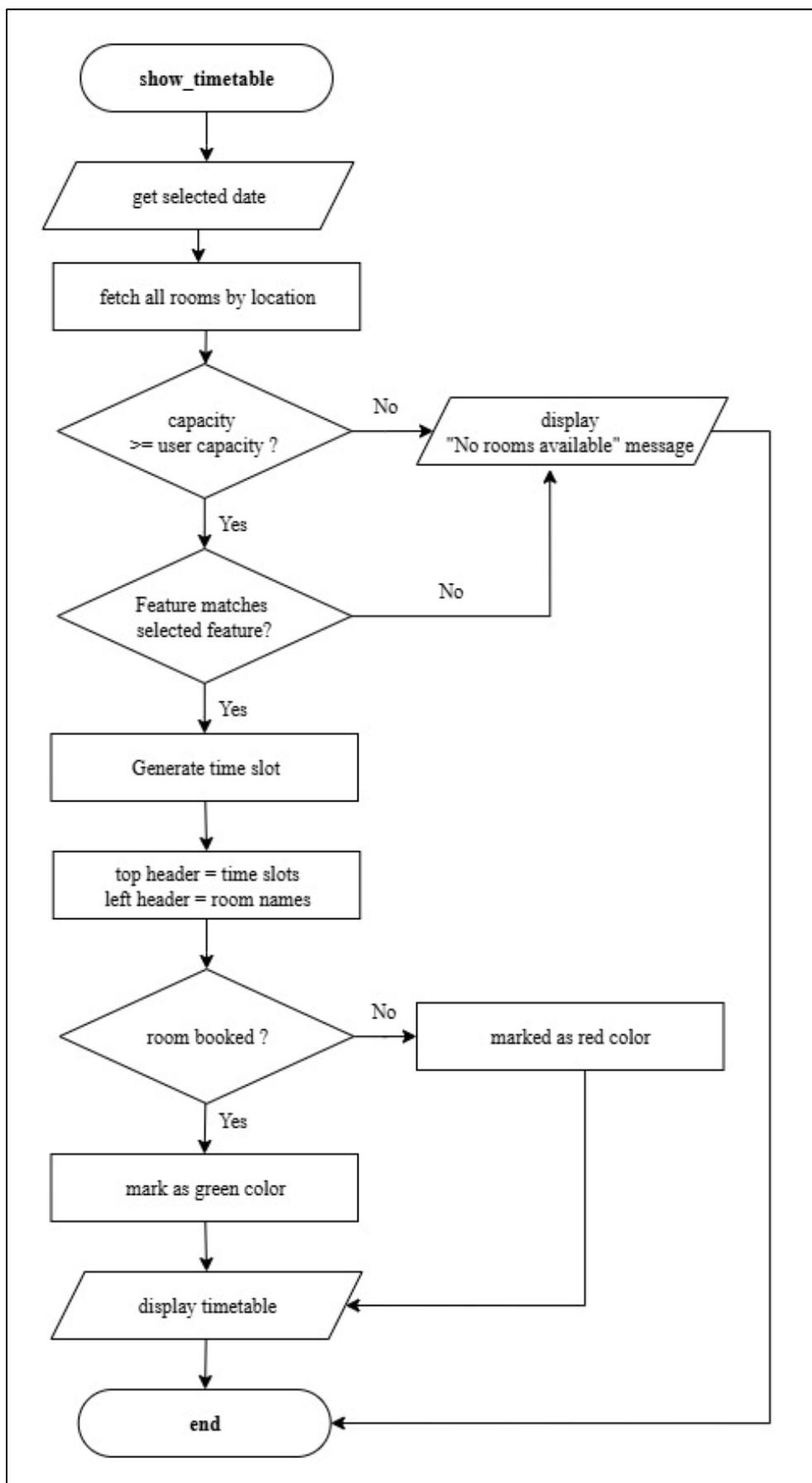


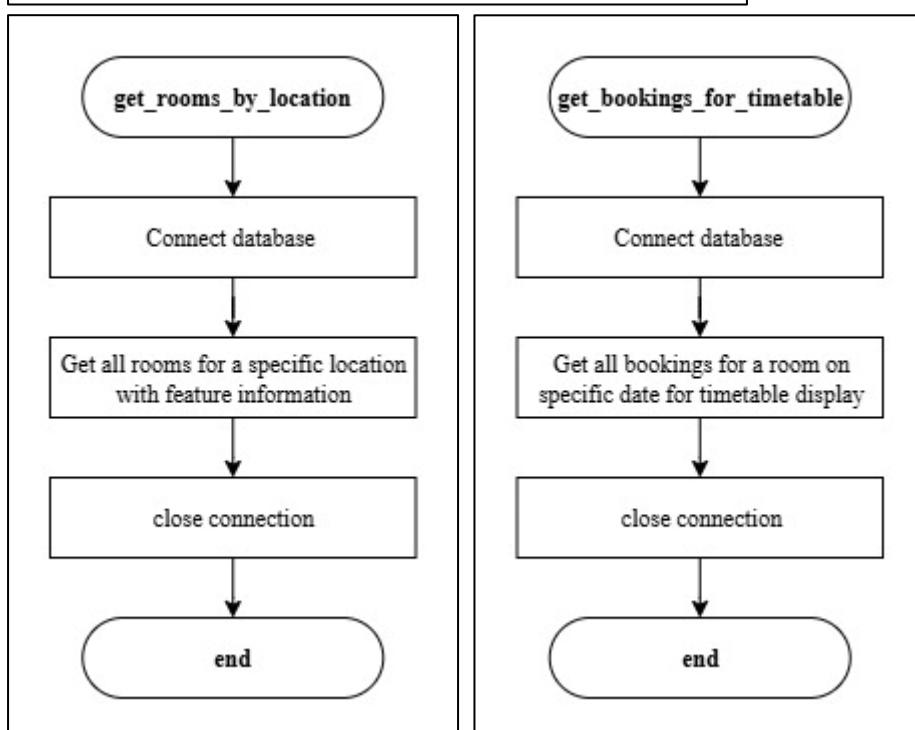
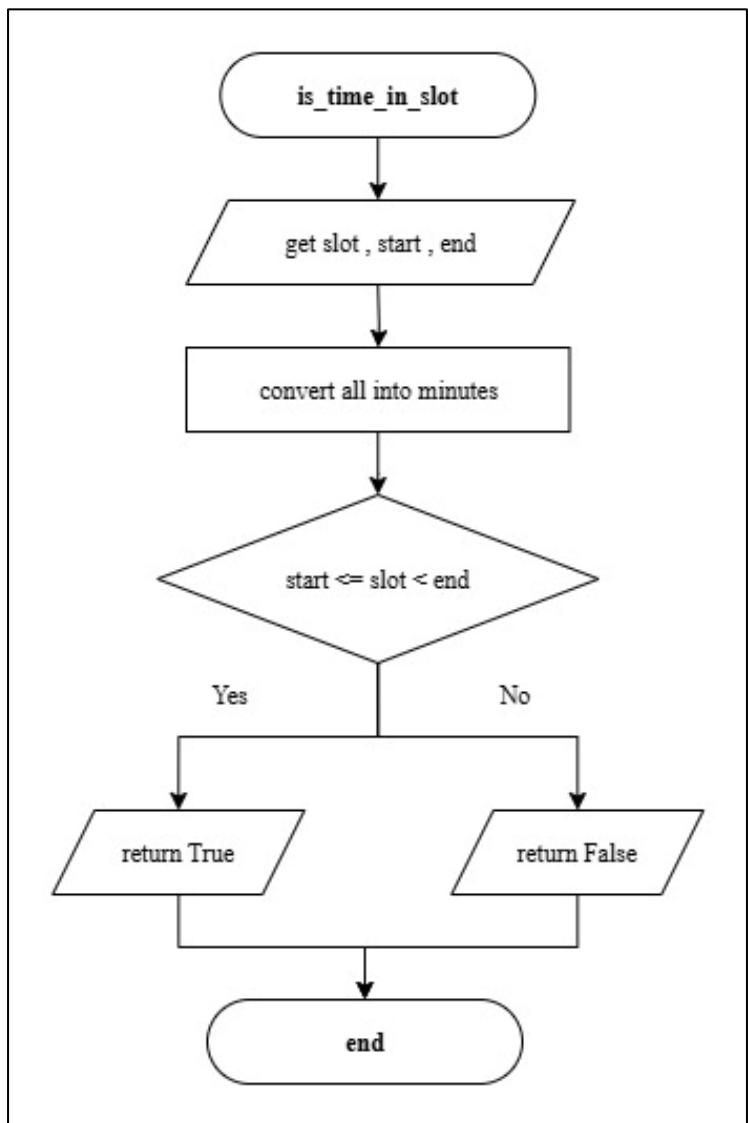




### 2.2.3 Timetable

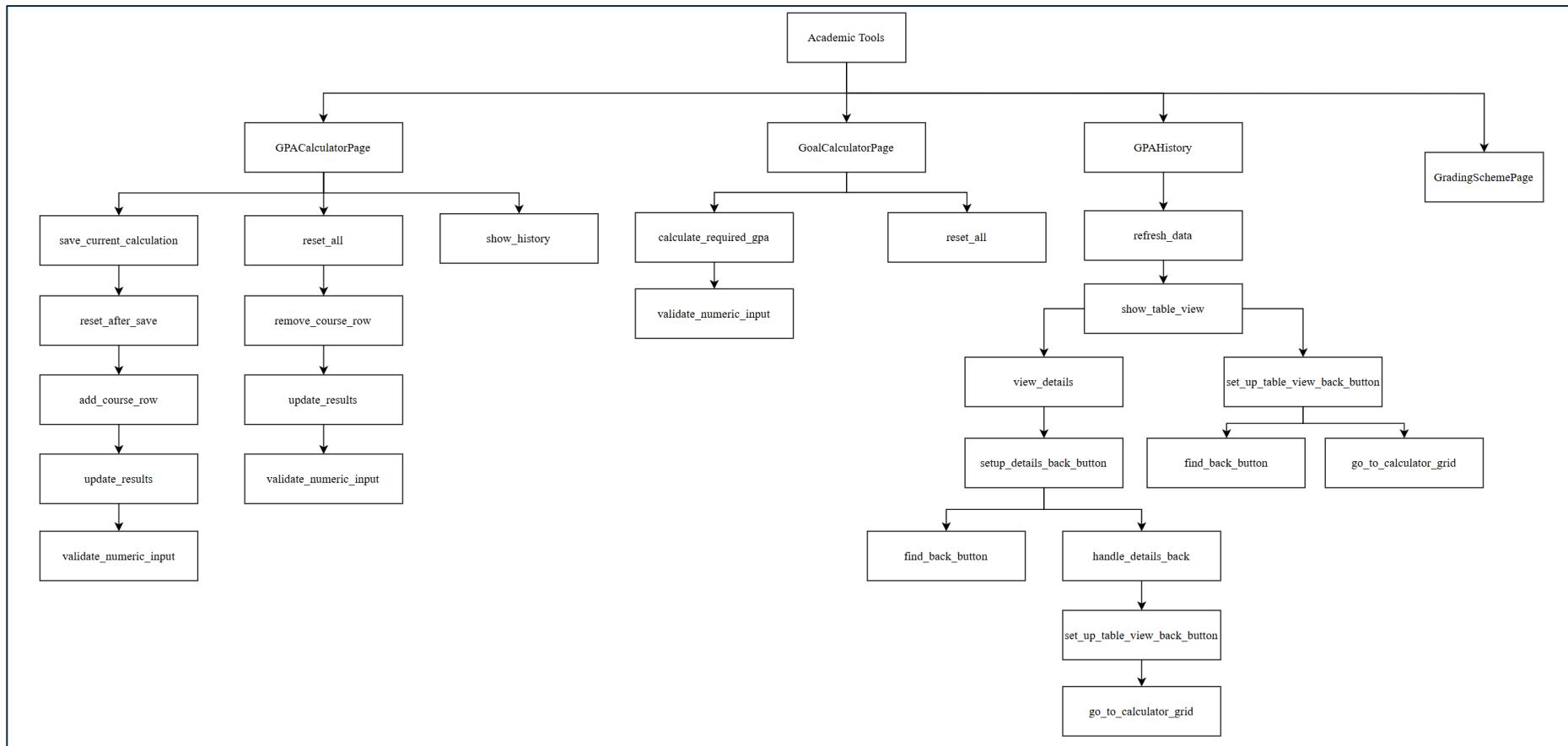
- Flowchart:





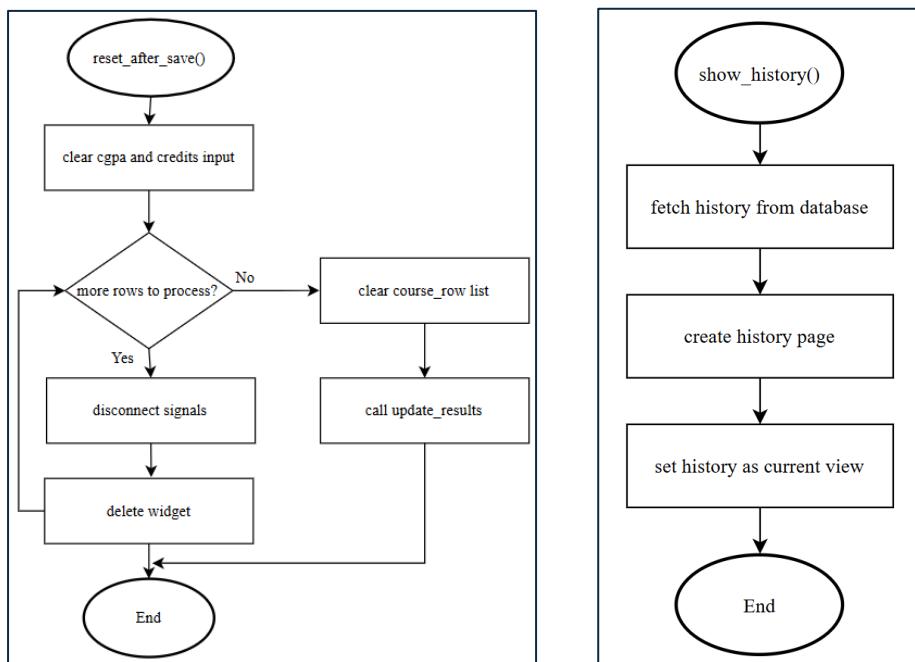
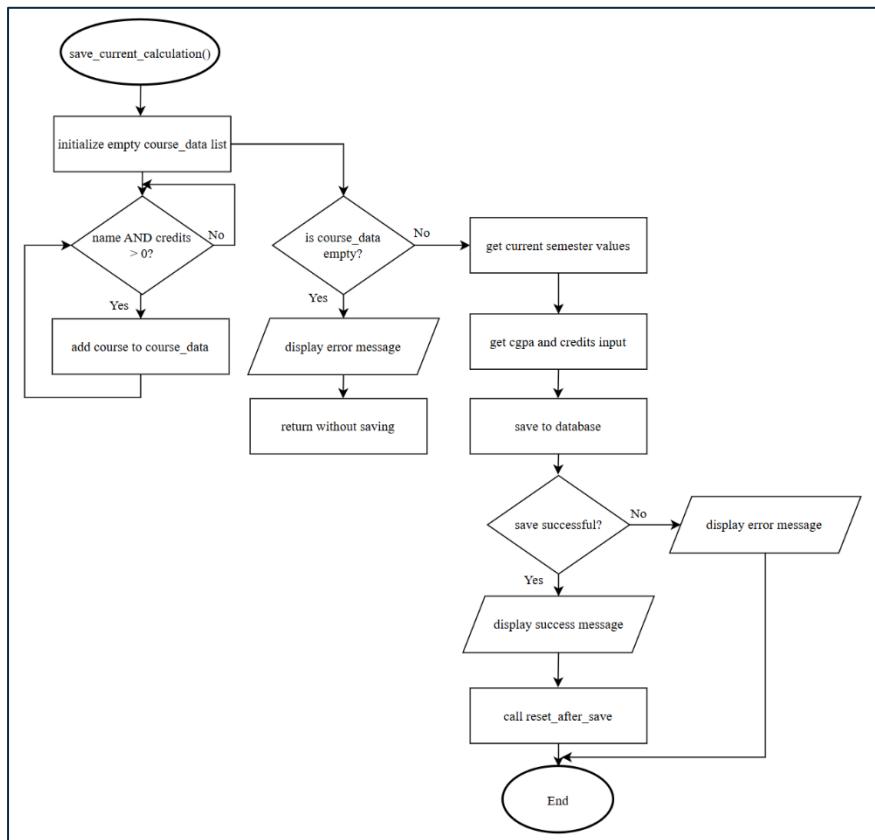
## 2.3 Academic Tools

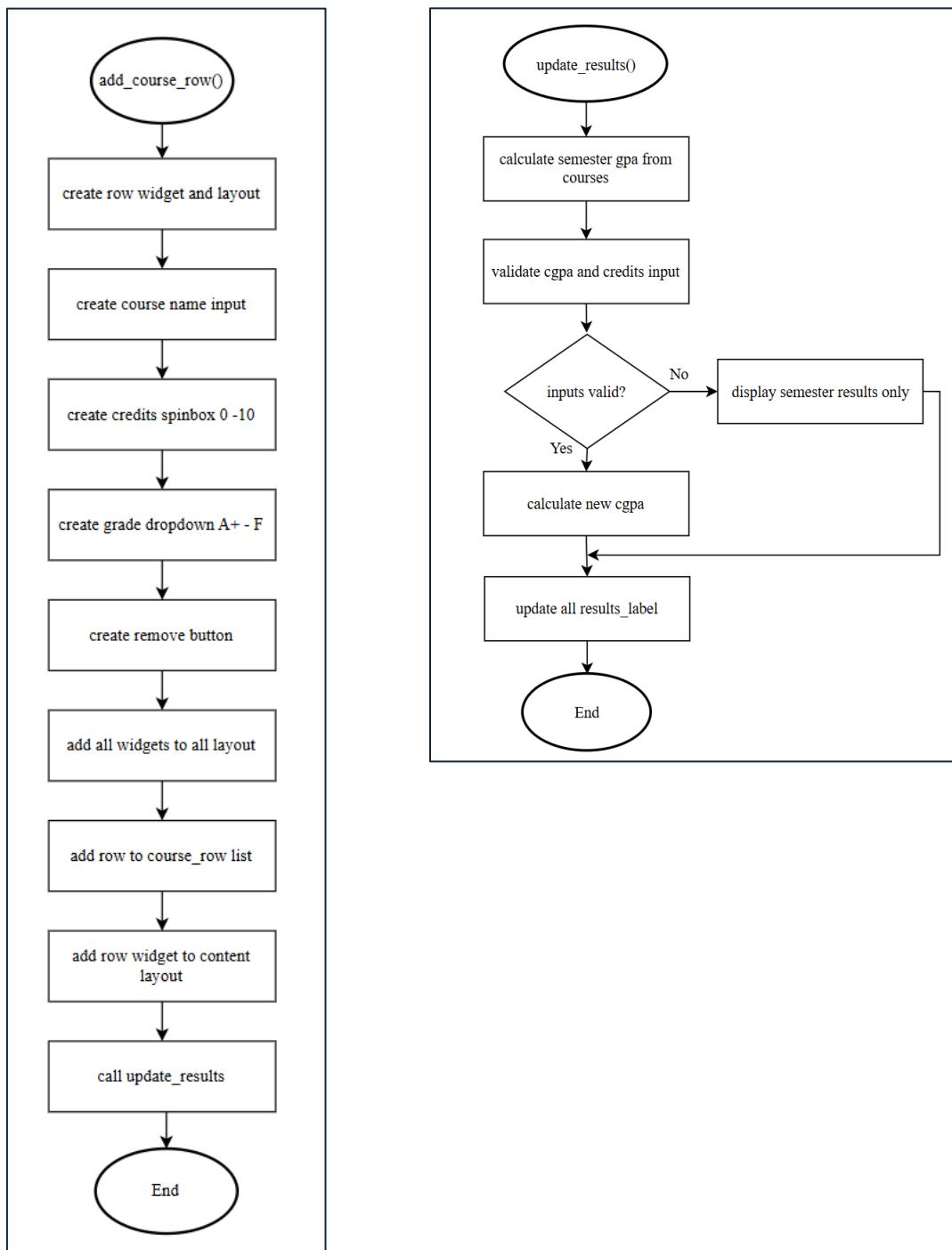
- Top – down design:

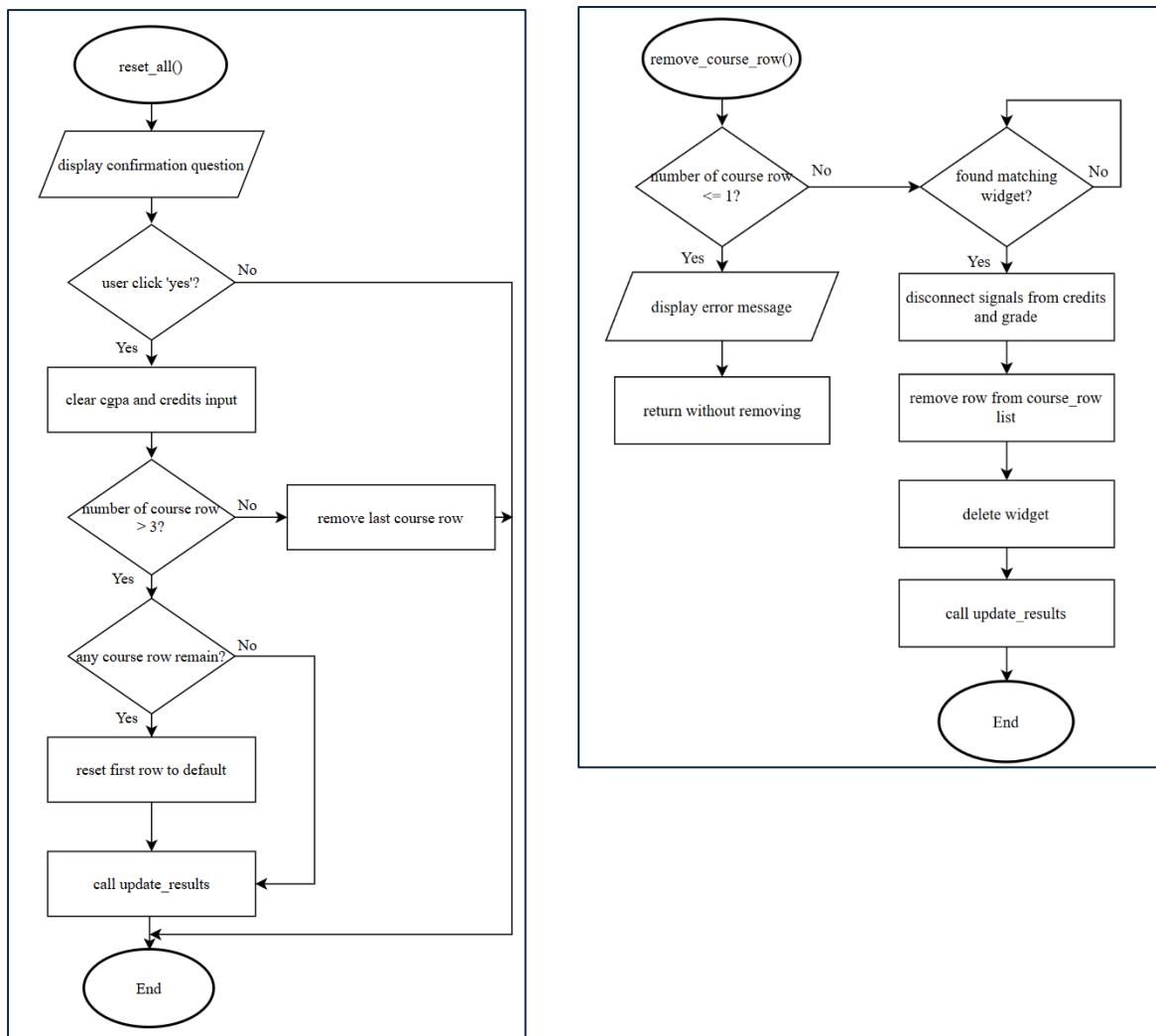
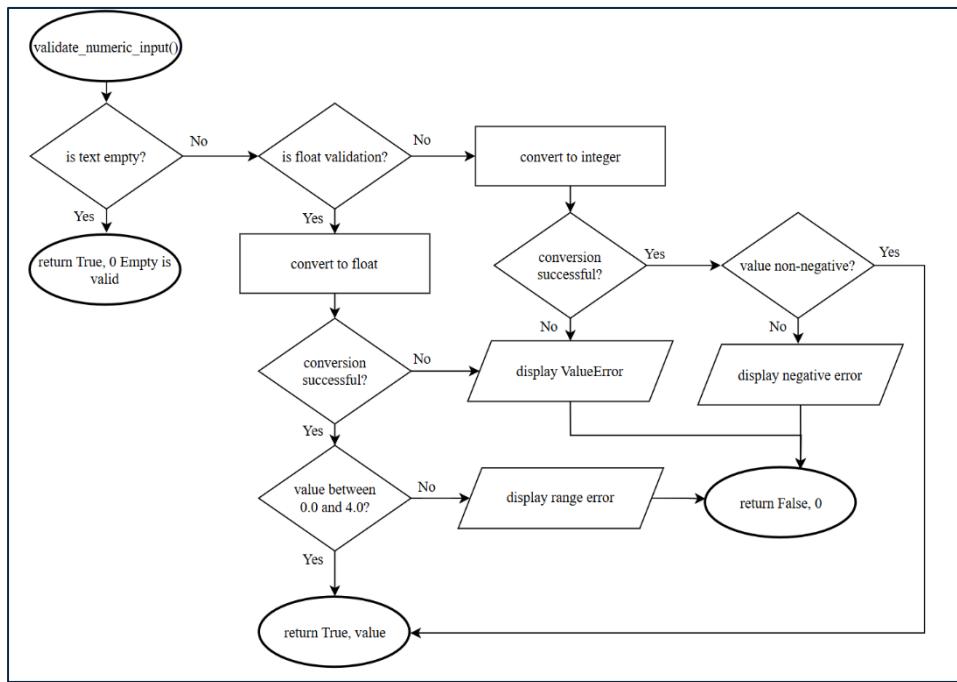


### 2.3.1 GPA Calculator

- Flowchart:

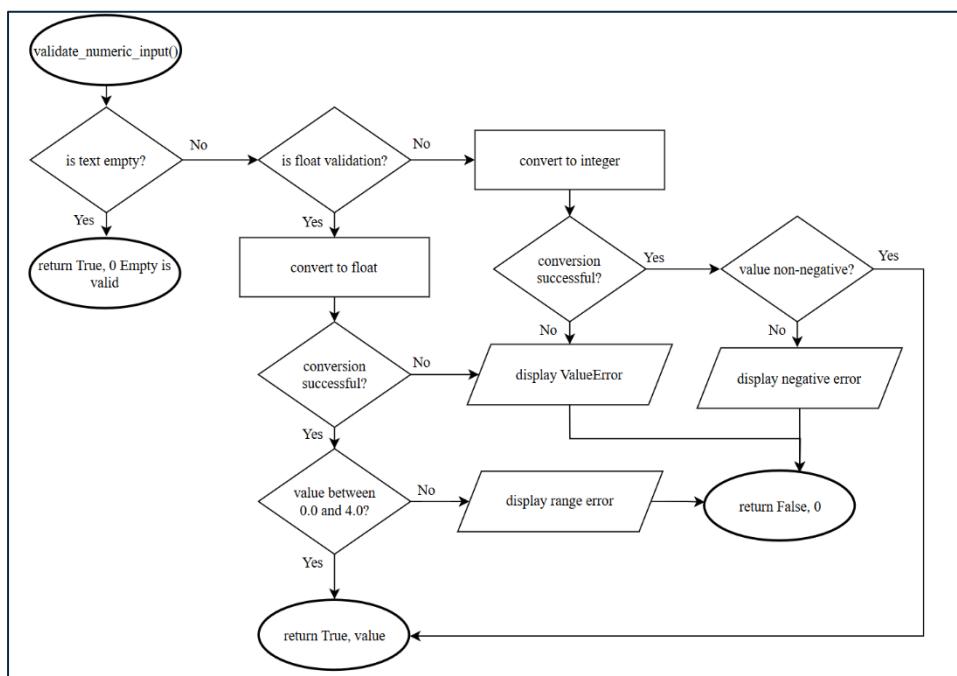
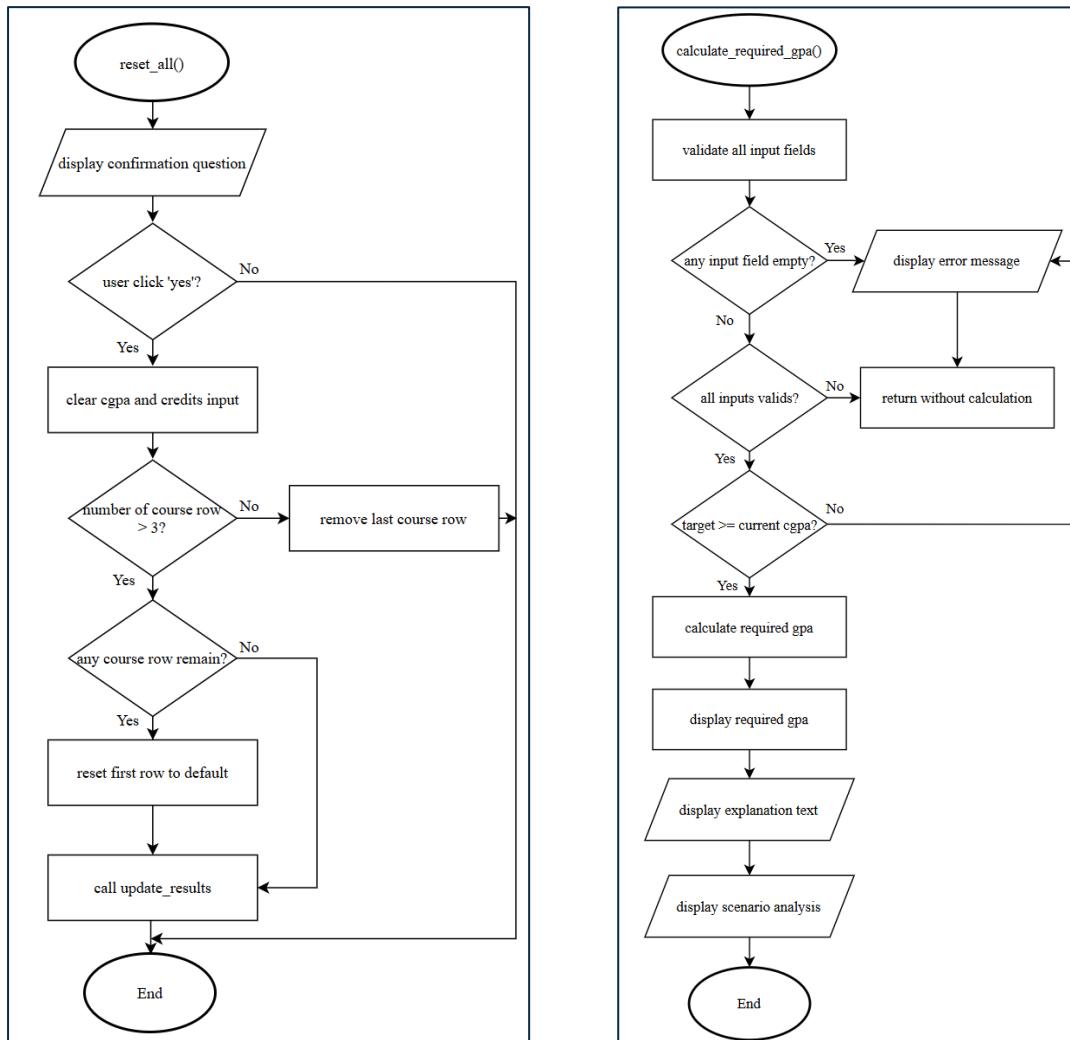






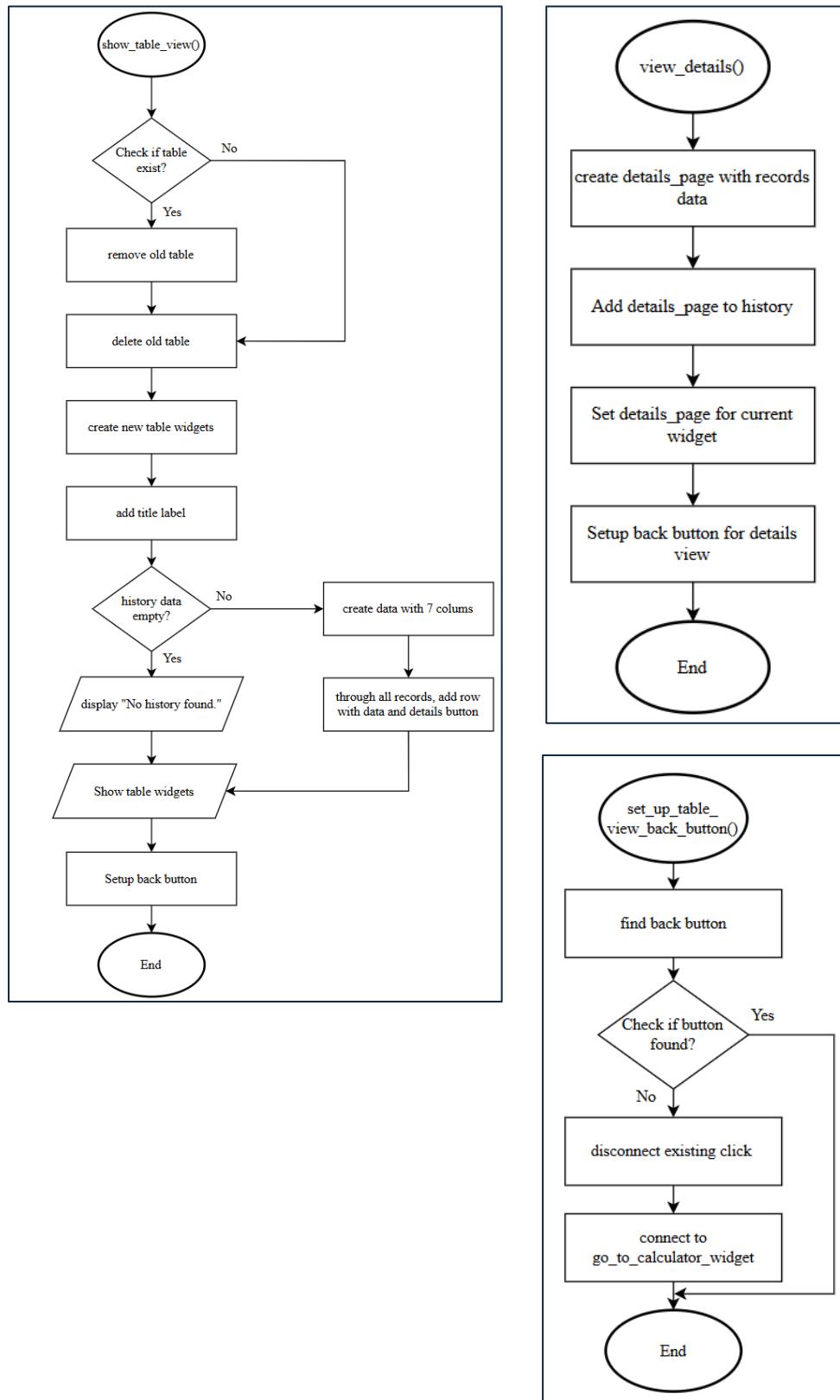
## 2.3.2 Goal Calculator

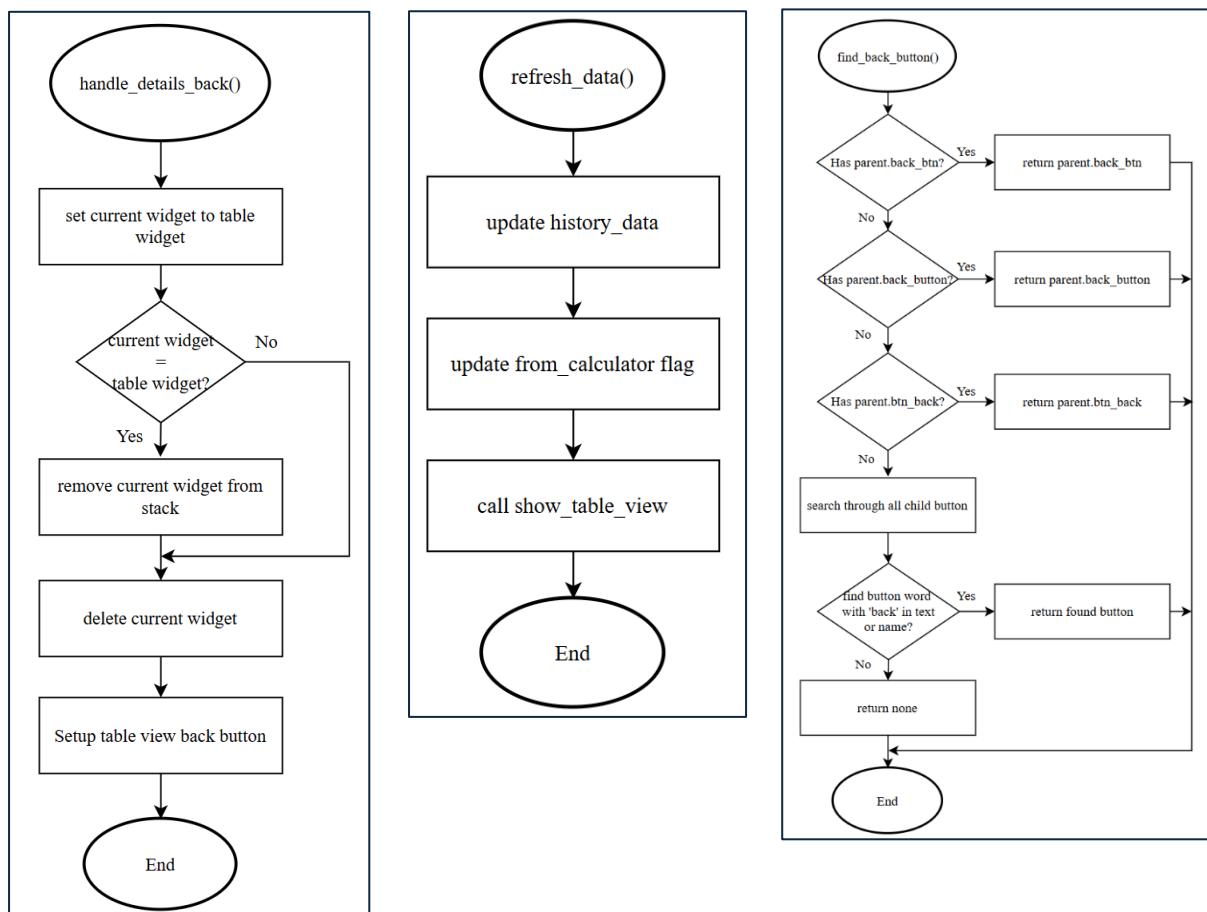
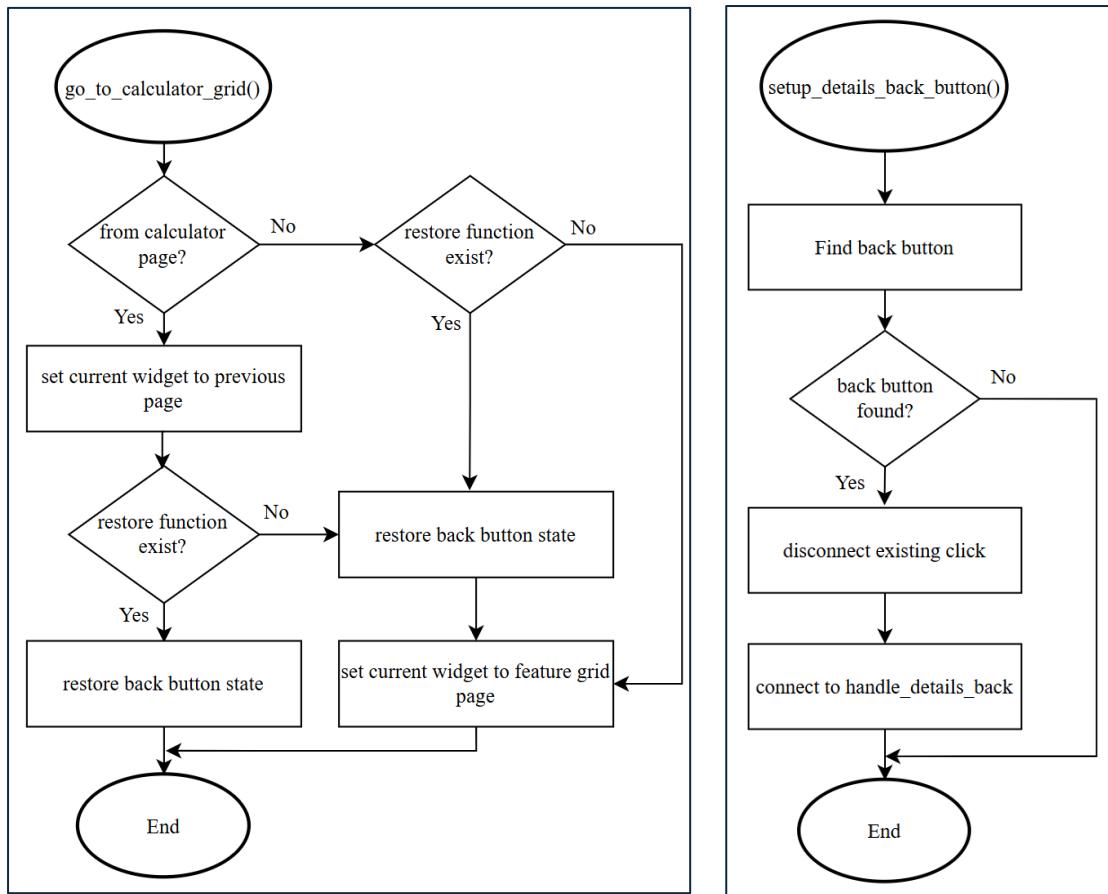
- Flowchart:



### 2.3.3 View History

- Flowchart:



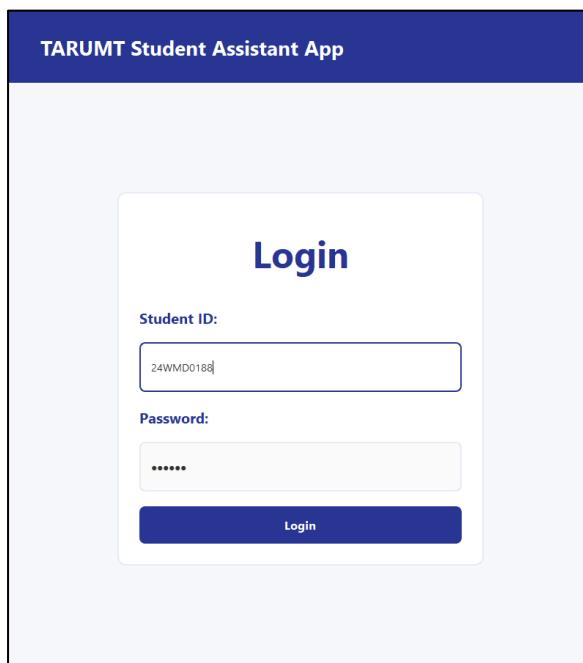


## Section C: User Manual

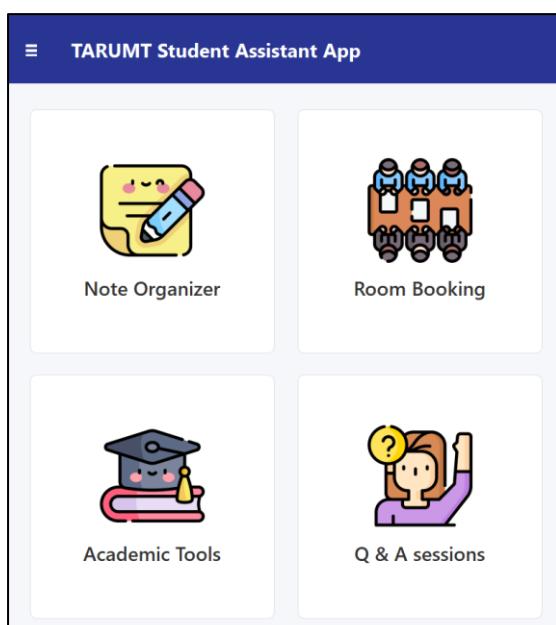
### 3.0 Main Page

After launching the application, users are required to log in with valid credentials to access the available functions. The system provides three main features, which are the Note Organizer for managing personal notes, the Academic Tools (GPA Calculator) for calculating grades, and the Discussion Room Booking feature for scheduling study spaces. In addition, the Q&A Section is currently under deployment and will be available in future updates. Users can also navigate through the sliding menu, which allows them to view the guideline, check booking history for all locations, access saved notes, return to the home page, or securely log out from any page within the application.

1. To start using the system, the student must first log in with their **student ID (24WMD0188)** and **password (123456)**.



2. After logging in successfully, the student will be redirected to the **main dashboard page**.



3. Click “Note Organizer” to create or modify notes.



4. Click “Room Booking” to book discussion rooms, check past bookings, and view room availability.



5. Click “Academic Tools” to calculate GPA, review the grading scheme, or calculate academic goals.



6. Click “Q & A Session” to see a notice saying “Coming Soon”, as the feature is under development.



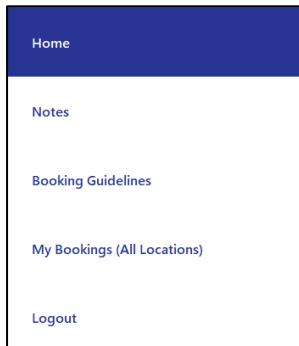
7. Click the slide menu (≡) to open or close the sliding menu bar.

The screenshot shows the TARUMT Student Assistant App interface. At the top is a dark blue header with the app's name. Below it is a white header bar with a user profile picture and the text "Tong Tong Bond" and "ID: 24WMD0188". To the left of the main content area is a slide menu with a red-bordered "≡" icon. The slide menu contains the following items:

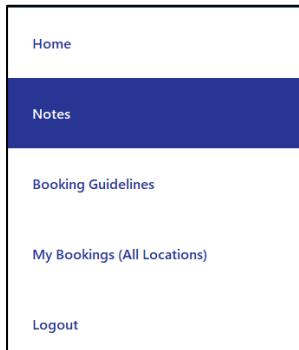
- Home
- Notes
- Booking Guidelines
- My Bookings (All Locations)
- Logout

On the right side of the screen, there are two large cards: "Goal Calculator" (with an icon of a checklist and a grade "A+") and "Grading Scheme" (with an icon of a document and a magnifying glass). A blue footer bar at the bottom has the text "Back to Home".

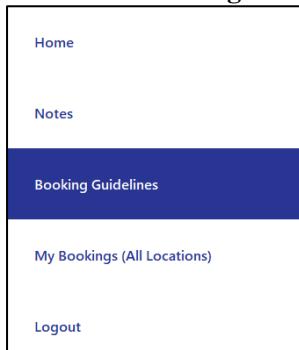
8. Click “Home” to return to the main dashboard.



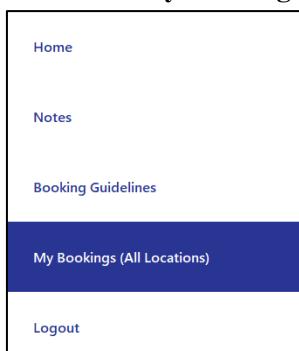
9. Click “Notes” to create or modify personal notes.



10. Click “Booking Guidelines” to view the room booking instructions.



11. Click “My Bookings (All Locations)” to view the booking history for all locations.

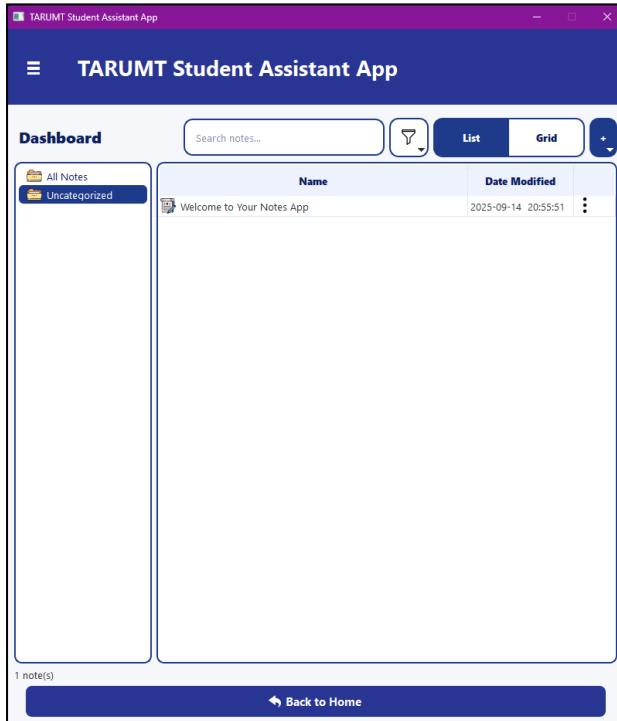


12. Click “Logout” to sign out of the current account, which will redirect back to the login page.



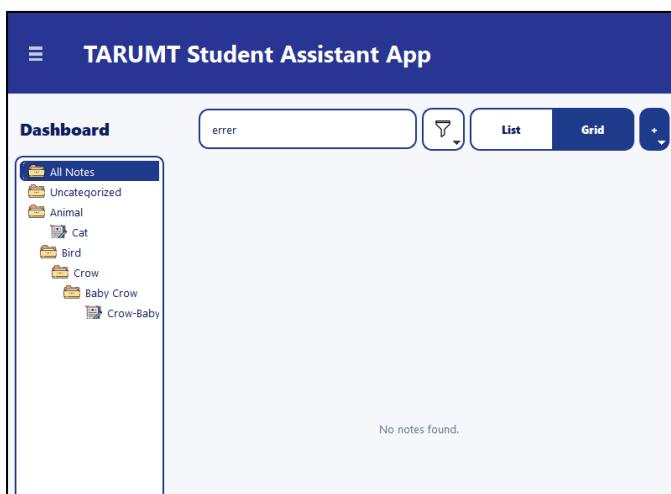
## 3.2 Note organizer

After clicking “Note organizer” from the main dashboard:

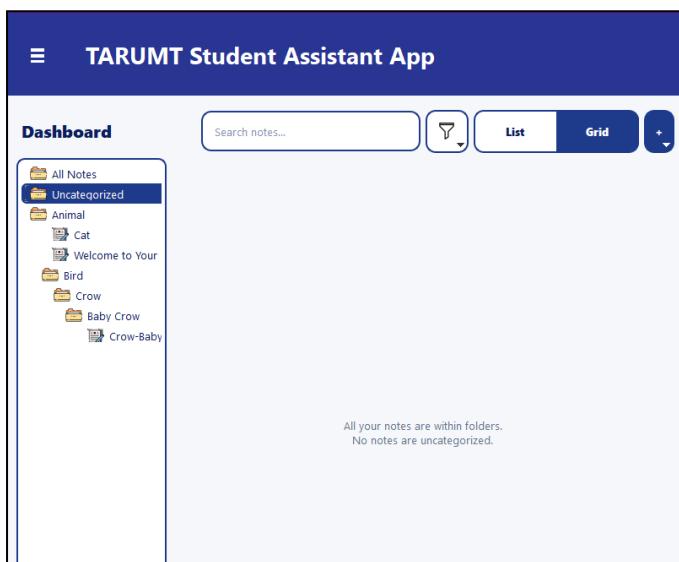


### 3.2.1 Dashboard

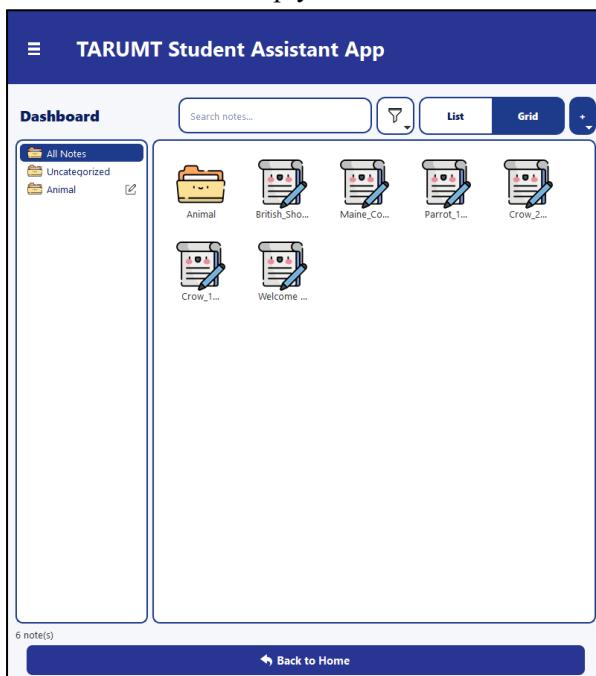
1. User types in **Search** to filter titles in the current context which can be current folder or All Notes.



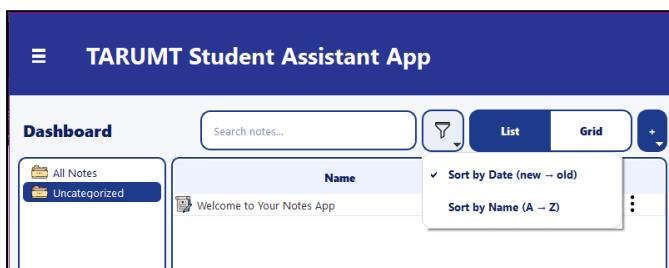
- User sees “**No notes found.**” if the search has no matches.



- User sees “**All your notes are within folders. No notes are uncategorized.**” in the **Uncategorized** view when it is empty.



- User clicks **Sort** and chooses **Sort by Date from newest to oldest** or **Sort by Name alphabetically from A to Z**.



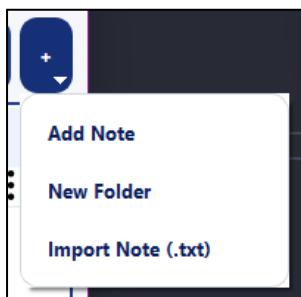
5. User clicks **List** or **Grid** to switch view mode.



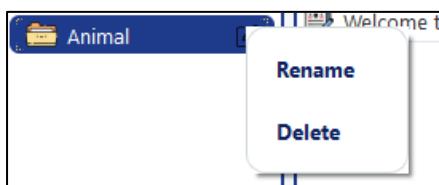
6. User always sees a running **note count** in the footer.



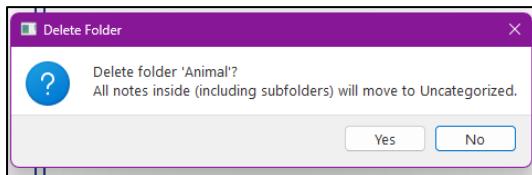
7. User selects a folder, opens the Add menu, and chooses New Folder to create a child of that folder. When no folder is selected, New Folder creates a folder at the root.



8. To rename a folder, user can right click the folder and choose Rename. The name can have at most fifty characters. On success the message text **Folder Renamed** appears.



9. To delete a folder, user can right click the folder, choose Delete, and confirm with Yes. The system moves all notes in the folder and its subfolders to Uncategorized, removes the entire subtree, and then shows the message text "**Folder Deleted**".



10. Click a folder to toggle expansion. When expanded, the folder shows its inline notes beneath it.



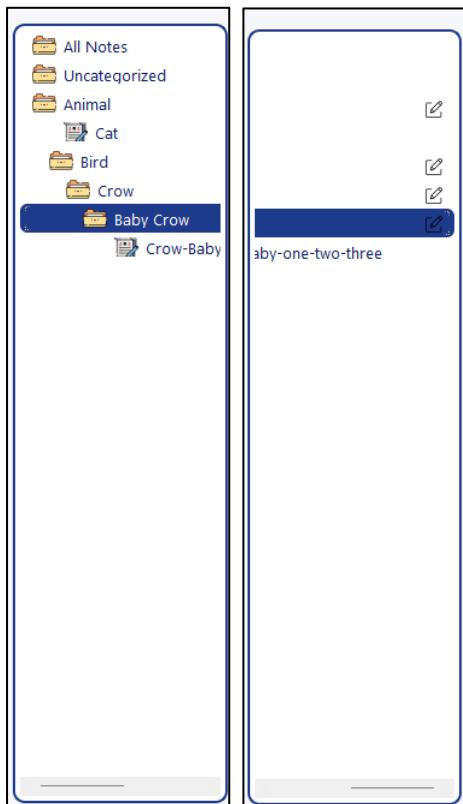
11. User clicks **All Notes** to see everything, or **Uncategorized** to see notes without folders.

| Name                      | Date Modified       | More |
|---------------------------|---------------------|------|
| Welcome to Your Notes App | 2025-09-14 20:55:51 | ⋮    |

| Name                      | Date Modified       | More |
|---------------------------|---------------------|------|
| Cat                       | 2025-09-15 03:04:31 | ⋮    |
| Welcome to Your Notes App | 2025-09-14 20:55:51 | ⋮    |

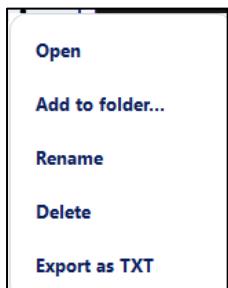
12. Users use horizontal scrolling in the sidebar to reveal items with long names by dragging left or right.



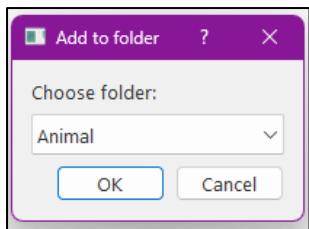
13. In List view users click the More button to open the note menu. In Grid view right click the note tile to open the note menu.



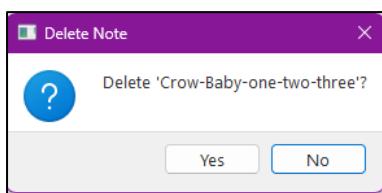
14. To open the selected note, user can choose Open from the menu.



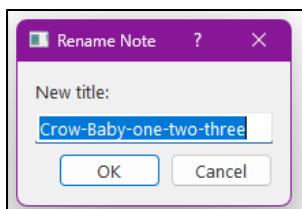
15. To move a note to a chosen folder, user can choose Add to folder from the menu.



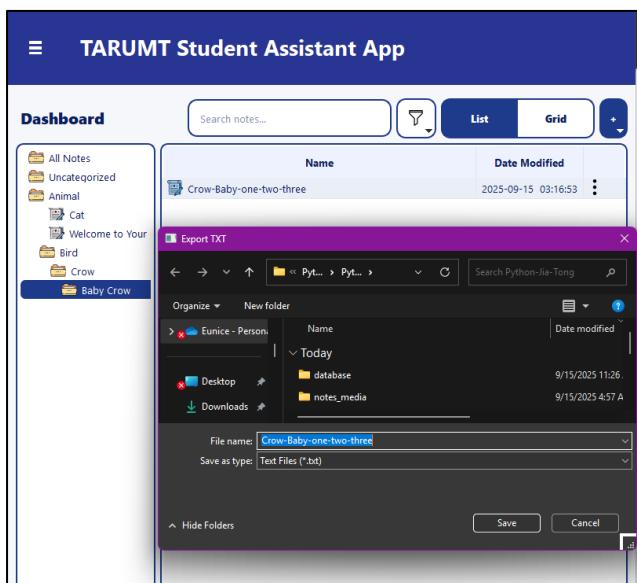
16. To rename a note choose, user can rename from the menu. The title can have a maximum of fifty characters.



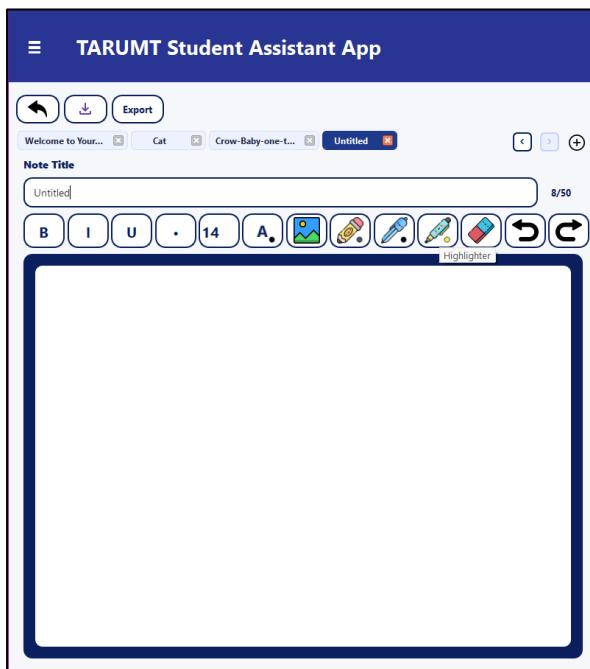
17. To delete a note, user can choose Delete from the menu and confirm with Yes.



18. To export a note as a text file, user choose Export as TXT. The system writes the note title and plain text to a file with the extension txt.



### 3.2.2 Notes Organizer



1. User opens or creates a note; the note opens in a **tab** with a Title area, a Toolbar, and the **Text and Drawing** editor.



2. Users can open multiple notes at once, each note appears in its own tab, and the < and > controls navigate between tabs.



3. User clicks Back in the editor toolbar to return to the Dashboard while notes remain saved..



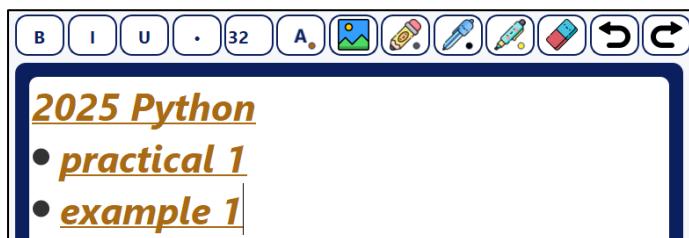
4. User types the Title with a maximum of 50 characters, and the live counter shows the number of characters used.



5. User sees the tab label update but long titles are shortened with "..." as the title changes.



6. User selects text and clicks **B** / **I** / **U** to apply **Bold** / **Italic** / **Underline**.



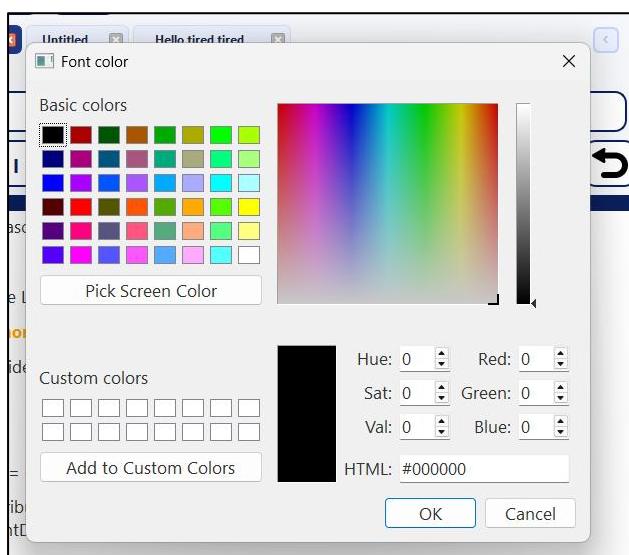
7. User clicks the bullet button to toggle a bulleted list for the current paragraphs.



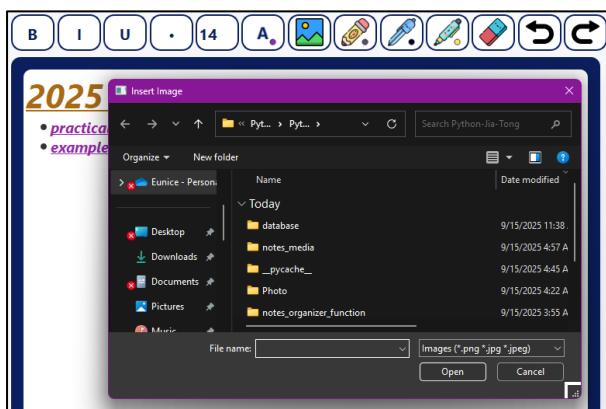
8. User changes **Font Size** using the combo box.



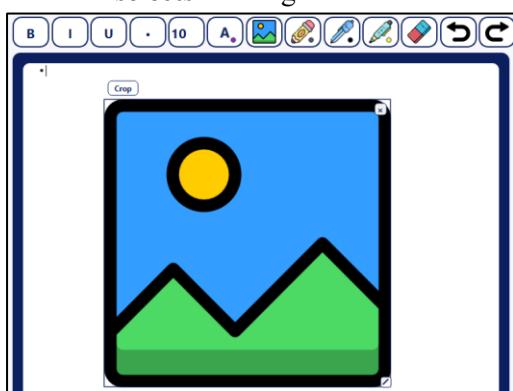
9. User changes font colour using the colour button, and the button shows a small colour badge.



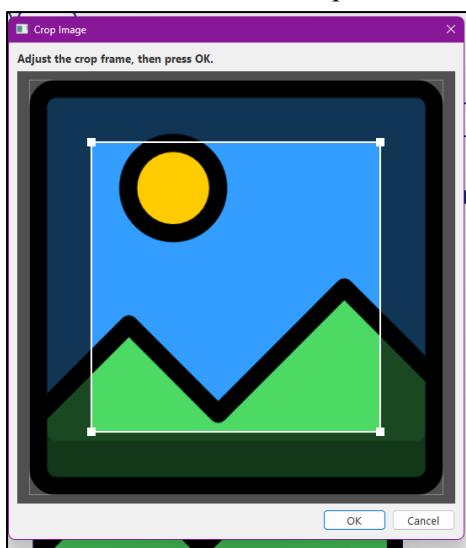
10. User clicks Insert Image and picks a PNG or JPG and the image appears and can be moved.



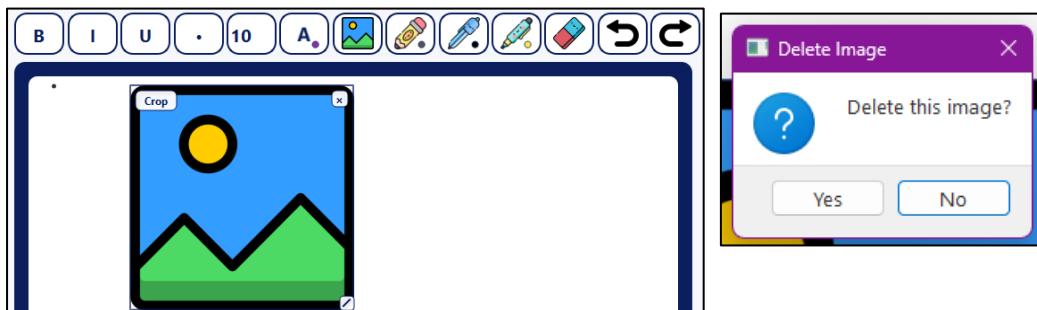
11. User selects an image to show:



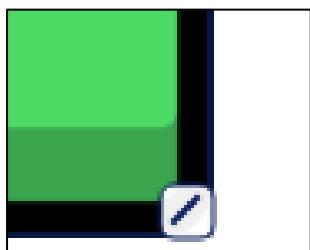
12. When an image is selected, a crop mini button opens a crop dialog with a drag and resize crop frame, and the user can press OK to apply.



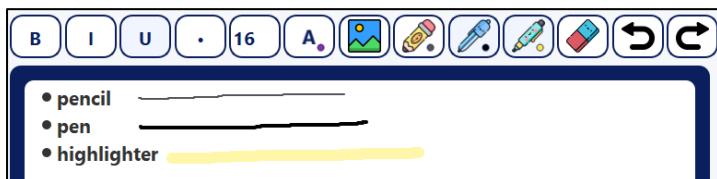
13. **x** mini-button that deletes the image after user chooses Yes.



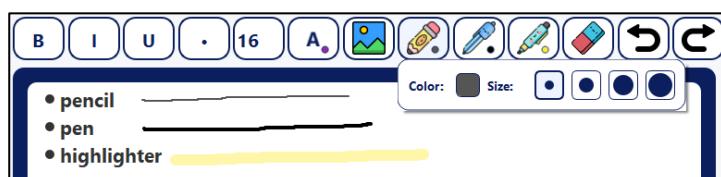
14. **Resize handle** at the bottom-right that user can drag to scale.



15. User clicks **Pencil**, **Pen**, or **Highlighter** to draw on top of the note.



16. User opens the small **tool popup** by clicking the tool button to set **Colour** and **Size** via dot buttons.



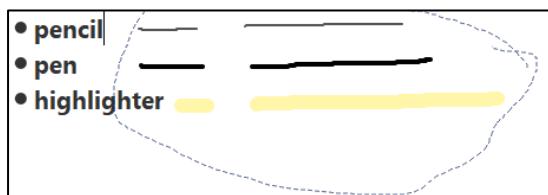
17. User clicks **Eraser**:



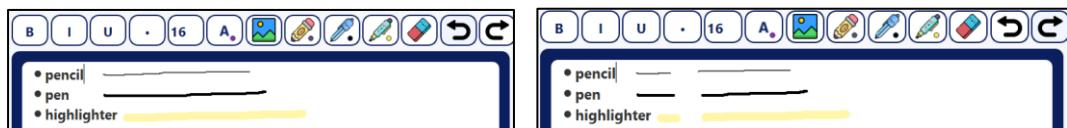
18. **Normal** eraser removes parts of strokes in a brush radius.



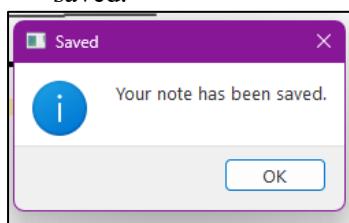
19. Lasso eraser removes stroke segments inside a freehand polygon.



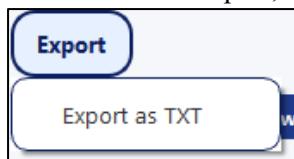
20. User clicks Undo to revert the last stroke or image add or erase and clicks Redo to reapply.



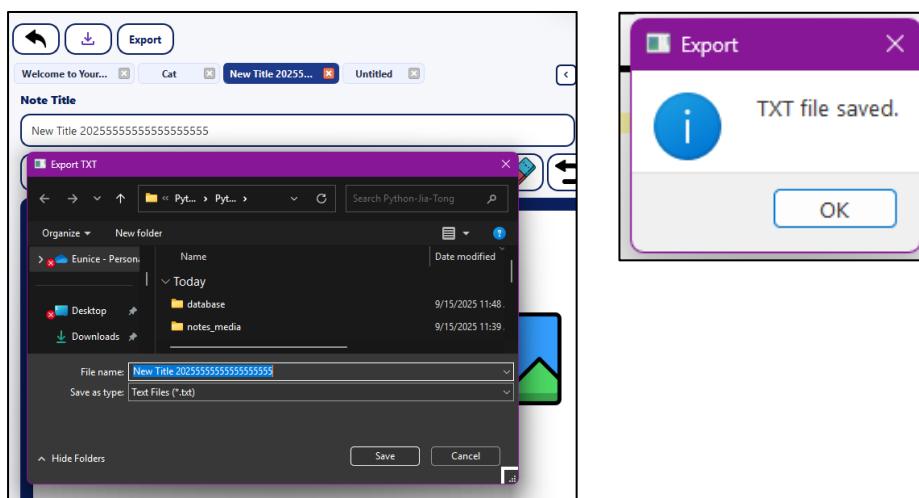
21. User clicks Save in the editor toolbar to force a save, and a message shows "Your note has been saved."



22. User clicks Export, then Export as TXT.



23. User chooses a file name, the system writes the title and plain text to the TXT, and a message shows "TXT file saved."



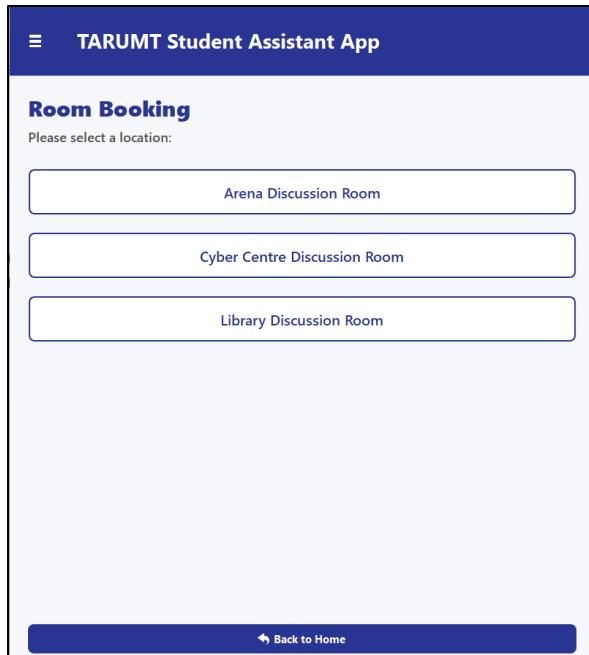
24. User can click **Back to Home** in the footer to return to the Main Dashboard.

**Back to Home**

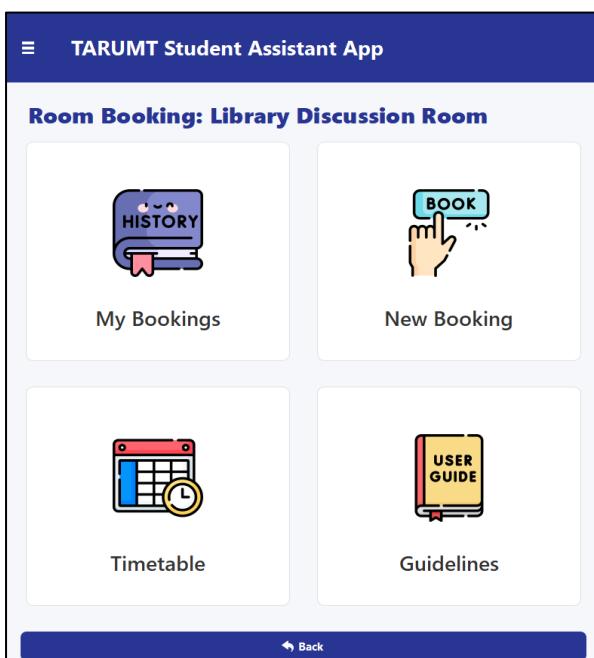
### 3.3 Room Booking

After clicking “Room Booking” from the main dashboard:

1. User must select the **location** they want to book, or click the **Back to Home** button to return to the Home page.



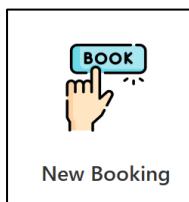
2. The user can choose the desired booking function, or click the **Back** button to return to the previous page.



3. Click “**My Bookings**” to view the booking history and cancel any bookings that the user created.



4. Click “**New Booking**” to create a new booking.



5. Click “**Timetable**” to check room availability.



6. Click “**Guidelines**” to view the booking guidelines.



### 3.3.1 My Bookings

#### 3.3.1.1 View the History

1. The user can scroll down to view the booking history, including the room, date, time, status, and the list of students in each booking.

The screenshot shows the 'My Bookings' section of the app. It lists three bookings:

- Booking 1:** Room: Room C287, Date: 2025-09-17, Time: 11:00 - 12:00, Status: Booked. Students: Tong Tong Bond (24WMD0188) - You.
- Booking 2:** Room: Room C287, Date: 2025-09-12, Time: 08:00 - 10:00, Status: Completed. Students: Tong Tong Bond (24WMD0188) - You, Eun Eun Bond (24WMD0624).
- Booking 3:** Room: Room C212, Date: 2025-09-12, Time: 08:00 - 10:00, Status: Completed. Students: (No students listed).

A red 'Cancel Booking' button is visible next to the first booking entry. A blue 'Back' button is at the bottom of the screen.

2. The user can click the **Back** button to return to the booking dashboard.

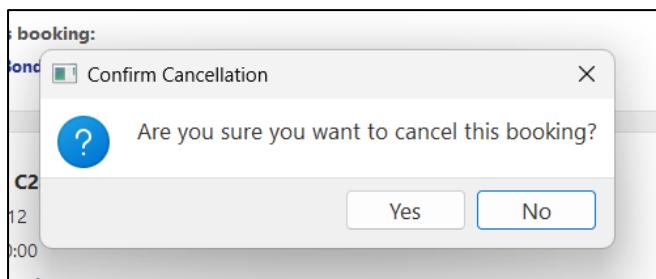


### 3.3.1.2 Cancel the Booking

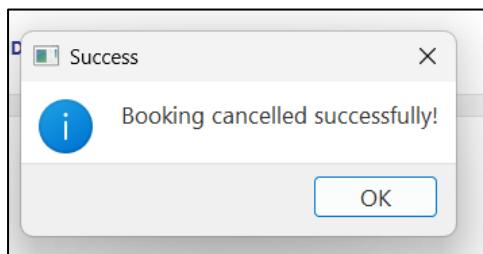
1. The user can click the **Cancel** button to cancel a booking.



2. A confirmation message will appear to double-check the action, and the user must click **Yes** to proceed.



3. A message will be displayed confirming that the booking was successfully canceled, and the user must click **OK** to close it.



4. The booking status will be updated to “Cancelled”.



### 3.3.2 New Booking – Create a New Booking

1. Select the **room features** from a drop-down list

**Select Feature:**

Discussion Room with Projector (2PCS)

Discussion Room (1PC)  
Discussion Room (2PCS)  
**Discussion Room (2PCS)**  
Discussion Room with Projector (2PCS)  
Discussion Room with Projector (2PCS) [HDMI]

2. Enter or click to set the **number of students** up to a maximum of 10

**Number of Students (including yourself, max 10):**

3

3. Select the booking date by **clicking the calendar icon**

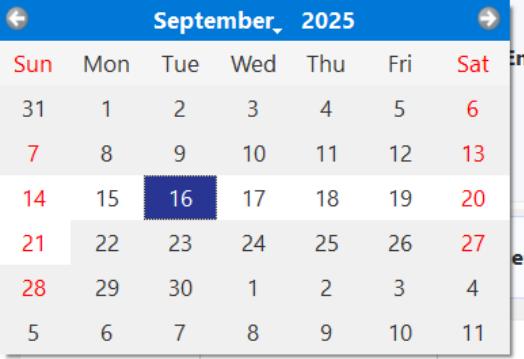
**Booking Date:**

2025-09-17

4. Choose the desired **date** from the calendar

**Booking Date:**

2025-09-16



| Sun | Mon | Tue       | Wed | Thu | Fri | Sat |
|-----|-----|-----------|-----|-----|-----|-----|
| 31  | 1   | 2         | 3   | 4   | 5   | 6   |
| 7   | 8   | 9         | 10  | 11  | 12  | 13  |
| 14  | 15  | <b>16</b> | 17  | 18  | 19  | 20  |
| 21  | 22  | 23        | 24  | 25  | 26  | 27  |
| 28  | 29  | 30        | 1   | 2   | 3   | 4   |
| 5   | 6   | 7         | 8   | 9   | 10  | 11  |

5. Select the **start and end times** by typing or using the up and down buttons

**Start Time:** 12:30

**End Time:** 13:00

6. Enter the student ID and the student's name will automatically populate

**Student Information:**

**View All Students**

|                  |           |                 |                |
|------------------|-----------|-----------------|----------------|
| Your Student ID: | 24WMD0188 | Your Name:      | Tong Tong Bond |
| Student 2 ID:    | 24WMD0624 | Student 2 Name: | Eun Eun Bond   |

Optional:

- Click View All Students to expand the list

**View All Students**

**TARUMT Student Assistant App**

**Student Information**

Enter student IDs and names will auto-fill. Click Save to confirm changes.

|                |                  |       |              |
|----------------|------------------|-------|--------------|
| 1. Student ID: | 24WMD0624        | Name: | Eun Eun Bond |
| 2. Student ID: | Enter student ID | Name: |              |

**Cancel** **Save Changes**

**Back**

- Enter student ID and the student's name will automatically populate

|                |           |       |            |
|----------------|-----------|-------|------------|
| 2. Student ID: | 24WMD0345 | Name: | Yu Yu Bond |
|----------------|-----------|-------|------------|

- Click the Save Changes button to save the data and return back

**Save Changes**

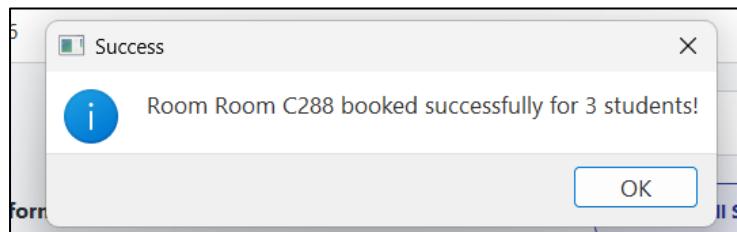
7. Check I have read and agree to the booking guidelines

I have read and agree to the booking guidelines

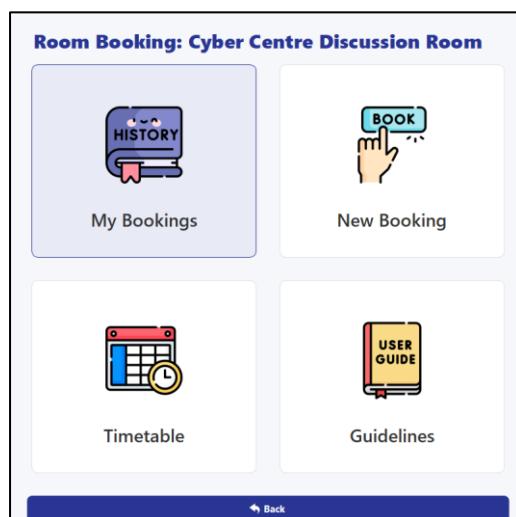
8. Submit the booking

Submit Booking

9. A success message will appear showing the room name and number of students click OK to confirm



10. The system will return to the booking dashboard page



### **3.3.3 Timetable – Check Room Availability**

1. The user can **select the room features** from the drop-down list to filter

|                 |  |   |
|-----------------|--|---|
| <b>Feature:</b> | Discussion Room (2PCS)                       |  |
|                 | All Features                                 |   |
| <b>Date:</b>    | Discussion Room (1PC)                        |   |
|                 | Discussion Room (2PCS)                       |   |
|                 | Discussion Room (2PCS)                       |   |
|                 | Discussion Room with Projector (2PCS)        |   |
|                 | Discussion Room with Projector (2PCS) [HDMI] |   |

2. The user can enter a number or use the up and down buttons to filter by capacity

**Capacity:**   

- ### 3. The user can click the calendar icon

**Date:**  

4. The user can **select the date** to apply the filter

| Date:          | 2025-09-16 |     | Capacity: | 1   |
|----------------|------------|-----|-----------|-----|
| September 2025 |            |     |           |     |
| Sun            | Mon        | Tue | Wed       | Thu |
| 31             | 1          | 2   | 3         | 4   |
| Room C210      | 7          | 8   | 9         | 10  |
| Room C288      | 14         | 15  | 16        | 17  |
|                | 21         | 22  | 23        | 24  |
|                | 28         | 29  | 30        | 1   |
|                | 5          | 6   | 7         | 8   |
|                | 12         | 13  | 18        | 19  |
|                | 26         | 27  | 3         | 4   |
|                | 10         | 11  | 9         | 10  |
|                | 17         | 18  | 19        | 20  |
|                | 23         | 24  | 25        | 26  |
|                | 29         | 30  | 1         | 2   |
|                | 3          | 4   | 5         | 6   |

5. The user can **view room availability** by scrolling up, down, left, or right. Green indicates available and red indicates booked

The screenshot shows a mobile application interface titled "TARUMT Student Assistant App". Below the title, it says "Timetable: Cyber Centre Discussion Room". There are filters for "Feature: Discussion Room (2PCS)" and "Date: 2025-09-16". The "Capacity" dropdown is set to 1. A legend at the top right indicates that green squares represent "Available" and red squares represent "Booked". The main area displays a grid for Room C210 and Room C288 from 11:00 to 14:00. Room C210 has all slots available. Room C288 has slots from 12:30 to 13:00 booked.

|           | 11:00 | 11:30 | 12:00 | 12:30  | 13:00 | 13:30 | 14:00 | 14 |
|-----------|-------|-------|-------|--------|-------|-------|-------|----|
| Room C210 |       |       |       |        |       |       |       |    |
| Room C288 |       |       |       | Booked |       |       |       |    |

[Back](#)

6. The user can **click the Back button** to return to the booking dashboard



### 3.3.4 Guidelines – View Booking Guidelines

1. The user can **view the guidelines** by scrolling

The screenshot shows the 'Booking Guidelines & Terms of Use' page of the TARUMT Student Assistant App. The page has a dark blue header with the app's name. Below the header, the title 'Booking Guidelines & Terms of Use' is centered in a large, bold, dark blue font. The content is organized into three sections, each with a small icon and a title: 'Student Requirements' (graduation cap icon), 'Compliance & Regulations' (gavel icon), and 'General Information' (leaf icon). Each section contains a bulleted list of rules or information. At the bottom of the page is a dark blue footer bar with a white 'Back' button featuring a left arrow icon.

**Booking Guidelines & Terms of Use**

**Student Requirements**

- All attendees must be valid students with active IDs
- The booking student is responsible for the room during the booked time
- Maximum of 10 students per booking (including the booker)
- Student IDs must be presented upon request

**Compliance & Regulations**

- Users must comply with all institutional policies and codes of conduct
- Misuse of facilities may result in disciplinary action
- Rooms must be used for academic purposes only
- Commercial activities are strictly prohibited

**General Information**

- Technical support available during office hours
- For emergencies, contact campus security at extension 09123456789

Back

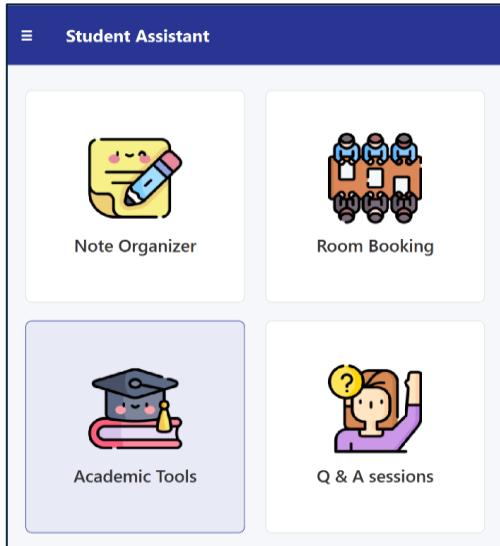
2. The user can **click the Back button** to return to the booking dashboard

This screenshot shows a close-up of the dark blue footer bar from the previous screenshot. It features a single white 'Back' button with a left arrow icon, centered on the bar.

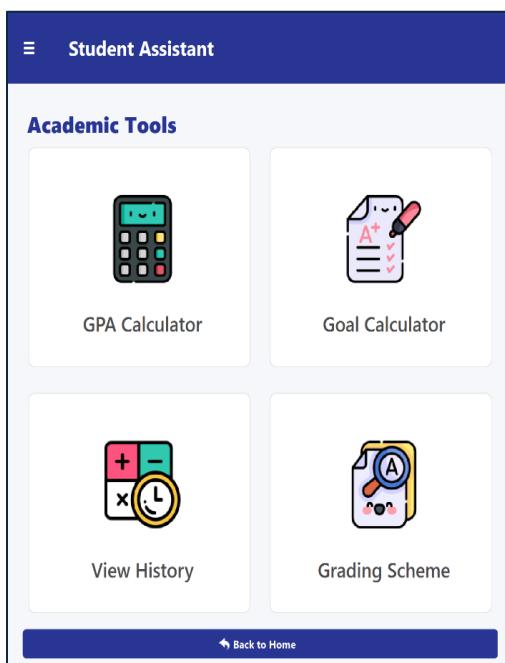
Back

## 3.4 Academic Tools

1. First, click the Academic Tools button in the main menu.

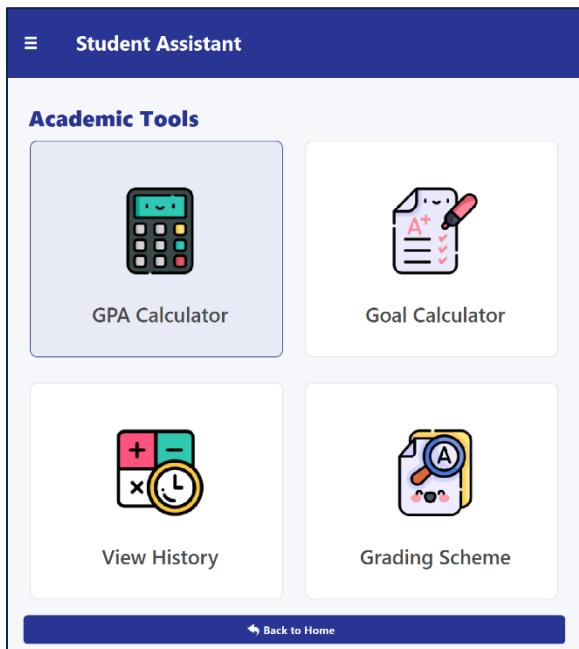


2. You will be directed to a page that provides four main functions to help students manage and track their academic performance:
  - **GPA Calculator** – calculate semester GPA and updated CGPA.
  - **Goal Calculator** – find out the GPA needed to reach a target CGPA.
  - **View History** – review and compare past calculations.
  - **Grading Scheme** – reference table of grades and quality points.



### 3.4.1 GPA Calculator

1. First, click the GPA Calculator button.



2. You will be redirect to the page where you can calculate your semester GPA and CGPA accordingly.

The screenshot shows the 'GPA and CGPA Calculator' page. At the top, there are 'Reset' and 'View History' buttons. Below that, instructions say: 'To calculate GPA, enter the Credit and select the Grade for each course/ subject. To calculate CGPA, enter current CGPA and Credits Completed prior to this semester.' The 'Current Academic Status' section has fields for 'Current CGPA' (3.75) and 'Credits Completed' (45). The 'Courses' section contains three rows for adding courses, each with fields for 'Course Name', 'Credits', and 'Grade' (set to 'A+'). To the right, the 'Results' section shows 'Semester Credits' (0), 'GPA' (0.00), 'Total Credits' (0), and 'CGPA' (0.00). At the bottom are 'Save My Calculation' and 'Back' buttons.

3. You can enter your current CGPA and the total credits you've completed so far. Make sure the CGPA is typed in the correct numeric format (0.00–4.00).

This is a zoomed-in view of the 'Current Academic Status' form from the previous screenshot. It shows two input fields: 'Current CGPA' with the value '3.75' and 'Credits Completed' with the value '35'.

4. Enter course details by typing the Course Name, selecting the Credit Hours using the spinbox (range: 1–10) and choosing the Grade from the drop-down list.

| Course Name | Credits | Grade |
|-------------|---------|-------|
| Algebra     | 3       | A+    |
| Calculus    | 3       | A     |
| Python      | 4       | A-    |

+ Add Course

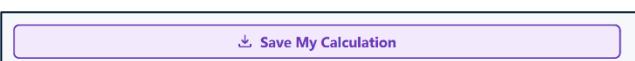
5. After entering the details, you can click the Add Course button to include more courses, or click the 'X' button next to the Grade drop-down list to remove a course.



6. Once you have entered all the inputs, the Results Panel beside the Courses Panel will automatically display your calculated semester credits, GPA, updated CGPA, and total credits.

| Results          |             |
|------------------|-------------|
| Semester Credits | <b>10</b>   |
| GPA              | <b>3.67</b> |
| Total Credits    | <b>45</b>   |
| CGPA             | <b>3.73</b> |

7. Now, click the Save My Calculation button below to save your calculations.



8. Once done clicking, a message will confirm that your calculation has been saved to history.

**Student Assistant**

**GPA and CGPA Calculator**

To calculate GPA, enter the Credit and select the Grade for each course/subject.  
To calculate CGPA, enter current CGPA and Credits Completed prior to this semester.

**Current Academic Status**

Current CGPA: 3.75  
Credits Completed: 10

**Courses**

| Course Name | Credits | Grade |
|-------------|---------|-------|
| Algebra     | 3       | A+    |
| Calculus    | 3       | B+    |
| Python      | 4       | A-    |

+ Add Course

**Results**

| Semester Credits | GPA         | Total Credits | CGPA        |
|------------------|-------------|---------------|-------------|
| <b>10</b>        | <b>3.67</b> | <b>45</b>     | <b>3.73</b> |

Save My Calculation

9. You also can reset your input by clicking the Reset Button.



10. A confirmation then will appear. If click ‘Yes’, all inputs are cleared and the form resets to default. If click ‘No’, the current data is retained.

**Student Assistant**

**GPA and CGPA Calculator**

To calculate GPA, enter the Credit and select the Grade for each course/ subject.  
To calculate CGPA, enter current CGPA and Credits Completed prior to this semester.

**Current Academic Status**

| Course Name | Credit | Grade |
|-------------|--------|-------|
| Math        | 3      | A     |
| Eng         | 2      | B+    |
| Java        | 4      | A-    |

**Results**

ester Credits: 9  
GPA: 3.70  
Total Credits: 32  
CGPA: 2.64

**Courses**

+ Add Course

Save My Calculation

Back to Home

11. Now, you can click the View History Button at the top-right corner to view the calculations history.



12. Then it will showing all the previously saved calculations in a table.

**GPA Calculation History**

| Date             | Semester Credits | Semester GPA | Total Credits | Current CGPA | Previous CGPA     | Actions |
|------------------|------------------|--------------|---------------|--------------|-------------------|---------|
| 2025-09-13 21:42 | 10               | 3.67         | 45            | 3.73         | 3.75 (35 credits) | Details |
| 2025-09-12 15:34 | 9                | 3.74         | 39            | 3.35         | 3.23 (30 credits) | Details |
| 2025-09-10 17:20 | 10               | 3.33         | 32            | 3.24         | 3.20 (22 credits) | Details |
| 2025-09-10 14:28 | 8                | 3.33         | 58            | 3.24         | 3.22 (50 credits) | Details |
| 2025-09-10 14:25 | 7                | 3.52         | 57            | 3.26         | 3.22 (50 credits) | Details |
| 2025-09-10 14:16 | 9                | 3.63         | 29            | 3.35         | 3.23 (20 credits) | Details |
| 2025-09-09 18:42 | 7                | 3.71         | 42            | 3.79         | 3.80 (35 credits) | Details |
| 2025-09-09 18:34 | 7                | 3.28         | 52            | 3.69         | 3.75 (45 credits) | Details |
| 2025-09-07 20:53 | 9                | 4.00         | 31            | 3.22         | 2.90 (22 credits) | Details |
| 2025-09-07 20:27 | 8                | 3.42         | 20            | 3.29         | 3.21 (12 credits) | Details |

Back

13. Click the Details button in the Actions column to view more detailed information about a specific calculation.

Details

14. Then, it will show three panels which include the results panel that sum of all inputs and calculated outcomes, courses panel with a list of courses with credits and grades and performance comparison panels that have bar chart showing Semester GPA, Previous CGPA, and New CGPA, along with text-based performance insights to help interpret the progress.

The screenshot shows the 'Student Assistant' application interface. At the top, there is a header bar with the title 'Student Assistant'. Below the header, the date 'Date: 2025-09-13 21:42' is displayed. The interface is divided into three main sections:

- Results:** This section displays various academic metrics:
  - Input CGPA: 3.75
  - Completed Credits: 35
  - Semester Credits: 10
  - GPA: 3.67
  - Total Credits: 45
  - CGPA: 3.73
- Courses:** This section lists the courses taken with their respective credits and grades:
  - ALGEBRA - 3 credits - Grade: A+
  - CALCULUS - 3 credits - Grade: B+
  - PYTHON - 4 credits - Grade: A-
- Performance Comparison:** This section compares the Semester GPA, Previous CGPA, and New CGPA using a horizontal bar chart.

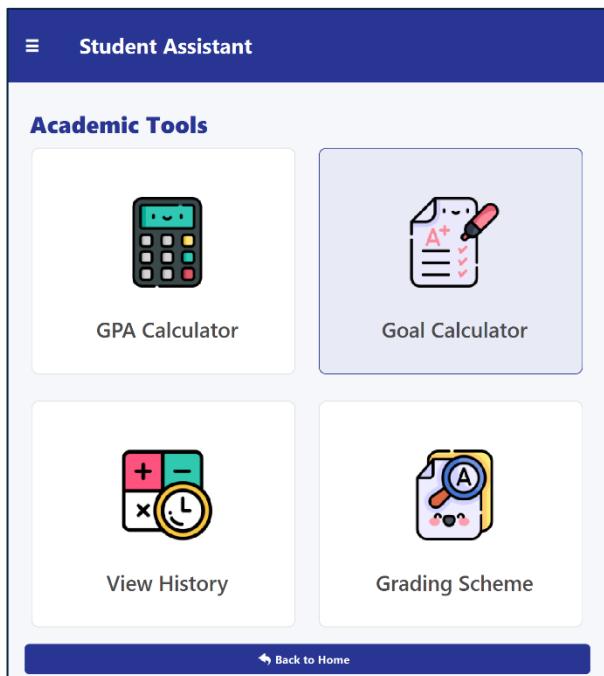
| Metric        | Value |
|---------------|-------|
| Semester GPA  | 3.67  |
| Previous CGPA | 3.75  |
| New CGPA      | 3.73  |

A warning message at the bottom of this section states: '⚠ This semester lowered your CGPA'.

At the bottom of the interface is a blue 'Back' button.

### 3.4.2 Goal Calculator

1. Click the Goal Calculator button.



2. You will be redirect to the page that can calculate required GPA in next semester to get your target CGPA.

The screenshot shows the 'CGPA Goal Calculator' page. It has a 'Reset' button at the top right. Below it, a message says 'Calculate the GPA you need next semester to reach your target CGPA'. The 'Input Parameters' section contains four input fields: 'Current CGPA' (3.22), 'Completed Credits' (25), 'Target CGPA' (3.50), and 'Next Semester Credits' (15). A 'Calculate Required GPA' button is below the inputs. A 'Back' button is at the bottom.

3. Then, enter your current CGPA, the total credits completed so far, target CGPA, next semester credits in the input fields, make sure all input fields are be entered.

**Input Parameters**

|                        |      |
|------------------------|------|
| Current CGPA:          | 3.22 |
| Completed Credits:     | 25   |
| Target CGPA:           | 3.50 |
| Next Semester Credits: | 15   |

**Calculate Required GPA**

4. Once done entering all the details, may click the Calculated Required Button below the inputs field to calculate.

**Calculate Required GPA**

5. When done click the button, the results will be displayed below with the GPA required in the upcoming semester to achieve your target CGPA and explaining how realistic or achievable the target is based on the required GPA.

**Results**

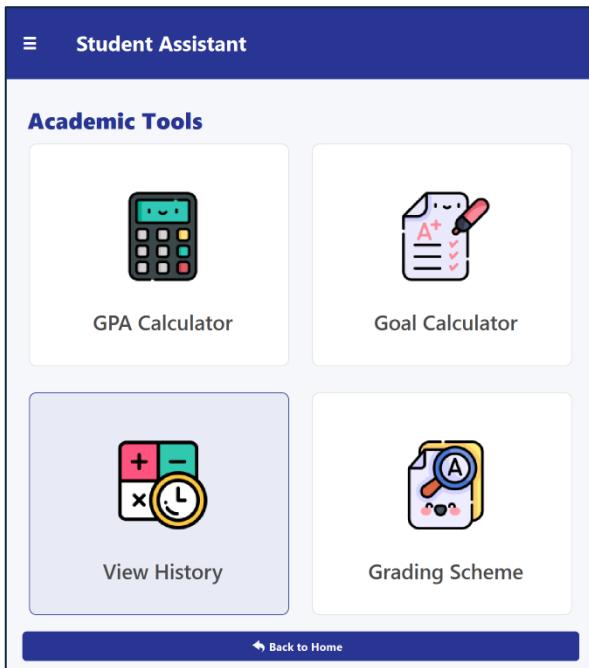
**Required GPA: 3.97**

To reach your target CGPA of 3.50, you need to get a GPA of 3.97 in your next semester.

⌚ Challenging but possible! Plan for dedicated study time

### 3.4.3 View History

1. Click the View History button to review past GPA calculations.



2. Then a table will display all previously saved calculations, the latest calculation will be in the first row.

| GPA Calculation History |                  |              |               |              |                   |                          |
|-------------------------|------------------|--------------|---------------|--------------|-------------------|--------------------------|
| Date                    | Semester Credits | Semester GPA | Total Credits | Current CGPA | Previous CGPA     | Actions                  |
| 2025-09-13 21:42        | 10               | 3.67         | 45            | 3.73         | 3.75 (35 credits) | <button>Details</button> |
| 2025-09-12 15:34        | 9                | 3.74         | 39            | 3.35         | 3.23 (30 credits) | <button>Details</button> |
| 2025-09-10 17:20        | 10               | 3.33         | 32            | 3.24         | 3.20 (22 credits) | <button>Details</button> |
| 2025-09-10 14:28        | 8                | 3.33         | 58            | 3.24         | 3.22 (50 credits) | <button>Details</button> |
| 2025-09-10 14:25        | 7                | 3.52         | 57            | 3.26         | 3.22 (50 credits) | <button>Details</button> |
| 2025-09-10 14:16        | 9                | 3.63         | 29            | 3.35         | 3.23 (20 credits) | <button>Details</button> |
| 2025-09-09 18:42        | 7                | 3.71         | 42            | 3.79         | 3.80 (35 credits) | <button>Details</button> |
| 2025-09-09 18:34        | 7                | 3.28         | 52            | 3.69         | 3.75 (45 credits) | <button>Details</button> |
| 2025-09-07 20:53        | 9                | 4.00         | 31            | 3.22         | 2.90 (22 credits) | <button>Details</button> |
| 2025-09-07 20:44        | 8                | 3.42         | 20            | 3.29         | 3.21 (12 credits) | <button>Details</button> |

3. Click the Details button in the Actions column to view more detailed information about a specific calculation.



4. Then, it will show three panels which include the results panel that sum of all inputs and calculated outcomes, courses panel with a list of courses with credits and grades and performance comparison panels that have bar chart showing Semester GPA, Previous CGPA, and New CGPA, along with text-based performance insights to help interpret the progress.

The screenshot displays the 'Student Assistant' application interface. At the top, there is a dark blue header bar with the title 'Student Assistant'. Below the header, the date 'Date: 2025-09-13 21:42' is shown. The main content area is divided into three sections:

- Results**: This section displays various academic metrics:
 

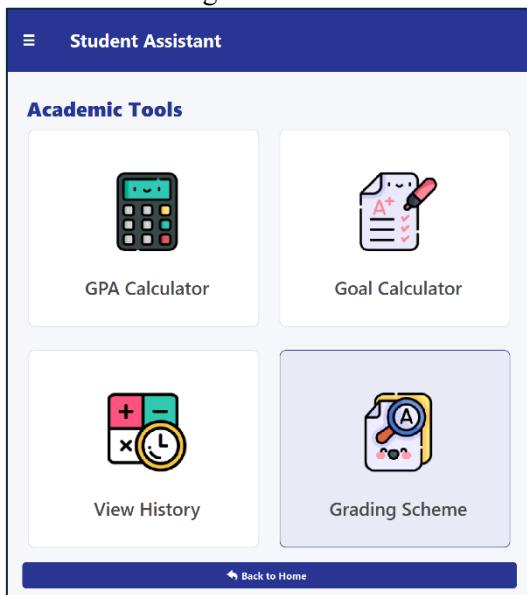
|                    |      |
|--------------------|------|
| Input CGPA:        | 3.75 |
| Completed Credits: | 35   |
| Semester Credits:  | 10   |
| GPA:               | 3.67 |
| Total Credits:     | 45   |
| CGPA:              | 3.73 |
- Courses**: This section lists the courses taken:
  - ALGEBRA - 3 credits - Grade: A+
  - CALCULUS - 3 credits - Grade: B+
  - PYTHON - 4 credits - Grade: A-
- Performance Comparison**: This section compares three GPAs using horizontal bars:
 

|               |  |      |
|---------------|--|------|
| Semester GPA  |  | 3.67 |
| Previous CGPA |  | 3.75 |
| New CGPA      |  | 3.73 |

A yellow warning icon with the text '⚠ This semester lowered your CGPA' is positioned above a blue 'Back' button at the bottom of the page.

### 3.4.4 Grading Scheme

1. Click the Grading Scheme button.



2. Then you will be directed to the page that showing a table with Marks, Grade and Quality Points. This serve as a conversion table used for the GPA computation.

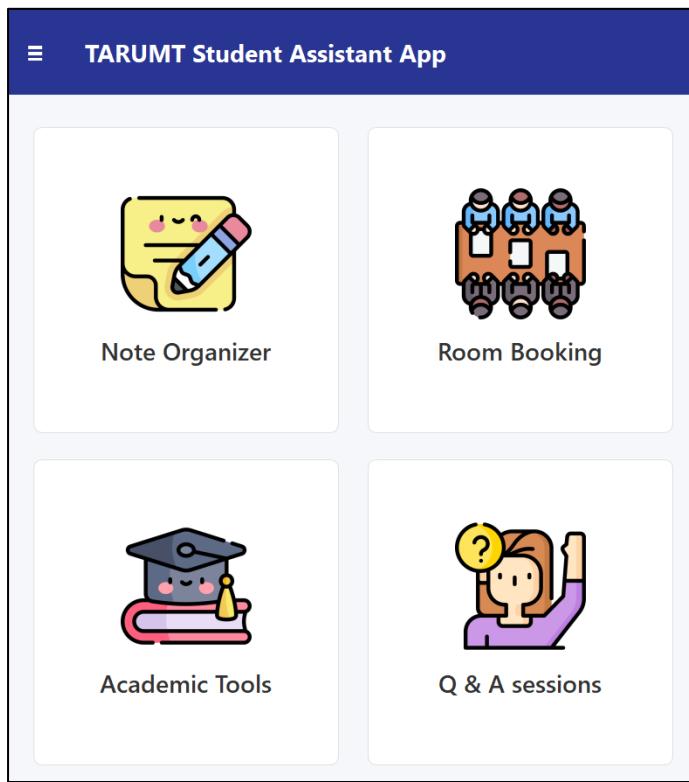
The screenshot shows the 'Grading Scheme' table. The table title is 'Grade to quality point conversion table for GPA computation'. The table has three columns: Marks, Grade, and Quality Points. The data is as follows:

| Marks    | Grade | Quality Points |
|----------|-------|----------------|
| 90 - 100 | A+    | 4.00           |
| 80 - 89  | A     | 4.00           |
| 75 - 79  | A-    | 3.67           |
| 70 - 74  | B+    | 3.33           |
| 65 - 69  | B     | 3.00           |
| 60 - 64  | B-    | 2.67           |
| 55 - 59  | C+    | 2.33           |
| 50 - 54  | C     | 2.00           |
| 0 - 49   | F     | 0.00           |

## 3.5 Slide Menu

### 3.5.1 Home

- When the user clicks **Home**, they are redirected back to the **main dashboard page**.

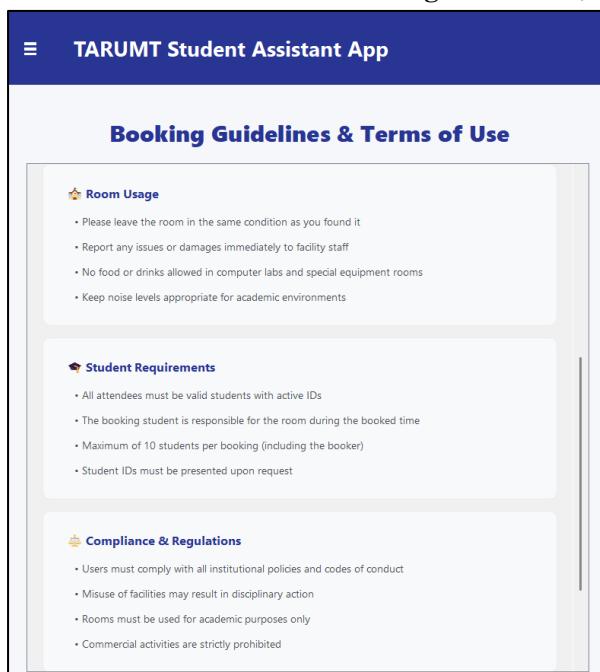


### 3.5.2 Notes

- When the user clicks **Notes**, they are redirected to the **Note Organizer** (refer to section 3.2).

### 3.5.3 Booking Guidelines

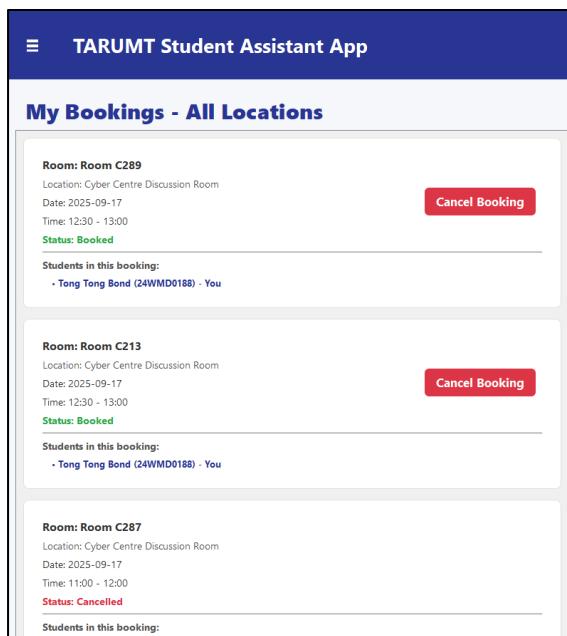
- When the user clicks **Booking Guidelines**, they can view the booking guidelines.



## 3.5.4 My Bookings (All Locations)

### 3.5.4.1 View the History

1. The user can scroll down to view their booking history, including location, room, date, time, status, and the list of students in each booking.

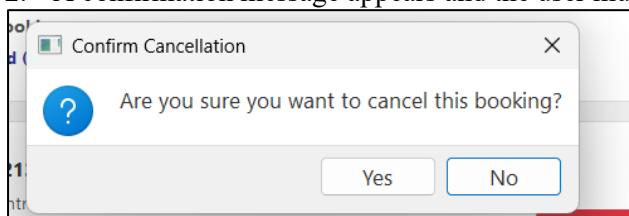


### 3.5.4.2 Cancel the Booking

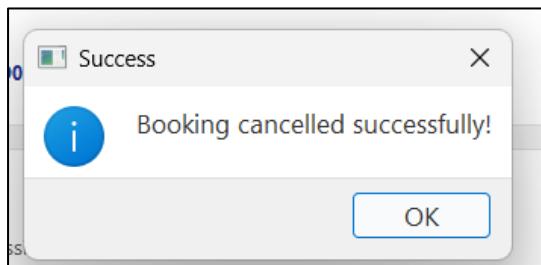
1. The user can click the **Cancel** button to cancel a booking.

**Cancel Booking**

2. A confirmation message appears and the user must click **Yes** to proceed.



3. A message is displayed confirming that the booking was successfully cancelled and the user clicks **OK** to close it.



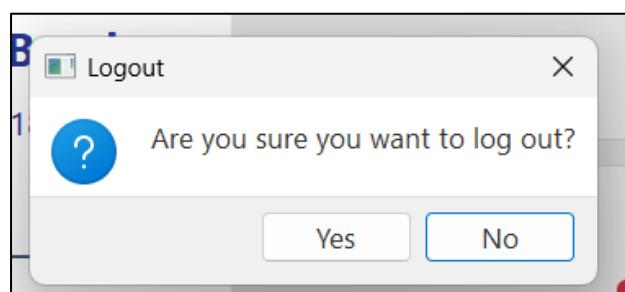
4. The booking status is updated to **Cancelled**.

**Room: Room C289**  
 Location: Cyber Centre Discussion Room  
 Date: 2025-09-17  
 Time: 12:30 - 13:00  
**Status: Cancelled**

**Students in this booking:**  
 • Tong Tong Bond (24WMD0188) - You

### 3.5.5 Logout

- When the user clicks **Logout**, a confirmation prompt appears: "Are you sure you want to logout?"



- Clicking **Yes** logs the user out.
- Clicking **No** keeps the user logged in.

## Section D: Test Cases

### Case 1: Login Functionality Test

#### Case 1.1: Success Case - Login with valid credentials

**Input:**

- Student ID: 24WMD0188
- Password: 123456

**Expected Output:**

- User is successfully logged in and redirected to the main dashboard page

**TARUMT Student Assistant App**

**Login**

**Student ID:**  
24WMD0188

**Password:**  
.....

**Login**

**TARUMT Student Assistant App**

**Note Organizer**

**Room Booking**

**Academic Tools**

**Q & A sessions**

## Case 1.2: Error Case – Login with Invalid Password

**Input:**

- Student ID: 24WMD0188
- Password: wrongpass

**Expected Output:**

- System displays an error message: “Invalid student ID or password”
- User remains on the login page

The screenshot shows a 'Login' page with two input fields: 'Student ID:' containing '24WND0188' and 'Password:' containing '\*\*\*\*\*'. Below the password field is a red error message box with the text 'Invalid student ID or password'. At the bottom is a blue 'Login' button.

## Case 1.3: Error Case – Login with Empty Student ID

**Input:**

- Student ID: (blank)
- Password: 123456

**Expected Output:**

- System displays a validation message: “Please enter your Student ID”
- User remains on the login page

The screenshot shows a 'Login' page with two input fields: 'Student ID:' containing 'Enter your student ID (e.g., 00WMD0000)' and 'Password:' containing '\*\*\*\*\*'. Below the student ID field is a red error message box with the text 'Please enter your student ID'. At the bottom is a blue 'Login' button.

## **Case 1.4: Error Case – Login with Empty Password**

### **Input:**

- Student ID: 24WMD0188
- Password: (blank)

### **Expected Output:**

- System displays a validation message: “Please enter your password”
- User remains on the login page

The screenshot shows a login form with the following elements:

- Login Title:** The word "Login" is centered at the top of the page.
- Student ID Field:** A text input field containing the value "24WMD0188".
- Password Field:** A text input field with the placeholder text "Enter your password".
- Error Message:** A red rectangular box below the password field contains the text "Please enter your password".
- Login Button:** A large blue button labeled "Login" at the bottom of the form.

## Case 2: New Booking Functionality Test

### Case 2.1: Success Case – Successful Booking with Valid Inputs

Input:

- Feature selected
- Number of students  $\leq$  room capacity
- Valid date within 1 week
- Start and end time between 08:00–18:00 on hour or half-hour
- Student IDs valid (including the booking user)
- Terms checkbox checked

The screenshot shows a booking form with the following fields:

- Select Feature: Discussion Room (2PCS)
- Number of Students (including yourself, max 10): 1
- Booking Date: 2025-09-15
- Start Time: 08:00
- End Time: 10:00
- Student Information: Your Student ID: 24WMD0188, Your Name: Tong Tong Bond
- A checked checkbox: I have read and agree to the booking guidelines
- A green "Submit Booking" button at the bottom

Expected Output:

- Booking saved in database
- Success message displayed: "Room <name> booked successfully for <n> students!"
- Booking dashboard refreshed

The screenshot shows two parts of the application interface:

- A modal dialog titled "Success" with the message: "Room Room A181 booked successfully for 1 students!" with an "OK" button.
- A booking history table with the following data:

| ID | Room | Date       | Start Time | End Time | Status | Booked By |
|----|------|------------|------------|----------|--------|-----------|
| 15 | R215 | 2025-09-15 | 08:00      | 10:00    | booked | 24WMD0188 |
| 16 | R216 |            |            |          |        |           |
| 17 | R217 |            |            |          |        |           |
| 18 | R218 |            |            |          |        |           |
| 19 | R219 |            |            |          |        |           |
| 20 | R220 |            |            |          |        |           |
| 21 | R319 |            |            |          |        |           |
|    | R320 |            |            |          |        |           |

## Case 2.2: Error Case – Terms Not Checked

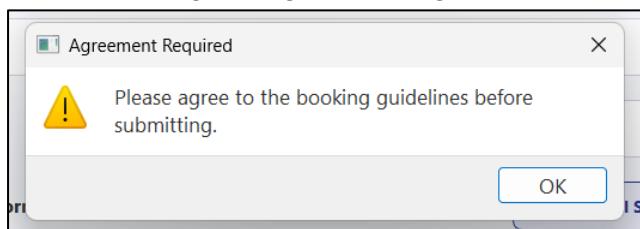
Input:

- Terms checkbox unchecked

A screenshot of a booking form. At the bottom, there is a checkbox labeled "I have read and agree to the booking guidelines". The checkbox is empty (unchecked).

Expected Output:

- Warning message: "Please agree to the booking guidelines before submitting."



## Case 2.3: Error Case – Booking Time in the Past (Today)

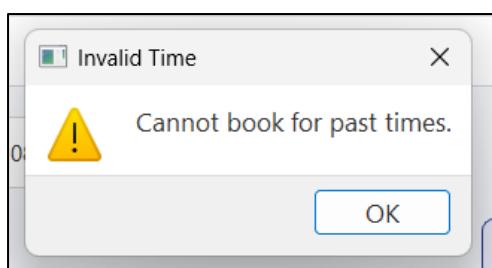
Input:

- Start or end time < current time for today

A screenshot of a booking form. The "Start Time:" field is set to "08:00", which is earlier than the current time of 6:17 PM. This field is highlighted with a red rectangle. Below it, the "End Time:" field is set to "10:00". The "Booking Date:" field shows "2025-09-14". Under "Student Information", the student ID is "24WMD0188" and the name is "Tong Tong Bond". At the bottom, there is a checkbox "I have read and agree to the booking guidelines" and a green "Submit Booking" button. The browser's taskbar at the bottom shows the date as "9/14/2025".

Expected Output:

- Warning: "Cannot book for past times."



## Case 2.4: Error Case – Duration Exceeds 2 Hours

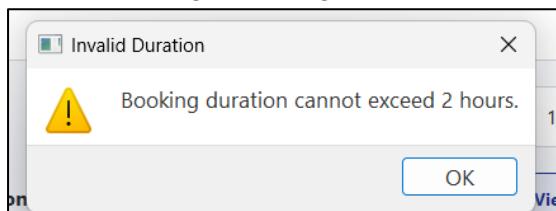
### **Input:**

- Start = 08:00, End = 11:00

|                    |       |        |                  |       |        |
|--------------------|-------|--------|------------------|-------|--------|
| <b>Start Time:</b> | 08:00 | ^<br>▼ | <b>End Time:</b> | 11:00 | ^<br>▼ |
|--------------------|-------|--------|------------------|-------|--------|

### **Expected Output:**

- Warning: "Booking duration cannot exceed 2 hours."



## Case 2.5: Error Case –Room Not Available

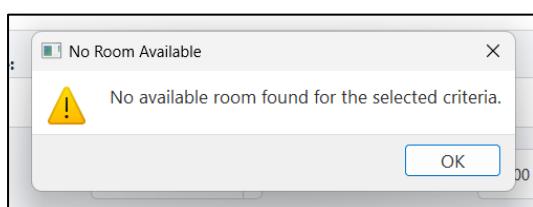
### **Input:**

- Selected capacity and features do not match any available room

|   |                        |
|---|------------------------|
| <b>Select Feature:</b>                                  | Discussion Room (2PCS) |
| <b>Number of Students (including yourself, max 10):</b> | 10                     |

### **Expected Output:**

- Warning: "No available room found for the selected criteria."



## Case 2.6: Error Case – Invalid Student IDs

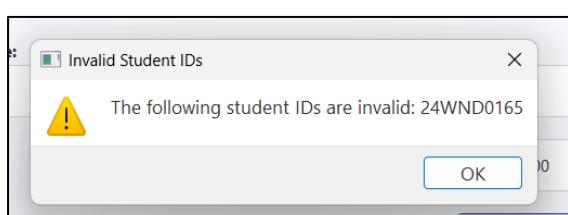
### **Input:**

- Enter a student ID that does not exist in the database

|                      |           |                        |                          |
|----------------------|-----------|------------------------|--------------------------|
| <b>Student 2 ID:</b> | 24WND0165 | <b>Student 2 Name:</b> | Name will auto-fill f... |
|----------------------|-----------|------------------------|--------------------------|

### **Expected Output:**

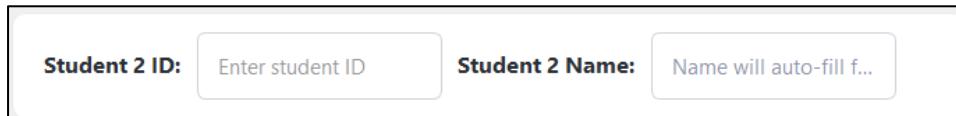
- Warning: "The following student IDs are invalid: ..."



## Case 2.7: Error Case – Missing Student ID Field

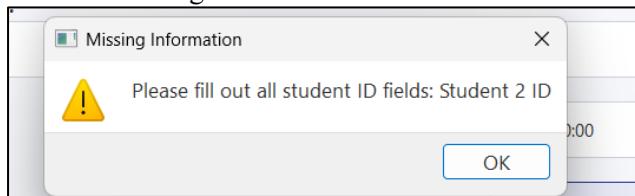
### **Input:**

- Leave additional student ID blank



### **Expected Output:**

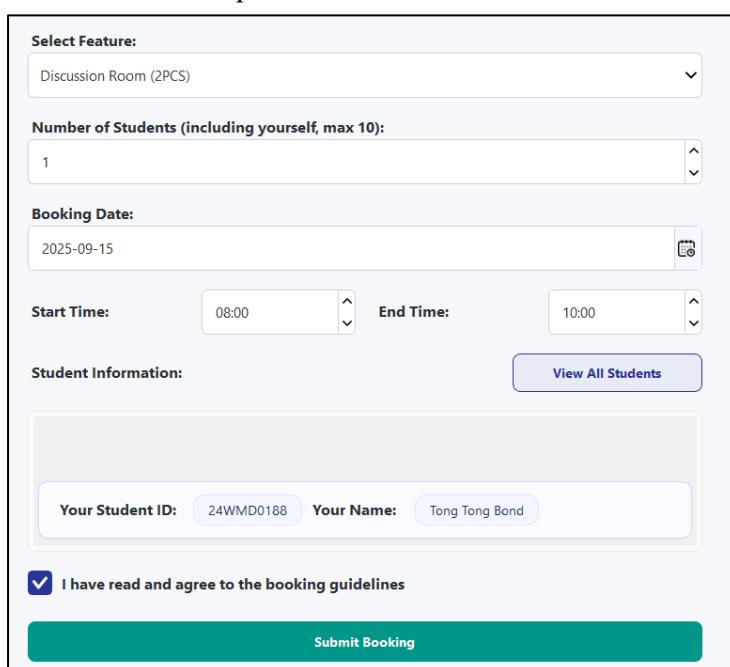
- Warning: "Please fill out all student ID fields: ..."



## Case 2.8: Error Case – Time Slot Already Booked

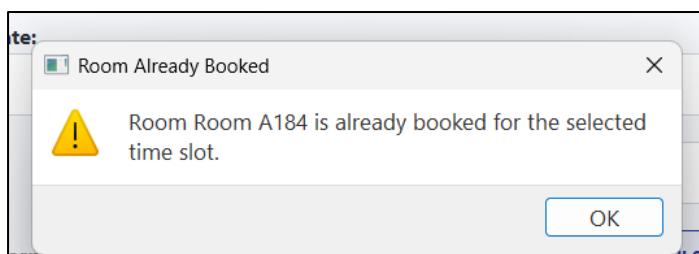
### **Input:**

- Selected room, date, and time overlap with an existing booking
- All other inputs valid



### **Expected Output:**

- Warning: "Room <Room Name> is already booked for the selected time slot."



# Case 3: My Booking Functionality Test

## Case 3.1: Success Case - View Bookings

### Input:

- User navigates to "My Bookings" page.

### Expected Output:

- All bookings for this location are displayed, including room name, date, time, status, and list of students. Current user is highlighted.

**My Bookings**

Room: Room A184  
Date: 2025-09-16  
Time: 08:00 - 10:00  
**Status: Booked**

Students in this booking:  
• Tong Tong Bond (24WMD0188) - You

Cancel Booking

Room: Room A181  
Date: 2025-09-15  
Time: 08:00 - 10:00  
**Status: Booked**

Students in this booking:  
• Tong Tong Bond (24WMD0188) - You

Cancel Booking

Room: Room A036  
Date: 2025-09-15  
Time: 08:00 - 10:00  
**Status: Booked**

Students in this booking:  
• Tong Tong Bond (24WMD0188) - You

Cancel Booking

Back

## Case 3.2: Success Case - Cancel Own Booking

### Input:

- User is the creator of a booking with status "booked" and clicks "Cancel Booking", confirms with Yes.

### Expected Output:

- Booking status updated to "Cancelled"
- Success message shown: "Booking cancelled successfully!"
- Bookings list refreshes to reflect updated status

Success

Booking cancelled successfully!

OK

**My Bookings**

Room: Room A184  
Date: 2025-09-16  
Time: 08:00 - 10:00  
**Status: Cancelled**

Students in this booking:  
• Tong Tong Bond (24WMD0188) - You

### Case 3.3: Error Case - Cancel Booking as Participant

#### **Input:**

- User is not the creator of a booking but participant.

#### **Expected Output:**

- No cancel button available
- Participant label displayed: "(Participant)"

Room: Room A039  
Date: 2025-09-15  
Time: 08:00 - 10:00  
(Participant)  
Status: Booked  
Students in this booking:  
• Tong Tong Bond (24WMD0188)  
• Eun Eun Bond (24WMD0624) - You

Room: Room A039  
Date: 2025-09-15  
Time: 08:00 - 10:00  
Status: Booked  
Students in this booking:  
• Tong Tong Bond (24WMD0188) - You  
• Eun Eun Bond (24WMD0624)

**Cancel Booking**

### Case 3.4: Error Case - No Bookings Exist

#### **Input:**

- User has no bookings for this location.

#### **Expected Output:**

- Label displayed: "You don't have any bookings for this location yet."

≡ TARUMT Student Assistant App

My Bookings

You don't have any bookings for this location yet.

Back

## Case 4: Error Case – Time Slot Already Booked (Timetable)

### Precondition:

- A room has an existing booking for the selected date and time slot.

|                                    |                         |                            |                       |
|------------------------------------|-------------------------|----------------------------|-----------------------|
| <b>Room:</b> Room C288             | <b>Date:</b> 2025-09-16 | <b>Time:</b> 12:30 - 13:00 | <b>Status:</b> Booked |
| <b>Cancel Booking</b>              |                         |                            |                       |
| <b>Students in this booking:</b>   |                         |                            |                       |
| • Tong Tong Bond (24WMD0188) - You |                         |                            |                       |
| • Yu Yu Bond (24WMD0345)           |                         |                            |                       |
| • Eun Eun Bond (24WMD0624)         |                         |                            |                       |

### Input:

- User views the timetable for the same room and time slot that is already booked.

### Expected Output:

- The booked slot is displayed in red.
- Tooltip shows the booking status as “Booked”.
- User cannot select or click the booked time slot.

The screenshot shows the TARUMT Student Assistant App interface. At the top, there's a blue header bar with the title "TARUMT Student Assistant App". Below it, a sub-header says "Timetable: Cyber Centre Discussion Room". The main area is a grid-based timetable. The columns represent time slots from 11:30 to 15:00. The rows list various rooms: Room C209, Room C210, Room C211, Room C212, Room C213, Room C285, Room C286, Room C287, Room C288, and Room C289. Most slots are green, indicating availability. However, for Room C288 at 12:30, the slot is red, indicating it is booked. A tooltip appears over this red slot, providing details: "Room: Room C288", "Capacity: 5", "Feature: Discussion Room (2PCS)", and "Status: Booked". At the bottom of the screen, there's a blue footer bar with a "Back" button.

## Case 5: GPA calculator Functionality Test

### Case 5.1: Success Case - User calculate with Valid Input

Input:

- Enter Current CGPA and Credits Completed in the correct format and datatype.

**Current Academic Status**

|                    |      |
|--------------------|------|
| Current CGPA:      | 3.75 |
| Credits Completed: | 35   |

- Enter Course Name as a string.
- Select Credits within the valid range (1–10).
- Select Grade properly from the drop-down list.

**Courses**

| Course Name | Credits | Grade |
|-------------|---------|-------|
| Algebra     | 3       | A+    |
| Calculus    | 3       | A     |
| Python      | 4       | B+    |

+ Add Course

Expected Result:

- The Results Panel updates dynamically, showing Semester GPA, CGPA, and Total Credits.

**Current Academic Status**

|                    |      |
|--------------------|------|
| Current CGPA:      | 3.75 |
| Credits Completed: | 35   |

**Results**

|                  |      |
|------------------|------|
| Semester Credits | 10   |
| GPA              | 3.67 |
| Total Credits    | 45   |
| CGPA             | 3.73 |

**Courses**

| Course Name | Credits | Grade |
|-------------|---------|-------|
| Algebra     | 3       | A+    |
| Calculus    | 3       | A     |
| Python      | 4       | B+    |

+ Add Course

## Case 5.2: Success Case - User save calculation

### Input:

- Valid courses entered, click Save My Calculation Button

### Expected Result:

- Message confirms calculation saved, appears in View History.

| Date             | Semester Credits | Semester GPA | Total Credits | Current CGPA | Previous CGPA     | Actions                  |
|------------------|------------------|--------------|---------------|--------------|-------------------|--------------------------|
| 2025-09-13 21:42 | 10               | 3.67         | 45            | 3.73         | 3.75 (35 credits) | <button>Details</button> |
| 2025-09-12 15:34 | 9                | 3.74         | 39            | 3.35         | 3.23 (30 credits) | <button>Details</button> |
| 2025-09-10 17:20 | 10               | 3.33         | 32            | 3.24         | 3.20 (22 credits) | <button>Details</button> |
| 2025-09-10 14:28 | 8                | 3.33         | 58            | 3.24         | 3.22 (50 credits) | <button>Details</button> |
| 2025-09-10 14:25 | 7                | 3.52         | 57            | 3.26         | 3.22 (50 credits) | <button>Details</button> |
| 2025-09-10 14:16 | 9                | 3.63         | 29            | 3.35         | 3.23 (20 credits) | <button>Details</button> |
| 2025-09-09 18:42 | 7                | 3.71         | 42            | 3.79         | 3.80 (35 credits) | <button>Details</button> |
| 2025-09-09 18:34 | 7                | 3.28         | 52            | 3.69         | 3.75 (45 credits) | <button>Details</button> |
| 2025-09-07 20:53 | 9                | 4.00         | 31            | 3.22         | 2.90 (22 credits) | <button>Details</button> |
| 2025-09-07 20:53 | 8                | 3.42         | 20            | 3.29         | 3.21 (12 credits) | <button>Details</button> |

## Case 5.3: Success Case - User reset calculation

### Input:

- Click Reset Button and click Yes to confirm.

### Expected Result:

- All fields cleared, form returns to default state.

| Course Name | Credits | Grade |
|-------------|---------|-------|
| Course name | 0       | A+    |
| Course name | 0       | A+    |
| Course name | 0       | A+    |

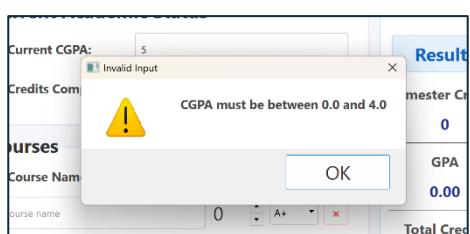
## Case 5.4: Error Case - User calculate with Invalid Input

**Input:**

- Enter Current CGPA higher than 4.0.

**Expected Result:**

- Validation message appears: "CGPA must be between 0.00 and 4.00.".



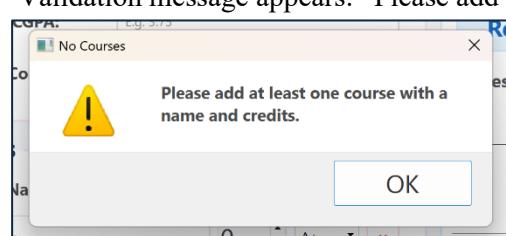
## Case 5.5: Error Case - When user does not enter Course and Credits

**Input:**

- Calculate without enter course name

**Expected Result:**

- Validation message appears: "Please add at least one course with a name and credits.".



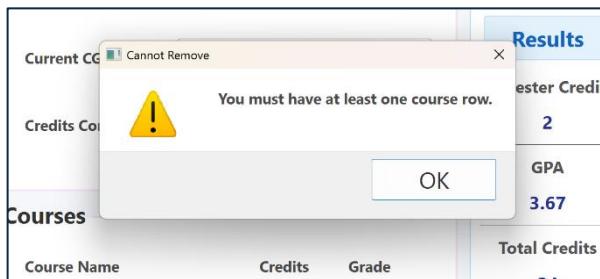
## Case 5.6: Error Case - When user remove all course

**Input:**

- Click ‘X’ Button repeatedly until all courses are removed.

**Expected Result:**

- Validation message appears: “You must have at least one course row”.



## Case 6: Goal History Functionality Test

### Case 6.1: Success Case - Calculate required GPA with valid inputs

#### Input:

- Current CGPA = 3.2, Credits = 60, Target = 3.5, Next Credits = 15.

| Input Parameters       |     |
|------------------------|-----|
| Current CGPA:          | 3.2 |
| Completed Credits:     | 60  |
| Target CGPA:           | 3.5 |
| Next Semester Credits: | 15  |

#### Expected Result:

- Result panel shows required GPA and scenario analysis text.

| Results   |  |
|---|--|
| <b>Required GPA: 4.00</b>   |  |
| To reach your target CGPA of 3.50, you need to get a GPA of 4.00 in your next semester. |  |
| ⌚ Challenging but possible! Plan for dedicated study time                               |  |

### Case 6.2: Error Case - User missing input field

#### Input:

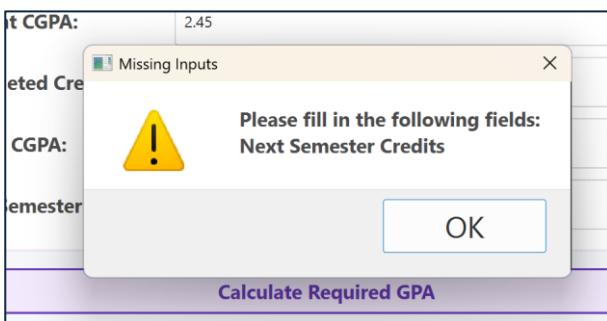
- Leave “Next Semester Credits” blank

| Input Parameters       |         |
|------------------------|---------|
| Current CGPA:          | 2.45    |
| Completed Credits:     | 22      |
| Target CGPA:           | 2.50    |
| Next Semester Credits: | E.g. 15 |

**Calculate Required GPA**

#### Expected Result:

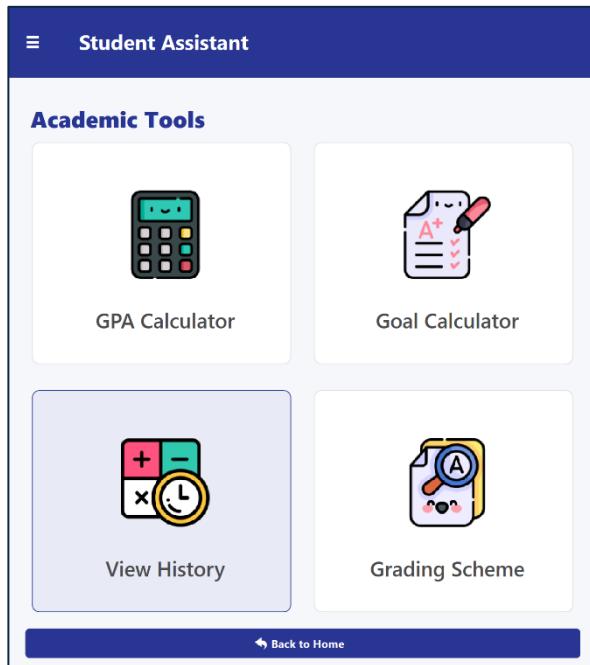
- Validation message appears: “Please fill in the following fields. Next Semester Credits”



## Case 7: Success Case - User open history page (View History)

Input:

- Click View History button



Expected Result:

- Table of past saved calculations is displayed.

| Date             | Semester Credits | Semester GPA | Total Credits | Current CGPA | Previous CGPA     | Actions                  |
|------------------|------------------|--------------|---------------|--------------|-------------------|--------------------------|
| 2025-09-13 21:42 | 10               | 3.67         | 45            | 3.73         | 3.75 (35 credits) | <button>Details</button> |
| 2025-09-12 15:34 | 9                | 3.74         | 39            | 3.35         | 3.23 (30 credits) | <button>Details</button> |
| 2025-09-10 17:20 | 10               | 3.33         | 32            | 3.24         | 3.20 (22 credits) | <button>Details</button> |
| 2025-09-10 14:28 | 8                | 3.33         | 58            | 3.24         | 3.22 (50 credits) | <button>Details</button> |
| 2025-09-10 14:25 | 7                | 3.52         | 57            | 3.26         | 3.22 (50 credits) | <button>Details</button> |
| 2025-09-10 14:16 | 9                | 3.63         | 29            | 3.35         | 3.23 (20 credits) | <button>Details</button> |
| 2025-09-09 18:42 | 7                | 3.71         | 42            | 3.79         | 3.80 (35 credits) | <button>Details</button> |
| 2025-09-09 18:34 | 7                | 3.28         | 52            | 3.69         | 3.75 (45 credits) | <button>Details</button> |
| 2025-09-07 20:53 | 9                | 4.00         | 31            | 3.22         | 2.90 (22 credits) | <button>Details</button> |
| 2025-09-07 20:27 | 8                | 3.42         | 20            | 3.29         | 3.21 (12 credits) | <button>Details</button> |

## Case 8: Filtration Notes Functionality Test

### Case 8.1: Success Case – Filter by title

#### Input:

- User types 'project' in Search, either in All Notes or current folder.

The screenshot shows the TARUMT Student Assistant App interface. At the top, there is a search bar with the text 'project'. Below the search bar are two buttons: 'List' and 'Grid'. On the left side, there is a sidebar titled 'Dashboard' with three categories: 'All Notes' (selected), 'Uncategorized', and 'Animal'. The main area displays a table with one row. The table has columns for 'Name' and 'Date Modified'. The single entry is 'project123' with the date '2025-09-15 04:30:02'. At the bottom of the screen, it says '1 note(s)' and there is a 'Back to Home' button.

#### Expected Output:

- Only notes with "project" in the title are displayed and the status shows the correct count.

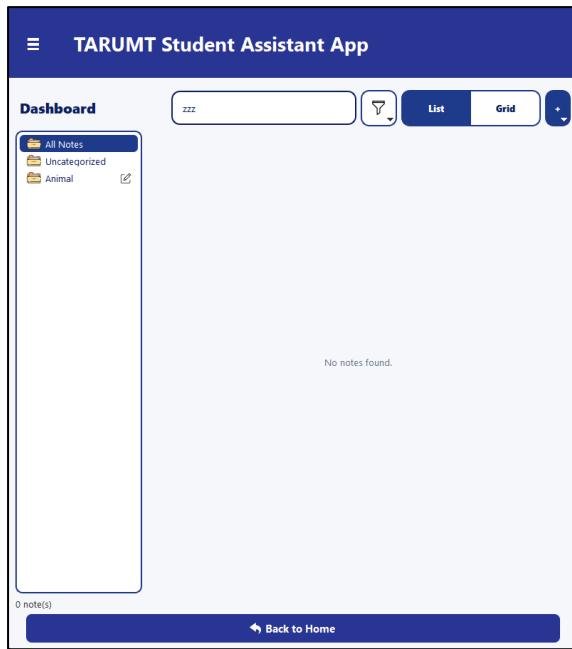
| Name       | Date Modified       |   |
|------------|---------------------|---|
| project123 | 2025-09-15 04:30:02 | ⋮ |

**1 note(s)**

## Case 8.2: Error Case — No matching title found

**Input:**

- User types ‘zzz’ which results in a no match.



**Expected Output:**

- List is empty; label shows “No notes found.” which its status shows 0 note(s).

No notes found.  
0 note(s)

## Case 8.3: Success Case — Filter by Date from Newest to Oldest

### **Input:**

- User clicks the Filter button and chooses to sort by date from newest to oldest.



### **Expected Output:**

- Notes ordered by modified date, newest first.

| Name                           | Date Modified       |
|--------------------------------|---------------------|
| project123                     | 2025-09-15 04:30:02 |
| New Title 20255555555555555555 | 2025-09-15 03:48:44 |
| Untitled                       | 2025-09-15 03:31:17 |
| Cat                            | 2025-09-15 03:04:31 |
| Welcome to Your Notes App      | 2025-09-14 20:55:51 |

## Case 8.4: Success Case — Filter by Name from A to Z

### **Input:**

- User clicks the Filter button and chooses to sort by name from A to Z.



### **Expected Output:**

- Notes ordered alphabetically from A to Z.

The screenshot shows the TARUMT Student Assistant App dashboard. On the left, there is a sidebar with categories: "All Notes", "Uncategorized", and "Animal". The main area displays a list of notes in a table format. The columns are "Name" and "Date Modified". The notes are listed as follows:

| Name                           | Date Modified       |
|--------------------------------|---------------------|
| Cat                            | 2025-09-15 03:04:31 |
| New Title 20255555555555555555 | 2025-09-15 03:48:44 |
| project123                     | 2025-09-15 04:30:02 |
| Untitled                       | 2025-09-15 03:31:17 |
| Welcome to Your Notes App      | 2025-09-14 20:55:51 |

At the bottom of the sidebar, it says "5 note(s)". At the bottom of the main area, there is a "Back to Home" button.

## Case 8.5: Success Case — Switch to Grid View

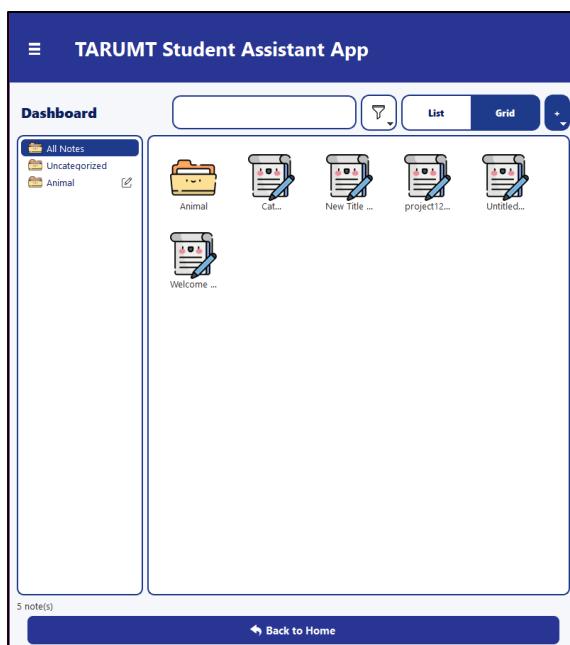
### **Input:**

- User clicks Grid.



### **Expected Output:**

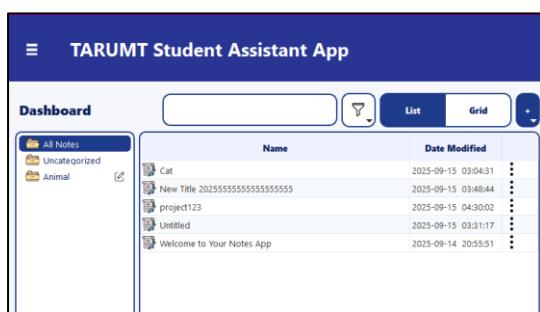
- Grid tiles show, the format is folders first, then notes.



## Case 8.6: Success Case — status text updates

### **Input:**

- User switch's view or search filter.



### **Expected Output:**

- Footer status shows the correct note(s) count.

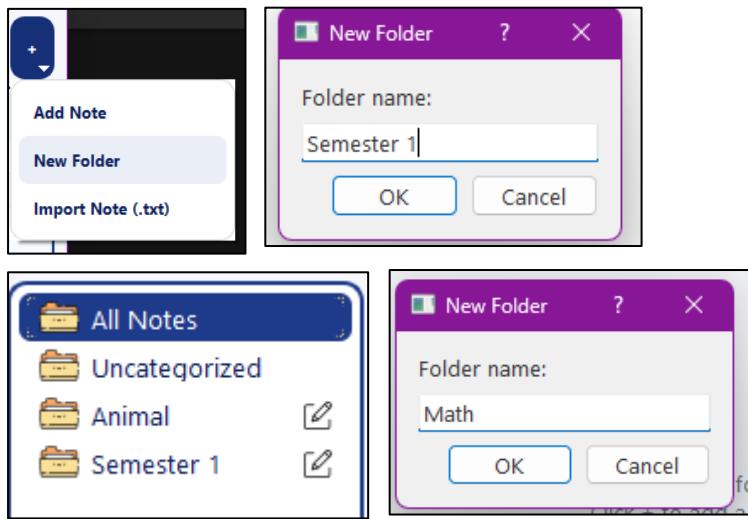


## Case 9: Folder Functionality Test — Create, Rename, Delete

### Case 9.1: Success Case — Create at Root or Inside Selected Folder

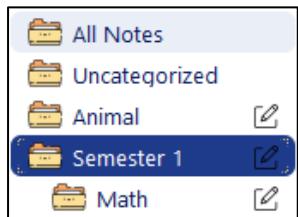
#### Input:

- With no folder selected, click “+ Add,” choose “New Folder,” and name it “Semester 1.”
- Select “Semester 1,” then click “+ Add,” choose “New Folder,” and name it “Math.”



#### Expected Output:

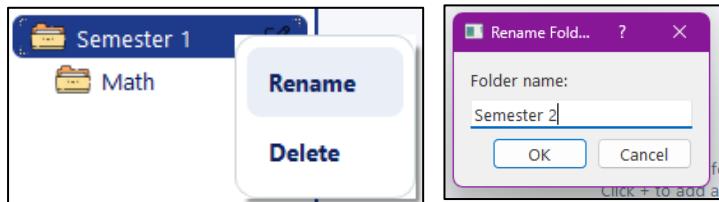
- New folder appears at the correct level.



### Case 9.2: Success Case — Rename with fewer than 50 characters

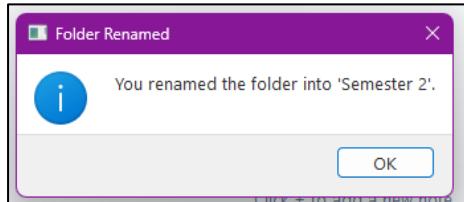
#### Input:

- Right-click the folder, select Rename, type Semester 2 to update the folder name, and press Enter.



#### Expected Output:

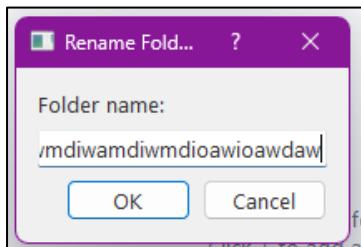
- Name updates; message “Folder Renamed”.



### Case 9.3: Error Case — Rename with more than 50 characters

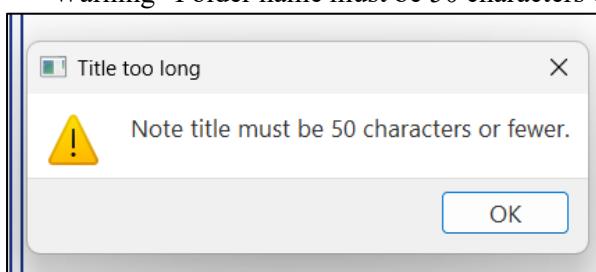
#### **Input:**

- Right-click the target folder to open its context menu, Choose “Rename.”
- Type a new name with at least 51 characters or more and press Enter.



#### **Expected Output:**

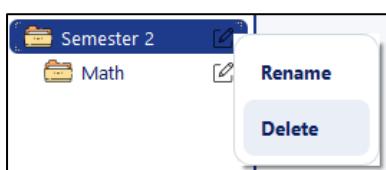
- Warning “Folder name must be 50 characters or fewer” appears, and no change is made.



### Case 9.4: Success Case — Delete Folder

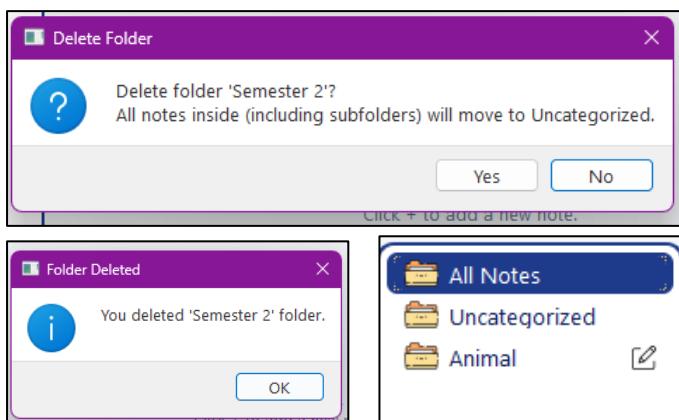
#### **Input:**

- Right-click the folder, choose Delete, and confirm by clicking Yes.



#### **Expected Output:**

- All notes in that folder and its subfolders are moved to Uncategorized, the subtree is removed, and the message “Folder Deleted” is displayed.

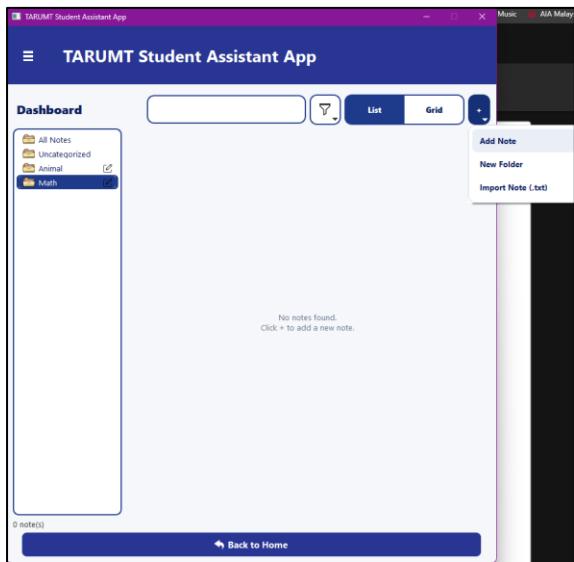


## Case 10: Notes and More Menu Create, Open, Rename, Delete

### Case 10.1: Success Case — Create and Open

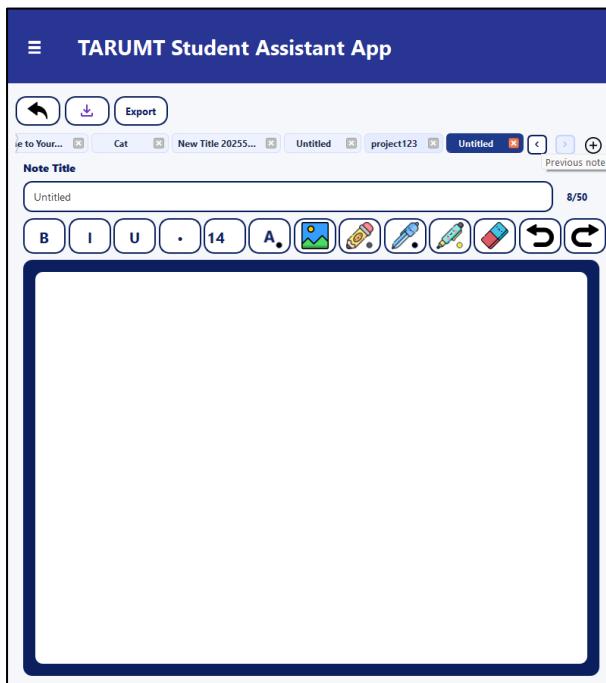
**Input:**

- Select the target folder like, Math, then click + Add and choose Add Note, or open an existing note instead.



**Expected Output:**

- New Untitled note appears in that folder and opens in a tab while existing note opens in a tab.

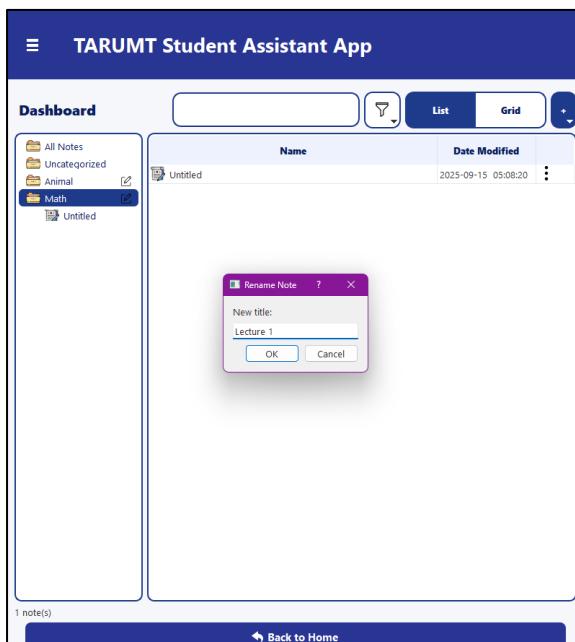


### **Case 10.2: Success Case — Rename note with 50 characters or fewer**

---

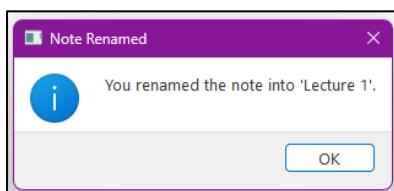
**Input:**

- Right-click the note, select Rename, type Lecture 1, and press Enter.



### **Expected Output:**

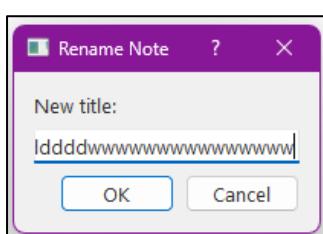
- Title updates with message “Note Renamed.”



### Case 10.3: Error Case — Rename note with more than 50 characters

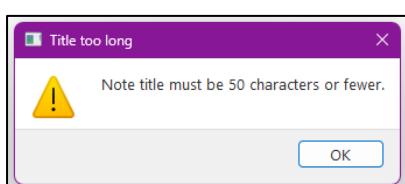
## Input:

- Right-click the note, select Rename, enter at least 51 characters, and press Enter.



### **Expected Output:**

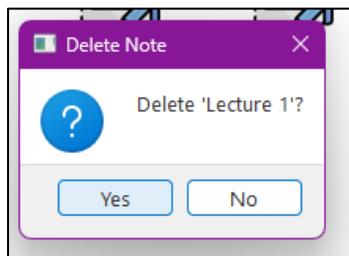
- Warning “Note title must be 50 characters or fewer” appears, and no change is made.



## **Case 10.4: Success Case — Delete Confirmed**

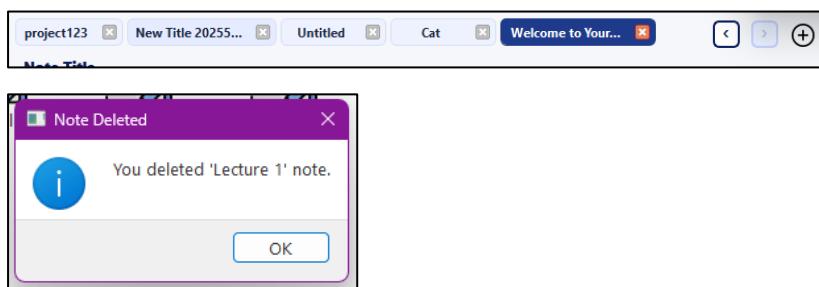
### **Input:**

- Open the three-dot menu or right-click the note, choose Delete, then click Yes to confirm.



### **Expected Output:**

- The note is removed, and if it is open its tab closes, and a confirmation appears.

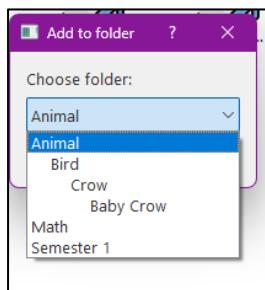


## **Case 11: Note Functionality Test — Move, Import, and Export**

### **Case 11.1: Success Case — Move Note to Folder**

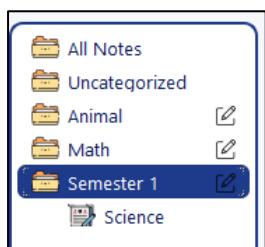
### **Input:**

- Open the three-dot menu, select Add 'Science' to folder..., and choose Semester 1..



### **Expected Output:**

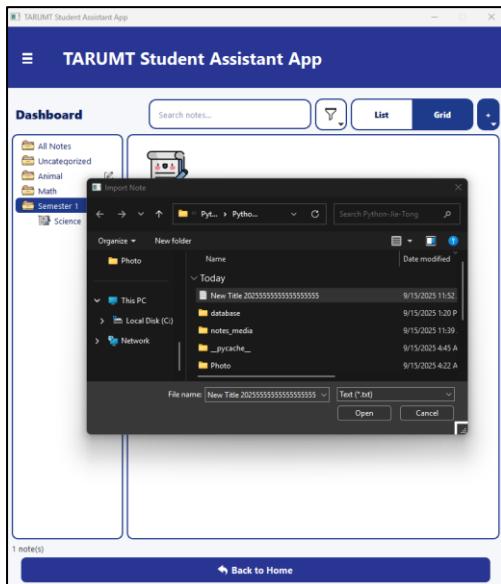
- Note appears under Semester 1.



## Case 11.2: Success Case — Import TXT Files into Notes

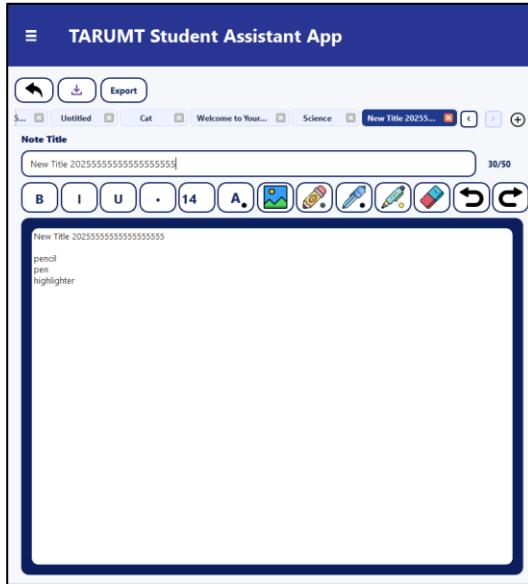
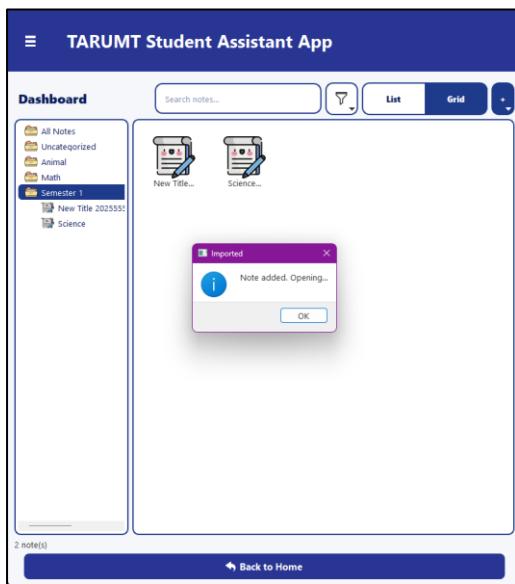
### **Input:**

- Click + Add button, select Import Note (.txt), and choose the file formula.txt.



### **Expected Output:**

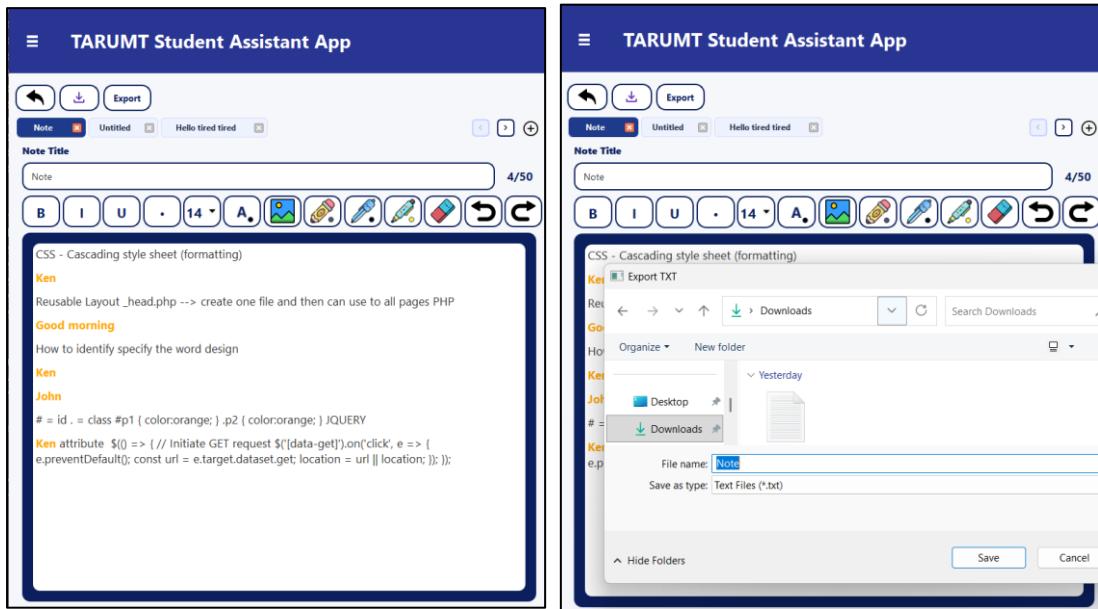
- A new note is created with a title taken from the file name (e.g., formula), the message “Note added. Opening...” appears, and the note editor opens.



### Case 11.3: Success Case — Export TXT Files into Notes

#### **Input:**

- Click Export as TXT, then choose the save path.



#### **Expected Output:**

- The TXT file is saved with the note's title and plain text, and the message "TXT file saved." appears.

