DOCUMENTATION

Guide to use the chemistry Inventory Management System
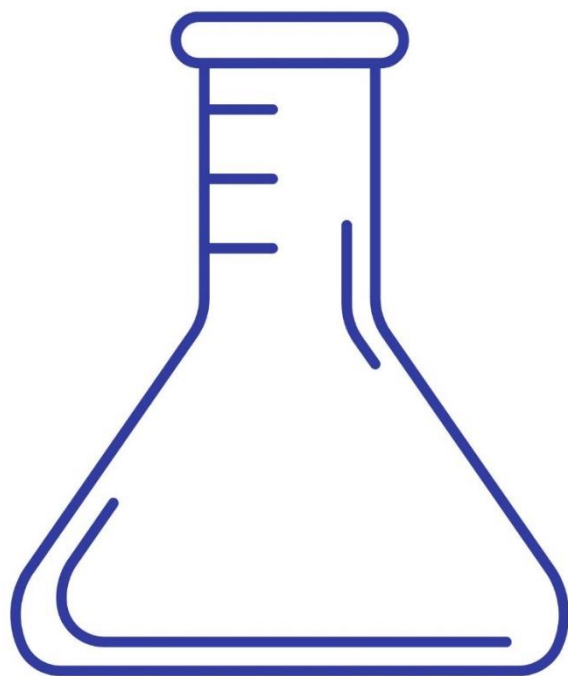
labify

OVERVIEW

Labify is a Chemistry Inventory Management System developed to modernize inventory tracking in the Chemistry Department of Mar Ivanios College by replacing manual log books. Created by Computer Science students, the software runs on PCs and is built using Python with a PyQt framework for GUI development. Labify features a login page for security and allows users to manage inventory, including glassware, chemicals, and equipment. Key functionalities include creating, editing, removing, and restocking inventory entries, as well as moving chemicals between store locations and labs. Additional features include transaction history and alert notifications. The system differentiates between admin and standard users, with admins having full control over the software, all designed with a focus on ease of use.
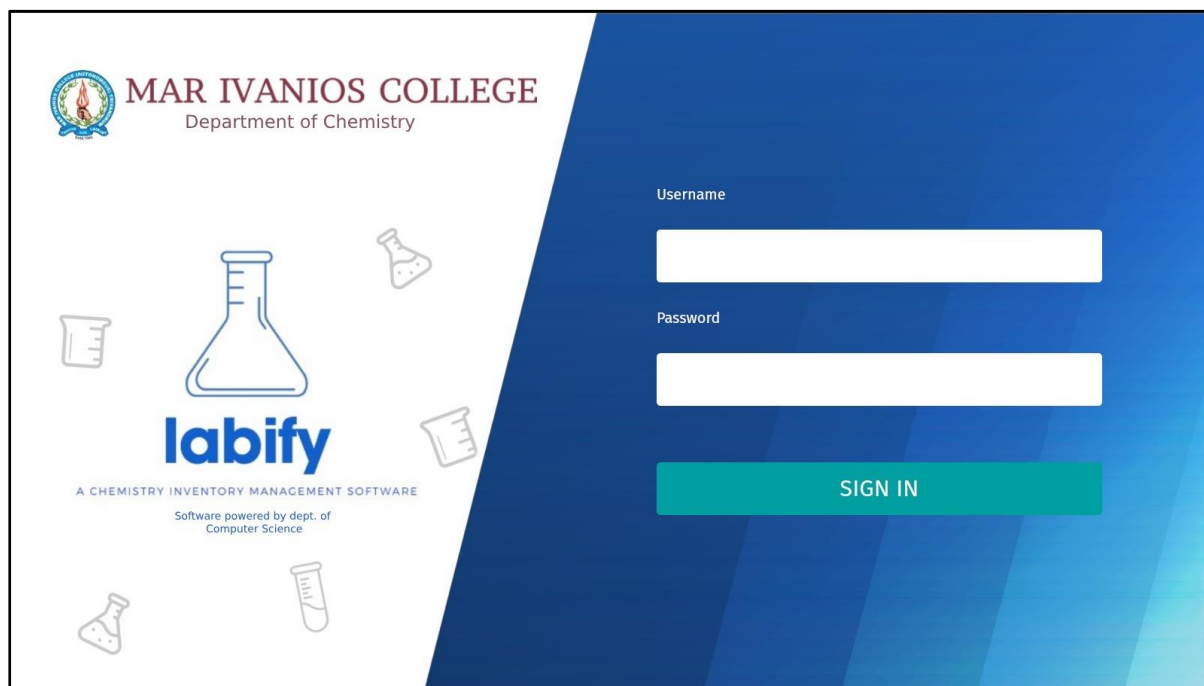
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LOGIN PAGE

When the app is launched, users are greeted with a login screen. This page allows both admin and standard users to access the dashboard by entering their credentials.

The username should be entered in the username field and the password in the password field. After inputting your credentials, click the 'SIGN IN' button or press Enter on your keyboard to access the dashboard.

If you attempt to log in with blank credentials, an error dialog box will appear, indicating that the required information is missing and highlighting the field in red. Click 'OK' to close the dialog box.
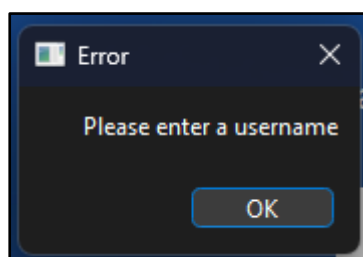
If you try to log in with incorrect credentials, you will not be granted access, and an error dialog box will appear indicating that the credentials are incorrect. Click 'OK' to close the dialog box.
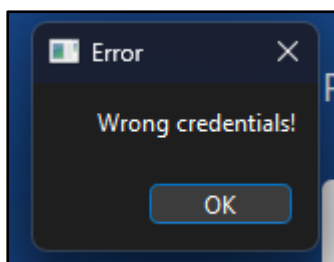
ADMIN DASHBOARD

The software offers an admin dashboard for admin users and a standard dashboard for standard users, depending on the login credentials.

This is the Admin dashboard of the Labify software for the Admin users

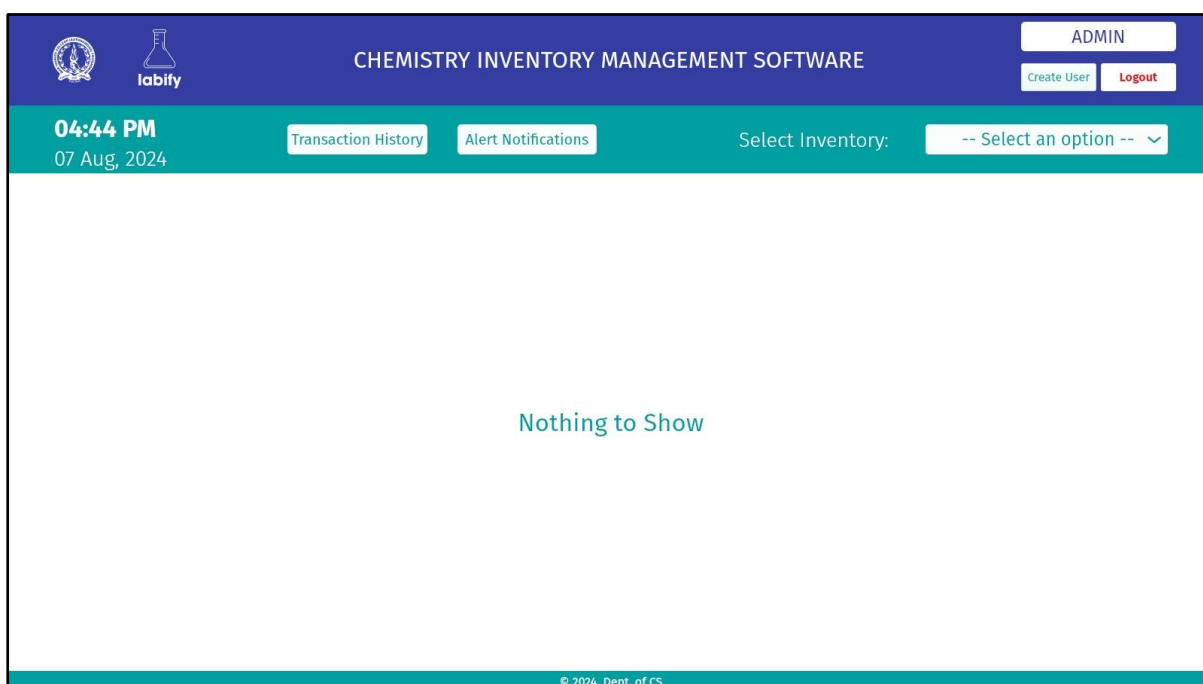The top section of the software, featuring a blue background, displays the Mar Ivanios College logo on the left, followed by the Labify logo, the software title in the center, and on the top right, a user name bar, a 'Create User' button, and a 'Logout' button.
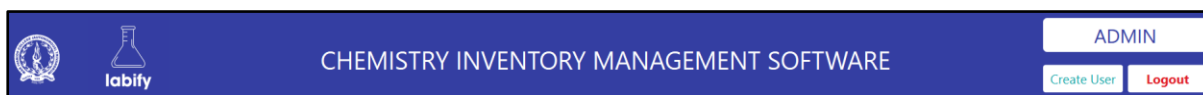
The 'Create User' button allows admins to access the user creation page for adding new standard users, while the 'Logout' button logs the user out and returns them to the Login page.

Below this, the green-background section shows the current time and date on the left, and features buttons for 'Transaction History' and 'Alert Notifications,' as well as a dropdown menu for selecting the type of inventory on the right.

Clicking the 'Transaction History' button navigates to the Transaction History page, while the 'Alert Notifications' button leads to the Alert Notifications page. The dropdown menu includes options for 'Glassware,' 'Chemical-Salt,' 'Chemica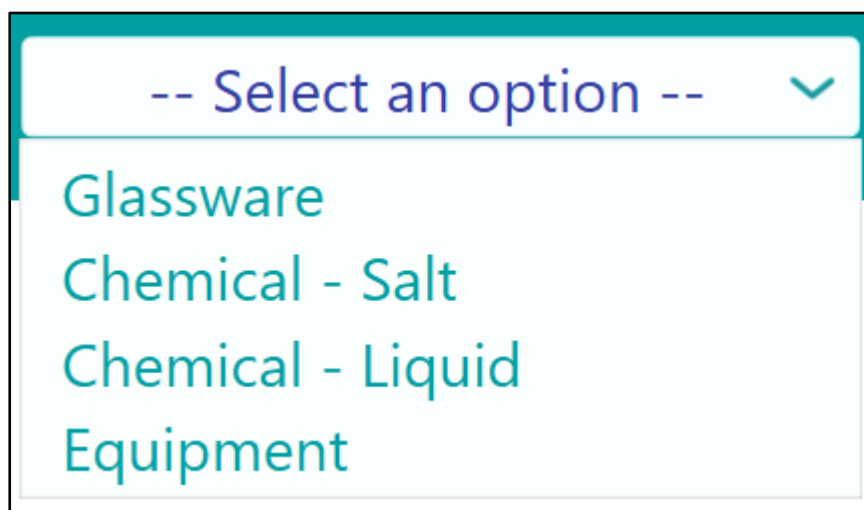l-Liquid,' and 'Equipment.' Selecting an option will display the corresponding module in the middle section of the software.

The middle section updates to show content based on the selected options. Initially, it displays "Nothing to Show" until an inventory option is chosen from the dropdown.
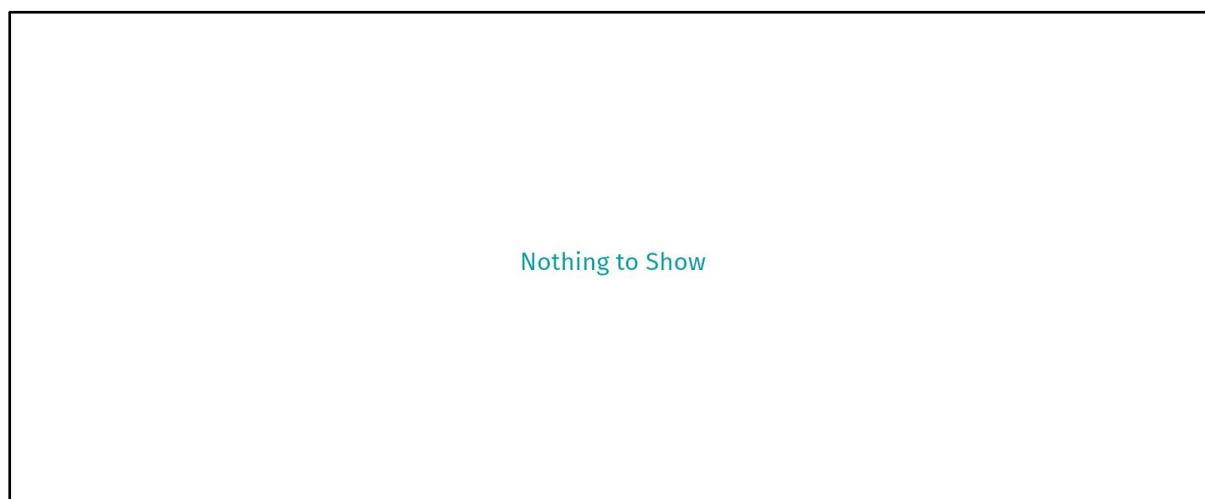
The bottom portion of the software includes copyright information.

NAVIGATING INVENTORY

When an inventory option is selected, the middle section of the software updates to show various options for managing that inventory.

INVENTORY LIST

In the middle section of the software, a table displays all items of the selected inventory type. The table includes fields such as 'CID' (the unique ID number for each item), 'Name' (the item's name), 'Qty' (the quantity of the item), and 'Store' (the storage location of the item).

When a cell in the table is clicked, it gets highlighted with a green background.

Users can navigate through the table by moving up or down using the scroll bars.

SEARCHING AN ITEM

Above the table, there is a search bar that allows users to search for items within the selected inventory type. To search, users simply type the item's name and click the search button or press Enter.

If the item is found, it appears in the table. If not, a dialog box will display "Item not found." Users can dismiss this dialog by pressing 'OK,' pressing Enter, or clicking the 'X' button on the dialog's title bar.
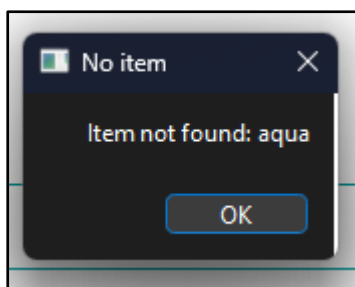
OPTIONS PANEL

On the left side of the middle section, the 'OPTIONS' panel provides various functions, including:

- **'Add New Item'**: To add a new item to the selected inventory type.
- **'Edit Existing Item'**: To modify the details of an existing item in the selected inventory type.
- **'Restock Item'**: To adjust the quantity of an existing item in the selected inventory type.
- **'Move Item'**: To relocate an item from the store to one of the labs.
- **'Remove Existing Item'**: To remove an item from the selected inventory type.

Select an Option to Enter.
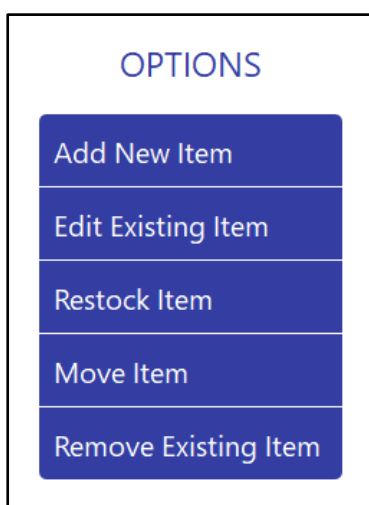
ADDING A NEW ITEM

Only the admin has the privilege to add new items.

To add a new item, click 'Add New Item' in the Options Panel. You will be directed to an interface where you can enter details for the new item, including its Name, Quantity (Qty), and Location.

Fill in the required fields and click the 'Add' button at the top. If all required details are entered correctly, a confirmation dialog will appear. Click 'Yes' to add the item to the database, or press Enter on your keyboard. Click 'No' to cancel the action.
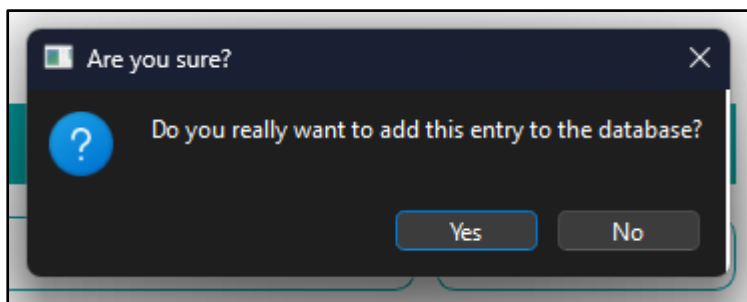
If you click 'Yes,' a success dialog will confirm that the item has been added to the database. Click 'OK' to close this dialog.
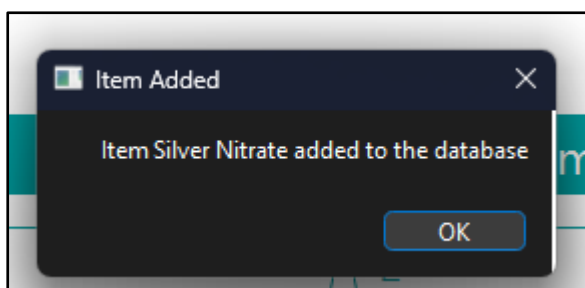
Note that the Qty field only accepts numbers; non-numeric entries will not be accepted. For chemicals in liquid form, the value is expressed in litres. For chemical salts, it is given in grams. For inventory and glassware, the quantity is measured in pieces.

If you try to click 'Add' without filling in all required fields, those fields will be highlighted in red, and the item will not be added.

If you attempt to add an item that is already in the database, clicking 'Yes' on the confirmation dialog will trigger a new dialog box that informs you the item already exists. Click 'OK' to close the dialog box.
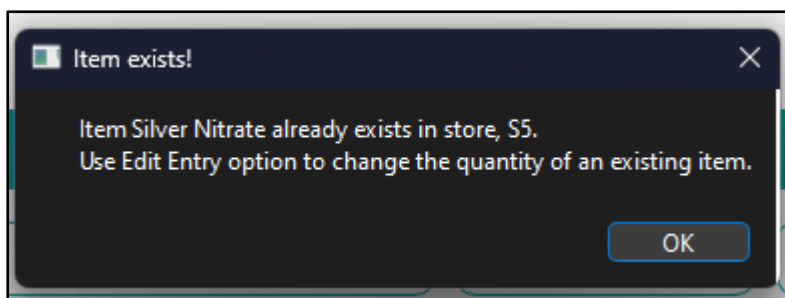
To return to the 'Item List' section, click the 'Go Back' button.

EDITING EXISTING ITEM

Only the admin user has the authority to modify existing items. To make changes, click 'Edit Existing Item' in the Options Panel. This will take you to an interface where you can select an item from the list to edit. You can update the 'Name,' 'Qty,' and 'Store' details of an item, but the 'CID' field cannot be altered.

To select an item for editing, click on the cell in the table; it will turn green, and a new section will appear at the bottom for entering updated values. Depending on what you select:

If editing the item name, the button will say 'Update Name.'

If editing the item quantity, the button will say 'Update Qty.'

If editing the item location, the button will say 'Update Location.'

EDIT EXISTING CHEMICAL | Search | Go Back

Click any cell of the table to select the item

CID	Name	Qty	Store
1	Acetanilide	250	S5
2	Aluminium Acetate	1000	S5
3	Aluminium fluroide	2500	S6
4	Aluminium Acetate	1000	S8
5	Aluminium Sulphate	3500	S9

Enter the new name for the selected item

New Name | Acetanilide | Update Name

EDIT EXISTING CHEMICAL | Search | Go Back

Click any cell of the table to select the item

CID	Name	Qty	Store
1	Acetanilide	250	S5
2	Aluminium Acetate	1000	S5
3	Aluminium fluroide	2500	S6
4	Aluminium Acetate	1000	S8
5	Aluminium Sulphate	3500	S9

Enter the new quantity of the selected item.

Acetanilide - New Qty(gram): | 250.0 | Update Qty

EDIT EXISTING CHEMICAL | Search | Go Back

Click any cell of the table to select the item

CID	Name	Qty	Store
1	Acetanilide	250	S5
2	Aluminium Acetate	1000	S5
3	Aluminium fluroide	2500	S6
4	Aluminium Acetate	1000	S8
5	Aluminium Sulphate	3500	S9

Enter the new location in the store for the selected item

New Location (Acetanilide): | S5 | Update Location

Enter the new value in the field and click the corresponding 'Update ..' button.

Enter the new name for the selected item

New Name | Aluminium Hydroxide | Update Name

If there are no issues, a confirmation dialog will appear. Click 'Yes' to confirm the update, or press Enter. Click 'No' to cancel the action.
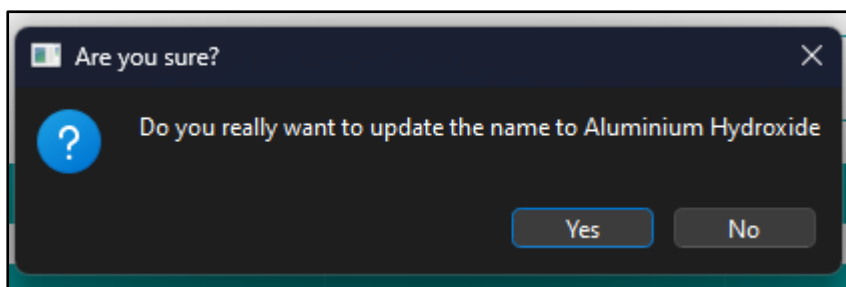
Upon clicking 'Yes,' a success message will confirm the update was successful. Click 'OK' to close this message.
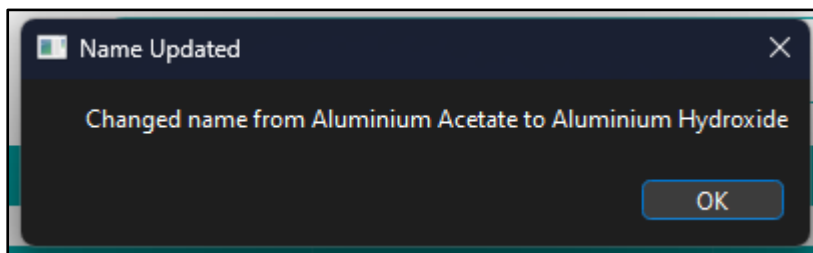
If you click the 'Update ..' button without changing the value in the field, an error message will appear asking to enter a new value. You cannot make an update without changing the value. Click 'OK' to close the message.
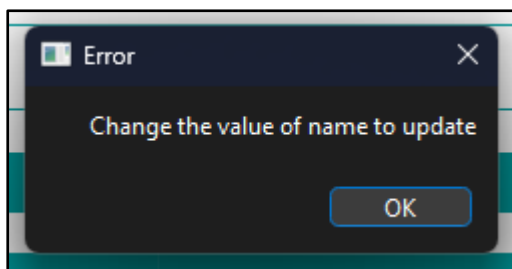
If the field is empty when you click the 'Update ..' button, the field will turn red and an error message will prompt you to enter a value. Click 'OK' to close this message.
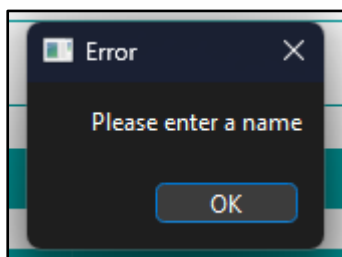
If an item already exists at the same location while editing, an error message will inform you of the duplicate. Click 'OK' to close this message.
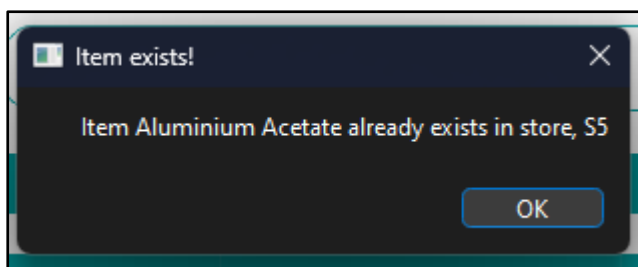
Please note that the Qty field accepts only numeric values; non-numeric entries will be rejected.

There is also a search bar at the top for locating an item before making edits. To search, type the item name and click the 'Search' button.

EDIT EXISTING CHEMICAL	Acetanilide		Search	Go Back

Click any cell of the table to select the item

CID	Name	Qty	Store
1	Acetanilide	250	S5
13	Acetamide	2250	S29
15	Aniline	4500	S33
85	Acetate	3	S4

To return to the 'Item List' section, click the 'Go Back' button.

RESTOCK ITEM

Only the admin user can restock existing items. The restock feature lets you either add to or subtract from the stock. To make changes, click 'Restock Item' in the Options Panel, which will take you to an interface where you can choose an item from the list to update.


RESTOCK CHEMICAL		Search	Go Back

Click any cell of the table to select the item

CID	Name	Qty	Store
4	Aluminium Acetate	1000	S8
5	Aluminium Sulphate	3500	S9
6	Ammonium acetate	1000	S10
7	Ammonium bromide	1000	S11
8	Ammonium carbonate	3500	S12
9	Ammonium ferrous sulphate	1000	S15
10	Ammonium metavanadate	300	S23

To select an item for restocking, click on a cell in the table corresponding to the item you want to adjust. The cell will turn green, and a new section will appear at the bottom for entering the amount.

You will see two buttons: 'Add Stock' and 'Remove Stock'. Clicking 'Add Stock' will increase the quantity by the entered amount, while 'Remove Stock' will decrease it.

Enter a value in the field for either adding or removing stock. Clicking 'Add Stock' will result in a dialog confirming the stock has been added. Click 'OK' to close the message.
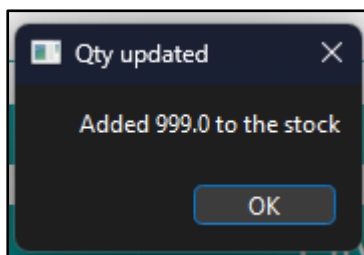
Similarly, clicking 'Remove Stock' will display a dialog confirming the stock has been removed. Click 'OK' to close this message.
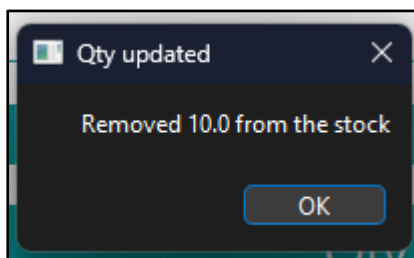
If the field is empty when you click either button, it will turn red and an error message will prompt you to enter a value. Click 'OK' to dismiss the message.
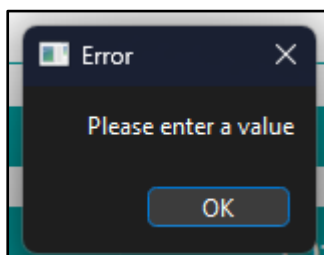
If you enter a value less than or equal to zero, a dialog will ask for a positive value. Click 'OK' to close this message.
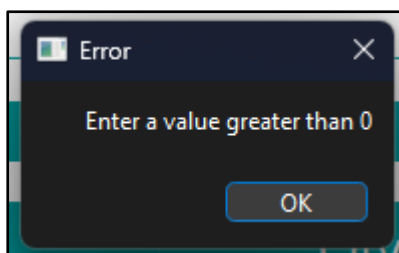
If you try to remove more stock than is available, an error dialog will indicate that the quantity exceeds the current stock. Click 'OK' to close this message.
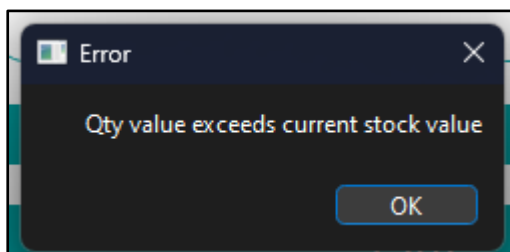
Only numeric values are accepted; non-numeric entries will be rejected.

There is also a search bar at the top to find an item before restocking. Enter the item name and click 'Search.'

| RESTOCK CHEMICAL | silver | Search | Go Back |

Click any cell of the table to select the item

CID	Name	Qty	Store
86	Silver Nitrate	2	S5

To return to the 'Item List' section, click the 'Go Back' button.

MOVE ITEM

Both admins and standard users have the ability to move items from the store to the lab. Here's how an item can be moved using the admin login. This feature allows you to transfer a specified amount of an item from the store to the lab for use. To start, click 'Move Item' in the Options Panel. This will open an interface where you can select an item from the list.

Keep in mind that in this context, "moving" refers to using an item in the lab.

To choose an item for transfer, click on the cell in the table for the item you wish to move. The cell will turn green, and a new section will appear at the bottom where you can enter the amount and select the lab.

There is a dropdown menu next to the Quantity field listing all the labs in the department. Select the appropriate lab where the item will be moved.

Enter the amount of stock to be transferred in the field. Clicking the 'Move Item' button will prompt a dialog confirming the transfer to the selected lab. Click 'OK' to close the confirmation message.


If the field is empty when you click the button, it will turn red, and an error message will appear prompting you to enter a value. Click 'OK' to close this message.

Entering a value less than or equal to zero will trigger a dialog requesting a positive number. Click 'OK' to close this message.

If you attempt to move more stock than is available, an error dialog will inform you that the quantity exceeds the current stock. Click 'OK' to close this message.

Only numeric values are accepted; non-numeric entries will be rejected. Use the search bar at the top to locate an item before moving it. Enter the item name and click 'Search.'

To return to the 'Item List' section, click the 'Go Back' button.

REMOVE EXISTING ITEM

Only administrators have the authority to remove existing items. To remove an item, click 'Remove Existing Item' in the Options Panel. This will take you to an interface where you can select an item from the list to delete.

CID	Name	Qty	Store
77	Mercuric Nitrate	100	S208
78	Maleic anhydride	500	S210
79	Petroleum jelly	450	S216
80	m-Dinitrobenzoic acid	200	S218
81	Phenyl benzoate	200	S222
82	Dichlorobenzene	3000	S224
83	Acetate	3	S4
84	Silver Nitrate	1	S5

REMOVE EXISTING CHEMICAL   Search   Go Back   Remove

Click any cell of the table to select the item

To choose an item for removal, click on the cell in the table corresponding to the item you want to delete. The cell will turn green.

CID	Name	Qty	Store
77	Mercuric Nitrate	100	S208
78	Maleic anhydride	500	S210
79	Petroleum jelly	450	S216
80	m-Dinitrobenzoic acid	200	S218
81	Phenyl benzoate	200	S222
82	Dichlorobenzene	3000	S224
83	Acetate	3	S4
84	Silver Nitrate	1	S5

REMOVE EXISTING CHEMICAL   Search   Go Back   Remove

Click any cell of the table to select the item

To proceed with the removal, click the 'Remove' button at the top. A confirmation dialog will appear asking if you want to delete the item from the database. Click 'Yes' to confirm the removal or press Enter. Click 'No' to cancel the action.

Are you sure?

Do you really want to delete Acetate from database?

Yes   No
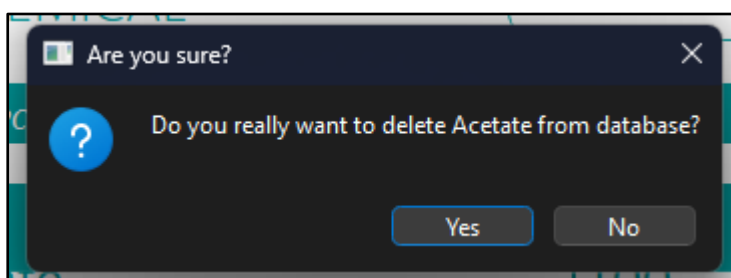
After clicking 'Yes,' a success message will confirm that the item has been successfully removed. Click 'OK' to close this message.
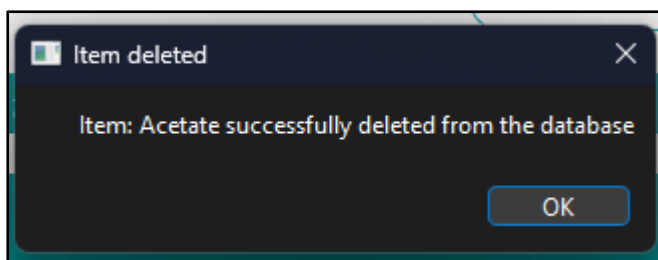
If you attempt to remove an item without selecting one, an error dialog will prompt you to select an item first. Click 'OK' to close this message.
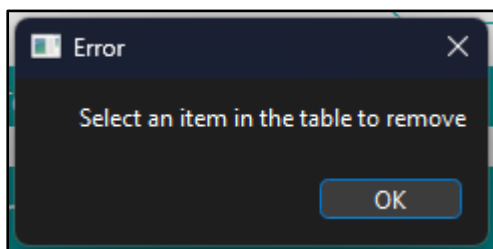
A search bar at the top allows you to locate an item before removing it. Enter the item name and click 'Search.'

To go back to the 'Item List' section, click the 'Go Back' button.

TRANSACTION HISTORY

The transaction history page is accessible to both the admin and standard users. The detailed transaction history is only for Admin users. This page features a table that logs all transactions conducted by users of the software. Transactions include adding stock, removing stock, and moving stock.

To access the transactions page, click the 'Transaction History' button in the software.

TRANSACTION HISTORY							
tid	date	time	user	name	qty	action	location
1	2024-08-22	01:03 PM	admin	Acetanilide	250	Moved To	S1 -> Main lab
2	2024-08-22	01:52 PM	admin	Aluminium Acetate	10	Added To	S5
3	2024-08-22	01:52 PM	admin	Aluminium Acetate	10	Taken From	S5
4	2024-08-22	01:54 PM	admin	Aluminium Acetate	1E+10	Added To	S5
5	2024-08-22	01:54 PM	admin	Aluminium Acetate	1E+10	Taken From	S5
6	2024-08-22	01:57 PM	admin	Aluminium Acetate	12	Added To	S5
7	2024-08-22	01:57 PM	admin	Aluminium Acetate	12	Taken From	S5
8	2024-08-22	01:57 PM	admin	Aluminium Acetate	12	Added To	S5

Here is what each field in the table represents:

'tid': Transaction ID

'date': The date when the transaction occurred

'time': The time when the transaction occurred

'user': The user who performed the transaction

'name': The item involved in the transaction

'qty': The quantity of the item that was added, removed, or moved

'action': The type of transaction—whether the item was added, removed, or moved

'location': The location where the transaction occurred

When you click on a cell in the table, it will be highlighted in green.

TRANSACTION HISTORY							
tid	date	time	user	name	qty	action	location
1	2024-08-22	01:03 PM	admin	Acetanilide	250	Moved To	S1 -> Main lab
2	2024-08-22	01:52 PM	admin	Aluminium Acetate	10	Added To	S5
3	2024-08-22	01:52 PM	admin	Aluminium Acetate	10	Taken From	S5
4	2024-08-22	01:54 PM	admin	Aluminium Acetate	1E+10	Added To	S5
5	2024-08-22	01:54 PM	admin	Aluminium Acetate	1E+10	Taken From	S5

ALERT NOTIFICATIONS

The Alert Notifications feature is available exclusively to admin users. This feature generates a pop-up notification when an inventory item falls below a predefined threshold. For glassware and general inventory, the threshold is set at 5 pieces; for liquid chemicals, it is 2.5 litres; and for chemical salts, it is 500 grams.

You can access these alert notifications through the notifications page on the computer system or via the 'Alert Notifications' page within the software. The software will display pop-up

notifications for all items that are below the threshold whenever logged in with an admin account.
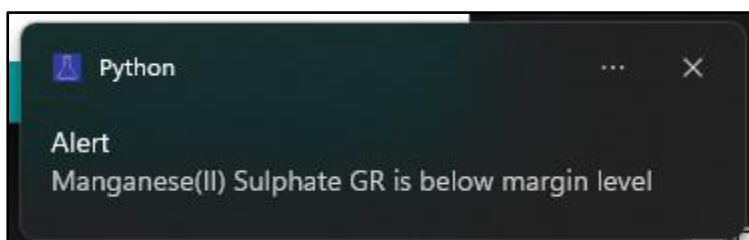
When an item is added and its quantity exceeds the threshold, it will no longer appear on the 'Alert Notifications' page.

To navigate to the transactions page, click the 'Alert Notifications' button within the software. All alert notifications are displayed in a tabular format.

ALERTS

CID	Name	Qty	Store
1	Acetanilide	175	S5
2	Aluminium Acetate	1	S5
3	Aluminium fluroide	1	S6
4	Ammonium metavanadate	300	S23
5	Ammonium Ferric Sulphate	500	S24
6	Ammonium borate	500	S28
7	Ammonium ...	500	S32
8	Ammonium cerium(IV) Sulphate	500	S55

Here is what each field in the table indicates:

'CID': Notification ID

'Name': Item name

'Qty': Current quantity of the item

'Store': Location of the item

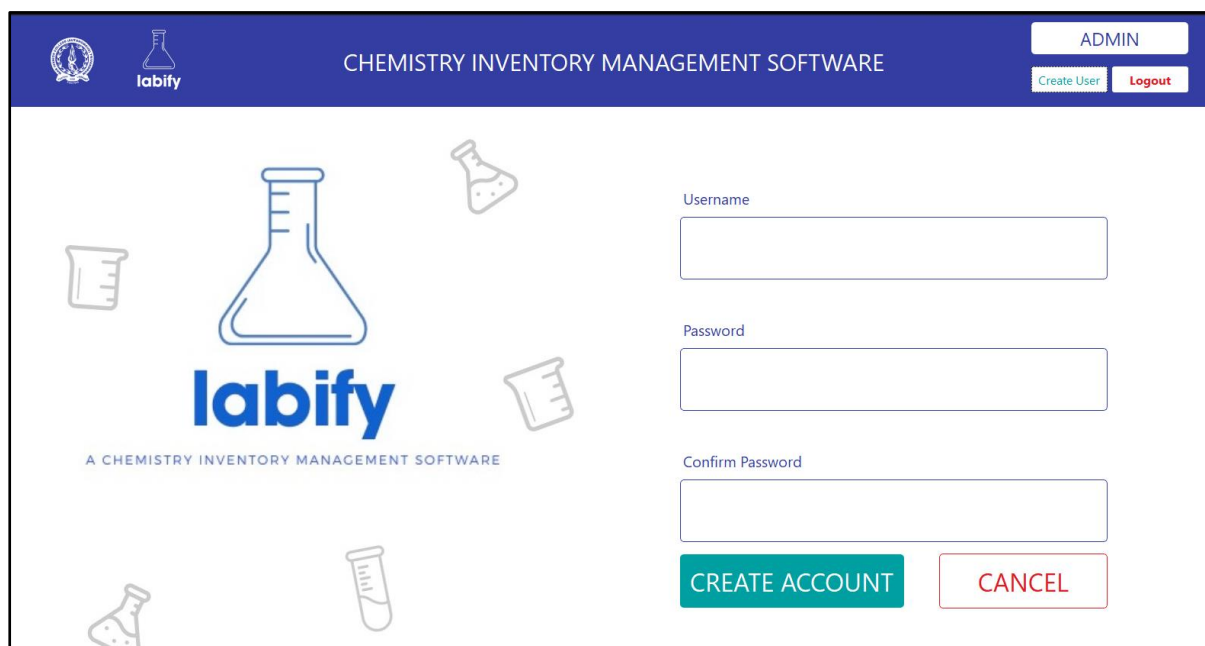Clicking on a cell in the table will highlight it in green.

ALERTS

| CID	Name	Qty	Store
1	Acetanilide	175	S5
2	Aluminium Acetate	1	S5
3	Aluminium fluroide	1	S6
4	Ammonium metavanadate	300	S23
5	Ammonium Ferric Sulphate	500	S24
6	Ammonium borate	500	S28
7	Ammonium ...	500	S32
8	Ammonium cerium(IV) Sulphate	500	S55

CREATING A NEW USER

Only admin users have the privilege to create new user accounts. New admin accounts cannot be created; only standard user accounts can be set up.

To create a new user, ensure you are logged in with an admin account. Then, click the 'Create User' option at the top of the software.


Enter the username, password, and password confirmation in the designated fields. By clicking the 'CREATE ACCOUNT' button at the bottom, a new standard account will be created with the provided details, provided there are no conflicts. If the account creation is successful, a dialog box will appear confirming this. Click 'OK' to close the dialog box, and you will be redirected to the previous page you were on.
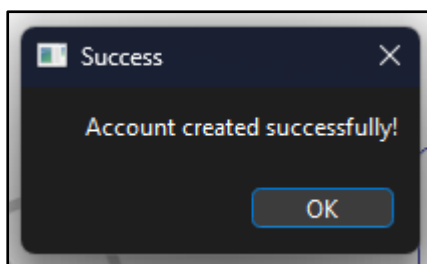
If you submit the form with blank credentials, an error dialog box will appear, prompting you to enter the required information, with the relevant fields highlighted in red. Click 'OK' to dismiss the dialog box.
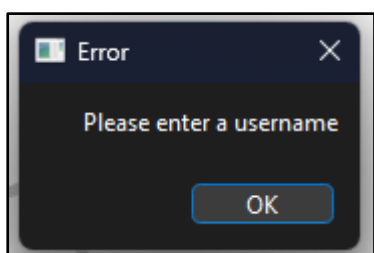
If an account already exists with the same username, the account will not be created, and an error message will appear stating that the account already exists. Click 'OK' to close the dialog box.
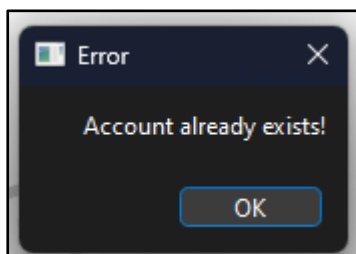
If the password and confirmation password fields do not match, an error dialog box will pop up indicating that the passwords do not match. Click 'OK' to close the dialog box.
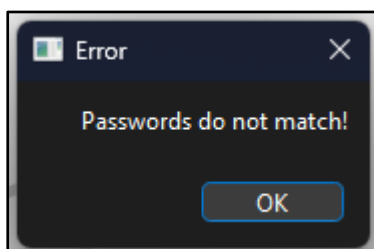
Clicking the 'CANCEL' button will cancel the account creation process, and you will be redirected to the previous page you were on.

STANDARD USER DASHBOARD

Standard users have limited functionality compared to admin user. Their capabilities include using the inventory and viewing transactions. Standard users are permitted to use only liquid and salt chemicals in the lab, a function similar to the move feature available in the admin dashboard. Additionally, standard users can only view transactions that they have personally completed, not those performed by other users. Log in using the credentials provided by the admin to access the standard user dashboard.

SEARCHING AN ITEM

Above the table, there is a search bar that allows users to search for items within the selected inventory type. To search, users simply type the item's name and click the search button or press Enter.

If the item is found, it appears in the table. If not, a dialog box will display "Item not found." Users can dismiss this dialog by pressing 'OK,' pressing Enter, or clicking the 'X' button on the dialog's title bar.

USING AN ITEM

The home interface allows you to transfer a specified amount of an item from the store to the lab for use. To start, select between 'Chemical-Liquid' or 'Chemical-Salt' from the top and then select an Item in the table by clicking any cell corresponding to the item in the table, which you want to use in a particular lab. The cell will turn green, and a new section will appear at the bottom where you can enter the amount and select the lab.

There is a dropdown menu next to the Quantity field listing all the labs in the department. Select the appropriate lab where the item will be used.

Enter the amount of stock to be used in the field. Clicking the 'Confirm' button will prompt a dialog confirming the usage in the selected lab. Click 'OK' to close the confirmation message.
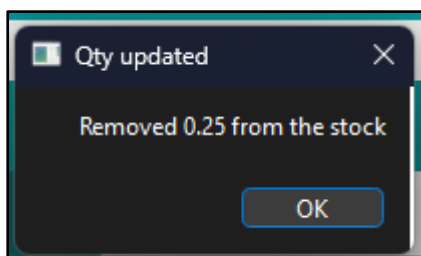
If the field is empty when you click the button, it will turn red, and an error message will appear prompting you to enter a value. Click 'OK' to close this message.
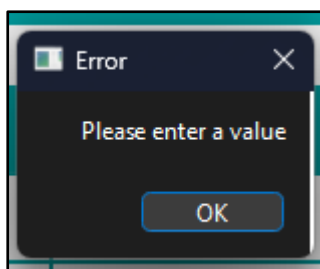
Enter the quantity of item used.

Acetylacetone - Qty(Litre): [   ]   **Used In Lab** [Main lab ▾]   [Confirm]

Entering a value less than or equal to zero will trigger a dialog requesting a positive number. Click 'OK' to close this message.

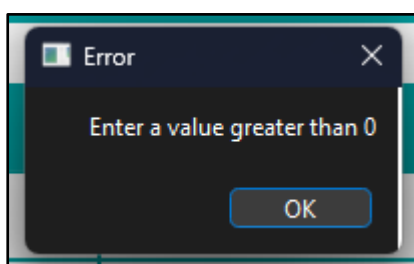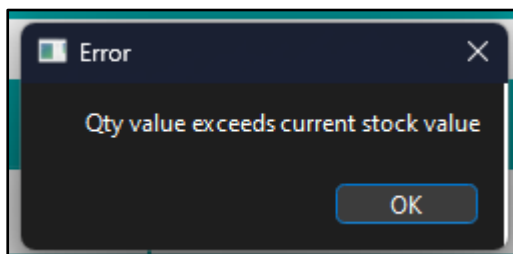If you attempt to move more stock than is available, an error dialog will inform you that the quantity exceeds the current stock. Click 'OK' to close this message.

Only numeric values are accepted; non-numeric entries will be rejected.

Use the search bar at the top to locate an item before moving it. Enter the item name and click 'Search.'

TRANSACTION HISTORY

The transaction history page for standard users is less detailed compared to the one available to Admin users. Standard users can only view their own transactions, whereas Admins have access to more comprehensive information. This page features a table that logs all chemical usage transactions conducted by the specific standard user of the software.

To access the transactions page, click the 'Transaction History' button in the software.

TRANSACTION HISTORY

tid	date	time	user	name	qty	action	location
27	2024-08-23	02:24 PM	hi	I-Propanol	0.2	Used In	Main lab
28	2024-08-23	02:24 PM	hi	Acetanilide	3	Used In	Main lab
30	2024-09-04	01:52 PM	hi	Chlorobenzene	1	Used In	Main lab
31	2024-09-04	02:00 PM	hi	Acetylacetone	0.25	Used In	Main lab

Here is what each field in the table represents:

'tid': Transaction ID

'date': The date when the transaction occurred

'time': The time when the transaction occurred

'user': The user who performed the transaction

'name': The item involved in the transaction

'qty': The quantity of the item that was added, removed, or moved

'action': The type of transaction— It only displays usage transactions, as that is the only action standard users are able to perform.

'location': The location where the transaction occurred

When you click on a cell in the table, it will be highlighted in green.

TRANSACTION HISTORY

tid	date	time	user	name	qty	action	location
1	2024-08-22	01:03 PM	admin	Acetanilide	250	Moved To	S1 -> Main lab
2	2024-08-22	01:52 PM	admin	Aluminium Acetate	10	Added To	S5
3	2024-08-22	01:52 PM	admin	Aluminium Acetate	10	Taken From	S5
4	2024-08-22	01:54 PM	admin	Aluminium Acetate	1E+10	Added To	S5
5	2024-08-22	01:54 PM	admin	Aluminium Acetate	1E+10	Taken From	S5

To return to the Home Page, click the 'Go Back' button.