

Stock Management System For a Bike Repair Shop (Using .NET)

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1. Introduction:

Product Overview:

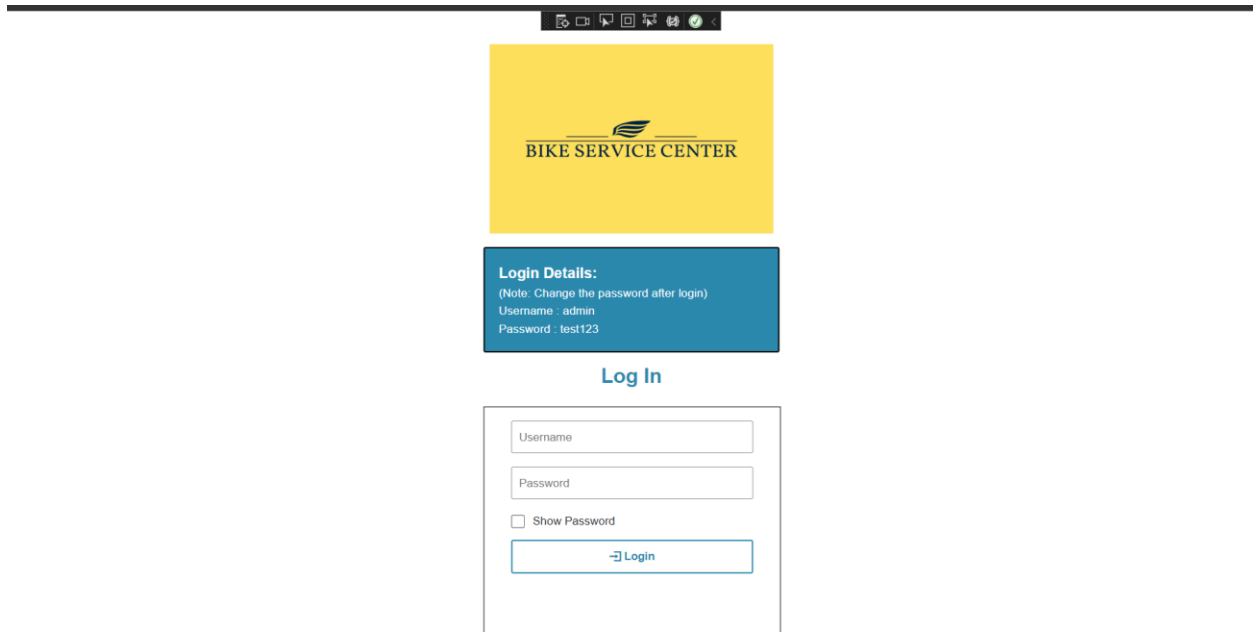
A stock management system for a bike repair shop is provided by this C# desktop program. Only during the hours of 9 a.m. to 4 p.m., five days a week is the bike repair shop's personnel permitted to retrieve or remove products from inventory (from Monday to Friday). The system, however, allows for the addition of products to stocks at any time.

The application is used to keep track of each stock item's data, including the names of the staff members who requested and approved it. The only person with access to the stock or inventory is the admin, who is the only person with the power to authorize the products to be added, updated, or removed from stock.

Only after receiving admin approval are staff members permitted to take out items from the stock. This is a real-world problem-based application that can be a great assist for the bike service centres.

2. User manual (Instructions to run the program):

2.1. Start of the application itself:

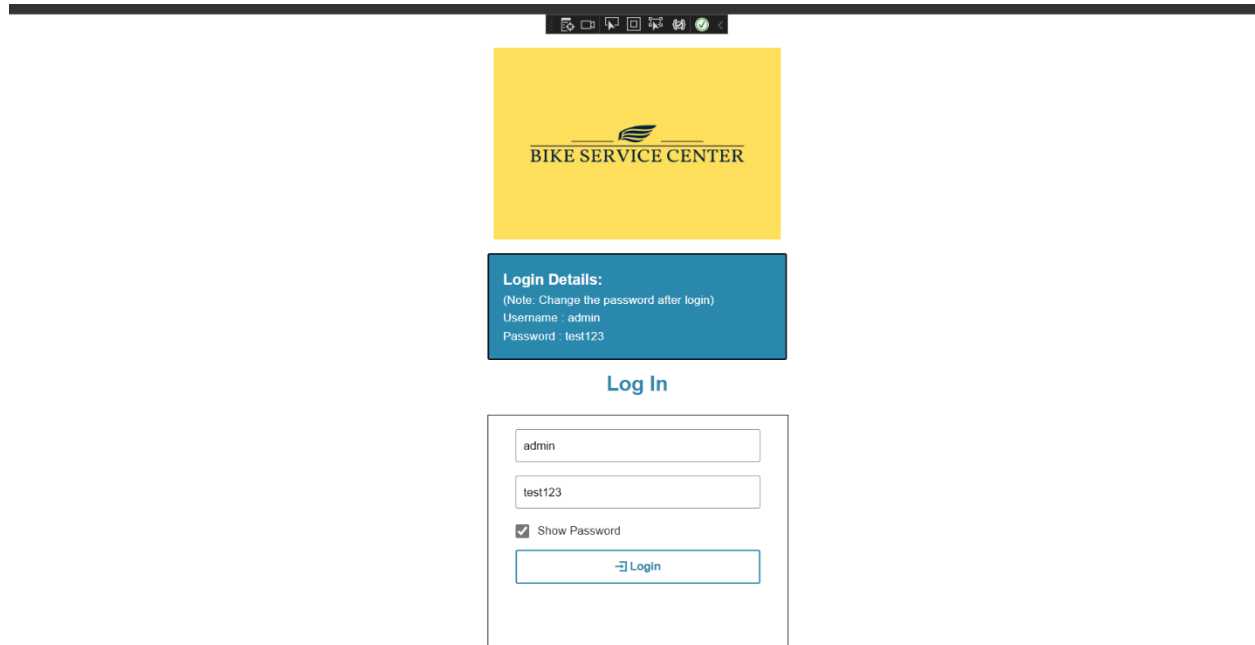


The screenshot shows a web application interface for a 'BIKE SERVICE CENTER'. At the top, there is a yellow banner with the center's logo. Below this, a blue box provides initial login credentials: Username 'admin' and Password 'test123', with a note to change the password after login. A 'Log In' link is positioned below the blue box. At the bottom, there is a white login form containing input fields for 'Username' and 'Password', a 'Show Password' checkbox, and a 'Login' button.

Figure 1 Login page (With login details until the password is not changed)

This is the very start of the application where the user is given the login details until the password is not changed. After the user changes the password, the login details are not displayed.

2.2. Log in as admin:



BIKE SERVICE CENTER

Login Details:
(Note: Change the password after login)
Username : admin
Password : test123

Log In

admin

test123

☒ Show Password

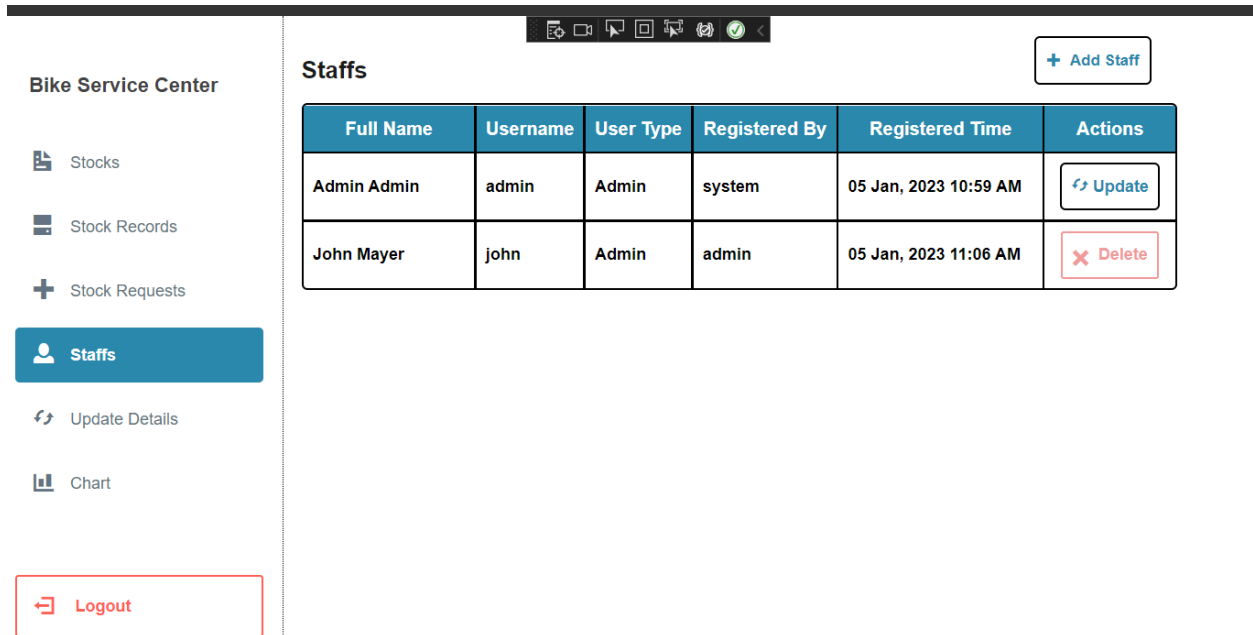
Login

Figure 2 Login in as the main admin

Users can log in as admin through the provided login details at first.

2.3. Create new users:

2.3.1 Create another admin:



Bike Service Center

- Stocks
- Stock Records
- Stock Requests
- Staffs**
- Update Details
- Chart

[Logout](#)

Staffs [+ Add Staff](#)

Full Name	Username	User Type	Registered By	Registered Time	Actions
Admin Admin	admin	Admin	system	05 Jan, 2023 10:59 AM	Update
John Mayer	john	Admin	admin	05 Jan, 2023 11:06 AM	Delete

Figure 3 Create another admin

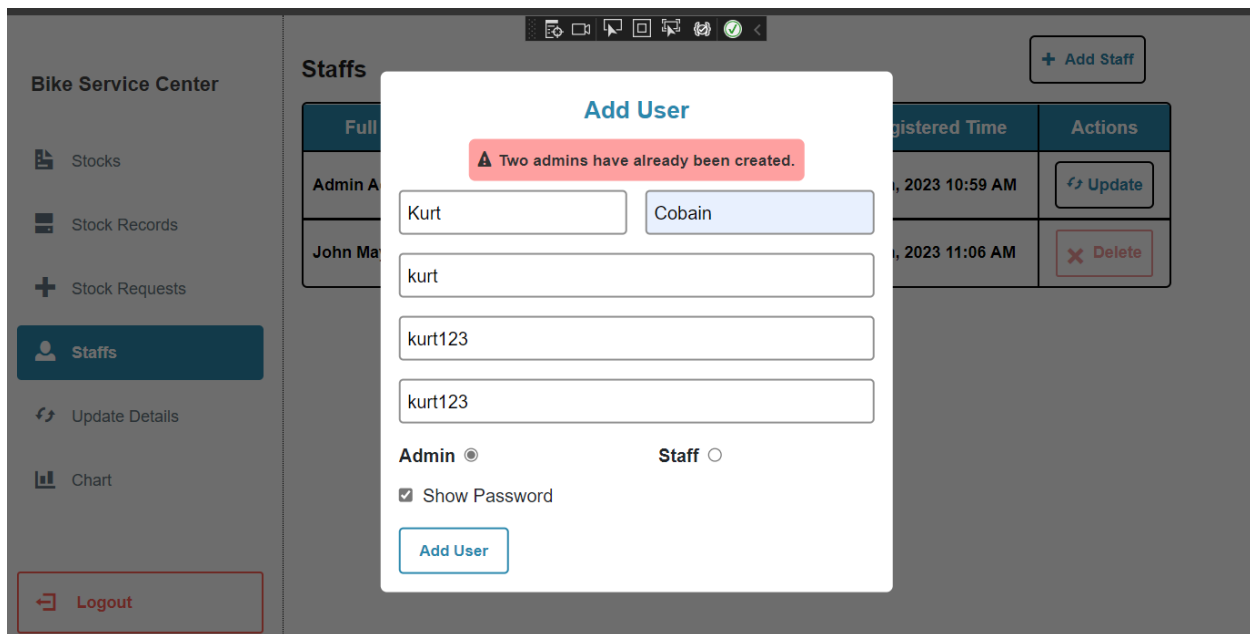


Figure 4 The system can only have two admins at the max

2.3.2. Create staff:

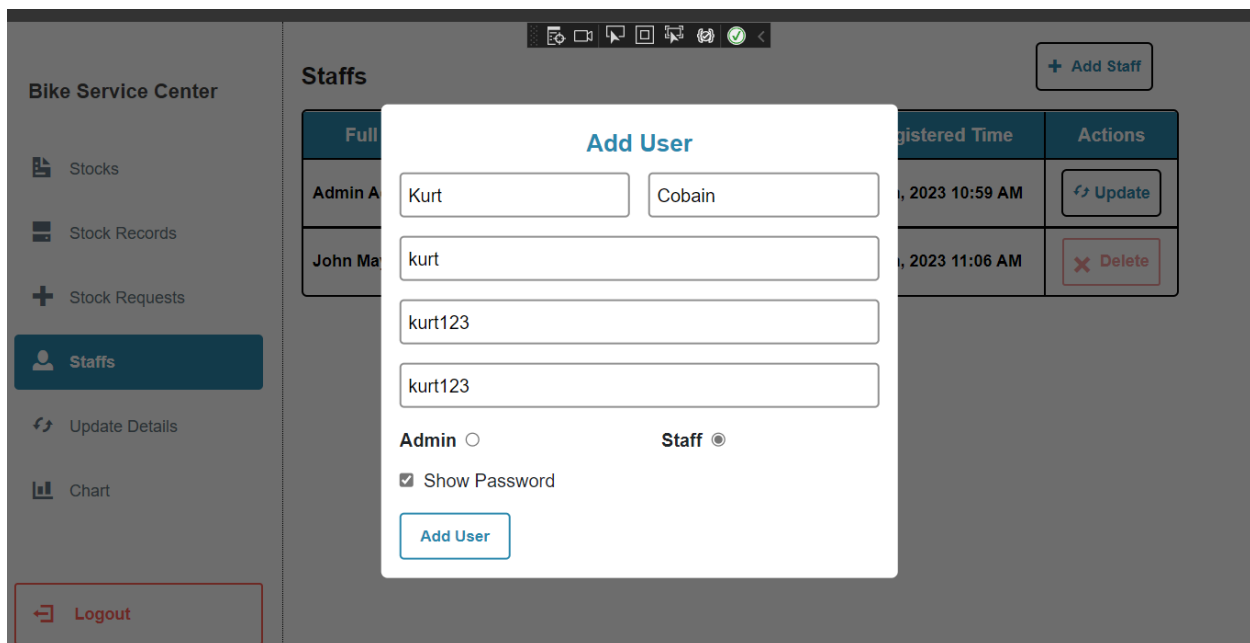


Figure 5 Creating staff

The first admin can create another admin as well as staff.

Note: There can only be 2 admins at max.

2.4. Changing password of first admin:

Bike Service Center

- Stocks
- Stock Records
- Stock Requests
- Staffs
- Update Details**
- Chart

Change Password

Note: Fill the information correctly.

.....

admin123

admin123

☒ Show password

Change Password

Logout

Figure 6 Changing the password of the first admin

Bike Service Center

- Stocks
- Stock Records
- Stock Requests
- Staffs
- Update Details**
- Chart

Change Password

Note: Fill the information correctly.

Current Password

New Password

Confirm New Password

☒ Show password

Change Password

Password changed successfully

Logout

Figure 7 Password changed for first admin

The first admin is directed to this page after the first login if the password has not been changed after the login). The same goes for the other users as well.

2.5. Changing first admin name:

The screenshot shows a web application interface for a 'Bike Service Center'. On the left is a sidebar with navigation links: 'Stocks', 'Stock Records', 'Stock Requests', 'Staffs', 'Update Details' (highlighted in blue), and 'Chart'. At the bottom of the sidebar is a 'Logout' button. The main content area is titled 'Change Name' and includes a 'Note: Fill the information correctly.' message. Below the note are three input fields: the first contains '.....', the second contains 'Sayush', and the third contains 'Khadka'. A 'Change Name' button is positioned below the third field. At the top of the main area, there are tabs for 'Password' and 'Name', with 'Name' being the active tab.

Figure 8 Changing name for first admin

This screenshot shows the same 'Change Name' form as Figure 8, but with updated content. The input fields now contain 'Current Password', 'First Name', and 'Last Name'. A green success message, 'Name updated successfully!', is displayed below the 'Change Name' button. The sidebar and navigation elements remain the same.

Figure 9 Name changed successfully

Other users can change their name similarly after successful login.

2.6. Stocks:

Bike Service Center

Stocks

Stock Records

Stock Requests

Staffs

Update Details

Chart

Logout

Stocks

+ Add Item

Item	Quantity	Unit Price	Added Date	Added By	Actions
No stocks.					

Figure 10 Empty stocks

Bike Service Center

Stocks

Stock Records

Stock Requests

Staffs

Update Details

Chart

Logout

Stocks

+ Add Item

Item	Quantity	Unit Price	Added Date	Added By	Actions
Brakes	30	1000	05 Jan, 2023	Sayush Khadka	<div><div>✖</div><div>↺</div><div>+ Request</div></div>
Clutch plate	50	1500	05 Jan, 2023	Sayush Khadka	<div><div>✖</div><div>↺</div><div>+ Request</div></div>
Engine Oil	35	750	05 Jan, 2023	Sayush Khadka	<div><div>✖</div><div>↺</div><div>+ Request</div></div>
Screws	200	50	05 Jan, 2023	John Mayer	<div><div>✖</div><div>↺</div><div>+ Request</div></div>
Light	150	100	05 Jan, 2023	John Mayer	<div><div>✖</div><div>↺</div><div>+ Request</div></div>

Figure 11 Items added to Stocks

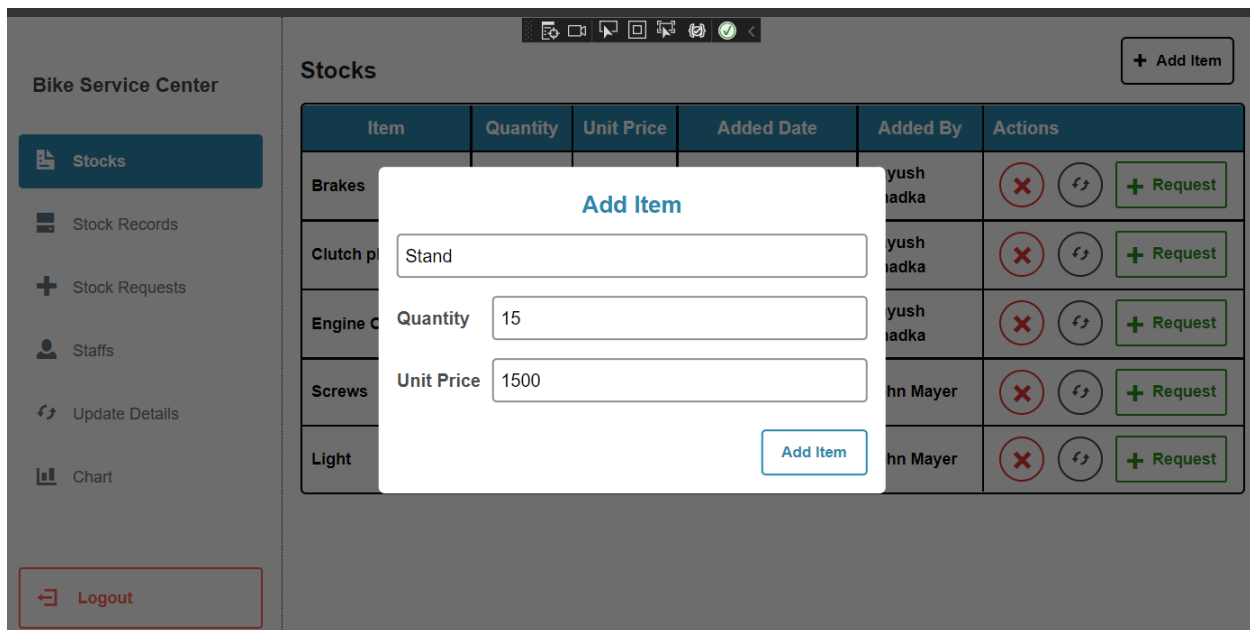


Figure 12 Add items to stocks

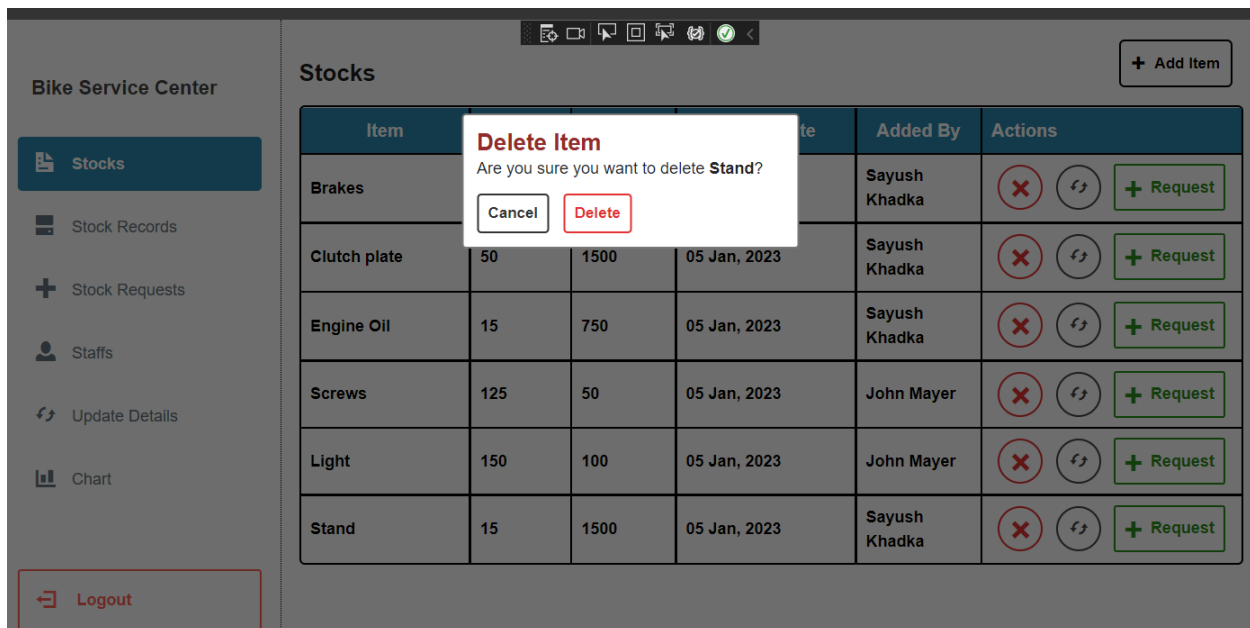


Figure 13 Delete items from stocks

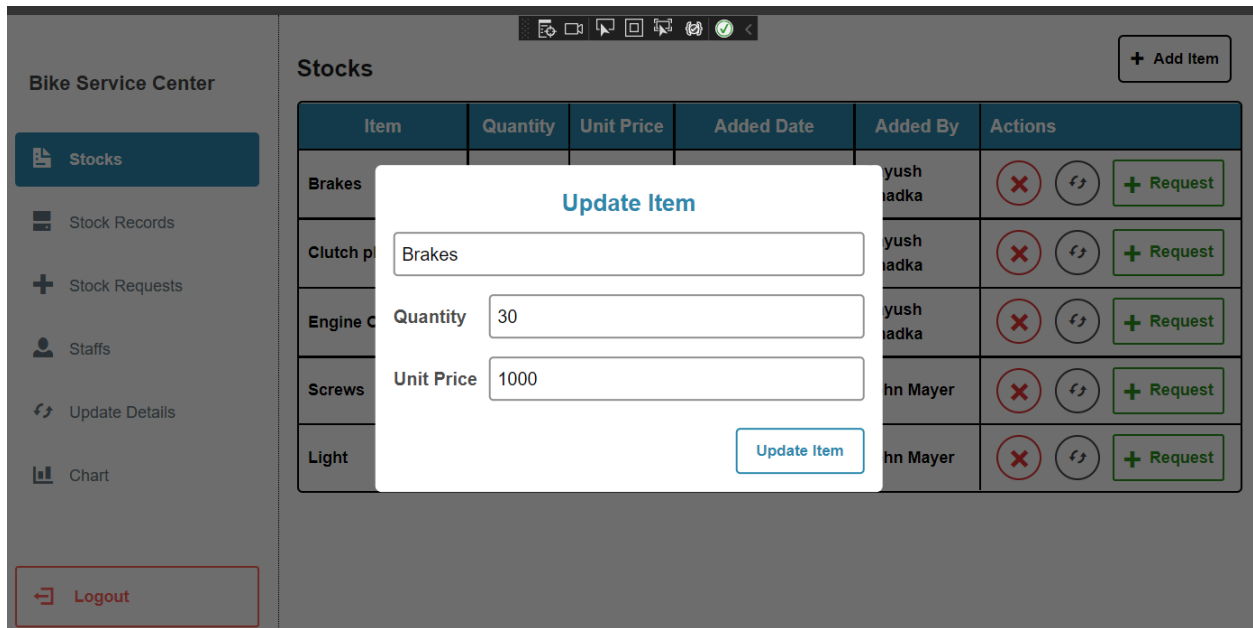


Figure 14 Update items from stocks

The items can only be added by the admin. Items can be deleted, updated, and requested by the admin.

Staffs can only use the stock request feature.

2.7. Stock Requests:

Bike Service Center	Stock Requests						
	Item	Quantity	Unit Price	Total Price	Date Requested	Requested By	Status
Stocks	No stock requests.						
Stock Records							
+ Stock Requests							
Staffs							
Update Details							
Chart							
Logout							

Figure 15 Empty stock request

Bike Service Center	Stock Requests							
	Item	Quantity	Unit Price	Total Price	Date Requested	Requested By	Status	Actions
Stocks	Brakes	15	1000	15000	05 Jan, 2023 11:32 AM	John Mayer	Pending	✓ Approve ✗ Delete
Stock Records	Engine Oil	20	750	15000	05 Jan, 2023 11:32 AM	John Mayer	Pending	✓ Approve ✗ Delete
+ Stock Requests	Screws	75	50	3750	05 Jan, 2023 11:33 AM	Sayush Khadka	Pending	✓ Approve ✗ Delete
Staffs	Light	55	100	5500	05 Jan, 2023 11:33 AM	Kurt Cobain	Pending	✓ Approve ✗ Delete
Update Details								
Chart								
Logout								

Figure 16 Stocks requested

Stock requests can only be approved or rejected by the admin.

2.8. Stock Records:

The screenshot shows a web application interface for a 'Bike Service Center'. On the left is a sidebar with navigation links: 'Stocks', 'Stock Records' (highlighted), 'Stock Requests', 'Staffs', 'Update Details', and 'Chart'. At the bottom of the sidebar is a 'Logout' button. The main content area has a title 'Stock Records - Approved' and a filter bar with 'Approved' (selected) and 'Rejected' tabs. Below the filter is a table with the following columns: 'Item', 'Quantity', 'Unit Price', 'Total Price', 'Requested Date', 'Approved Date', and 'Request'. The table is currently empty, displaying the message 'No stock records.' at the bottom.

Figure 17 Empty stock records

The screenshot shows the same web application interface as Figure 17, but the table now contains three rows of data. The table columns are: 'Item', 'Quantity', 'Unit Price', 'Total Price', 'Requested Date', 'Approved Date', 'Requested By', and 'Approved By'.

Item	Quantity	Unit Price	Total Price	Requested Date	Approved Date	Requested By	Approved By
Brakes	15	1000	15000	05 Jan, 2023 11:32 AM	05 Jan, 2023 11:34 AM	John Mayer	Sayush Khadka
Engine Oil	20	750	15000	05 Jan, 2023 11:32 AM	05 Jan, 2023 11:36 AM	John Mayer	John Mayer
Screws	75	50	3750	05 Jan, 2023 11:33 AM	05 Jan, 2023 11:35 AM	Sayush Khadka	John Mayer

Figure 18 Accepted stock records

These are the items approved by the admin.

Bike Service Center

Stocks

Stock Records

Stock Requests

Staffs

Update Details

Chart

Logout

Approved

Rejected

Stock Records - Rejected

Item	Quantity	Unit Price	Total Price	Requested Date	Rejected Date	Requested By	Rejected By
Light	55	100	5500	05 Jan, 2023 11:33 AM	05 Jan, 2023 11:35 AM	Kurt Cobain	Sayush Khadka

Figure 19 Rejected stock records

These are the items rejected by the admin.

2.9. Chart:

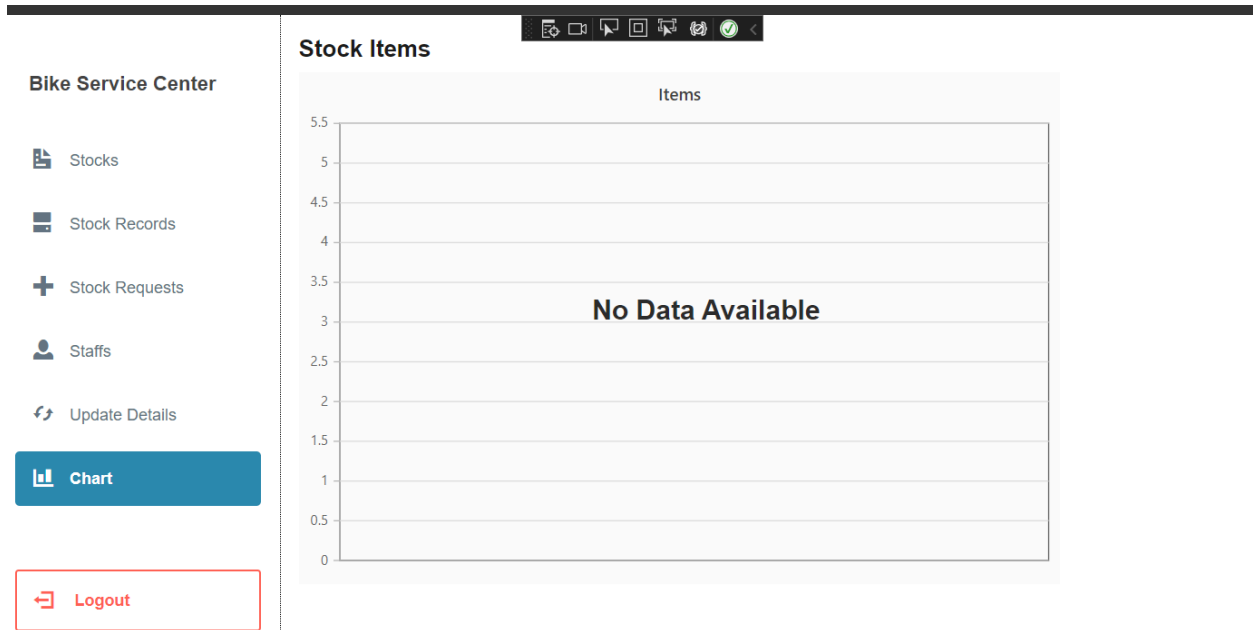


Figure 20 Empty chart

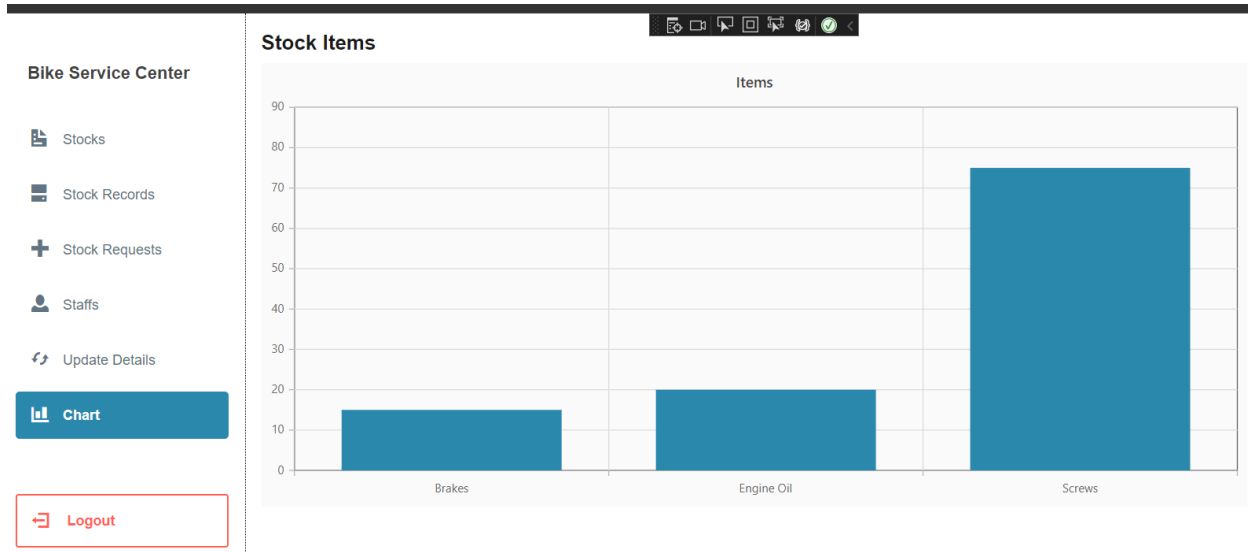


Figure 21 Items taken out from stock

The chart displays the items that have been taken out of the stock.

Chart details and structure remain the same for both the admin and the staff.

2.10. Portal:

Bike Service Center

Stocks

Stock Records

Stock Requests

Staffs

Update Details

Chart

Logout

Stocks

+ Add Item

Item	Quantity	Unit Price	Added Date	Added By	Actions
Brakes	15	1000	05 Jan, 2023	Sayush Khadka	<div><div>✖</div><div>↻</div><div>+ Request</div></div>
Clutch plate	50	1500	05 Jan, 2023	Sayush Khadka	<div><div>✖</div><div>↻</div><div>+ Request</div></div>
Engine Oil	15	750	05 Jan, 2023	Sayush Khadka	<div><div>✖</div><div>↻</div><div>+ Request</div></div>
Screws	125	50	05 Jan, 2023	John Mayer	<div><div>✖</div><div>↻</div><div>+ Request</div></div>
Light	150	100	05 Jan, 2023	John Mayer	<div><div>✖</div><div>↻</div><div>+ Request</div></div>

Figure 22 Admin Portal

Overview of the admin portal.

Bike Service Center

Stocks

Update Details

Chart

Logout

Stocks

Item	Quantity	Unit Price	Added Date	Added By	Actions
Brakes	15	1000	05 Jan, 2023	Sayush Khadka	<div>+ Request</div>
Clutch plate	50	1500	05 Jan, 2023	Sayush Khadka	<div>+ Request</div>
Engine Oil	15	750	05 Jan, 2023	Sayush Khadka	<div>+ Request</div>
Screws	125	50	05 Jan, 2023	John Mayer	<div>+ Request</div>
Light	150	100	05 Jan, 2023	John Mayer	<div>+ Request</div>

Figure 23 Staff Portal

Overview of staff portal.

3. Description of classes and data types:

3.1. Description of classes:

Class	Description
Data	
ModelStock	This class contains the data for the stocks in JSON file format.
ModelUser	This class contains the details of the user in JSON file format.
RecordStock	The structure for the various actions taken as a record of the stock is contained in this class.
Status	This class contains the details of the status of the requested items in the stock.
StockDataGraph	The specifics of the graph's structure are included in this class.
TypeUser	This class stores the type of users. Here, admin or staff.
UserCurrent	This class contains the current user in action.
Service	
AllUtilities	This class contains all the important methods which are used often.

ServiceStock	This class stores all the important methods for handling stock data.
ServiceUser	This class stores all the important methods for handling user data.

Table 1 Description of classes

3.2. Description of data types used:

Data Types	Description
DateTime	Represents the current date and time.
Integer	Represents numeric value.
Float	Represents floating point value (decimal value).
String	Represents alphanumeric value.
Enum	Represents a group of constant(read-only).

Table 2 Description of data types used

4. Flowchart of the application:

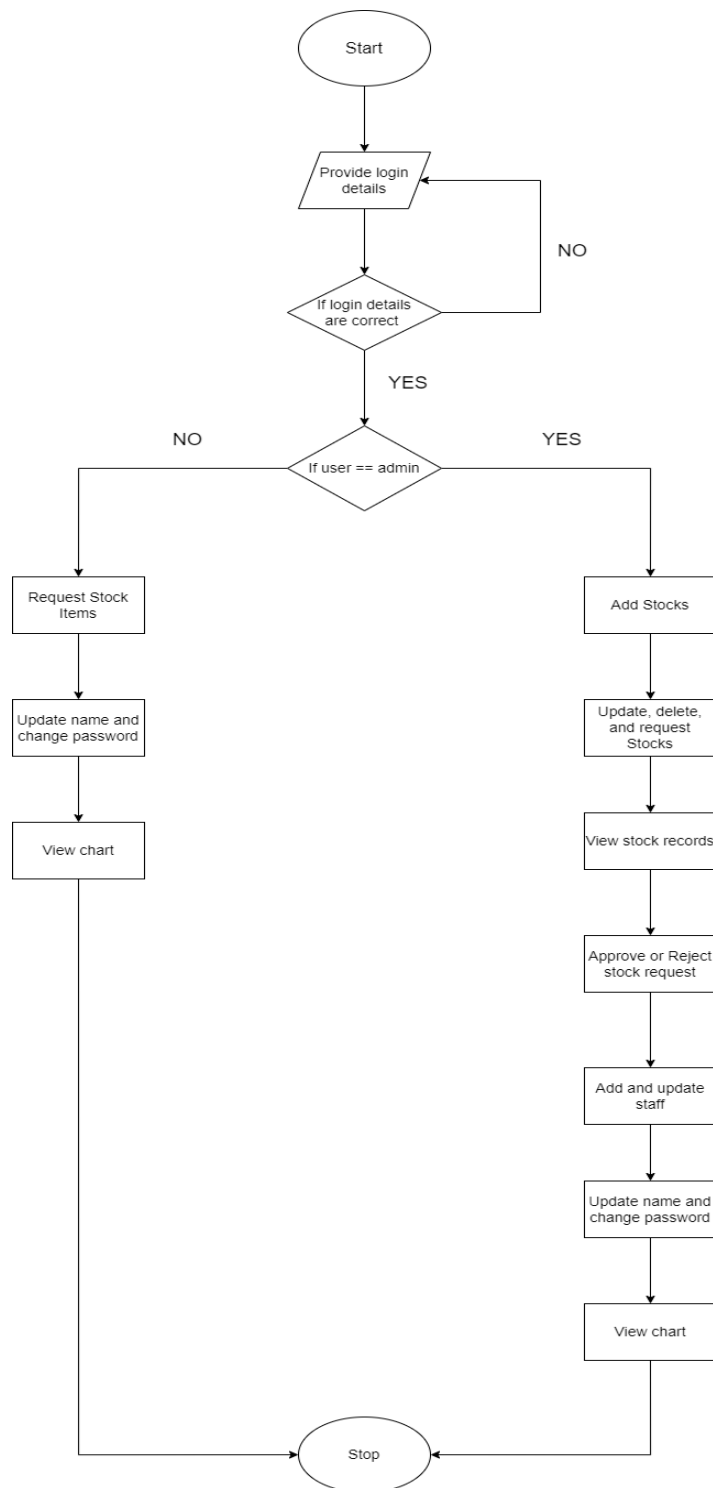


Figure 24 Flowchart of the application

5. Conclusion:

With the understanding of Object-Oriented Programming, C#, and dot net, the coursework was a fantastic success. The project was successful and educational, demonstrating how to implement the OOP principle using C# simply and successfully. It was a great experience working with Visual Studio, which will help me soon to develop even more projects for problem-solving. The project was created in response to a problem in the real world, and it may be used to design and create systems for various industries.

Complications constantly arise when developing a project. In a similar vein, there are some challenges with this endeavour as well. The idea and the thoughts were novel and, in some cases, extremely perplexing. Some of the problems were related to the IDE, while others were caused being a new experience. But thorough research and the application of that research enabled these challenges to be addressed. The instructors' support and instruction helped to overcome these challenges. The teachers were always available to assist us. Although the project took a lot of time and effort, it gave me a better knowledge of the OOP (Object-Oriented Programming) concept.