# SHOPGREEN SYSTEM

# USER GUIDE DOCUMENTATION

**Project Title** : **ShopGreen – Organic Store Management System**

**System Type** : **Desktop-Based Application**

**Developed Using: C# (Windows Forms),MySQL Database**

# **Table of Contents**

# 1.ShopGreen System - Login Form User Guide

**Form Overview**

This is a login form for a ShopGreen system that connects to a MySQL database to authenticate users and direct them to appropriate dashboards based on their roles (Admin or Customer).

**Functions Available**

**1. Login Function (btnLogin_Click)**

What it does:

- Validates username and password fields
- Connects to MySQL database
- Authenticates user credentials
- Redirects to appropriate dashboard (Admin/Customer) based on role
- Displays welcome message on successful login

How to use it:

1. Enter your username in the "Username" field
2. Enter your password in the "Password" field
3. Click the Login button
4. If credentials are correct, you'll be redirected to:
   - Admin Dashboard (if role = "ADMIN")
   - Customer Dashboard (if role = "CUSTOMER")

Prerequisites:

- MySQL database must be running on localhost:3306
- Database name: shopGreen
- Table users must exist with columns: user_id, name, username, password, role
- MySQL credentials: Username = root, Password = 1234

**2. Show/Hide Password (chkShowPassword_CheckedChanged)**

What it does:

- Toggles password visibility
- Shows plain text when checked
- Hides password with dots when unchecked

How to use it:

- Check/uncheck the "Show Password" checkbox
- Password field will update visibility in real-time

### 3. Navigate to Registration (lblRegister_Click)

What it does:

- Opens the registration form for new users
- Hides the current login form

How to use it:

- Click on the "Register here" link
- You'll be taken to the registration form

### 4. Forgot Password (lblForgotPassword_Click)

What it does:

- Opens the password recovery form
- Hides the current login form

How to use it:

- Click on the "Forgot Password?" link
- You'll be taken to the password recovery form

### 5. Clear Fields (btnClear_Click)

What it does:

- Clears both username and password fields
- Unchecks the "Show Password" checkbox
- Clears any error messages
- Sets focus back to username field

How to use it:

- Click the Clear button to reset all fields

### 6. Visual Effects (Hover Effects)

What it does:

- Changes login button color on hover for better UI experience
- Darker green when mouse enters button
- Original green when mouse leaves button

How to use it:

- Hover over the Login button to see the color change

**7. Form Closing (LoginForm_FormClosing)**

What it does:

- Closes the entire application when login form is closed
- Ensures proper application termination

How to use it:

- Click the close (X) button on the form window
- Application will completely exit

**8.How to Run and Test the Functions**

**Prerequisites Setup:**

1. Install MySQL:
    - Install MySQL Server on your machine
    - Create database: shopGreen
2. sql

CREATE DATABASE shopGreen;

3. USE shopGreen;
4. Create users table:
5. sql

```
CREATE TABLE users (
    user_id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(100),
    username VARCHAR(50) UNIQUE,
    password VARCHAR(255),
    role ENUM('ADMIN', 'CUSTOMER')
```

6. );
7. Insert test users:
8. sql

*-- Admin user*
INSERT INTO users (name, username, password, role)
VALUES ('Admin User', 'admin', 'admin123', 'ADMIN');

*-- Customer user*
INSERT INTO users (name, username, password, role)

9. VALUES ('Customer User', 'customer', 'customer123', 'CUSTOMER');
10. Required NuGet Packages:

- MySql.Data
- System.Drawing
- System.Windows.Forms

**Running the Application:**

1. Compile the project in Visual Studio
2. Run the application (F5 or Start Debugging)
3. Test login scenarios:
   Test 1: Successful Admin Login
4. text

Username: admin

5. Password: admin123
   - Expected: Redirect to Admin Dashboard
6. Test 2: Successful Customer Login
7. text

Username: customer

8. Password: customer123
   - Expected: Redirect to Customer Dashboard
9. Test 3: Invalid Credentials
10. text

Username: wrong

11. Password: wrong
    - Expected: "Invalid username or password!" error
12. Test 4: Empty Fields
    - Leave username/password empty and click Login
    - Expected: Red error indicators on empty fields

**Testing Other Functions:**

1. Show/Hide Password:
   - Type a password
   - Check "Show Password" checkbox
   - Verify password is visible
   - Uncheck to hide password
2. Navigation Functions:
   - Click "Register here" → Should open RegisterForm
   - Click "Forgot Password?" → Should open ForgetPasswordForm
   - Click "Clear" → Should empty all fields
   - Close window → Should exit entire application

**Error Handling**

The form includes error handling for:

- Empty username/password fields (shows error provider)
- Invalid database credentials
- Database connection issues
- Incorrect login credentials

**Security Notes**

1. Current limitation: Passwords are stored in plain text
   Recommended fix: Implement password hashing (SHA256/BCrypt)
2. SQL Injection Protection: Uses parameterized queries (safe)
3. Connection String: Currently hardcoded - consider using configuration files in production

**Troubleshooting**

| Issue | Solution |
|---|---|
| "Unable to connect to MySQL" | Check MySQL service is running, verify connection string |
| "Invalid username or password" | Check database for correct credentials |
| Form doesn't show | Check if InitializeComponent() is called |
| Buttons not working | Ensure event handlers are properly wired in designer |

**Quick Reference**

| Action | Control to Use |
|---|---|
| Enter username | txtUsername textbox |
| Enter password | txtPassword textbox |
| Login | btnLogin button |
| Clear fields | btnClear button |

| | |
|---|---|
| Show password | chkShowPassword checkbox |
| Register new account | lblRegister label |
| Recover password | lblForgotPassword label |

This form serves as the entry point to the ShopGreen system, providing secure authentication and navigation to appropriate user interfaces based on roles.


## 2.ShopGreen System - Register Form User Guide

**Form Overview**

This is a user registration form for the ShopGreen system that allows new customers to create an account. It validates user input, checks for existing users, and stores information in a MySQL database.

**Functions Available**

**1. Registration Function (btnRegister_Click)**

What it does:

- Validates all input fields with comprehensive checks
- Checks if username or email already exists in database
- Inserts new user record with "CUSTOMER" role
- Redirects to login form upon successful registration
- Displays success/error messages

How to use it:

1. Fill in all required fields:
   - Full Name
   - Email Address
   - Contact Number
   - Username
   - Password
   - Confirm Password
2. Click the Register button
3. If successful: You'll see a success message and be redirected to login page
4. If errors: Fix validation errors shown with red indicators

Validation Rules:

| Field | Validation Rules |
|---|---|
| Name | Cannot be empty |
| Email | Valid email format (example@domain.com) |
| Contact | Exactly 10 digits (numbers only) |
| Username | At least 4 characters, unique in system |
| Password | At least 6 characters |
| Confirm Password | Must match password exactly |

## 2. User Existence Check (CheckUserExists)

What it does:

- Checks database for duplicate username or email
- Prevents multiple accounts with same credentials
- Runs automatically during registration

How to use it:

- Automatically triggered when you click Register
- If username/email exists: Shows error message
- If available: Proceeds with registration

## 3. Email Validation (IsValidEmail)

What it does:

- Uses regex pattern to validate email format
- Ensures email follows standard format: text@domain.extension
- Checks for proper structure

Valid Examples:

- user@example.com
- john.doe@gmail.com
- name123@company.co.uk

Invalid Examples:

- user@.com

- @domain.com
- user@domain

## 4. Contact Validation (IsValidContact)

What it does:

- Ensures contact number is exactly 10 digits
- Uses regex pattern $\^\backslash d\{10\}\$$
- Automatically blocks non-numeric input

How to use it:

- Enter exactly 10 digits (e.g., 0712345678)
- Non-numeric characters are automatically blocked
- Spaces, dashes, or letters are not allowed

## 5. Clear All Fields (btnClear_Click)

What it does:

- Clears all input fields (Name, Email, Contact, Username, Password, Confirm Password)
- Unchecks "Show Password" checkbox
- Clears all error messages
- Sets focus to Name field

How to use it:

- Click the Clear button to reset the entire form
- Useful if you want to start over

## 6. Show/Hide Password (chkShowPassword_CheckedChanged)

What it does:

- Toggles password visibility for both password fields
- When checked: Shows password as plain text
- When unchecked: Shows password as dots (●●●●●)

How to use it:

- Check/uncheck the Show Password checkbox
- Both password fields update visibility simultaneously

## 7. Back to Login (lblBackToLogin_Click)

What it does:

- Navigates back to the Login Form
- Hides the current registration form

How to use it:

- Click the "Already have an account? Login here" link
- You'll be taken back to the login page

## 8. Contact Field Input Restriction (txtContact_KeyPress)

What it does:

- Restricts contact field to numbers only
- Blocks alphabetic and special characters
- Allows control keys (Backspace, Delete, Tab)

How to use it:

- Automatically enforced when typing in contact field
- You can only enter digits 0-9

## 9. Hover Visual Effects

What it does:

- Changes Register button color on hover
- Darker green when mouse enters button
- Original green when mouse leaves button

How to use it:

- Hover over the Register button to see color change

## 10. Form Closing (RegisterForm_FormClosing)

What it does:

- Closes entire application when registration form is closed
- Ensures proper application termination

How to use it:

- Click the close (X) button on the form window
- Application will completely exit

**How to Run and Test the Registration**

**Prerequisites Setup:**

1. Ensure MySQL database is ready:
2. sql

USE shopGreen;

*-- Users table must exist with these columns:*
*-- user_id, name, email, contact, username, password, role*

*-- Add email and contact columns if missing:*
ALTER TABLE users
ADD COLUMN email VARCHAR(100),

3. ADD COLUMN contact VARCHAR(10);
4. Test the form:

**Test Registration Scenarios:**

Test 1: Successful Registration

text

Name: John Doe
Email: john.doe@example.com
Contact: 0712345678
Username: johndoe123
Password: password123

Confirm Password: password123

- Expected: Success message, redirected to login

Test 2: Password Mismatch

text

Password: password123

Confirm Password: different123

- Expected: "Passwords do not match" error

Test 3: Invalid Email

text

Email: invalid-email

- Expected: "Invalid email format" error

Test 4: Short Password

text

Password: 123

- Expected: "Password must be at least 6 characters" error

Test 5: Invalid Contact

text

Contact: 123 (less than 10 digits)
Contact: abcdefghij (non-numeric)

Contact: 12345678901 (more than 10 digits)

- Expected: "Contact must be 10 digits" error

Test 6: Duplicate Username/Email

- Try to register with existing username or email
- Expected: "Username or Email already exists!" error

**Testing Other Functions:**

1. Clear Button:
   - Fill some fields
   - Click Clear
   - Verify all fields are empty
   - Focus should be on Name field
2. Show/Hide Password:
   - Type passwords
   - Check/uncheck checkbox
   - Verify password visibility changes
3. Back to Login:
   - Click "Already have an account? Login here"
   - Should open LoginForm
4. Contact Field Restriction:
   - Try to type letters or symbols in contact field
   - Only numbers should be accepted

**Database Schema Requirements**

The registration expects this table structure:

sql

```sql
CREATE TABLE users (
    user_id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    email VARCHAR(100) NOT NULL UNIQUE,
    contact VARCHAR(10) NOT NULL,
```

```
username VARCHAR(50) NOT NULL UNIQUE,
password VARCHAR(255) NOT NULL,
role ENUM('ADMIN', 'CUSTOMER') DEFAULT 'CUSTOMER'

);
```

## Security Considerations ⚠️

1. Password Storage:
   - Current: Passwords stored in plain text (INSECURE)
   - Recommended: Implement password hashing before storing
2. Input Sanitization:
   - Already using parameterized queries (prevents SQL injection)
   - Additional validation for email and contact
3. Data Privacy:
   - Contact numbers stored as 10-digit strings
   - Consider GDPR compliance for email storage

## Error Messages Reference

| Error Message | Cause | Solution |
| --- | --- | --- |
| "Name is required" | Name field is empty | Enter your full name |
| "Invalid email format" | Email doesn't match pattern | Use format: name@domain.com |
| "Contact must be 10 digits" | Contact not exactly 10 numbers | Enter 10-digit phone number |
| "Username must be at least 4 characters" | Username too short | Choose longer username |
| "Password must be at least 6 characters" | Password too short | Choose stronger password |
| "Passwords do not match" | Password fields differ | Ensure both passwords match |
| "Username or Email already exists" | Duplicate credentials | Choose different username/email |

## Troubleshooting

| Issue | Solution |
| --- | --- |
| "Column 'email' doesn't exist" | Add email column to users table |
| Registration fails silently | Check MySQL connection string |
| Error provider not showing | Ensure errorProvider1 is properly initialized |
| Form not redirecting after success | Check hide/show logic |
| Contact field accepting letters | Ensure KeyPress event is wired properly |

**Quick Reference Guide**

| Action | Control | Notes |
| --- | --- | --- |
| Enter name | txtName textbox | Required field |
| Enter email | txtEmail textbox | Must be valid format |
| Enter contact | txtContact textbox | 10 digits only |
| Choose username | txtUsername textbox | Min 4 characters, unique |
| Set password | txtPassword textbox | Min 6 characters |
| Confirm password | txtConfirmPassword textbox | Must match password |
| Complete registration | btnRegister button | Validates and saves data |
| Reset form | btnClear button | Clears all fields |
| Toggle password visibility | chkShowPassword checkbox | Shows/hides passwords |
| Return to login | lblBackToLogin label | Navigates to login form |

**Best Practices for Users**

1. Choose a strong password: Mix letters, numbers, and symbols
2. Use a valid email: You'll need it for password recovery
3. Remember your username: You'll use it to log in
4. Keep contact number updated: For order notifications
5. Use the Show Password feature: To ensure you type correctly

This registration form provides a secure and user-friendly way for new customers to join the ShopGreen system, with comprehensive validation to ensure data quality and system integrity.

# 3.ShopGreen System - Forget Password Form User Guide

**Form Overview**

This is a password recovery form for the ShopGreen system that allows users to reset their password through a secure verification process. It generates a reset code, validates user identity, and creates a new temporary password.

**Functions Available**

### 1. Send Reset Code (btnSendCode_Click)

What it does:

- Validates username and email fields
- Verifies that username and email match in the database
- Generates a 6-digit random reset code
- Displays the code in a message box (demo mode)
- Enables the verification section of the form
- Prevents multiple code requests

How to use it:

1. Enter your username in the "Username" field
2. Enter your registered email in the "Email" field
3. Click Send Reset Code button
4. A 6-digit code will appear in a message box

5. The verification section becomes enabled

Validation Rules:

- Username must exist in database
- Email must be valid format
- Username and email must match an existing user record

## 2. Verify Code and Reset Password (btnVerifyCode_Click)

What it does:

- Validates the entered reset code
- Compares entered code with generated code
- Generates a new temporary password (8-character alphanumeric)
- Updates the user's password in the database
- Displays the new temporary password
- Offers navigation back to login

How to use it:

1. After receiving the reset code, enter it in the "Reset Code" field
2. Click Verify Code button
3. If code matches: A new temporary password is generated and displayed
4. Copy/save the temporary password
5. Click OK to proceed to login

Important: The temporary password is shown only once - make sure to note it down!

## 3. Email Validation (IsValidEmail)

What it does:

- Validates email format using regex pattern
- Ensures email follows standard format: name@domain.extension

Valid Examples:

- user@example.com
- john.doe@shopgreen.com
- name123@domain.co.uk

## 4. Generate Temporary Password (GenerateTemporaryPassword)

What it does:

- Creates a random 8-character password
- Uses uppercase letters and numbers only
- Example output: "A3B7C9D2"

Password Characteristics:

- Length: 8 characters
- Characters: A-Z and 0-9
- Randomly generated each time

## 5. Email Sending Function (SendResetCodeEmail) - OPTIONAL

What it does:

- Sends actual email with reset code (requires SMTP configuration)
- Uses Gmail SMTP server (configurable)
- Sends formatted email with instructions

How to enable real email sending:

1. Uncomment the email sending section in btnSendCode_Click
2. Configure SMTP settings:
3. csharp

string fromEmail = "your-email@gmail.com";

4. string fromPassword = "your-app-password"; *// Use App Password, not regular password*

SMTP Requirements:

- Gmail account with 2-factor authentication enabled
- App-specific password generated
- SMTP server: smtp.gmail.com
- Port: 587
- SSL: Enabled

## 6. Clear All Fields (btnClear_Click)

What it does:

- Clears all input fields (Username, Email, Reset Code)
- Disables verification section
- Re-enables Send Code button
- Resets generated code
- Sets focus to Username field

How to use it:

- Click Clear button to reset the entire form
- Useful if you need to start over or entered wrong information

## 7. Back to Login (lblBackToLogin_Click)

What it does:

- Navigates back to the Login Form
- Hides the current forget password form

How to use it:

- Click the "Back to Login" link

- You'll be taken back to the login page

## 8. Hover Visual Effects

What it does:

- Changes button colors on hover for better UI experience
- Darker green when mouse enters button
- Original green when mouse leaves button
- Only affects enabled buttons

Buttons with hover effects:

- Send Reset Code button
- Verify Code button

## 9. Form Closing (ForgetPasswordForm_FormClosing)

What it does:

- Closes entire application when form is closed
- Ensures proper application termination

How to use it:

- Click the close (X) button on the form window
- Application will completely exit

**Step-by-Step Usage Guide**

**Phase 1: Request Reset Code**

1. Open Forget Password Form
   - From login page, click "Forgot Password?" link
2. Enter Credentials

3. text

Username: your_username

4. Email: your_registered_email@example.com
5. Request Code
   ○ Click Send Reset Code
   ○ A 6-digit code will appear in popup (e.g., 123456)

**Phase 2: Verify and Reset**

4. Enter Reset Code
   ○ Enter the 6-digit code you received
   ○ Click Verify Code
5. Receive New Password
   ○ A new temporary password will appear (e.g., "X8Y3Z9A2")
   ○ IMPORTANT: Write this down immediately
   ○ Click OK
6. Login with Temporary Password
   ○ Return to login page
   ○ Use your username and the temporary password
   ○ Change password immediately after login

**Test Scenarios**

**Test 1: Successful Password Reset**

text

Username: existing_user
Email: user@example.com

Reset Code: [match generated code]

● Expected: Success message with new temporary password

**Test 2: Invalid Username/Email Combination**

text

Username: wrong_user

Email: wrong@email.com

- Expected: "Username and Email do not match!" error

**Test 3: Incorrect Reset Code**

text

Reset Code: 000000 (or any wrong code)

- Expected: "Invalid reset code!" error

**Test 4: Empty Fields**

- Leave username/email empty and click Send Code
- Expected: Red error indicators

**Test 5: Invalid Email Format**

text

Email: invalid-email-format

- Expected: "Invalid email format" error

**Database Requirements**

The form expects the users table to have these columns:

sql

```
CREATE TABLE users (
    user_id INT AUTO_INCREMENT PRIMARY KEY,
    username VARCHAR(50) NOT NULL UNIQUE,
    email VARCHAR(100) NOT NULL UNIQUE,
    password VARCHAR(255) NOT NULL,
    -- other columns...

    );
```

**Security Considerations** ⚠️

**Current Implementation (Demo Mode):**

1. Reset Code Display: Shows in message box (not secure for production)
2. Password Generation: Creates temporary password (users must change it)
3. Password Storage: Plain text (INSECURE - needs hashing)

**Production Recommendations:**

1. Enable Email Sending: Use real email delivery
2. Implement Password Hashing: Never store plain text passwords
3. Add Code Expiry: Set 10-15 minute expiration for reset codes
4. Rate Limiting: Prevent brute force attempts
5. Secure Code Generation: Use cryptographic random number generator

**Error Messages Reference**

| Error Message | Cause | Solution |
| --- | --- | --- |
| "Username is required" | Username field empty | Enter your username |
| "Email is required" | Email field empty | Enter your registered email |
| "Invalid email format" | Email doesn't match pattern | Use valid email format |
| "Username and Email do not match" | No matching user record | Check username and email |

| | | |
|---|---|---|
| "Invalid reset code!" | Entered code doesn't match | Use correct 6-digit code |
| "Reset code is required" | Reset code field empty | Enter the code you received |

### Troubleshooting

| Issue | Solution |
|---|---|
| No code appears | Check database connection |
| Form freezes after sending code | Ensure btnSendCode.Enabled = false |
| Verify Code button not enabled | Complete Send Code step first |
| Email sending fails | Configure SMTP settings properly |
| Temporary password not working | Ensure you copy it exactly (case-sensitive) |

### Real Email Configuration Guide

To enable actual email sending:

1. For Gmail:
2. csharp

*// Uncomment in SendResetCodeEmail method:*
string fromEmail = "youremail@gmail.com";

3. string fromPassword = "your-app-specific-password";
4. Generate App Password (Gmail):
    - Go to Google Account → Security
    - Enable 2-Step Verification
    - Under "App passwords", generate new password
    - Use this password in the code
5. For Other Email Providers:
6. csharp

*// Update SMTP settings:*
SmtpClient smtp = new SmtpClient("smtp.yourprovider.com", 587);

7. smtp.Credentials = new NetworkCredential("your-email", "your-password");

**Quick Reference Guide**
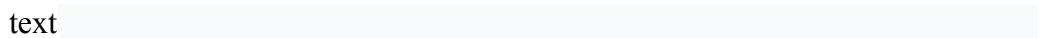
| Action | Control | Notes |
|---|---|---|
| Enter username | txtUsername | Must match registered username |
| Enter email | txtEmail | Must match registered email |
| Request reset code | btnSendCode | Generates 6-digit code |
| Enter reset code | txtResetCode | Enter 6-digit code from message |
| Verify code | btnVerifyCode | Generates new temporary password |
| Reset form | btnClear | Clears all fields and resets form |
| Return to login | lblBackToLogin | Navigates to login form |

**Best Practices for Users**

1. Keep Credentials Secure: Don't share reset codes or temporary passwords
2. Check Email: In production, check your email for reset codes
3. Change Temporary Password: Immediately after login
4. Use Strong Passwords: Mix uppercase, lowercase, numbers, symbols
5. Contact Support: If you don't receive reset codes

**Form Flow Diagram**

text

Start
↓
Enter Username & Email
↓
Click "Send Reset Code"
↓
Receive 6-digit Code (popup)
↓
Enter Code in Verification Field
↓
Click "Verify Code"
↓
Receive Temporary Password
↓
Copy Password & Login
↓

Change Password Immediately

This password recovery form provides a secure self-service option for users who forget their passwords, with proper validation and a clear step-by-step process.

# 4.ShopGreen System - Admin Dashboard User Guide

## Dashboard Overview

The Admin Dashboard is the central control panel for administrators to manage the entire ShopGreen system. It provides real-time statistics, quick access to all management functions, and an overview of business performance.

## Dashboard Features and Functions

### 1. Dashboard Statistics Display (LoadDashboardData)

What it does:

- Displays real-time business metrics
- Shows 5 key performance indicators (KPIs)
- Updates automatically on form load and refresh

Displayed Statistics:

| Statistic | What it Shows | Color Coding |
|---|---|---|
| Total Sales | Sum of all delivered orders (in Rupees) | Standard |
| Products in Stock | Count of available products | Standard |
| Active Orders | Orders pending or in shipment | Standard |
| Total Customers | Registered customer accounts | Standard |
| Low Stock Products | Products with stock < 10 units | RED when >0 |

How to view:

- Statistics appear immediately when dashboard loads
- Low stock count turns red when products need restocking

## 2. Navigation Menu Functions

### Home Button (btnHome_Click)

What it does:

- Refreshes dashboard statistics
- Returns to main dashboard view

How to use:

- Click the 🏠 Home button
- Dashboard data reloads with latest information

**Manage Users (btnManageUsers_Click)**

What it does:

- Opens the user management interface
- Allows admin to view/edit all user accounts
- Includes user roles, permissions, etc.

How to use:

- Click 👥 Manage Users
- Opens new user management form
- Current dashboard hides

**Manage Products (btnManageProducts_Click)**

What it does:

- Opens product catalog management
- Add/edit/delete products
- Update stock levels, prices, descriptions

How to use:

- Click 📦 Manage Products
- Opens product management interface
- Navigates away from dashboard

**Manage Customers (btnManageCustomers_Click)**

What it does:

- Opens customer management interface
- View customer profiles, order history
- Manage customer accounts

How to use:

- Click 👤 Manage Customers
- Opens customer management form
- Provides detailed customer information

**Manage Orders (btnManageOrders_Click)**

What it does:

- Opens order management system
- View all orders, update status
- Process shipments, handle returns

How to use:

- Click 📋 Manage Orders
- Opens comprehensive order management
- Track order lifecycle

**Generate Reports (btnGenerateReports_Click)**

What it does:

- Opens reporting and analytics module
- Generate sales reports, inventory reports
- Export data for analysis

How to use:

- Click 📊 Generate Reports
- Access various report types
- Generate insights for decision making

## 3. Logout Function (btnLogout_Click)

What it does:

- Securely logs out the admin
- Returns to login screen
- Requires confirmation before logout

How to use:

1. Click 🚪 Logout button
2. Confirmation dialog appears
3. Click "Yes" to logout, "No" to cancel
4. Returns to login form

## 4. Refresh Dashboard (btnRefresh_Click)

What it does:

- Manually refreshes all dashboard statistics
- Fetches latest data from database
- Shows success confirmation

How to use:

- Click 🔄 Refresh button (if available)
- All statistics update immediately
- Success message appears

## 5. Visual Effects

**Menu Button Hover Effects**

What it does:

- Changes button color on hover (light green → dark green)
- Provides visual feedback for interactive elements

How it works:

- Hover over any menu button (Home, Manage Users, etc.)
- Button darkens slightly
- Returns to original color when mouse leaves

**Dashboard Card Hover Effects**

What it does:

- Highlights statistic cards on hover
- Changes card background from white to light gray

How it works:

- Hover over any statistic panel
- Background becomes light gray
- Returns to white when mouse leaves

**6. Form Closing (AdminDashboardForm_FormClosing)**

What it does:

- Closes entire application when admin dashboard is closed
- Ensures clean application termination

How to use:

- Click the close (X) button on form window
- Entire application exits

**Dashboard Layout**

**Top Section:**

- Welcome Message: "Welcome, [Admin Name]! 🌱"
- Navigation Menu: Horizontal button bar
- Refresh/Logout Controls

**Main Dashboard Area:**

- Statistics Cards: 5 cards displaying KPIs
- Visual Indicators: Color-coded alerts (low stock = red)

**Navigation Menu Items:**

1. 🏠 Home - Dashboard
2. 👥 Manage Users
3. 📦 Manage Products
4. 👤 Manage Customers
5. 📋 Manage Orders
6. 📊 Generate Reports
7. 💼 Logout

**How to Use the Admin Dashboard**

**Step 1: Access the Dashboard**

1. Login with admin credentials
2. System automatically redirects to admin dashboard
3. Welcome message appears with your name

**Step 2: Review Business Overview**

1. Check Total Sales - Monitor revenue
2. Check Products in Stock - Inventory status
3. Check Active Orders - Pending tasks
4. Check Total Customers - User base growth
5. IMPORTANT: Check Low Stock Products - Items needing restock

## Step 3: Take Action Based on Data

### If Low Stock Products > 0:

1. Click 📦 Manage Products
2. Restock products with less than 10 units
3. Return to dashboard to verify update

### If Active Orders High:

1. Click 📋 Manage Orders
2. Process pending orders
3. Update shipping status

### If Monitoring Performance:

1. Click 📊 Generate Reports
2. Run sales/inventory reports
3. Make data-driven decisions

## Step 4: Regular Dashboard Maintenance

1. Daily: Check low stock alerts
2. Weekly: Review total sales trends
3. As Needed: Use refresh button for latest data
4. Periodically: Generate and analyze reports

## Database Requirements

The dashboard queries these tables:

```sql
-- Orders table for sales and order counts
CREATE TABLE orders (
    order_id INT AUTO_INCREMENT PRIMARY KEY,
    total_amount DECIMAL(10,2),
    status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED')
);


-- Products table for inventory
CREATE TABLE products (
    product_id INT AUTO_INCREMENT PRIMARY KEY,
    product_name VARCHAR(100),
    stock INT,
    status ENUM('AVAILABLE', 'OUT_OF_STOCK', 'DISCONTINUED')
);


-- Users table for customer count
CREATE TABLE users (
    user_id INT AUTO_INCREMENT PRIMARY KEY,
    role ENUM('ADMIN', 'CUSTOMER')
);
```

**Troubleshooting**

**Common Issues and Solutions:**

| Issue | Solution |
|---|---|
| Statistics not updating | Click Refresh button or Home button |
| "Error loading dashboard data" | Check database connection |
| Low stock not showing red | Ensure products have stock < 10 |
| Navigation buttons not working | Check if forms exist in project |
| Dashboard loads slowly | Optimize database queries |

**If Dashboard Shows Zero Data:**

1. Check database contains records
2. Verify table names match queries
3. Ensure order status uses correct values
4. Confirm product status = 'AVAILABLE'

**Best Practices for Admin Users**

**Daily Checklist:**

1. ✅ Check low stock alerts first
2. ✅ Review active orders count
3. ✅ Monitor total sales
4. ✅ Verify new customer registrations

**Weekly Tasks:**

1. 📊 Generate weekly sales report
2. 📦 Review all inventory levels
3. 👥 Check user management for issues
4. 🔄 Update any necessary configurations

**Security Practices:**

1. 🔒 Always logout when leaving workstation
2. 👁 Regularly review user activities
3. 📋 Keep order processing up to date
4. 💾 Backup reports regularly

**Quick Reference Guide**

| Action | Button/Location | Expected Result |
|---|---|---|
| View latest stats | 🏠 Home button or 🔄 Refresh | Statistics update |
| Manage inventory | 📦 Manage Products | Opens product management |
| Handle orders | 📋 Manage Orders | Opens order processing |

| | | |
|---|---|---|
| View customers | 👤 Manage Customers | Shows customer database |
| Generate insights | 📊 Generate Reports | Opens reporting module |
| Secure logout | 🚪 Logout | Returns to login screen |
| Exit application | Close (X) button | Closes entire program |

**Performance Tips**

1. Refresh Only When Needed: Dashboard auto-refreshes on navigation
2. Use Color Alerts: Red low stock indicators for quick attention
3. Regular Maintenance: Keep database optimized for fast queries
4. Monitor Growth: Track customer and sales trends over time

**Data Flow**

text

Database → LoadDashboardData() → Statistics Cards → Admin Review

↓

User Action (click button) → Open Management Form → Return to Dashboard

↓

Logout → Confirm → Login Form

This admin dashboard provides a comprehensive overview and control center for managing all aspects of the ShopGreen system, with real-time data, intuitive navigation, and visual alerts for important business metrics.

# 5.ShopGreen System - Customer Management Form User Guide

## Form Overview

The Customer Management Form is an administrative interface for managing all customer accounts in the ShopGreen system. It allows admins to view customer details, update information, track orders, and monitor customer statistics.

## Key Functions and Features

### 1. Customer List Display (LoadCustomers)

What it does:

- Loads all customer records from the database into a DataGridView
- Displays 6 columns of customer information
- Applies professional styling to the grid
- Shows total customer count

Displayed Information:

1. Customer ID - Unique identifier
2. Name - Customer's full name
3. Email - Registered email address
4. Contact - Phone number
5. Username - Login username
6. Registered Date - Account creation date

How to use:

- Customers automatically load when form opens
- List is sorted by newest customers first
- Grid styling makes it easy to read and navigate

### 2. Customer Statistics (LoadCustomerStats)

What it does:

- Shows three key customer metrics:
    1. Total Customers - All registered customers
    2. Active Customers - Customers who have placed orders
    3. New Customers This Month - Recent sign-ups

How to use:

- Statistics appear automatically
- Use to track customer base growth and engagement
- Monitor monthly acquisition rate

### 3. Customer Selection (dgvCustomers_CellClick)

What it does:

- Allows selection of a customer from the grid
- Populates the form fields with selected customer's data
- Sets selectedCustomerId for update operations
- Shows "Selected: [Customer Name]" label

How to use:

1. Click any row in the customer grid
2. Customer details appear in the form fields
3. You can now update or view orders for this customer

### 4. Update Customer Information (btnUpdate_Click)

What it does:

- Updates customer's name, email, and contact information
- Validates required fields
- Shows success message on completion
- Refreshes customer list after update

How to use:

1. Select a customer from the grid
2. Edit fields you want to change:
   - Name
   - Email
   - Contact
3. Click Update Customer button
4. Validation: All three fields are required
5. Success message confirms update

Note: Username cannot be changed for security reasons

### 5. View Customer Orders (btnViewOrders_Click)

What it does:

- Shows all orders placed by the selected customer
- Displays order ID, date, amount, and status
- Shows message if customer has no orders
- Provides insight into customer purchase history

How to use:

1. Select a customer from the grid
2. Click View Orders button
3. A message box shows all customer orders
4. If no orders: "This customer has no orders yet"

Order Information Displayed:

- Order ID
- Order Date (formatted as yyyy-MM-dd)
- Total Amount (Rs.)
- Status (PENDING, SHIPPED, DELIVERED, CANCELLED)


## 6. Search Functionality (txtSearch_TextChanged)

What it does:

- Real-time search as you type
- Searches customer name, email, and username
- Filters DataGridView results
- Updates customer count display

How to use:

1. Type in the Search Customers textbox
2. Grid updates automatically with matching results
3. Clear search box to show all customers again

Search Examples:

- "john" - finds all customers named John
- "@gmail.com" - finds Gmail users
- "user123" - finds specific username


## 7. Clear Form Fields (btnClear_Click)

What it does:

- Clears all input fields (Name, Email, Contact, Username)
- Resets selected customer ID
- Clears error messages
- Resets selection label

How to use:

- Click Clear button to reset the form
- Useful when you want to start fresh

### 8. Refresh Data (btnRefresh_Click)

What it does:

- Reloads all customer data from database
- Clears form fields
- Shows success message

How to use:

- Click Refresh button
- Updates display with latest customer information

### 9. Contact Field Input Restriction (txtContact_KeyPress)

What it does:

- Restricts contact field to numbers only
- Blocks alphabetic and special characters
- Allows control keys (Backspace, Delete, Tab)

How to use:

- Automatically enforced when typing
- Ensures contact numbers contain only digits

## Navigation Menu Functions

### Top Navigation Bar:

Same as Admin Dashboard with 7 buttons:

1. 🏠 Home - Returns to Admin Dashboard
2. 👥 Manage Users - Opens user management
3. 📦 Manage Products - Opens product management
4. 👤 Manage Customers - Refreshes current form (already here)
5. 📋 Manage Orders - Opens order management
6. 📊 Generate Reports - Opens reports module
7. 🚪 Logout - Securely logs out admin

How to use:

- Click any button to navigate to that module
- Hover effects: Buttons change color on hover

## Form Layout Sections

### Top Section:

- Welcome area
- Navigation menu bar
- Search box with real-time filtering

## Left Panel: Customer Statistics

- Total Customers (all registered)
- Active Customers (with orders)
- New Customers This Month
- Shows key metrics at a glance

## Center: Customer List

- DataGridView with all customers
- Professional green/white styling
- Sortable columns
- Row selection highlighting

## Right Panel: Customer Details & Actions

- Selected Customer: [Name] indicator
- Edit Fields: Name, Email, Contact, Username (read-only)
- Action Buttons: Update, View Orders, Clear, Refresh

## Step-by-Step Usage Guide

### Scenario 1: Update Customer Contact Information

1. Search for customer using search box
2. Click on customer row in grid
3. Edit the contact number field
4. Click "Update Customer" button
5. Verify update was successful

### Scenario 2: Check Customer Purchase History

1. Select customer from grid
2. Click "View Orders" button
3. Review order history in popup
4. Note total spending and order frequency

### Scenario 3: Monitor Customer Growth

1. Observe statistics panel
2. Track "New Customers This Month"
3. Compare "Total" vs "Active" customers

4. Identify engagement opportunities

**Scenario 4: Find Inactive Customers**

   1. Click "View Orders" for multiple customers
   2. Identify customers with zero orders
   3. Consider re-engagement strategies
   4. Update contact information if needed

**Database Requirements**

**Users Table:**

sql

```sql
CREATE TABLE users (
    user_id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    email VARCHAR(100) NOT NULL UNIQUE,
    contact VARCHAR(10),
    username VARCHAR(50) NOT NULL UNIQUE,
    password VARCHAR(255) NOT NULL,
    role ENUM('ADMIN', 'CUSTOMER') DEFAULT 'CUSTOMER',
    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);
```

**Orders Table:**

sql

```sql
CREATE TABLE orders (
    order_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
```

```
    order_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,

    total_amount DECIMAL(10,2) NOT NULL,

    status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED'),

    FOREIGN KEY (user_id) REFERENCES users(user_id)

);
```

**Error Handling and Validation**

**Field Validation:**

| Field | Validation Rule | Error Message |
|-------|-----------------|---------------|
| Name | Cannot be empty | "Name is required" |
| Email | Cannot be empty | "Email is required" |
| Contact | Cannot be empty | "Contact is required" |

**Common Error Messages:**

1. "Please select a customer to update!" - No row selected
2. "Please select a customer to view orders!" - No row selected
3. "This customer has no orders yet." - No order history
4. "Please fill all required fields!" - Missing required data

**Best Practices for Customer Management**

**Daily Tasks:**

1. Check new customers - Welcome new sign-ups
2. Update contact info - Keep records current
3. Review order history - Identify loyal customers

**Weekly Analysis:**

1. Monitor growth - Track "New Customers This Month"
2. Check engagement - Compare "Total" vs "Active" customers
3. Update records - Ensure contact information is current

**Customer Service:**

1. Quick updates - Use search to find customers fast
2. Order verification - Check order status when customers call
3. Data accuracy - Keep all customer information up-to-date

**Troubleshooting Guide**

**Issue: Customer list not loading**

Solution:

1. Check database connection string
2. Verify users table exists with correct columns
3. Ensure there are customers with role = 'CUSTOMER'

**Issue: Cannot update customer**

Solution:

1. Make sure a customer row is selected (highlighted)
2. Check all required fields are filled
3. Verify database permissions allow updates

**Issue: Search not working**

Solution:

1. Check search text is not empty
2. Verify database contains matching records
3. Ensure LIKE query syntax is correct

**Issue: Statistics not showing**

Solution:

1. Check database contains order records
2. Verify order dates are within current month
3. Ensure user_id links correctly between tables

**Quick Reference Guide**

| Action | Steps |
| --- | --- |
| Find Customer | Use search box or scroll grid |
| Update Info | Select row → Edit fields → Click Update |
| View Orders | Select row → Click View Orders |
| Clear Form | Click Clear button |
| Refresh Data | Click Refresh button |
| Navigate | Use top menu buttons |
| Logout | Click Logout → Confirm Yes |

**Keyboard Shortcuts**

- Tab - Navigate between fields
- Enter in search - Activates search
- Click on grid row - Selects customer

- Ctrl+R - Refresh data (if implemented)

**Security Notes**

1. Username cannot be changed - Prevents login issues
2. Password not displayed - For security reasons
3. Role cannot be changed here - Use Manage Users form
4. Input validation - Prevents invalid data entry

**Performance Tips**

1. Use search instead of scrolling for large lists
2. Click Refresh after making multiple updates
3. Monitor statistics for quick insights
4. Regularly clear form when working with multiple customers

This customer management form provides comprehensive tools for administrators to effectively manage customer relationships, track engagement, and maintain accurate customer records in the ShopGreen system.

# 6.ShopGreen System - Manage Users Form User Guide

**Form Overview**

The Manage Users Form is a comprehensive administrative interface for managing ALL user accounts in the ShopGreen system, including both customers and administrators. It provides full CRUD (Create, Read, Update, Delete) functionality for user management.

**Key Functions and Features**

**1. User List Display (LoadUsers)**

What it does:

- Loads all user records (both ADMIN and CUSTOMER) from the database
- Displays 7 columns of user information in a styled DataGridView
- Shows total user count
- Sorted by newest users first

Displayed Information:

1. User ID - Unique identifier
2. Name - User's full name
3. Email - Registered email address
4. Contact - Phone number
5. Username - Login username

6. Role - ADMIN or CUSTOMER
7. Created At - Account creation timestamp

Grid Styling Features:

- Professional green/white color scheme
- Full row selection
- Read-only display
- Column auto-sizing
- Visual selection highlighting

## 2. Add New User (btnAdd_Click)

What it does:

- Creates a new user account with specified role
- Validates all required fields
- Checks for duplicate username/email
- Inserts user into database
- Refreshes user list after creation

Required Fields for Adding Users:

1. Name - Cannot be empty
2. Email - Cannot be empty (checks for duplicates)
3. Username - Cannot be empty (checks for duplicates)
4. Password - Cannot be empty
5. Role - Must select ADMIN or CUSTOMER

Optional Field:

- Contact - Phone number (numbers only)

How to add a user:

1. Fill all required fields in the form
2. Select role from dropdown (ADMIN or CUSTOMER)
3. Click Add User button
4. Success message confirms creation

## 3. Update Existing User (btnUpdate_Click)

What it does:

- Updates selected user's information
- Allows changing name, email, contact, role, and optionally password
- Validates required fields
- Shows confirmation on success

How to update a user:

1. Select user from the grid (click row)
2. Edit fields you want to change
3. To change password: Enter new password (leave blank to keep current)
4. Click Update User button
5. Success message confirms update

Important Note: Username cannot be changed once created (for security and data integrity)

## 4. Delete User (btnDelete_Click)

What it does:

- Removes selected user from the system
- Requires confirmation before deletion
- Prevents admin from deleting their own account
- Refreshes list after deletion

How to delete a user:

1. Select user from the grid
2. Click Delete User button
3. Confirmation dialog appears
4. Click "Yes" to confirm deletion
5. User is permanently removed

Safety Features:

- ❌ Cannot delete your own account (prevents accidental lockout)
- ⚠️ Confirmation required (prevents accidental deletions)
- 🔄 Immediate refresh after deletion

## 5. User Selection (dgvUsers_CellClick)

What it does:

- Populates form fields with selected user's data
- Sets selectedUserId for update/delete operations
- Makes username field read-only (cannot be changed)
- Clears password field (security measure)

How to select a user:

- Click any row in the user grid
- User details appear in form fields
- You can now update or delete this user

## 6. User Existence Check (CheckUserExists)

What it does:

- Checks if username or email already exists (excluding current user)
- Prevents duplicate accounts
- Used during both add and update operations

Validation Rules:

- Username must be unique across all users
- Email must be unique across all users
- Cannot have same username/email as another user

## 7. Search Functionality (txtSearch_TextChanged)

What it does:

- Real-time search as you type
- Searches user name, email, and username fields
- Filters DataGridView results instantly
- Updates user count display

Search Usage:

- Type in Search Users textbox
- Grid updates automatically
- Clear search box to show all users

Search Examples:

- "admin" - finds users with "admin" in name/email/username
- "@company.com" - finds users with specific domain
- "john" - finds all users named John

## 8. Clear Form Fields (btnClear_Click)

What it does:

- Clears all input fields
- Resets role dropdown
- Clears error messages
- Sets focus to Name field
- Resets selected user ID

When to use:

- After completing an operation
- When starting fresh
- When changing between different users

## 9. Input Validation

What it does:

- Validates all required fields
- Shows red error indicators for missing data
- Ensures data quality before database operations

Validation Rules:

| Field | Validation | Error Message |
|---|---|---|
| Name | Required | "Name is required" |
| Email | Required | "Email is required" |
| Username | Required (Add only) | "Username is required" |
| Password | Required (Add only) | "Password is required" |
| Role | Required | "Role is required" |
| Contact | Numbers only | Auto-blocks non-digits |

**Navigation Menu**

**Top Navigation Bar (7 functions):**

1. 🏠 Home - Returns to Admin Dashboard
2. 👥 Manage Users - Refreshes current form
3. 📦 Manage Products - Opens product management
4. 👤 Manage Customers - Opens customer management
5. 📋 Manage Orders - Opens order management
6. 📊 Generate Reports - Opens reports module
7. 🚪 Logout - Securely logs out admin

Hover Effects: Buttons change color on mouse hover

**Form Layout**

**Top Section:**

- Navigation menu
- Search box with real-time filtering
- Total users count

**Center: User List Grid**

- Shows all users with 7 columns
- Professional styling
- Click to select for editing

**Right Panel: User Management Form**

- User Details Section:
  - Name, Email, Contact, Username, Password, Role
- Action Buttons:
  - Add User
  - Update User
  - Delete User
  - Clear Form

**Step-by-Step Usage Guide**

**Scenario 1: Add a New Administrator**

1. Clear form (if needed)
2. Fill all fields:
   - Name: New Admin Name
   - Email: admin2@shopgreen.com
   - Contact: 0712345678
   - Username: admin2
   - Password: securepassword123
   - Role: Select "ADMIN"
3. Click "Add User"
4. Verify new admin appears in grid

**Scenario 2: Promote Customer to Admin**

1. Search for customer by name/email
2. Select customer from grid
3. Change Role to "ADMIN"
4. Optional: Enter new password
5. Click "Update User"
6. Verify role change in grid

**Scenario 3: Remove Inactive User**

1. Search for inactive user
2. Select user from grid
3. Click "Delete User"
4. Confirm deletion
5. Verify user removed from grid

## Scenario 4: Update User Contact Information

1. Find user using search
2. Select user from grid
3. Update contact field
4. Click "Update User"
5. Verify update in grid

## Database Schema Requirements

### Users Table Structure:

sql

```sql
CREATE TABLE users (

    user_id INT AUTO_INCREMENT PRIMARY KEY,

    name VARCHAR(100) NOT NULL,

    email VARCHAR(100) NOT NULL UNIQUE,

    contact VARCHAR(10),

    username VARCHAR(50) NOT NULL UNIQUE,

    password VARCHAR(255) NOT NULL,

    role ENUM('ADMIN', 'CUSTOMER') NOT NULL,

    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP

);
```

## Security Features

### Built-in Protections:

1. Username Immutability: Cannot change username after creation
2. Password Security: Password field cleared when selecting user
3. Self-Deletion Prevention: Cannot delete your own account
4. Input Validation: Prevents invalid data entry

5. Role-Based Access: Clear distinction between ADMIN and CUSTOMER

**Security Best Practices:**

1. Use strong passwords when creating accounts
2. Limit admin access to trusted personnel only
3. Regularly review user accounts for unauthorized access
4. Monitor role changes for suspicious activity
5. Keep admin credentials secure

**Error Handling**

**Common Error Messages:**

| Error Message | Cause | Solution |
|---|---|---|
| "Please select a user" | No row selected | Click on user in grid |
| "Username or Email exists" | Duplicate credentials | Use unique username/email |
| "Cannot delete own account" | Trying to delete yourself | Select different user |
| "Fill all required fields" | Missing data | Complete all required fields |
| "Role is required" | No role selected | Choose ADMIN or CUSTOMER |

**Troubleshooting Guide**

**Issue: User list not loading**

Check:

1. Database connection string
2. Users table exists with correct columns
3. Database service is running

**Issue: Cannot add user**

Check:

1. All required fields completed
2. Unique username and email
3. Database insert permissions


**Issue: Search not working**

Check:

1. Search text entered
2. Database has matching records
3. LIKE query syntax


**Issue: Update not working**

Check:

1. User selected from grid
2. Required fields filled
3. Database update permissions


**Best Practices for User Management**


**Administrative Guidelines:**

1. Document all changes - Keep records of user modifications
2. Regular audits - Review user accounts monthly
3. Principle of least privilege - Grant admin access only when necessary
4. Immediate deactivation - Remove access for departed employees
5. Password policies - Enforce strong passwords for admins


**Daily Tasks:**

1. Review new accounts - Verify legitimate sign-ups
2. Check role assignments - Ensure correct permissions
3. Monitor failed logins - Identify potential security issues


**Weekly Tasks:**

1. Audit admin accounts - Verify only authorized admins
2. Review customer accounts - Check for suspicious patterns
3. Update contact information - Keep records current


**Quick Reference Guide**

| Action | Steps | Notes |
|---|---|---|
| Add User | Fill form → Click Add | All fields required |
| Update User | Select user → Edit → Click Update | Username cannot change |
| Delete User | Select user → Click Delete → Confirm | Cannot delete yourself |
| Search User | Type in search box | Real-time filtering |
| Clear Form | Click Clear | Resets all fields |
| View All | Clear search box | Shows all users |

**Keyboard Shortcuts**

- Tab - Navigate between form fields
- Enter in search - Activates search
- Click on grid row - Selects user
- Escape - May clear search (depends on implementation)

**Performance Tips**

1. Use search for large user databases
2. Clear form between operations
3. Regular refresh with F5 or Refresh button
4. Monitor user count for growth trends

**Important Notes**

1. Username is permanent - Choose carefully when creating accounts
2. Password changes - Enter new password in field to update
3. Admin privileges - Grant sparingly and monitor closely
4. Data integrity - Changes affect all related data (orders, etc.)

This Manage Users Form provides complete control over user accounts in the ShopGreen system, with robust security features, comprehensive validation, and an intuitive interface for efficient user administration.

# 7.ShopGreen System - Order Management Form User Guide

**Form Overview**

The Order Management Form is an administrative interface for managing all customer orders in the ShopGreen system. It provides comprehensive tools for viewing, tracking, updating, and analyzing orders throughout their lifecycle.

**Key Functions and Features**

**1. Order List Display (LoadOrders)**

What it does:

- Loads all orders with customer information from the database
- Displays 5 columns of order information with visual status indicators
- Color-codes rows based on order status for quick identification
- Sorts by newest orders first

Displayed Information:

1. Order ID - Unique order identifier
2. Customer Name - Who placed the order
3. Order Date - When order was placed
4. Total Amount - Order value in Rupees
5. Status - Current order status with color coding

Color Coding System:

| Status | Background Color | Text Color | Meaning |
|---|---|---|---|
| PENDING | Light Orange | Dark Orange | Order received, not processed |
| SHIPPED | Light Blue | Dark Blue | Order shipped, in transit |
| DELIVERED | Light Green | Dark Green | Order delivered successfully |

Grid Features:

- Professional green/white color scheme
- Color-coded status rows
- Full row selection
- Read-only display
- Column auto-sizing

## 2. Order Statistics (LoadOrderStats)

What it does:

- Shows four key order metrics in real-time:
    1. Pending Orders - Orders awaiting processing
    2. Shipped Orders - Orders in transit
    3. Delivered Orders - Completed orders
    4. Total Revenue - Income from delivered orders

How to use:

- Statistics update automatically on form load
- Use to track order processing efficiency
- Monitor revenue generation

## 3. Order Selection (dgvOrders_CellClick)

What it does:

- Populates form fields with selected order's data
- Sets selectedOrderId for update operations
- Automatically loads order details (items) when order is selected
- Shows "Selected: Order #[ID]" label

How to use:

- Click any row in the order grid
- Order details appear in the form fields
- Order items automatically load in the details grid
- You can now update status or view more details

## 4. Update Order Status (btnUpdateStatus_Click)

What it does:

- Changes the status of a selected order
- Validates that a status is selected
- Updates database and refreshes display
- Shows success confirmation

Status Options:

1. PENDING - Order placed, not processed
2. SHIPPED - Order shipped to customer
3. DELIVERED - Order delivered successfully
4. CANCELLED - Order cancelled (if available)

How to update status:

1. Select order from the grid
2. Choose new status from dropdown
3. Click Update Status button
4. Color coding updates automatically


## 5. View Order Details (btnViewDetails_Click)

What it does:

- Shows all items in the selected order
- Displays product name, quantity, price, and line total
- Calculates item totals (quantity × price)
- Shows in a separate DataGridView

Displayed Item Information:

1. Item ID - Order item identifier
2. Product Name - Name of product ordered
3. Quantity - Number of units ordered
4. Price - Unit price at time of order
5. Total - Line total (quantity × price)

How to view details:

- Automatic: Click any order in the main grid
- Manual: Select order → Click "View Details" button
- Details appear in the lower grid


## 6. Search Orders (txtSearch_TextChanged)

What it does:

- Real-time search as you type
- Searches customer name and order ID fields
- Filters main order grid instantly
- Updates order count display

Search Usage:

- Type in Search Orders textbox
- Grid updates automatically

- Clear search box to show all orders

Search Examples:

- "123" - finds Order ID 123
- "John" - finds orders by customers named John
- "Smith" - filters by customer name

## 7. Filter by Status (cmbFilterStatus_SelectedIndexChanged)

What it does:

- Filters orders by their current status
- Shows only orders matching selected status
- "All Orders" option shows complete list
- Updates order count display

Filter Options:

1. All Orders - Shows all orders (default)
2. PENDING - Only pending orders
3. SHIPPED - Only shipped orders
4. DELIVERED - Only delivered orders

How to filter:

1. Select status from Filter by Status dropdown
2. Grid updates to show only matching orders
3. Select "All Orders" to remove filter

## 8. Clear Form Fields (btnClear_Click)

What it does:

- Clears all input fields
- Clears order details grid
- Resets status dropdown
- Clears error messages
- Resets selected order ID

When to use:

- After completing an operation
- When starting fresh
- When switching between different orders

## 9. Refresh Data (btnRefresh_Click)

What it does:

- Reloads all order data from database
- Clears form fields
- Resets filter to "All Orders"
- Shows success message

How to use:

- Click Refresh button
- Updates display with latest order information

**Navigation Menu**

**Top Navigation Bar (7 functions):**

1. 🏠 Home - Returns to Admin Dashboard
2. 👥 Manage Users - Opens user management
3. 📦 Manage Products - Opens product management
4. 👤 Manage Customers - Opens customer management
5. 📋 Manage Orders - Refreshes current form
6. 📊 Generate Reports - Opens reports module
7. 🪵 Logout - Securely logs out admin

Hover Effects: Buttons change color on mouse hover

**Form Layout**

**Top Section:**

- Navigation menu
- Search box with real-time filtering
- Status filter dropdown
- Total orders count

**Left Panel: Order Statistics**

- Pending Orders (orange indicator)
- Shipped Orders (blue indicator)
- Delivered Orders (green indicator)
- Total Revenue (monetary value)

**Center: Order List Grid**

- Shows all orders with color-coded status
- Professional styling
- Click to select for editing

**Right Panel: Order Management Form**

- Selected Order: [Order #] indicator
- Order Details: Order ID, Customer, Date, Amount, Status
- Action Buttons: Update Status, View Details, Clear, Refresh

**Bottom Section: Order Items Grid**

- Shows line items for selected order
- Professional green styling
- Read-only display

**Step-by-Step Usage Guide**

**Scenario 1: Process Pending Orders**

1. Filter by "PENDING" status
2. Review pending orders list
3. Select first order
4. Update status to "SHIPPED"
5. Repeat for remaining pending orders

**Scenario 2: Track Order Delivery**

1. Filter by "SHIPPED" status
2. Select shipped order
3. Verify order items in details grid
4. Update status to "DELIVERED"
5. Check revenue statistics update

**Scenario 3: Customer Order Inquiry**

1. Search for customer by name
2. Select specific order
3. View order details and items
4. Check order status and date
5. Provide information to customer

**Scenario 4: Daily Order Review**

1. Check statistics panel (pending count)
2. Review all orders from today
3. Process pending orders
4. Update shipped to delivered
5. Monitor revenue generation

**Database Schema Requirements**

**Orders Table:**

```sql
CREATE TABLE orders (
    order_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
    order_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    total_amount DECIMAL(10,2) NOT NULL,
    status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED') DEFAULT 'PENDING',
    FOREIGN KEY (user_id) REFERENCES users(user_id)
);
```

**Order Items Table:**

```sql
CREATE TABLE order_items (
    order_item_id INT AUTO_INCREMENT PRIMARY KEY,
    order_id INT NOT NULL,
    product_id INT NOT NULL,
    quantity INT NOT NULL,
    price DECIMAL(10,2) NOT NULL,
    FOREIGN KEY (order_id) REFERENCES orders(order_id),
    FOREIGN KEY (product_id) REFERENCES products(product_id)
);
```

**Products Table:**

```sql
CREATE TABLE products (
```

```sql
    product_id INT AUTO_INCREMENT PRIMARY KEY,

    product_name VARCHAR(100) NOT NULL,

    price DECIMAL(10,2) NOT NULL,

    stock INT NOT NULL
);
```

**Users Table:**

sql

```sql
CREATE TABLE users (

    user_id INT AUTO_INCREMENT PRIMARY KEY,

    name VARCHAR(100) NOT NULL
);
```

**Error Handling**

**Common Error Messages:**

| Error Message | Cause | Solution |
|---|---|---|
| "Please select an order" | No row selected | Click on order in grid |
| "Please select a status" | No status chosen | Choose from dropdown |
| "No items found for this order" | Order has no items | Check order_items table |
| "Error loading orders" | Database issue | Check connection and tables |

**Troubleshooting Guide**

**Issue: Order list not loading**

Check:

1. Database connection string
2. Orders and users tables exist
3. JOIN conditions match table structures
4. Database service is running

**Issue: Color coding not working**

Check:

1. Status values match exactly: PENDING, SHIPPED, DELIVERED
2. Grid styling code is executing
3. No exceptions in LoadOrders method

**Issue: Order details not showing**

Check:

1. Selected order has items in order_items table
2. Products table has matching product_id
3. JOIN conditions are correct

**Issue: Status update not working**

Check:

1. Order is selected from grid
2. Status is selected from dropdown
3. Database update permissions

**Best Practices for Order Management**

**Daily Order Processing Workflow:**

1. Morning: Process all PENDING orders → SHIPPED
2. Afternoon: Update SHIPPED orders → DELIVERED as deliveries complete
3. Evening: Review statistics and prepare for next day

**Order Status Guidelines:**

1. PENDING: ≤ 24 hours after order placement
2. SHIPPED: When order leaves warehouse
3. DELIVERED: Confirmed customer receipt
4. CANCELLED: Customer request or payment failure

**Customer Communication:**

1. Notify customer when status changes to SHIPPED
2. Confirm delivery when status changes to DELIVERED
3. Document any issues or delays in order notes

**Inventory Management Integration:**

1. Check stock before updating to SHIPPED
2. Update inventory when order is SHIPPED
3. Monitor low stock alerts from orders

**Quick Reference Guide**

| Action | Steps | Notes |
| --- | --- | --- |
| View Orders | Form opens automatically | Color-coded by status |
| Update Status | Select order → Choose status → Click Update | Validates selection |
| View Details | Select order (auto-loads) | Shows items and totals |
| Search Orders | Type in search box | Real-time filtering |
| Filter by Status | Choose from dropdown | Focus on specific status |
| Clear Form | Click Clear | Resets all fields |
| Refresh Data | Click Refresh | Latest data from DB |

**Keyboard Shortcuts**

- Tab - Navigate between form fields
- Enter in search - Activates search
- Click on grid row - Selects order
- Arrow Keys - Navigate grid rows

**Performance Tips**

1. Use filters for large order databases
2. Search instead of scroll for specific orders
3. Regular refresh to see latest status changes
4. Monitor statistics for processing bottlenecks

**Reporting Integration**

The order data available here can be used for:

1. Sales reports - Revenue by period
2. Customer reports - Purchase patterns
3. Product reports - Best sellers
4. Operational reports - Processing times

**Important Notes**

1. Order history - Status changes are logged in database
2. Financial tracking - Revenue only counted on DELIVERED status
3. Customer experience - Timely status updates improve satisfaction
4. Inventory sync - Order processing affects stock levels

This Order Management Form provides complete control over the order fulfillment process in the ShopGreen system, with visual status tracking, comprehensive filtering, and detailed order information for efficient order processing and customer service.

# 8.ShopGreen System - Product Management Form User Guide

**Form Overview**

The Product Management Form is a comprehensive administrative interface for managing all products in the ShopGreen system. It provides full CRUD (Create, Read, Update, Delete) functionality for the product catalog, including image management, stock tracking, and product categorization.

**Key Functions and Features**

**1. Product List Display (LoadProducts)**

What it does:

- Loads all products from the database into a DataGridView
- Displays 10 columns of product information (9 visible, 1 hidden)
- Color-codes low stock products (stock < 10) for quick identification
- Sorts by newest products first

Displayed Information (Visible Columns):

1. Product ID - Unique product identifier
2. Product Name - Name of the product
3. Category - Product category (Vegetables, Fruits, etc.)
4. Price - Unit price in Rupees
5. Stock - Current inventory quantity
6. Status - Product availability status
7. Supplier - Vendor/supplier name
8. Discount - Whether product is on discount (True/False)
9. Created At - Product creation timestamp

Hidden Column:

- Image Path - File path of product image (used internally)

Color Coding System:

- Low Stock Alert: Products with stock < 10 units are highlighted in light red with dark red text

Grid Features:

- Professional green/white color scheme
- Low stock color highlighting
- Full row selection
- Read-only display
- Column auto-sizing

## 2. Add New Product (btnAdd_Click)

What it does:

- Creates a new product entry in the catalog
- Validates all required fields and data types
- Supports image upload for product visualization
- Inserts product into database with comprehensive details

Required Fields:

1. Product Name - Cannot be empty
2. Category - Must select from dropdown
3. Price - Must be positive decimal number
4. Stock - Must be non-negative integer
5. Status - Must select from dropdown

Optional Fields:

- Supplier - Vendor name (text)
- Discount - Checkbox for discount status
- Image - Product picture (via file upload)

How to add a product:

1. Fill all required fields
2. Optional: Upload product image
3. Optional: Enter supplier and set discount
4. Click Add Product button
5. Success message confirms creation

## 3. Update Existing Product (btnUpdate_Click)

What it does:

- Modifies selected product's information
- Allows changing all product attributes
- Validates data before updating
- Supports image replacement
- Shows confirmation on success

How to update a product:

1. Select product from the grid (click row)
2. Edit fields you want to change
3. Optional: Upload new image
4. Click Update Product button
5. Success message confirms update

## 4. Delete Product (btnDelete_Click)

What it does:

- Removes selected product from the catalog
- Requires confirmation before deletion
- Permanently deletes product record
- Refreshes list after deletion

How to delete a product:

1. Select product from the grid
2. Click Delete Product button
3. Confirmation dialog appears
4. Click "Yes" to confirm deletion
5. Product is permanently removed

Safety Features:

- ⚠️ Confirmation required (prevents accidental deletions)
- 🔄 Immediate refresh after deletion

## 5. Upload Product Image (btnUploadImage_Click)

What it does:

- Opens file dialog to select product image
- Supports JPG, JPEG, PNG, GIF, BMP formats
- Stores image file path in database
- Displays image preview in picture box

How to upload an image:

1. Click Upload Image button
2. File dialog opens - navigate to image file
3. Select image and click Open
4. Preview appears in picture box
5. Image saves when product is added/updated

Image Requirements:

- Formats: JPG, JPEG, PNG, GIF, BMP
- Size: Displayed in zoom mode for optimal viewing

## 6. Product Selection (dgvProducts_CellClick)

What it does:

- Populates form fields with selected product's data
- Sets selectedProductId for update/delete operations
- Loads product image if available
- Shows all product details for editing

How to select a product:

- Click any row in the product grid
- Product details appear in form fields
- Image loads if available
- You can now update or delete this product

## 7. Search Products (txtSearch_TextChanged)

What it does:

- Real-time search as you type
- Searches product name and supplier fields
- Filters DataGridView results instantly
- Updates product count display

Search Usage:

- Type in Search Products textbox
- Grid updates automatically
- Clear search box to show all products

Search Examples:

- "Apple" - finds products named Apple
- "Fresh Farms" - finds products from specific supplier
- "Organic" - finds products containing "organic" in name

## 8. Clear Form Fields (btnClear_Click)

What it does:

- Clears all input fields
- Resets dropdown selections
- Clears image preview
- Clears error messages
- Resets selected product ID
- Sets focus to Product Name field

When to use:

- After completing an operation
- When starting fresh
- When switching between different products

## 9. Input Validation and Restrictions

**Price Field Validation (txtPrice_KeyPress):**
- Allowed: Digits 0-9 and decimal point
- Restricted: Letters, symbols (except .)
- Single decimal point: Prevents multiple decimals
- Positive values: Validation ensures price > 0

**Stock Field Validation (txtStock_KeyPress):**
- Allowed: Digits 0-9 only
- Restricted: Letters, symbols, decimal points
- Non-negative: Validation ensures stock $\geq$ 0

**Form Validation:**

| Field | Validation Rules | Error Message |
|---|---|---|
| Product Name | Required, not empty | "Product name is required" |
| Category | Required selection | "Category is required" |

| Price | Required, positive decimal | "Price must be a valid positive number" |
| --- | --- | --- |
| Stock | Required, non-negative integer | "Stock must be a valid non-negative number" |
| Status | Required selection | "Status is required" |

**Navigation Menu**

**Top Navigation Bar (7 functions):**

1. 🏠 Home - Returns to Admin Dashboard
2. 👥 Manage Users - Opens user management
3. 📦 Manage Products - Refreshes current form
4. 👤 Manage Customers - Opens customer management
5. 📋 Manage Orders - Opens order management
6. 📊 Generate Reports - Opens reports module
7. 🚪 Logout - Securely logs out admin

Hover Effects: Buttons change color on mouse hover

**Form Layout**

**Top Section:**

- Navigation menu
- Search box with real-time filtering
- Total products count

**Left Panel: Product List Grid**

- Shows all products with low stock highlighting
- Professional styling
- Click to select for editing

**Center: Product Details Form**

- Basic Information: Product Name, Category, Price, Stock, Status
- Supplier Details: Supplier name, Discount checkbox
- Image Management: Picture box and Upload Image button
- Action Buttons: Add Product, Update Product, Delete Product, Clear

**Right Panel: Product Image Preview**

- Displays selected product image
- Zoom mode for optimal viewing
- Clear indication when no image


**Step-by-Step Usage Guide**


**Scenario 1: Add New Product with Image**

1. Clear form (if needed)
2. Fill required fields:
    - Product Name: Organic Apples
    - Category: Fruits
    - Price: 250.00
    - Stock: 50
    - Status: AVAILABLE
3. Optional fields:
    - Supplier: Fresh Farms
    - Discount: Check if on sale
4. Upload image: Click Upload → Select apple photo
5. Click "Add Product"
6. Verify product appears in grid


**Scenario 2: Update Stock Levels**

1. Search for product by name
2. Select product from grid
3. Update stock field (e.g., from 5 to 25)
4. Click "Update Product"
5. Check color coding updates if stock > 10


**Scenario 3: Manage Low Stock Products**

1. Scan grid for red-highlighted rows
2. Select low stock product
3. Check current stock (shown in red if < 10)
4. Update stock to appropriate level
5. Click "Update Product"
6. Verify row returns to normal color


**Scenario 4: Discontinue Product**

1. Select product to discontinue
2. Change Status to "DISCONTINUED"
3. Optional: Set stock to 0
4. Click "Update Product"

5. Verify status change in grid

**Database Schema Requirements**

**Products Table Structure:**

sql

```sql
CREATE TABLE products (
    product_id INT AUTO_INCREMENT PRIMARY KEY,
    product_name VARCHAR(100) NOT NULL,
    category VARCHAR(50) NOT NULL,
    price DECIMAL(10,2) NOT NULL,
    stock INT NOT NULL DEFAULT 0,
    status ENUM('AVAILABLE', 'OUT_OF_STOCK', 'DISCONTINUED') DEFAULT 'AVAILABLE',
    supplier VARCHAR(100),
    discount BOOLEAN DEFAULT FALSE,
    image_path VARCHAR(255),
    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);
```

**Categories:**

- Vegetables
- Fruits
- Dairy
- Bakery
- Beverages
- Snacks
- Household
- Personal Care

**Status Options:**

1. AVAILABLE - Product is in stock and available
2. OUT_OF_STOCK - Temporarily unavailable
3. DISCONTINUED - Permanently removed from catalog

**Error Handling**

**Common Error Messages:**

| Error Message | Cause | Solution |
|---|---|---|
| "Please select a product" | No row selected | Click on product in grid |
| "Product name is required" | Name field empty | Enter product name |
| "Category is required" | No category selected | Choose from dropdown |
| "Price must be valid" | Invalid price format | Enter positive number (e.g., 150.50) |
| "Stock must be valid" | Invalid stock value | Enter non-negative integer (e.g., 25) |
| "Status is required" | No status selected | Choose from dropdown |

**Troubleshooting Guide**

**Issue: Product list not loading**

Check:

1. Database connection string
2. Products table exists with correct columns
3. Database service is running

**Issue: Image not loading/displaying**

Check:

1. Image file exists at stored path
2. File permissions allow reading
3. Image format is supported (JPG, PNG, etc.)
4. File path hasn't changed since upload

**Issue: Low stock not highlighting**

Check:

1. Stock values are integers
2. Stock < 10 condition is met
3. Grid styling code is executing

**Issue: Cannot add/update product**

Check:

1. All required fields completed
2. Data types are correct (price decimal, stock integer)
3. Database insert/update permissions

**Best Practices for Product Management**

**Inventory Management:**

1. Daily stock checks - Monitor low stock alerts
2. Regular updates - Keep stock levels accurate
3. Seasonal adjustments - Update prices/categories seasonally
4. Supplier tracking - Maintain accurate supplier information

**Product Presentation:**

1. High-quality images - Use clear, well-lit product photos
2. Accurate descriptions - Ensure product names are clear
3. Proper categorization - Organize products logically
4. Consistent pricing - Use standard decimal format

**Catalog Maintenance:**

1. Regular audits - Review entire product catalog monthly
2. Discontinued items - Mark obsolete products promptly
3. New arrivals - Add new products as soon as received
4. Price updates - Update prices when costs change

**Quick Reference Guide**

| Action | Steps | Notes |
| --- | --- | --- |

| | | |
|---|---|---|
| Add Product | Fill form → Click Add | All required fields needed |
| Update Product | Select product → Edit → Click Update | Changes all selected fields |
| Delete Product | Select product → Click Delete → Confirm | Permanent action |
| Upload Image | Click Upload → Select file → Open | Supports common image formats |
| Search Products | Type in search box | Real-time filtering |
| Clear Form | Click Clear | Resets all fields |
| View Low Stock | Scan red-highlighted rows | Stock < 10 units |

**Keyboard Shortcuts**

- Tab - Navigate between form fields
- Enter in search - Activates search
- Click on grid row - Selects product
- Arrow Keys - Navigate grid rows

**Performance Tips**

1. Use search for large product catalogs
2. Upload optimized images - Balance quality and file size
3. Regularly clear form when working with multiple products
4. Monitor low stock alerts to prevent stockouts

**Integration with Other Modules**

This product management integrates with:

1. Order Management - Products appear in order items
2. Customer Dashboard - Products displayed for purchase
3. Reporting - Product sales and inventory reports
4. Stock Management - Real-time stock level tracking

**Important Notes**

1. Image storage - File paths stored, not images themselves
2. Stock validation - Cannot set negative stock values
3. Price formatting - Use decimal points for currency
4. Data integrity - Product deletions affect related orders

This Product Management Form provides complete control over the product catalog in the ShopGreen system, with comprehensive features for inventory management, visual product presentation, and efficient catalog maintenance.

# 9.ShopGreen System - Reports Form User Guide

**Form Overview**

The Reports Form is a comprehensive analytical tool for generating various business intelligence reports in the ShopGreen system. It provides administrators with insights into sales performance, inventory status, customer behavior, and operational metrics through five distinct report types with data visualization and export capabilities.

**Available Reports and Functions**

**1. Sales Report (btnSalesReport_Click)**

What it does:

- Generates a detailed report of all delivered orders
- Shows completed sales transactions with customer information
- Calculates total sales revenue
- Provides order count and total amount

Report Columns:

1. Order ID - Unique order identifier
2. Customer Name - Who made the purchase
3. Order Date - When order was placed
4. Amount - Order total in Rupees
5. Status - Always "DELIVERED" for this report

Generated Statistics:

- Total Sales: Sum of all delivered order amounts
- Total Orders: Count of delivered orders
- Report Filter: Only includes orders with status = 'DELIVERED'

When to use:

- Monthly financial reviews

- Performance analysis
- Revenue tracking
- Sales trend identification

## 2. Stock Report (btnStockReport_Click)

What it does:

- Provides complete inventory overview
- Highlights low stock items (<10 units) in red
- Shows product availability status
- Calculates stock statistics

Report Columns:

1. Product ID - Unique product identifier
2. Product Name - Product description
3. Category - Product classification
4. Price - Current unit price
5. Stock - Available quantity
6. Status - Availability status
7. Supplier - Vendor information

Color Coding:

- Red Highlight: Products with stock < 10 units
- Normal: Products with sufficient stock

Generated Statistics:

- Total Products: Count of all products
- Low Stock: Products with stock < 10
- Out of Stock: Products with stock = 0

When to use:

- Inventory management
- Reordering decisions
- Stock level optimization
- Supplier performance review

## 3. Customer Order History (btnCustomerOrderHistory_Click)

What it does:

- Analyzes customer purchasing behavior
- Shows customer lifetime value
- Identifies active vs inactive customers
- Tracks customer engagement

Report Columns:

1. Customer ID - Unique customer identifier
2. Customer Name - Customer's full name
3. Email - Contact email
4. Total Orders - Number of orders placed
5. Total Spent - Lifetime purchase amount
6. Last Order Date - Most recent purchase date

Generated Statistics:

- Total Customers: All registered customers
- Active Customers: Customers with at least one order
- Total Revenue: Sum of all customer spending

When to use:

- Customer segmentation
- Loyalty program analysis
- Marketing campaign planning
- Customer retention strategies

## 4. Low Stock Alert Report (btnLowStockAlert_Click)

What it does:

- Generates an urgent alert report for critical inventory levels
- Shows only products with stock < 10 units
- Highlights all rows in red for immediate attention
- Focuses on products needing immediate restocking

Report Columns:

1. Product ID - Unique product identifier
2. Product Name - Product description
3. Category - Product classification
4. Current Stock - Available quantity (low)
5. Supplier - Vendor for reordering
6. Status - Current availability

Alert Features:

- All rows red: High-visibility alert styling
- Filtered view: Only shows critical items
- Count display: Shows how many products need attention

When to use:

- Daily inventory checks
- Emergency reordering
- Stock crisis management

- Supply chain monitoring

## 5. Monthly Sales Report (btnMonthlySales_Click)

What it does:

- Provides aggregated sales data by month
- Shows monthly trends and patterns
- Calculates average order values
- Tracks sales growth over time

Report Columns:

1. Month - Year-Month format (e.g., 2024-01)
2. Total Orders - Orders placed that month
3. Total Sales - Revenue generated that month
4. Average Order Value - Average purchase amount

Analysis Features:

- Monthly grouping: Aggregates data by month
- Trend identification: Shows sales patterns
- Performance comparison: Compares months
- Sorted descending: Shows latest months first

When to use:

- Quarterly business reviews
- Seasonal trend analysis
- Year-over-year comparisons
- Budget planning

## 6. Export to CSV (btnExportCSV_Click)

What it does:

- Exports current report data to CSV format
- Creates downloadable file with timestamp
- Preserves all data and formatting
- Uses SaveFileDialog for location selection

Export Process:

1. Generates filename: Report_YYYYMMDD_HHMMSS.csv
2. Creates comma-separated values file
3. Handles special characters (commas replaced with semicolons)
4. Provides success confirmation with file path

File Features:

- Format: Standard CSV (comma-separated values)
- Compatibility: Works with Excel, Google Sheets, etc.
- Headers: Includes column names
- Timestamps: Unique filenames prevent overwrites

When to use:

- Data backup
- External analysis
- Sharing with stakeholders
- Archiving historical data

## 7. Print Report (btnPrintReport_Click)

What it does:

- Provides print functionality placeholder
- Shows informational message about print capabilities
- Can be extended with PrintDocument implementation
- Demonstrates print workflow

Current Implementation:

- Shows message about print functionality
- Placeholder for future development
- Informs users about potential features

Future Enhancements:

- Actual print dialog integration
- Print preview functionality
- Page formatting options
- Header/footer customization

When to use:

- Hard copy requirements
- Physical record keeping
- Meeting presentations
- Regulatory compliance

## 8. Report Display Grid (StyleDataGridView)

What it does:

- Applies consistent professional styling to all reports
- Uses ShopGreen color scheme (green/white)
- Provides optimal readability and navigation
- Ensures uniform presentation across reports

Grid Features:

- Color Scheme: Green headers, white background
- Selection: Full row selection with highlighting
- Read-Only: Data display only, no editing
- Auto-sizing: Columns fill available space
- Professional Styling: Clean, business-appropriate appearance

**Navigation Menu**

**Top Navigation Bar (7 functions):**

1. 🏠 Home - Returns to Admin Dashboard
2. 👥 Manage Users - Opens user management
3. 📦 Manage Products - Opens product management
4. 👤 Manage Customers - Opens customer management
5. 📋 Manage Orders - Opens order management
6. 📊 Generate Reports - Refreshes current form
7. 🚪 Logout - Securely logs out admin

Hover Effects: Buttons change color on mouse hover

**Form Layout**

**Top Section:**

- Navigation menu
- Report title and summary labels
- Current report context

**Left Panel: Report Selection Buttons**

- 5 primary report types
- 2 action buttons (Export, Print)
- Organized by function and urgency

**Center: Report Display Area**

- Report Grid: Shows generated report data
- Professional Styling: Consistent green/white theme
- Dynamic Content: Changes based on selected report

**Right Panel: Report Information**

- Report Title: Clear description of current report
- Summary Statistics: Key metrics from the report

- Visual Indicators: Icons for report types

**Step-by-Step Usage Guide**

**Scenario 1: Monthly Financial Review**

1. Generate Sales Report
   - Click Sales Report button
   - Review total sales and order count
   - Note revenue figures
2. Generate Monthly Sales Report
   - Click Monthly Sales button
   - Analyze monthly trends
   - Identify best/worst performing months
3. Export for Analysis
   - Click Export to CSV
   - Save file for spreadsheet analysis
   - Use for financial reporting

**Scenario 2: Inventory Management Session**

1. Generate Stock Report
   - Click Stock Report button
   - Review overall inventory status
   - Note total products count
2. Check Low Stock Alerts
   - Click Low Stock Alert button
   - Identify critical items needing restock
   - Review supplier information
3. Take Action
   - Use supplier info to place orders
   - Update stock levels after restocking
   - Re-run reports to confirm updates

**Scenario 3: Customer Analysis Meeting**

1. Generate Customer Order History
   - Click Customer Order History button
   - Identify top-spending customers
   - Note inactive customers
2. Analyze Customer Segments
   - Export data to CSV
   - Perform segmentation analysis
   - Develop retention strategies
3. Plan Marketing Campaigns
   - Use data for targeted campaigns
   - Reactivate inactive customers

○ Reward loyal customers

**Scenario 4: Daily Operational Check**

1. Check Urgent Issues
    ○ Click Low Stock Alert button
    ○ Address immediate restocking needs
    ○ Update product status if needed
2. Monitor Sales Performance
    ○ Click Sales Report button
    ○ Check daily delivered orders
    ○ Track revenue generation
3. Export Daily Reports
    ○ Export key reports for record keeping
    ○ Share with management team
    ○ Archive for historical tracking

**Database Schema Requirements**

**Required Tables for Reports:**

sql

```sql
-- Orders table for sales reports
CREATE TABLE orders (
    order_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
    order_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    total_amount DECIMAL(10,2) NOT NULL,
    status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED'),
    FOREIGN KEY (user_id) REFERENCES users(user_id)
);


-- Products table for inventory reports
CREATE TABLE products (
    product_id INT AUTO_INCREMENT PRIMARY KEY,
    product_name VARCHAR(100) NOT NULL,
```

```sql
    category VARCHAR(50) NOT NULL,

    price DECIMAL(10,2) NOT NULL,

    stock INT NOT NULL DEFAULT 0,

    status ENUM('AVAILABLE', 'OUT_OF_STOCK', 'DISCONTINUED'),

    supplier VARCHAR(100)

);


-- Users table for customer reports
CREATE TABLE users (

    user_id INT AUTO_INCREMENT PRIMARY KEY,

    name VARCHAR(100) NOT NULL,

    email VARCHAR(100) NOT NULL,

    role ENUM('ADMIN', 'CUSTOMER') NOT NULL

);
```

**Error Handling**

**Common Error Messages:**

| Error Message | Cause | Solution |
|---|---|---|
| "Please generate a report first!" | No data to export/print | Generate any report first |
| "Error generating report" | Database issue | Check connection and tables |
| "Export successful!" | CSV created | File saved to selected location |
| "No alerts" | No low stock items | All products have sufficient stock |

**Troubleshooting Guide**

**Issue: Report not generating**

Check:

1. Database connection string
2. Required tables exist
3. Data exists in tables
4. Query syntax matches table structure

**Issue: Export not working**

Check:

1. Report has been generated (data exists)
2. File permissions for save location
3. Disk space availability
4. CSV formatting logic

**Issue: No data in reports**

Check:

1. Database contains relevant records
2. Filter conditions (e.g., status = 'DELIVERED')
3. Data matches report criteria
4. JOIN conditions are correct

**Best Practices for Report Usage**

**Report Scheduling:**

1. Daily: Low Stock Alert Report
2. Weekly: Sales Report and Stock Report
3. Monthly: Monthly Sales Report and Customer Order History
4. Quarterly: Comprehensive analysis of all reports

**Data Analysis:**

1. Compare trends: Month-over-month, year-over-year
2. Identify patterns: Seasonal variations, customer behavior
3. Set benchmarks: Performance targets based on historical data
4. Make decisions: Data-driven business decisions

**Export Management:**

1. Organize exports: Use timestamped filenames
2. Regular backups: Archive important reports
3. Share appropriately: Distribute reports to relevant stakeholders
4. Secure sensitive data: Protect customer information in exports

**Quick Reference Guide**

| Report Type | Button | Key Metrics | When to Use |
|---|---|---|---|
| Sales Report | Sales Report | Total Sales, Order Count | Financial review, revenue tracking |
| Stock Report | Stock Report | Total Products, Low Stock | Inventory management, reordering |
| Customer History | Customer Order History | Active Customers, Total Revenue | Customer analysis, marketing |
| Low Stock Alert | Low Stock Alert | Critical Items Count | Daily inventory check, emergencies |
| Monthly Sales | Monthly Sales | Monthly Trends, AOV | Trend analysis, planning |
| Export Data | Export to CSV | File creation | Data sharing, backup, analysis |

| Print Report | Print Report | Print functionality | Hard copies, meetings, records |
| --- | --- | --- | --- |

**Keyboard Shortcuts**

- Tab - Navigate between buttons and grid
- Enter - Activate selected button
- Arrow Keys - Navigate grid rows
- Ctrl+E - Potential shortcut for export (if implemented)

**Performance Tips**

1. Generate only needed reports - Avoid unnecessary database queries
2. Export for complex analysis - Use Excel/Sheets for advanced calculations
3. Schedule regular reports - Establish reporting rhythm
4. Monitor report generation time - Optimize queries if slow

**Integration with Business Processes**

The reports form supports:

1. Financial Planning - Sales data for budgeting
2. Inventory Control - Stock data for supply chain management
3. Marketing Strategy - Customer data for campaigns
4. Operational Efficiency - Performance data for process improvement
5. Strategic Decision Making - Comprehensive data for leadership

**Important Notes**

1. Data Currency - Reports show data as of generation time
2. Export Format - CSV files can be opened in spreadsheet software
3. Print Functionality - Currently informational, can be enhanced
4. Data Security - Protect exported files containing sensitive information
5. Historical Analysis - Export and archive reports for trend analysis

This Reports Form provides comprehensive business intelligence capabilities for the ShopGreen system, enabling data-driven decision making, operational efficiency monitoring, and strategic planning through five distinct report types with export and visualization features.

# 10.ShopGreen System - Customer Dashboard User Guide

**Dashboard Overview**

The Customer Dashboard is the main interface for customers in the ShopGreen system. It provides a personalized overview of the customer's account, shopping activity, and quick access to all shopping features. This is the landing page after successful customer login.

**Dashboard Features and Functions**

**1. Welcome and Personalization**

What it does:

- Displays personalized welcome message with customer's name
- Shows "Welcome, [Customer Name]! 🌱" at the top
- Creates personalized shopping experience

How it works:

- Automatically loads when customer logs in
- Uses customer name from login session
- Provides warm, friendly greeting

**2. Customer Statistics Display (LoadDashboardData)**

What it does:

- Shows 4 key customer metrics in real-time:
    1. Total Orders - All orders placed by customer
    2. Pending Orders - Orders awaiting delivery (PENDING + SHIPPED status)
    3. Cart Items - Items currently in shopping cart
    4. Total Spent - Lifetime spending on delivered orders

Displayed Statistics:

| Statistic | What it Shows | Color/Format |
| --- | --- | --- |
| Total Orders | Count of all orders placed | Standard number |
| Pending Orders | Orders not yet delivered | Standard number |
| Cart Items | Items in shopping cart | Standard number |
| Total Spent | Money spent on delivered orders | Rupee format (Rs. 1,234.56) |

How to view:

- Statistics appear immediately when dashboard loads
- Updates automatically when returning to dashboard

## 3. Featured Products Display (LoadFeaturedProducts)

What it does:

- Shows top 10 available products from catalog
- Highlights discounted products with orange coloring
- Provides product browsing directly from dashboard
- Hides Product ID for cleaner display

Displayed Product Information:

1. Product Name - Name of product
2. Category - Type of product (Vegetables, Fruits, etc.)
3. Price - Current price in Rupees
4. Stock - Available quantity
5. Discount - Whether product is on sale

Color Coding:

- Orange Highlight: Products with Discount = True
- Normal: Regular priced products

Product Filtering:

- Only shows products with status = 'AVAILABLE'
- Only shows products with stock > 0
- Sorted by newest products first
- Limited to 10 products for quick browsing

## 4. Navigation Menu Functions

**Store Button (btnStore_Click)**

What it does:

- Refreshes dashboard data
- Returns to main dashboard view
- Updates statistics and featured products

How to use:

- Click the ⬛ Store button
- Dashboard data reloads with latest information
- Featured products list refreshes

**Browse Products (btnBrowseProducts_Click)**

What it does:

- Opens full product catalog browsing interface
- Allows detailed product search and filtering
- Enables adding products to cart
- Provides comprehensive shopping experience

How to use:

- Click 🛒 Browse Products button
- Opens dedicated product browsing form
- Current dashboard hides

## My Cart (btnMyCart_Click)

What it does:

- Opens shopping cart management interface
- Shows all items in cart with quantities and prices
- Allows cart item modification and checkout
- Shows cart total and item count

How to use:

- Click 🛍️ My Cart button
- Opens cart management form
- Cart count from dashboard is clickable shortcut

## Track Orders (btnTrackOrders_Click)

What it does:

- Opens order tracking interface
- Shows order history and current status
- Provides detailed order information
- Allows order status monitoring

How to use:

- Click 📦 Track Orders button
- Opens order tracking form
- Pending orders count from dashboard is clickable context

## My Profile (btnMyProfile_Click)

What it does:

- Opens customer profile management
- Allows updating personal information
- Shows account details and preferences
- Provides password change functionality

How to use:

- Click 👤 My Profile button
- Opens profile management form
- Personalize account settings

## 5. Logout Function (btnLogout_Click)

What it does:

- Securely logs out the customer
- Returns to login screen
- Requires confirmation before logout

How to use:

1. Click 🚪 Logout button
2. Confirmation dialog appears
3. Click "Yes" to logout, "No" to cancel
4. Returns to login form

## 6. Refresh Dashboard (btnRefresh_Click)

What it does:

- Manually refreshes all dashboard data
- Updates statistics and featured products
- Shows success confirmation message

How to use:

- Click ↩ Refresh button (if available)
- All statistics update immediately
- Featured products list reloads

## 7. Product Double-Click (dgvFeaturedProducts_CellDoubleClick)

What it does:

- Provides quick access to product details
- Shows informational message about browsing products
- Encourages using Browse Products for full shopping

How to use:

- Double-click any product in featured products grid
- Information message appears
- Redirects attention to Browse Products functionality

## 8. Visual Effects

### Menu Button Hover Effects

What it does:

- Changes button color on hover (light green → dark green)
- Provides visual feedback for interactive elements
- Consistent with admin interface styling

How it works:

- Hover over any menu button
- Button darkens slightly
- Returns to original color when mouse leaves

**Dashboard Card Hover Effects**

What it does:

- Highlights statistic cards on hover
- Changes card background from white to light gray
- Provides interactive feel to statistics

How it works:

- Hover over any statistic panel
- Background becomes light gray
- Returns to white when mouse leaves

**Dashboard Layout**

**Top Section:**

- Welcome Message: "Welcome, [Customer Name]! 🌱"
- Navigation Menu: Horizontal button bar
- Refresh Button: For manual updates

**Statistics Section (Top Center):**

- 4 Statistic Cards: Total Orders, Pending Orders, Cart Items, Total Spent
- Visual Cards: White panels with hover effects
- Clear Labels: Easy-to-read metrics

**Featured Products Section (Center):**

- Title: "Featured Products"
- Product Grid: 10 latest available products
- Color Coding: Discounted items in orange
- Double-Click: Quick product info access

**Navigation Menu Items:**

1. 🏪 Store - Dashboard home
2. 🛒 Browse Products - Full catalog
3. 🛍️ My Cart - Shopping cart
4. 📦 Track Orders - Order history
5. 👤 My Profile - Account settings
6. 🚪 Logout - Secure logout

**How to Use the Customer Dashboard**

**Step 1: Initial Login and Orientation**

1. Login with customer credentials
2. View personalized welcome message
3. Check dashboard statistics at a glance
4. Browse featured products

**Step 2: Quick Shopping Actions**

**From Dashboard Statistics:**

- Check cart: Click "My Cart" if Cart Items > 0
- Track orders: Click "Track Orders" if Pending Orders > 0
- Shop more: Click "Browse Products" to continue shopping

**From Featured Products:**

- View details: Double-click any product
- Find discounts: Look for orange-highlighted rows
- Check availability: Note stock levels

**Step 3: Regular Dashboard Usage**

**After Placing Order:**

1. Return to dashboard
2. Check Pending Orders increase
3. Note Total Orders update
4. Cart Items should reset (if cart cleared)

**After Order Delivery:**

1. Return to dashboard
2. Check Pending Orders decrease
3. Note Total Spent increase
4. View updated order statistics

**During Shopping:**

1. Use dashboard as home base
2. Navigate to Browse Products
3. Add items to cart
4. Return to dashboard to check cart count
5. Proceed to checkout when ready

**Database Requirements**

The dashboard queries these tables:

sql

```sql
-- Orders table for customer order history
CREATE TABLE orders (
    order_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
    total_amount DECIMAL(10,2),
    status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED')
);

-- Cart table for shopping cart
CREATE TABLE cart (
    cart_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
```

```sql
    product_id INT NOT NULL,

    quantity INT NOT NULL
);


-- Products table for featured items
CREATE TABLE products (

    product_id INT AUTO_INCREMENT PRIMARY KEY,

    product_name VARCHAR(100),

    category VARCHAR(50),

    price DECIMAL(10,2),

    stock INT,

    discount BOOLEAN,

    status ENUM('AVAILABLE', 'OUT_OF_STOCK', 'DISCONTINUED')
);


-- Users table for customer info
CREATE TABLE users (

    user_id INT AUTO_INCREMENT PRIMARY KEY,

    name VARCHAR(100)

    );
```

## Troubleshooting

**Common Issues and Solutions:**

| Issue | Solution |
| --- | --- |

| | |
|---|---|
| Statistics not updating | Click Refresh button or Store button |
| Featured products not showing | Check database has available products |
| "Error loading dashboard data" | Check database connection |
| Cart count incorrect | Navigate to My Cart and refresh |
| Dashboard loads slowly | Products query limited to 10 items |

**If Dashboard Shows Zero Data:**

1. Check if customer has placed any orders
2. Verify products exist in database
3. Ensure cart has items if expected
4. Confirm database connection

**Best Practices for Customers**

**Daily/Weekly Usage:**

1. Check dashboard first - View order status and cart
2. Browse featured products - Discover new items
3. Monitor pending orders - Track delivery progress
4. Review spending - Keep track of budget

**Shopping Workflow:**

1. Start at dashboard
2. Browse featured products or go to full catalog
3. Add items to cart
4. Return to dashboard to verify cart
5. Proceed to checkout
6. Track order from dashboard

**Account Management:**

1. Use My Profile to update contact information
2. Change password regularly for security
3. Keep profile information current
4. Logout after each session

**Quick Reference Guide**

| Action | Button/Location | Expected Result |
|---|---|---|
| View latest stats | 🏪 Store button or 🔄 Refresh | Statistics and products update |
| Shop for products | 🛒 Browse Products | Opens full product catalog |
| View/edit cart | 🛍️ My Cart | Shows cart items and total |
| Track orders | 📦 Track Orders | Shows order history and status |
| Update profile | 👤 My Profile | Opens account settings |
| Secure logout | 🚪 Logout | Returns to login screen |
| View product details | Double-click product in grid | Info message, suggests browsing |

**Performance Tips**

1. Refresh only when needed - Dashboard auto-updates on return
2. Use featured products - Quick browsing of popular items
3. Monitor cart count - Avoid unnecessary navigation
4. Check order status - From dashboard before contacting support

**Data Flow**

Login → Customer Dashboard → Statistics + Featured Products

↓

User Action → Navigate to Feature → Return to Dashboard

↓

Logout → Confirm → Login Form

**Integration with Other Customer Features**

The dashboard serves as the hub for:

1.  Product Browsing - Gateway to shopping
2.  Cart Management - Quick cart status
3.  Order Tracking - Order status overview
4.  Profile Management - Account access point
5.  Personalized Experience - Custom welcome and stats

This Customer Dashboard provides a personalized, efficient shopping experience in the ShopGreen system, offering quick access to all customer features while displaying relevant statistics and product suggestions in an intuitive interface.

# 11.ShopGreen System - My Cart Form User Guide

**Form Overview**

The My Cart Form is the shopping cart management interface for customers in the ShopGreen system. It allows customers to view, edit, and manage items in their shopping cart before proceeding to checkout. This form provides a comprehensive cart management experience with real-time calculations and inventory validation.

**Key Functions and Features**

**1. Cart Items Display (LoadCartItems)**

What it does:

- Loads all items from the customer's shopping cart

- Shows detailed product information including real-time pricing
- Calculates subtotals for each item (price × quantity)
- Only shows available products (status = 'AVAILABLE')

Displayed Columns:

1. Product Name - Name of the product
2. Category - Type of product (Vegetables, Fruits, etc.)
3. Price - Current unit price (formatted as currency)
4. Quantity - Editable quantity field
5. Subtotal - Calculated total for each item (price × quantity)

Hidden Columns (for internal use):

- Cart ID - Unique cart item identifier
- Product ID - Product identifier
- Available Stock - Current stock quantity
- Discount - Discount status

Data Source: Joins cart table with products table to get current information

## 2. Real-Time Quantity Editing (dgvCartItems_CellValueChanged)

What it does:

- Allows direct editing of quantity in the grid
- Validates quantity against available stock
- Prevents negative or zero quantities
- Updates subtotals instantly
- Syncs changes to database automatically

Quantity Validation Rules:

- Minimum: 1 (cannot be 0 or negative)
- Maximum: Available stock quantity
- Type: Integer values only

Automatic Updates:

1. Quantity changed in grid
2. Subtotal recalculated instantly
3. Database updated automatically
4. Cart totals recalculated

## 3. Cart Summary and Totals Calculation (CalculateTotals)

What it does:

- Calculates subtotal, shipping, and total amounts
- Applies dynamic shipping rules

- Updates display in real-time
- Shows currency-formatted values

Shipping Calculation Logic:

- Free Shipping: Orders over Rs. 500 OR empty cart
- Standard Shipping: Rs. 100 for orders ≤ Rs. 500
- Formula: Total = Subtotal + Shipping

Displayed Totals:

1. Subtotal: Sum of all item subtotals
2. Shipping: Calculated shipping cost
3. Total: Final amount to pay

## 4. Cart Summary Update (UpdateCartSummary)

What it does:

- Shows item count with proper pluralization
- Enables/disables action buttons based on cart status
- Provides visual feedback on cart state
- Updates cart status message

Dynamic Button States:

- Empty Cart: Checkout and Clear Cart buttons disabled
- Items in Cart: All buttons enabled
- Message: "You have X item(s) in your cart"

## 5. Remove Selected Item (btnRemoveSelected_Click)

What it does:

- Removes selected item from cart
- Requires confirmation before removal
- Updates cart display immediately
- Recalculates totals

How to use:

1. Select item in cart grid
2. Click Remove Selected button
3. Confirm removal
4. Item removed and totals updated

## 6. Clear Entire Cart (btnClearCart_Click)

What it does:

- Removes all items from cart
- Requires confirmation
- Shows count of items cleared
- Updates all displays

Safety Features:

- ⚠️ Confirmation required (prevents accidental clearance)
- 📊 Count shown (informs user of impact)
- 🔄 Immediate update (cart refreshes instantly)

## 7. Checkout Process (Checkout)

What it does:

- Processes cart into a formal order
- Creates order record in database
- Transfers cart items to order items
- Clears cart after successful checkout
- Navigates to order tracking

Checkout Steps:

1. Validation: Cart must not be empty
2. Confirmation: Shows order summary for review
3. Processing:
   - Creates order record
   - Adds order items
   - Calculates total amount
4. Cleanup: Clears cart
5. Navigation: Redirects to Track Orders

Order Creation Details:

- Order Status: Set to 'PENDING'
- Order Items: Preserves price at time of purchase
- Order ID: Generated and shown to customer
- Cart Clearance: Automatic after successful checkout

## 8. Continue Shopping (btnContinueShopping_Click)

What it does:

- Navigates back to product browsing
- Preserves cart contents
- Allows adding more items
- Returns to cart later

When to use:

- When you want to add more items
- When you're not ready to checkout
- When comparing products

## 9. Refresh Cart (btnRefresh_Click)

What it does:

- Reloads cart data from database
- Updates all calculations
- Shows success message
- Ensures data is current

When to use:

- After long browsing sessions
- When prices may have changed
- To verify current cart state

## Navigation Menu

## Top Navigation Bar (6 functions):

1. 🏬 Store - Returns to Customer Dashboard
2. 🛒 Browse Products - Opens product catalog
3. 🛍️ My Cart - Refreshes current form (already here)
4. 📦 Track Orders - Opens order tracking
5. 👤 My Profile - Opens profile management
6. 🚪 Logout - Securely logs out

Hover Effects: Buttons change color on mouse hover

## Form Layout

## Top Section:

- Navigation menu
- Cart title and summary

## Left Panel: Cart Items Grid

- Editable grid: Quantity can be changed directly
- Professional styling: Green/white color scheme
- Real-time calculations: Subtotals update instantly
- Stock validation: Prevents over-ordering

**Right Panel: Order Summary**

- Cart Summary: Item count and status
- Price Breakdown:
  - Subtotal
  - Shipping
  - Total
- Action Buttons:
  - Remove Selected
  - Clear Cart
  - Checkout
  - Continue Shopping
  - Refresh

**Bottom Section: Additional Information**

- Shipping policy information
- Stock availability notes
- Cart management tips

**Step-by-Step Usage Guide**

**Scenario 1: Review and Edit Cart Before Checkout**

1. View cart items - All items display with quantities
2. Edit quantities - Click in Quantity column, enter new number
3. Check stock limits - System prevents ordering more than available
4. Review subtotals - Each item's total updates automatically
5. Check shipping - See if you qualify for free shipping
6. Review final total - Bottom right shows amount to pay

**Scenario 2: Remove Unwanted Items**

1. Select item - Click on row in cart grid
2. Click Remove Selected - Right panel button
3. Confirm removal - Click Yes in confirmation dialog
4. Verify update - Item disappears, totals recalculate

**Scenario 3: Complete Purchase**

1. Review cart - Ensure all items and quantities are correct
2. Click Checkout - Right panel button
3. Confirm order - Review summary, click Yes
4. Note Order ID - Save for tracking reference
5. Automatic redirect - Goes to Track Orders form

**Scenario 4: Abandon Cart Temporarily**

1. Click Continue Shopping - Returns to product browsing
2. Add more items - Cart preserves existing items
3. Return later - Navigate back to My Cart
4. Resume editing - All items remain as left

**Database Schema Requirements**

**Cart Table:**

sql

```sql
CREATE TABLE cart (
    cart_id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
    product_id INT NOT NULL,
    quantity INT NOT NULL,
    added_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    FOREIGN KEY (user_id) REFERENCES users(user_id),
    FOREIGN KEY (product_id) REFERENCES products(product_id)
);
```

**Products Table:**

sql

```sql
CREATE TABLE products (
    product_id INT AUTO_INCREMENT PRIMARY KEY,
    product_name VARCHAR(100) NOT NULL,
    category VARCHAR(50) NOT NULL,
    price DECIMAL(10,2) NOT NULL,
```

stock INT NOT NULL,

    status ENUM('AVAILABLE', 'OUT_OF_STOCK', 'DISCONTINUED'),

    discount BOOLEAN DEFAULT FALSE

);

**Orders Table (for checkout):**

sql

CREATE TABLE orders (

    order_id INT AUTO_INCREMENT PRIMARY KEY,

    user_id INT NOT NULL,

    total_amount DECIMAL(10,2) NOT NULL,

     status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED') DEFAULT 'PENDING',

    order_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,

    FOREIGN KEY (user_id) REFERENCES users(user_id)

);

**Order Items Table:**

sql

CREATE TABLE order_items (

    order_item_id INT AUTO_INCREMENT PRIMARY KEY,

    order_id INT NOT NULL,

    product_id INT NOT NULL,

    quantity INT NOT NULL,

    price DECIMAL(10,2) NOT NULL,

```
    FOREIGN KEY (order_id) REFERENCES orders(order_id),

    FOREIGN KEY (product_id) REFERENCES products(product_id)

);
```

**Error Handling and Validation**

**Quantity Validation Errors:**

| Error | Cause | System Response |
|---|---|---|
| Quantity ≤ 0 | Invalid quantity entered | Reset to 1, show warning |
| Quantity > Stock | Ordering more than available | Reset to max stock, show warning |
| Non-numeric | Letters/symbols entered | Reject input, keep previous value |

**Cart State Errors:**

| Error | Cause | System Response |
|---|---|---|
| Empty cart checkout | No items in cart | Disable checkout, show message |

| | | |
|---|---|---|
| Item no longer available | Product status changed | Filter out in reload |
| Price changed | Product price updated | Show current price in cart |

**Troubleshooting Guide**

**Issue: Quantity not updating**

Check:

1. Click outside cell after editing (loses focus)
2. Stock availability for requested quantity
3. Database connection for auto-save

**Issue: Checkout failing**

Check:

1. Cart has items
2. All products still available
3. Database tables exist (orders, order_items)
4. Sufficient stock for all quantities

**Issue: Shipping calculation incorrect**

Check:

1. Subtotal calculation is correct
2. Free shipping threshold (Rs. 500)
3. Shipping cost logic in CalculateTotals()

**Issue: Cart not loading**

Check:

1. User has items in cart
2. Products are available (status = 'AVAILABLE')
3. Database connection
4. JOIN conditions match table structures

**Best Practices for Cart Management**

**Shopping Tips:**

1. Review quantities - Ensure you're ordering correct amounts
2. Check stock - Note available stock for popular items
3. Consider shipping - Add more to reach free shipping threshold
4. Save for later - Use Continue Shopping if not ready to buy

**Cart Management:**

1. Regular reviews - Check cart before checkout
2. Update quantities - Adjust as needs change
3. Remove unwanted - Keep cart clean and relevant
4. Monitor changes - Prices/availability may change

**Checkout Preparation:**

1. Verify all items - Final review before purchase
2. Note Order ID - Important for tracking
3. Understand timing - Orders become PENDING immediately
4. Keep cart empty - After successful checkout

**Quick Reference Guide**

| Action | Steps | Notes |
|---|---|---|
| Edit quantity | Click quantity cell → Enter number → Press Enter | Auto-saves, validates stock |
| Remove item | Select row → Click Remove Selected → Confirm | Permanent removal |
| Clear cart | Click Clear Cart → Confirm | Removes all items |

| | | |
|---|---|---|
| Checkout | Review cart → Click Checkout → Confirm | Creates order, clears cart |
| Continue shopping | Click Continue Shopping | Preserves cart, goes to products |
| Refresh cart | Click Refresh | Updates from database |
| View totals | Check right panel | Shows breakdown with shipping |

**Keyboard Shortcuts**

- Tab - Navigate between buttons and grid
- Enter in quantity cell - Save quantity change
- Click on grid row - Select item
- Delete key - Potential for quick remove (if implemented)

**Performance Tips**

1. Edit directly in grid - Faster than separate edit form
2. Use Continue Shopping - Faster than browser back
3. Refresh only when needed - Auto-save handles most updates
4. Monitor stock levels - Avoid checkout failures

**Shipping Policy**

- Free Shipping: Orders over Rs. 500
- Standard Shipping: Rs. 100 (orders ≤ Rs. 500)
- Calculation: Automatic based on subtotal
- Display: Clearly shown in order summary

**Important Notes**

1. Price locking - Prices are captured at checkout, not cart
2. Stock reservation - No stock reservation until checkout
3. Cart persistence - Cart saved between sessions

4. Order finalization - Checkout creates permanent order record
5. Cart clearance - Cart empties automatically after checkout

This My Cart Form provides a robust, user-friendly shopping cart management experience with real-time validation, intuitive editing, and seamless checkout integration in the ShopGreen system.

# 12.ShopGreen System - Browse Products Form User Guide

**Form Overview**

The Browse Products Form is the comprehensive product catalog interface for customers in the ShopGreen system. It provides an immersive shopping experience with rich product visualization, multiple filtering options, sorting capabilities, and direct purchasing functions. This is the main shopping interface where customers discover, explore, and purchase products.

**Key Features and Functions**

**1. Product Catalog Display (LoadAllProducts)**

What it does:

- Loads all available products (status = 'AVAILABLE') from the database
- Shows 8 key product attributes with visual enhancements
- Calculates discounted prices automatically (10% off for discounted products)
- Provides rich visual display with images, highlighting, and categorization

Displayed Columns:

1. Image - Product thumbnail (80×80 pixels)
2. Product Name - Product title with discount indicators (🔥 icon)
3. Category - Product classification (ORGANIC_GROCERY, ECO_PRODUCT)
4. Price - Original price (with strikethrough if discounted)
5. Stock - Available quantity with color-coded warnings
6. Supplier - Vendor/supplier name
7. Discounted Price - Hidden by default, shows 10% off for discounted items

Hidden Information:

- ID - Product identifier (for internal use)
- ImagePath - File path to product image
- Discount - Boolean flag for discount status

Visual Enhancements:

- Product Images: Thumbnail display with zoom layout
- Discount Highlighting: Orange background with bold text and 🔥 icon

- Stock Indicators: Red text for low stock (<10), grayed out for out of stock
- Default Image: Placeholder for products without images

## 2. Rich Product Viewing (ShowProductDetails)

What it does:

- Opens detailed product view in modal dialog
- Shows all product information including creation date
- Displays larger product image (200×200 pixels)
- Provides direct purchase options (Add to Cart, Buy Now)
- Shows calculated discounts and savings

Product Details Display:

- Large Product Image - Full view of product
- Product Name - Prominent display with category
- Pricing Information - Original price, discounted price, savings amount
- Stock Status - Clear availability indication
- Supplier Information - Vendor details
- Product History - Date added to catalog
- Action Buttons - Add to Cart, Buy Now, Close

## 3. Advanced Filtering and Search (FilterProducts)

What it does:

- Real-time filtering as you type/search
- Multi-criteria filtering (text search + category)
- Quick filter buttons for common scenarios
- Dynamic result count display

Filter Options:

1. Text Search (txtSearch): Searches product name, category, and supplier
2. Category Filter (cmbCategory): ORGANIC_GROCERY, ECO_PRODUCT, or All Categories
3. Quick Filters:
   - Discounted Products: Shows only sale items
   - In-Stock Only: Filters out out-of-stock items
   - Clear All: Resets all filters

Search Examples:

- "organic apple" - Searches all text fields
- "ECO_" - Finds all eco products
- "Fresh Farms" - Finds products from specific supplier

## 4. Smart Sorting (ApplySorting)

What it does:

- Provides 6 sorting options with visual indicators
- Cycles through options with single button
- Updates sort button text to show current sort
- Maintains sort state during filtering

Sorting Options (Cycle Order):

1. Product Name (A-Z) - Alphabetical ascending
2. Product Name (Z-A) - Alphabetical descending
3. Price (Low-High) - By price ascending
4. Price (High-Low) - By price descending
5. Discount (Low) - By discounted price ascending
6. Discount (High) - By discounted price descending

How to Sort:

- Click Sort button repeatedly to cycle through options
- Button text updates to show current sort
- Grid refreshes immediately


## 5. Product Image Management

What it does:

- Loads product images from file paths
- Provides graceful fallback to default image
- Supports multiple image loading locations
- Displays images in optimized thumbnail format

Image Loading Priority:

1. Full Path: Exact path stored in database
2. Application Directory: Images folder in app directory
3. Default Image: Gray placeholder with "No Image" text

Image Display:

- Grid: 80×80 thumbnails with zoom layout
- Details Dialog: 200×200 with zoom layout
- Default Image: Professional placeholder design


## 6. Shopping Actions

### Add to Cart (AddToCart)

What it does:

- Adds selected product to shopping cart

- Handles quantity selection with validation
- Updates existing cart items (increments quantity)
- Updates product stock in real-time
- Shows success confirmation

Process Flow:

1. Stock Check: Verifies product is in stock
2. Quantity Selection: Opens quantity dialog (1 to max stock)
3. Cart Check: Updates existing item or adds new
4. Stock Update: Reduces available stock
5. Confirmation: Shows success message with details
6. Refresh: Updates display and cart count

**Buy Now (BuyNow)**

What it does:

- Direct purchase without adding to cart
- Creates immediate order with single product
- Uses database transaction for data integrity
- Shows order summary and confirmation
- Updates stock and creates order record

Process Flow:

1. Stock Check: Verifies product is in stock
2. Quantity Selection: Opens quantity dialog
3. Order Summary: Shows price breakdown
4. Confirmation: User confirms purchase
5. Transaction Processing:
   - Creates order record
   - Adds order item
   - Updates product stock
6. Success: Shows order ID and details
7. Refresh: Updates product display

**7. Cart Integration (UpdateCartCount)**

What it does:

- Shows real-time cart item count in navigation
- Updates after every cart operation
- Provides visual reminder of cart status
- Clickable cart count label for quick access

Cart Count Display:

- Format: "🛒 Cart (X)" where X = item count
- Location: Next to Browse Products button
- Update: Automatic after add/remove operations

- Click Action: Navigates to My Cart form

## 8. Product Interaction Methods

Multiple ways to interact with products:

**Double-Click Product Row**
- Opens product details dialog
- Shows full product information
- Provides purchase options

**Right-Click Product Row**
- Alternative way to open details
- Context menu style interaction
- Quick access to product info

**Selection + Action Buttons**
1. Select product (click row)
2. Use action buttons:
   - View Details: Opens details dialog
   - Quick Add to Cart: Adds with default quantity 1
   - Quick Buy Now: Direct purchase with quantity 1
   - Quick Checkout: Goes to cart immediately

**Direct Quantity Selection**
- Via product details dialog
- Custom quantity entry
- Stock validation included

## 9. Quick Action Buttons

Specialized buttons for common tasks:

1. 🔥 Show Discounted: Filters to sale items only
2. 📦 Show In-Stock: Hides out-of-stock items
3. 💰 Show Prices: Toggles discounted price column
4. 🔄 Refresh: Reloads all product data
5. 🗑️ Clear Filters: Resets all search/filter criteria

**Navigation Menu**

**Top Navigation Bar (6 functions + Cart Count):**

1. 🛒 Store - Returns to Customer Dashboard
2. 🛒 Browse Products - Refreshes current form
3. 🛍️ My Cart (X) - Shows cart count, click to go to cart

4. 📦 Track Orders - Opens order tracking
5. 🧑 My Profile - Opens profile management
6. 🚪 Logout - Securely logs out

Hover Effects: Buttons change color on mouse hover

## Form Layout

### Top Section:

- Welcome Message: "Welcome, [Customer Name]! 🛍️"
- Navigation Menu: With cart count indicator
- Quick Action Bar: Refresh, clear filters, view cart

### Left Panel: Filter Controls

- Search Box: Real-time text search
- Category Filter: Dropdown for product categories
- Quick Filter Buttons: Discounted, In-Stock, Clear
- Sort Button: Cycles through 6 sort options

### Center: Product Grid

- Rich Display: Images, highlighted rows, color coding
- Multi-Column: 6 visible columns with optimized widths
- Interactive: Double-click, right-click, selection
- Status Indicators: Stock levels, discount flags

### Right Panel: Product Actions

- Selected Product Actions:
    - View Details
    - Quick Add to Cart
    - Quick Buy Now
    - Quick Checkout
- Display Options:
    - Show Discounted Prices toggle
    - Grid styling information

### Bottom Section: Status Information

- Product Count: "X Product(s) Found"
- Filter Status: Current filter/sort settings
- Stock Information: Legend for color coding

## Step-by-Step Shopping Workflows

## Workflow 1: Browsing and Discovery

1. Browse products - Scroll through grid
2. Use filters - Narrow by category or search term
3. Sort results - Click Sort button to organize
4. View details - Double-click interesting products
5. Compare options - Use multiple detail views

## Workflow 2: Quick Purchase

1. Find product - Search or browse
2. Select row - Click on product
3. Click Buy Now - Right panel button
4. Enter quantity - In dialog
5. Confirm purchase - Review and confirm
6. Get order ID - Save for tracking

## Workflow 3: Build Shopping Cart

1. Browse products - Explore catalog
2. Add to cart - Multiple products with various quantities
3. Check cart count - Monitor items in cart
4. Adjust quantities - Add more or different items
5. Go to cart - Click cart count or My Cart button
6. Checkout - Complete purchase from cart

## Workflow 4: Sale Shopping

1. Click "Show Discounted" - View all sale items
2. Click "Show Prices" - View discounted prices
3. Sort by "Discount (High)" - Best deals first
4. Review products - Check details and stock
5. Add to cart - Take advantage of sales
6. Checkout - Complete purchase

## Database Schema Requirements

### Products Table:

sql

```sql
CREATE TABLE products (

    product_id INT AUTO_INCREMENT PRIMARY KEY,

    product_name VARCHAR(100) NOT NULL,

    category VARCHAR(50) NOT NULL,
```

```sql
  price DECIMAL(10,2) NOT NULL,

  stock INT NOT NULL DEFAULT 0,

  discount BOOLEAN DEFAULT FALSE,

  supplier VARCHAR(100),

  image_path VARCHAR(255),

    status ENUM('AVAILABLE', 'OUT_OF_STOCK', 'DISCONTINUED') DEFAULT 'AVAILABLE',

  created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP

);
```

**Cart Table:**

sql

```sql
CREATE TABLE cart (

  cart_id INT AUTO_INCREMENT PRIMARY KEY,

  user_id INT NOT NULL,

  product_id INT NOT NULL,

  quantity INT NOT NULL,

  added_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,

  FOREIGN KEY (user_id) REFERENCES users(user_id),

  FOREIGN KEY (product_id) REFERENCES products(product_id)

);
```

**Orders Table:**

sql

```sql
CREATE TABLE orders (

  order_id INT AUTO_INCREMENT PRIMARY KEY,

  user_id INT NOT NULL,

  total_amount DECIMAL(10,2) NOT NULL,
```

```sql
    status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED') DEFAULT 'PENDING',

    order_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,

    FOREIGN KEY (user_id) REFERENCES users(user_id)

);
```

**Order Items Table:**

sql

```sql
CREATE TABLE order_items (

    order_item_id INT AUTO_INCREMENT PRIMARY KEY,

    order_id INT NOT NULL,

    product_id INT NOT NULL,

    quantity INT NOT NULL,

    price DECIMAL(10,2) NOT NULL,

    FOREIGN KEY (order_id) REFERENCES orders(order_id),

    FOREIGN KEY (product_id) REFERENCES products(product_id)

);
```

**Error Handling and Validation**

**Stock Validation:**

| Error Condition | System Response |
|---|---|
| Product out of stock | Disable action buttons, show "Out of Stock" |
| Requested quantity > stock | Limit to max available, show warning |
| Stock becomes 0 during process | Transaction rollback, show error |

**Purchase Validation:**

| Validation | Action |
| --- | --- |
| Quantity must be $\geq 1$ | Enforce minimum in quantity dialog |
| Must have sufficient funds | (Future enhancement) |
| Must be logged in | Enforced by form access |

**Image Loading Errors:**

| Error | Fallback |
| --- | --- |
| Image file not found | Default placeholder image |
| Invalid image format | Default placeholder image |
| File access denied | Default placeholder image |

**Troubleshooting Guide**

**Issue: Products not loading**

Check:

1. Database connection string
2. Products table exists with correct columns
3. Products have status = 'AVAILABLE'
4. Network/database connectivity

**Issue: Images not showing**

Check:

1. Image files exist at stored paths
2. Application has read permissions

3. Image files are valid formats (JPG, PNG, etc.)
4. Default image creation succeeds


**Issue: Filter/Sort not working**

Check:

1. Search text is entered
2. Category selection is made
3. DataTable is properly populated
4. Filter logic matches column names


**Issue: Add to Cart failing**

Check:

1. Product is in stock
2. User is logged in (customerId valid)
3. Cart table exists with correct structure
4. Database permissions for INSERT/UPDATE


**Best Practices for Shopping**


**Product Discovery:**

1. Use filters effectively - Narrow down large catalogs
2. Try different sorts - Discover products by price, discount, etc.
3. Check details - Always view details before purchase
4. Monitor stock - Act quickly on low-stock items


**Cart Management:**

1. Watch cart count - Keep track of items
2. Use Buy Now for singles - Faster than cart for single items
3. Check discounts - Look for 🔥 icon and orange highlighting
4. Verify stock before checkout - Avoid order failures


**Purchase Safety:**

1. Review order summary - Always confirm before purchasing
2. Save order ID - Important for tracking and support
3. Check delivery estimates - (Future enhancement)
4. Keep within budget - Monitor spending via cart total


**Quick Reference Guide**

| Action | Method | Best For |
|---|---|---|
| View product details | Double-click row or right-click | Research before purchase |
| Add to cart | Details dialog → Add to Cart | Building multi-item orders |
| Buy immediately | Details dialog → Buy Now | Single item quick purchase |
| Filter products | Search box + category dropdown | Finding specific items |
| Sort products | Click Sort button repeatedly | Organizing large lists |
| View cart | Click cart count or My Cart button | Reviewing before checkout |
| Find discounts | Click "Show Discounted" button | Sale shopping |
| Clear filters | Click "Clear Filters" button | Starting fresh search |

**Keyboard Shortcuts and Quick Actions**

- Double-click - Open product details
- Right-click - Open product details (alternative)
- Enter in search - Activates text filter
- Tab - Navigate between controls
- Click + Action Button - Quick operations on selected product

**Performance Tips**

1. Use filters - Faster than scrolling through all products
2. Clear filters when done - Prevents confusion
3. Refresh periodically - Gets latest stock and prices
4. Use default images - Faster loading than missing image errors
5. Monitor cart count - Quick indicator of cart status

**Shopping Experience Features**

1. Visual product browsing - Images enhance shopping experience
2. Real-time stock updates - Accurate availability information
3. Multiple purchase paths - Flexibility for different shopping styles
4. Integrated cart management - Seamless flow from browsing to checkout
5. Personalized welcome - Customer name display
6. Persistent filters - Maintains search state during navigation

**Important Notes**

1. Stock is real-time - Multiple users see same availability
2. Prices are current - Display shows latest prices
3. Discounts are automatic - 10% off applied to discounted items
4. Images are optional - Products work without images
5. Cart is persistent - Saved between sessions
6. Orders are immediate - Purchase creates instant order record

This Browse Products Form provides a comprehensive, visually rich shopping experience in the ShopGreen system, combining powerful filtering, intelligent sorting, rich product visualization, and flexible purchasing options to create an engaging and efficient shopping environment for customers.

# 13.ShopGreen System - My Profile Form User Guide

**Form Overview**

The My Profile Form is the customer account management interface in the ShopGreen system. It allows customers to view and update their personal information, track their order history, and manage account settings. This form provides a secure and comprehensive profile management experience.

**Key Features and Functions**

**1. Profile Information Display (LoadProfileData)**

What it does:

- Displays customer's current profile information
- Shows 5 key personal details in read-only mode
- Provides "Member since" date for account history
- Shows information in both display labels and editable fields

Displayed Information:

1. Name - Customer's full name
2. Email - Registered email address

3. Contact - Phone number
4. Username - Login username
5. Member Since - Account creation month and year

Information Layout:

- Left Panel: Read-only display (labels) for quick viewing
- Right Panel: Editable fields (textboxes) for modifications
- Consistency: Both panels show same data when not editing

## 2. Order History Summary (LoadOrderHistory)

What it does:

- Shows 4 key order statistics in real-time
- Provides quick overview of customer's shopping activity
- Updates automatically with each profile load

Order Statistics:

1. Total Orders - All orders placed
2. Total Spent - Lifetime spending on delivered orders
3. Pending Orders - Orders awaiting processing/shipping
4. Shipped Orders - Orders in transit

Display Format:

- Visual Cards: White panels with clear labels
- Currency Format: "Rs. X,XXX.XX" for monetary values
- Count Format: Simple numbers for order counts

## 3. Edit Mode Management

What it does:

- Toggles between view mode and edit mode
- Controls field editability and button states
- Provides visual feedback on mode changes

### Edit Mode (EnableEditMode)

When activated:

- All text fields become editable
- Save and Cancel buttons enabled
- Edit Profile button disabled
- Password fields enabled
- Focus set to Name field

### View Mode (DisableEditMode)

When activated:

- All text fields become read-only
- Save and Cancel buttons disabled
- Edit Profile button enabled
- Password fields cleared and disabled
- Changes reverted to original values

## 4. Profile Update Validation (ValidateForm)

What it does:

- Validates all form fields before saving
- Ensures data integrity and format correctness
- Provides specific error messages for each validation failure
- Prevents invalid data from being saved

Validation Rules:

| Field | Validation Rules | Error Message |
| --- | --- | --- |
| Name | Cannot be empty | "Please enter your name." |
| Email | Valid email format | "Please enter a valid email address." |
| Contact | Exactly 10 digits | "Please enter a valid 10-digit contact number." |
| Username | Cannot be empty | "Please enter a username." |
| Password | If entered: ≥6 chars, must match confirm | "Password must be at least 6 characters." / |

|  | "Passwords do not match." |
|---|---|

Email Validation:

- Uses .NET MailAddress class for robust validation
- Ensures proper email format (user@domain.com)
- Prevents malformed email addresses

Contact Validation:

- Regular expression: ^[0-9]{10}$
- Exactly 10 digits required
- No spaces, dashes, or other characters allowed

## 5. Profile Saving (SaveProfile)

What it does:

- Updates customer profile in database
- Checks for duplicate email/username
- Handles password updates (if provided)
- Shows success/error messages
- Reloads profile data after save

Save Process Steps:

1. Form Validation - Check all fields pass validation
2. Duplicate Check - Verify email/username not used by others
3. Database Update - Execute appropriate UPDATE query
4. Confirmation - Show success message
5. Mode Change - Return to view mode
6. Data Refresh - Reload updated profile

Password Update Logic:

- If password entered: Updates all fields including password
- If password not entered: Updates all fields except password (keeps current)
- Security Note: Passwords stored in plain text (needs encryption in production)

Duplicate Prevention:

- Email Check: Ensures email not used by other users
- Username Check: Ensures username not taken by other users
- Self-Exclusion: Current user excluded from duplicate checks

## 6. Change Password Functionality

What it does:

- Specialized function for password changes
- Can be accessed via dedicated button
- Opens edit mode with password field focused
- Maintains other profile information

How to Change Password:

1. Click Change Password button
2. Edit mode activates with password field focused
3. Enter new password (minimum 6 characters)
4. Confirm new password in second field
5. Click Save to update

Password Security:

- Show/Hide Toggle: Eye icon to reveal/hide password
- Confirmation Required: Must enter password twice
- Length Requirement: Minimum 6 characters
- Current Limitation: Plain text storage (needs improvement)

## 7. Order History Navigation

What it does:

- Quick access to detailed order tracking
- "View Order History" button opens Track Orders form
- Seamless transition from profile to order details
- Preserves customer context during navigation

How it works:

- Click View Order History button
- Opens Track Orders form with customer's order details
- Returns to profile via navigation menu when needed

## 8. Refresh Functionality (btnRefresh_Click)

What it does:

- Reloads all profile data from database
- Updates order statistics with latest information
- Shows success confirmation message
- Ensures data is current

When to use:

- After making purchases elsewhere
- When expecting order status changes

- To verify profile updates from other sessions
- General data freshness check

**Navigation Menu**

**Top Navigation Bar (6 functions):**

1. 🏪 Store - Returns to Customer Dashboard
2. 🛒 Browse Products - Opens product catalog
3. 🛍️ My Cart - Opens shopping cart
4. 📦 Track Orders - Opens order tracking (alternative to View Order History)
5. 👤 My Profile - Refreshes current form (already here, highlighted)
6. 🚪 Logout - Securely logs out

Visual Indicators:

- Current Page: Profile button stays dark green
- Hover Effects: Other buttons change color on hover
- Consistent Styling: Matches other customer forms

**Form Layout**

**Top Section:**

- Navigation menu with current page highlighting
- Form title and customer context

**Left Panel: Profile Display (Read-Only)**

- Customer Information:
  - Name
  - Email
  - Contact
  - Username
  - Member Since
- Order Statistics:
  - Total Orders
  - Total Spent
  - Pending Orders
  - Shipped Orders
- Quick Actions:
  - View Order History button

**Right Panel: Profile Management (Editable)**

- Editable Fields:

- - - Name (textbox)
    - Email (textbox)
    - Contact (textbox)
    - Username (textbox)
    - Password (masked textbox)
    - Confirm Password (masked textbox)
    - Show Password checkbox
  - Action Buttons:
    - Edit Profile
    - Change Password
    - Save
    - Cancel
    - Refresh

**Bottom Section: Status Information**

- Form mode indicator (Viewing/Editing)
- Last updated information (potential enhancement)
- Account status information

**Step-by-Step Usage Guide**

**Scenario 1: View Profile Information**

1. Navigate to profile - Click 👤 My Profile
2. View personal info - Left panel shows current details
3. Check order stats - Review shopping activity
4. Note member date - See account creation date
5. Use quick actions - Click View Order History if needed

**Scenario 2: Update Contact Information**

1. Enter edit mode - Click Edit Profile button
2. Update contact field - Enter new phone number
3. Verify other fields - Ensure name/email/username are correct
4. Save changes - Click Save button
5. Confirm update - Success message appears
6. Verify update - Left panel shows new contact number

**Scenario 3: Change Password**

**Method A: Via Change Password Button**

1. Click Change Password button
2. Enter new password (minimum 6 characters)
3. Confirm new password
4. Click Save button

5. Success message confirms password change

**Method B: Via Edit Profile**

1. Click Edit Profile button
2. Scroll to password fields
3. Enter new password
4. Confirm new password
5. Click Save button
6. All changes saved including password

**Scenario 4: Cancel Editing**

1. Make changes - Edit some fields
2. Change mind - Decide not to save
3. Click Cancel - Cancel button
4. Confirm cancellation - Click Yes in dialog
5. Return to view mode - Changes discarded, original data restored

**Scenario 5: Check Recent Order Activity**

1. View order stats - Check Pending/Shipped counts
2. If orders pending - Note count in Pending Orders
3. If need details - Click View Order History
4. Return to profile - Use navigation menu to come back
5. Refresh if needed - Click Refresh button for latest data

**Database Schema Requirements**

**Users Table:**

sql

```sql
CREATE TABLE users (

    user_id INT AUTO_INCREMENT PRIMARY KEY,

    name VARCHAR(100) NOT NULL,

    email VARCHAR(100) NOT NULL UNIQUE,

    contact VARCHAR(10),

    username VARCHAR(50) NOT NULL UNIQUE,

    password VARCHAR(255) NOT NULL,
```

```sql
    role ENUM('ADMIN', 'CUSTOMER') DEFAULT 'CUSTOMER',

    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP

);
```

**Orders Table (for statistics):**

sql

```sql
CREATE TABLE orders (

    order_id INT AUTO_INCREMENT PRIMARY KEY,

    user_id INT NOT NULL,

    total_amount DECIMAL(10,2) NOT NULL,

    status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED') DEFAULT 'PENDING',

    order_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,

    FOREIGN KEY (user_id) REFERENCES users(user_id)

);
```

**Error Handling and Validation**

**Common Error Messages:**

| Error Message | Cause | User Action |
| --- | --- | --- |
| "Please enter your name." | Name field empty | Enter name in field |

| | | |
|---|---|---|
| "Please enter a valid email address." | Invalid email format | Enter proper email (user@domain.com) |
| "Please enter a valid 10-digit contact number." | Contact not 10 digits | Enter exactly 10 numbers |
| "This email is already registered." | Email used by another user | Use different email address |
| "This username is already taken." | Username taken by another user | Choose different username |
| "Passwords do not match." | Password fields differ | Ensure both passwords match |
| "Password must be at least 6 characters." | Password too short | Use longer password |

**Form State Management:**

- Unsaved Changes: Cancel button warns before discarding
- Edit Mode: Clear visual distinction from view mode
- Password Fields: Automatically cleared when not in use
- Field Focus: Intelligent focus management during validation

**Troubleshooting Guide**

**Issue: Cannot edit profile**

Check:

1. Clicked Edit Profile button
2. Fields should have white background (editable)
3. Save/Cancel buttons should be enabled
4. Not already in edit mode

**Issue: Save button not working**

Check:

1. All required fields filled
2. Email format is valid
3. Contact is 10 digits
4. Passwords match (if entered)
5. No duplicate email/username

**Issue: Order stats not updating**

Check:

1. Orders exist in database for this user
2. Order statuses are correctly set
3. Refresh button clicked for latest data
4. Database connection working

**Issue: Password change not saving**

Check:

1. Password entered in both fields
2. Password meets minimum length (6 characters)
3. Passwords match exactly
4. Save button clicked after password entry

**Best Practices for Profile Management**

**Information Security:**

1. Use strong passwords - Mix letters, numbers, symbols
2. Keep email current - Important for order notifications
3. Update contact info - Ensure delivery coordination
4. Logout after sessions - Especially on shared computers

**Regular Maintenance:**

1. Monthly profile review - Check all information accuracy
2. Password rotation - Consider changing password periodically
3. Order history check - Review past purchases regularly

4. Contact verification - Ensure phone number is current

**Data Accuracy:**

1. Use real information - Accurate details aid delivery
2. Consistent formatting - Standard phone number format
3. Professional email - Use reliable email service
4. Unique username - Easy to remember, hard to guess

**Quick Reference Guide**

| Action | Steps | Notes |
|---|---|---|
| View profile | Navigate to 👤 My Profile | Read-only display |
| Edit profile | Click Edit Profile → Make changes → Save | All fields editable |
| Change password | Click Change Password → Enter new → Confirm → Save | Minimum 6 characters |
| View orders | Click View Order History | Opens Track Orders form |
| Cancel edits | Make changes → Click Cancel → Confirm | Discards unsaved changes |
| Refresh data | Click Refresh button | Updates from database |

Check stats          View left panel statistics          Real-time order data

**Keyboard Shortcuts**

- Tab - Navigate between form fields
- Enter in edit mode - May trigger save (context-dependent)
- Escape - Potential cancel shortcut (if implemented)
- Ctrl+R - Refresh data (if implemented)

**Security Features**

1. Password masking - Dots hide password characters
2. Show/hide toggle - Eye icon reveals passwords temporarily
3. Duplicate prevention - Email/username uniqueness checks
4. Form validation - Prevents invalid data submission
5. Session management - Customer ID tied to login session

**Performance Tips**

1. Refresh only when needed - Manual refresh updates all data
2. Edit mode selectively - Only enter edit mode when making changes
3. Use View Order History - Faster than navigating via menu
4. Monitor order stats - Quick overview without loading full history

**Integration with Other Features**

The profile form integrates with:

1. Order System - Shows order statistics and provides navigation
2. Login System - Updates credentials (username/password)
3. Customer Dashboard - Shares customer name and context
4. Shopping System - Maintains delivery contact information

**Important Notes**

1. Password storage - Currently plain text (NEEDS ENCRYPTION for production)
2. Email uniqueness - Cannot use email already registered by another user
3. Username uniqueness - Cannot use username already taken
4. Contact format - Strictly 10 digits, no formatting characters
5. Member since - Based on account creation, cannot be changed
6. Order statistics - Only counts orders placed by this customer

This My Profile Form provides comprehensive customer account management in the ShopGreen system, combining personal information management, order tracking, and

account security features in an intuitive interface that balances ease of use with data protection.

# 14. ShopGreen System - Track Orders Form User Guide

**Form Overview**

The Track Orders Form is the customer order tracking and history interface in the ShopGreen system. It allows customers to view all their past and current orders, filter by status, view detailed order information, and monitor order progress. This form provides comprehensive order management and tracking capabilities for customers.

**Key Features and Functions**

**1. Order List Display (LoadOrders)**

What it does:

- Loads all orders for the logged-in customer from the database
- Shows 5 key order attributes with product summaries
- Groups order items into a readable product list
- Sorts by most recent orders first

Displayed Columns:

1. Order ID - Unique order identifier (clickable for details)
2. Order Date - Date and time of order (YYYY-MM-DD HH:MM format)
3. Total Amount (Rs.) - Formatted currency with Rupee symbol
4. Status - Color-coded order status with bold formatting
5. Products - Comma-separated list of products with quantities

Product Summary Format:

- Example: "Organic Apples (x2), Fresh Milk (x1), Bread (x1)"
- Grouping: Uses SQL GROUP_CONCAT to combine items
- Readability: Clear product names with quantity indicators

**2. Order Status Color Coding (GetStatusColor)**

What it does:

- Applies color coding to order status for quick visual identification
- Uses industry-standard colors for different order states
- Makes status immediately recognizable

Color Scheme:

| Status | Color | RGB Value | Meaning |
|---|---|---|---|
| PEND ING | Orang e | RGB(25 5, 152, 0) | Order received, processing |
| SHIPP ED | Blue | RGB(33, 150, 243) | Order shipped, in transit |
| DELI VERE D | Green | RGB(46, 125, 50) | Order delivered successfully |
| Other | Gray | System Gray | Cancelled or other statuses |

Visual Features:

- Bold Text: Status shown in bold for emphasis
- Color Application: Applied to status cell only
- Consistent Styling: Same colors used throughout system

## 3. Order Filtering by Status (FilterOrdersByStatus)

What it does:

- Filters orders to show only those with specific status
- Updates order count label to reflect filter
- Maintains same column structure and styling
- Provides focused view of order types

Filter Options:

1. All Orders - Shows all orders regardless of status
2. Pending Orders - Only orders with PENDING status

3. Shipped Orders - Only orders with SHIPPED status
4. Delivered Orders - Only orders with DELIVERED status

Filter Benefits:

- Focus Management: See only orders needing attention
- Progress Tracking: Monitor orders by stage
- Historical Review: View completed orders separately
- Problem Identification: Spot stalled orders easily

## 4. Detailed Order View (ViewOrderDetails)

What it does:

- Shows comprehensive order details in a formatted message box
- Displays order header information (ID, date, amount, status)
- Lists all order items with quantities, prices, and line totals
- Provides complete order summary for reference or support

Order Details Display:

- Order Header:
  - Order ID with 📦 icon
  - Order date and time
  - Total amount in Rupees
  - Current status
- Order Items:
  - Product name
  - Quantity (format: "x2")
  - Unit price
  - Line total (quantity $\times$ price)
- Format: Bulleted list for easy reading

Access Methods:

1. Double-click any order row
2. Programmatically via other functions
3. Direct method call for custom integration

## 5. Grid Styling and Formatting (StyleOrdersGridView)

What it does:

- Applies professional styling to the orders grid
- Sets optimal column widths for each data type
- Formats currency values consistently
- Ensures readability and visual appeal

Column Width Configuration:

| Column | Width | Justification | Features |
|--------|-------|---------------|----------|
| Order ID | 100px | Left | Fixed width for IDs |
| Order Date | 150px | Left | Fits date-time format |
| Total Amount | 150px | Right | Currency aligned right |
| Status | 120px | Left | Color-coded, bold |
| Products | 300px | Left | Flexible for product lists |

Additional Styling:

- Row Height: 40px for comfortable reading
- Selection: Green highlight for selected rows
- Headers: Green background with white text
- Background: Clean white for readability

## 6. Order Count Display

What it does:

- Shows real-time count of displayed orders
- Updates with filter changes
- Provides context for order list
- Helps users understand result set size

Display Format:

- All Orders: "X Order(s) Found"
- Filtered: "X [STATUS] Order(s)"
- Dynamic: Updates immediately after filtering
- Clear: Simple, unambiguous count

## 7. Refresh Functionality (btnRefresh_Click)

What it does:

- Reloads all order data from database
- Resets any active filters (shows all orders)
- Shows success confirmation message
- Ensures data is current with latest status changes

When to use:

- After expecting order status updates
- When returning to form after some time
- To verify latest order information
- After contacting support about orders

## Navigation Menu

## Top Navigation Bar (6 functions):

1. 📅 Store - Returns to Customer Dashboard
2. 🛒 Browse Products - Opens product catalog
3. 🛍️ My Cart - Opens shopping cart
4. 📦 Track Orders - Refreshes current form (already here, highlighted)
5. 👤 My Profile - Opens profile management
6. 🚪 Logout - Securely logs out

Visual Indicators:

- Current Page: Track Orders button stays dark green
- Hover Effects: Other buttons change color on hover
- Consistent Styling: Matches other customer forms

## Form Layout

## Top Section:

- Navigation menu with current page highlighting
- Form title and customer context
- Order count display

**Left Panel: Order Filter Buttons**

- Filter by Status:
  - 📋 All Orders (default)
  - ⏳ Pending Orders (orange)
  - 🚚 Shipped Orders (blue)
  - ✅ Delivered Orders (green)
- Action Buttons:
  - 🔄 Refresh Orders
  - 📋 View Details (on selection)

**Center: Orders Grid**

- Professional Table: 5 columns with optimal widths
- Color Coding: Status-based coloring
- Interactive: Double-click for details
- Formatted Data: Currency, dates, product lists
- Selection: Full row selection with highlighting

**Right Panel: Quick Actions**

- Selected Order Actions:
  - View Details (alternative to double-click)
  - Contact Support (potential enhancement)
  - Print Order (potential enhancement)
- Order Statistics:
  - Count by status
  - Total spending
  - Recent activity

**Bottom Section: Status Information**

- Last updated timestamp
- Order legend (color meanings)
- Help text for interactions

**Step-by-Step Usage Guide**

**Scenario 1: Check All Orders**

1. Navigate to Track Orders - Click 📦 Track Orders
2. View order list - All orders display in grid
3. Check order count - See total in top right
4. Review recent orders - Sorted by date (newest first)
5. Monitor status colors - Quick visual status check

**Scenario 2: Track Pending Orders**

1. Click Pending filter - ⌛ Pending Orders button
2. Review pending orders - Only PENDING status shown
3. Check order dates - See how long pending
4. Note product lists - See what's awaiting processing
5. Return to all orders - Click 📋 All Orders


**Scenario 3: View Order Details**

**Method A: Double-Click**

1. Find order - Scroll or filter to locate order
2. Double-click row - Anywhere on the order row
3. Review details - Message box shows complete information
4. Close details - Click OK to return

**Method B: Selection + Button**

1. Select order - Click once on order row
2. Click View Details - Action button (if available)
3. Review details - Same detailed view
4. Close details - Click OK


**Scenario 4: Monitor Order Progress**

1. Check PENDING orders - Filter and review
2. Watch for SHIPPED - Orders move from PENDING to SHIPPED
3. Confirm DELIVERED - Final status confirmation
4. Use Refresh - Click 🔄 to get latest status
5. Track timeline - Note dates at each stage


**Scenario 5: Review Purchase History**

1. Filter DELIVERED orders - ✅ Delivered Orders button
2. Review past purchases - See completed orders
3. Check spending - Note total amounts
4. View product history - See frequently purchased items
5. Return to all - 📋 All Orders for complete view


**Database Schema Requirements**


**Orders Table:**

sql

CREATE TABLE orders (

```sql
    order_id INT AUTO_INCREMENT PRIMARY KEY,

    user_id INT NOT NULL,

    order_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,

    total_amount DECIMAL(10,2) NOT NULL,

    status ENUM('PENDING', 'SHIPPED', 'DELIVERED', 'CANCELLED') DEFAULT
'PENDING',

    FOREIGN KEY (user_id) REFERENCES users(user_id)

);
```

**Order Items Table:**

sql

```sql
CREATE TABLE order_items (

    order_item_id INT AUTO_INCREMENT PRIMARY KEY,

    order_id INT NOT NULL,

    product_id INT NOT NULL,

    quantity INT NOT NULL,

    price DECIMAL(10,2) NOT NULL,

    FOREIGN KEY (order_id) REFERENCES orders(order_id),

    FOREIGN KEY (product_id) REFERENCES products(product_id)

);
```

**Products Table:**

sql

```sql
CREATE TABLE products (

    product_id INT AUTO_INCREMENT PRIMARY KEY,
```

```
    product_name VARCHAR(100) NOT NULL

);
```

## Error Handling and User Feedback

### Error Messages:

| Error | Message | User Action |
|---|---|---|
| No orders found | "0 Order(s) Found" displayed | Place first order |
| Database error | Specific error message in popup | Contact support |
| Order not found | "Order not found!" when viewing details | Verify order ID |
| Connection issue | "Error loading orders" | Check internet/retry |

### Success Messages:

| Action | Message | Purpose |
|---|---|---|
| Refresh | "Orders refreshed! 📦" | Confirm data reload |

| Filter | Count updates automatically | Show result set size |
|---|---|---|

| Details view | Formatted information | order | Provide complete details |
|---|---|---|---|

**Troubleshooting Guide**

**Issue: Orders not loading**

Check:

1. Database connection string
2. User has orders in database
3. User ID matches logged-in customer
4. Database tables exist (orders, order_items, products)
5. Network/database connectivity

**Issue: Filter not working**

Check:

1. Filter button clicked (color change indicates active)
2. Orders exist with that status
3. Status values match exactly: PENDING, SHIPPED, DELIVERED
4. No database errors in background

**Issue: Details not showing**

Check:

1. Order row selected or double-clicked
2. Order ID exists in database
3. User has permission to view that order
4. No database connection issues

**Issue: Color coding missing**

Check:

1. Status values are uppercase
2. Status values match expected values

3. Grid styling code executed
4. No exceptions in StyleOrdersGridView()


**Best Practices for Order Tracking**


**Regular Monitoring:**

1. Daily check - Review PENDING orders each day
2. Status updates - Note when orders move to SHIPPED
3. Delivery confirmation - Verify DELIVERED status
4. Issue identification - Spot orders stuck in PENDING


**Order Management:**

1. Keep order IDs - Note for customer service inquiries
2. Monitor timelines - Track typical processing times
3. Review details - Verify items and quantities
4. Check totals - Confirm payment amounts


**Support Preparation:**

1. Have order ID ready - Essential for support requests
2. Note status history - Track status changes
3. Know order date - Helps identify timing issues
4. List products - Specific items for inquiry


**Quick Reference Guide**

| Action | Method | Best For |
| --- | --- | --- |
| View all orders | Click 📋 All Orders button | Complete order history |
| Filter by status | Click status filter buttons | Focused viewing |

| | | |
|---|---|---|
| View order details | Double-click order row | Complete order information |
| Refresh data | Click ⟳ Refresh button | Latest status updates |
| Check order count | View top-right label | Quick overview |
| Monitor progress | Watch status color changes | Visual tracking |
| Return to shopping | Click 🏪 Store or 🛒 Browse Products | Continue shopping |

**Keyboard Shortcuts**

- Double-click - Open order details
- Arrow keys - Navigate grid rows (if focused)
- Tab - Navigate between buttons
- Enter on selected row - Potential details shortcut (if implemented)
- F5 - Refresh orders (if implemented)

**Performance Tips**

1. Use filters - Faster than scrolling through all orders
2. Refresh only when needed - Manual control over updates
3. Monitor order count - Quick indicator of activity level
4. Use details view selectively - Loads additional data
5. Clear filters when done - Prevents confusion

**Integration with Customer Experience**

The Track Orders form enhances customer experience by:

1. Providing transparency - Clear view of order status
2. Reducing support calls - Self-service order tracking
3. Building trust - Open access to order information
4. Improving satisfaction - Easy monitoring of purchases
5. Supporting planning - Knowledge of delivery timelines

**Important Notes**

1. Real-time data - Shows current status from database
2. Customer-specific - Only shows orders for logged-in customer
3. Historical record - Maintains complete order history
4. Status explanations - Color coding helps understanding
5. Support reference - Order details useful for customer service
6. No editing capability - View only, cannot modify orders

This Track Orders Form provides comprehensive order tracking and management for customers in the ShopGreen system, offering clear visibility into order status, detailed order information, and flexible filtering options to help customers monitor their purchases effectively.