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 ^\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

```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
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
```

```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

```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
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
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
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
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 ≥ 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
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,
```

```
    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

```text
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
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
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
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,
    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
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
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 ≥ 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
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
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
PENDING	Orange	RGB(255, 152, 0)	Order received, processing
SHIPPED	Blue	RGB(33, 150, 243)	Order shipped, in transit
DELIVERED	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 × 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 order information	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.