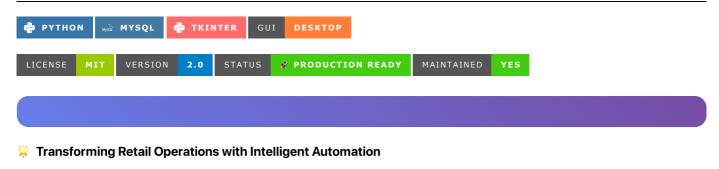


DIGICLIMATE STORE HUB

Resilience meets innovation

Next-Generation Point-of-Sale & Inventory Management



Empowering businesses worldwide with enterprise-grade POS technology



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o Overview

"The most intuitive and powerful POS system built for the modern retailer"

DigiClimate Store Hub is a comprehensive, enterprise-grade Point-of-Sale (POS) and inventory management solution designed specifically for **retail businesses**, warehouses, and **small-to-medium enterprises**.

Built on the foundation that "Resilience meets innovation", our platform combines cutting-edge technology with robust business practices to deliver unmatched reliability and performance. From traditional retail operations to modern agricultural businesses, DigiClimate Store Hub adapts to your unique needs while maintaining enterprise-level security and scalability.

Why Choose DigiClimate Store Hub Over Others?



Lightning Performance

- Real-time processing
- Optimized SQL queries
- Scalable architecture
- · Zero-latency operations



Bank-Level Security

- Role-based access control
- Encrypted authentication
- Audit trail logging
- SQL injection protection





AI-Powered Intelligence

- Automated reporting
- Smart business insights
- Predictive analytics
- Real-time alerts

Beautiful Interface

- Intuitive design
- Modern aesthetics
- Responsive layout
- · Accessibility focused

What's New in v2.0

Feature	Description	Impact
Climate Tab Integration	Advanced climate data monitoring and agricultural insights	***
Company Branding	"Resilience meets innovation" tagline integrated throughout	***
	Modern, professional login with improved UX and animations	***
Premium PDF Generation	Professional receipts and reports with company branding	***
NI/UX Improvements	Enhanced visual design and user experience across all modules	***
Analytics Dashboard	Comprehensive business intelligence with real-time metrics	***
Advanced Filtering	Multi-parameter filtering by date, employee, supplier, category	***
■ Multi-format Export	Dashboard data export to CSV, Excel, and PDF formats	***
Data Generation	Interactive scripts for realistic test data creation	***
Enhanced Email	PDF receipts automatically attached to emails	***
📥 Data Import	Bulk CSV import for customers, inventory & suppliers	***
♦ Update Records	Full editing capabilities for customers & suppliers	***
Enhanced Reports	Inventory value report with grand total display	***
Smart Automation	Al-powered alerts and end-of-day reports	***
	Granular role-based permission controls	숙숙숙숙숙

Key Features

M Core Modules

► 🛒 Sales & Transaction Management

- Intuitive Shopping Cart
 - o Real-time item addition with SKU and quantity validation
 - o Dynamic pricing calculations with tax handling
 - o One-click customer selection from integrated database

Seamless Checkout Process

- o Instant receipt generation with transaction details
- Atomic transaction processing (all-or-nothing guarantee)
- o Automatic inventory deduction with rollback on errors

• II Transaction Analytics

- Real-time sales tracking and reporting
- o Customer purchase history integration
- Employee performance metrics

▶ Details

Secure Authentication & Access Control

• **Multi-Layer Security**

- Username/password authentication with session management
- Role-based access control (RBAC) with 5 distinct user roles
- Secure logout with complete session clearing

• 11 User Role Management

- Manager: Full system access and administrative controls
- o Salesperson: Sales module access with customer management
- o Inventory Manager: Stock control and supplier management
- Accountant: Financial reports and read-only data access
- Store Admin: Administrative functions for inventory and suppliers

• of Dynamic Interface

- o UI adapts automatically based on user permissions
- Role indicator display for current user session
- o Seamless user switching with secure transitions

▶ **③** Advanced Inventory Management

• II Real-Time Stock Control

- Live inventory tracking with instant updates
- o Automated stock adjustments during sales transactions
- o Comprehensive product management (add/edit/delete)
- o **CSV Import**: Bulk inventory import with validation and duplicate detection

• 🖔 Financial Tracking

- Real-time inventory valuation calculations with grand total display
- Stock level monitoring with automated alerts
- o Complete audit trail for all inventory changes
- o **Enhanced Inventory Value Report**: Comprehensive totals with item count

Smart Search & Filtering

- Quick product lookup by SKU or name
- Advanced filtering options for inventory reports
- o Bulk operations for efficient stock management

▶ **1** Customer & Supplier Ecosystem

• 11 Customer Relationship Management

- Complete customer database with contact information
- o Purchase history tracking and analysis
- Customer selection integration in sales process
- **Output** Update Customer Information: Full edit capabilities for existing customers
- o 📥 CSV Import: Bulk customer import with validation and duplicate detection

Supplier Management Portal

- o Comprehensive supplier database maintenance
- Purchase history and relationship tracking
- o Supplier performance analytics and reporting
- o <a> Update Supplier Details: Complete supplier information editing
- Bulk Import: CSV-based supplier data import with error handling

• S Referential Integrity

- Prevents orphaned transactions and data inconsistencies
- Maintains data relationships across all modules
- Automated cleanup and validation processes

▶ ✓ Business Intelligence & Dashboard Analytics

• II Comprehensive Analytics Dashboard

- Real-time Metrics: Sales summaries, transaction counts, and profit analysis
- Advanced Filtering: Filter by date range, employee, supplier, and category
- II Top Products Analysis: Best-selling items with units sold and revenue data
- Fracent Activities: Live transaction feed with profit margins
- o 🕉 Financial Insights: Revenue tracking, average transaction values, and profit calculations
- o 📤 Multi-format Export: Export complete dashboard data to CSV, Excel, and PDF

- Overview Tab: Key performance indicators and business summary metrics
- Analytics Tab: Deep-dive analytics with advanced filtering capabilities
- o Performance Tab: Employee performance tracking and sales analytics
- o Simulation Tab: Business forecasting and scenario planning tools

• II Legacy Reporting System

- Low Stock Report: Identify products requiring immediate restocking
- o Sales Performance: Analyze employee productivity and sales trends
- Supplier Analytics: Track procurement patterns and supplier reliability
- o Customer Insights: Understand purchase behaviors and preferences

A Data Import & Export Capabilities

- CSV Import: Bulk import customers, inventory, and suppliers with validation
- Frror Handling: Skip duplicates and invalid entries automatically
- 📋 Sample Generation: Create sample CSV templates for easy formatting
- o One-click CSV export for all tables and reports
- o Excel-compatible formatting for external analysis
- Interactive Data Generation: Scripts for creating realistic test datasets

• 6 Custom Report Builder

- o Flexible query system for custom analytics
- o Real-time data visualization options
- o Export capabilities for all custom reports

Modern User Interface

• 🟴 Responsive Design

- o Clean, tabbed interface with intuitive navigation
- Consistent blue color scheme with professional branding
- Company logo integration in top-right corner

• **Performance Optimized**

- Fast loading times with optimized database queries
- Smooth transitions and responsive controls
- o Minimal memory footprint for desktop deployment

• 3 Accessibility Features

- Keyboard navigation support throughout the application
- o Clear visual indicators and error messaging
- User-friendly tooltips and help text

► 🏋 Technical Excellence

• 🔒 Security Best Practices

- Parameterized SQL queries preventing injection attacks
- o Secure password handling and session management
- o Complete input validation and sanitization

• T Modular Architecture

- o Clean separation of UI, business logic, and data access
- Easy extensibility for custom features and integrations
- Comprehensive error handling with user-friendly messages

• II Database Excellence

- MySQL with InnoDB for ACID transaction support
- Optimized indexing for fast query performance
- Automated backup and recovery capabilities

▶ **③** Climate Tab - Agricultural Intelligence

• 🎋 Agricultural Data Monitoring

- o Real-time climate data tracking for key agricultural parameters
- o Temperature, humidity, and precipitation monitoring
- o Climate impact analysis for agricultural businesses

Agricultural Analytics

- o Crop performance correlation with climate data
- Seasonal trend analysis and forecasting
- o Climate-based business decision support

• A Climate Alerts & Warnings

- Automated weather alerts for agricultural planning
- Extreme weather condition notifications
- o Climate risk assessment for inventory management

• of Agricultural Business Integration

- o Climate data integration with POS operations
- o Weather-based sales forecasting
- Agricultural supply chain optimization

• II Climate Data Visualization

- o Interactive charts and graphs for climate trends
- o Historical climate data analysis
- o Agricultural season planning tools

🜍 Climate Tab - Agricultural Intelligence

Advanced Climate Monitoring for Agricultural Businesses

Empowering agricultural and retail businesses with real-time climate intelligence

DigiClimate Store Hub's **Climate Tab** represents our commitment to **"Resilience meets innovation"** by providing cutting-edge climate monitoring and agricultural intelligence capabilities. This powerful module transforms weather data into actionable business insights for agricultural retailers, farm supply stores, and climate-sensitive businesses.

Real-Time Climate Monitoring

• 📊 Comprehensive Weather Data

- Real-time temperature, humidity, and precipitation tracking
- o Historical climate data analysis and trend visualization
- o Multi-location climate monitoring for distributed operations

• / Interactive Climate Charts

- Dynamic temperature and humidity graphs
- Precipitation patterns and seasonal analysis
- o Climate trend forecasting and predictive analytics

• of Location-Based Intelligence

- o GPS-integrated weather monitoring
- Regional climate comparison tools
- o Microclimate analysis for precision agriculture

▶ △ Intelligent Alert Systems

• 3 Weather Warning System

- Automated alerts for extreme weather conditions
- Frost warnings for temperature-sensitive crops
- o Storm tracking and precipitation alerts

• Multi-Channel Notifications

- o Email alerts for critical weather events
- Dashboard notifications and visual indicators
- o Customizable alert thresholds and preferences

- Inventory protection recommendations
- o Sales opportunity notifications during weather events
- Supply chain disruption early warnings

▶ 🚜 Agricultural Business Integration

• P Climate-Smart Inventory Management

- Weather-based product demand forecasting
- Seasonal inventory optimization recommendations
- o Climate-sensitive product tracking and alerts

• 🖔 Sales Intelligence

- Weather-correlated sales pattern analysis
- Seasonal demand prediction and planning
- o Climate-based pricing optimization suggestions

• Crop Calendar Integration

- o Planting and harvesting schedule optimization
- Weather-based agricultural activity planning
- o Seasonal business cycle management

▶ II Advanced Analytics & Reporting

Z Climate Impact Analysis

- o Sales correlation with weather patterns
- Seasonal business performance metrics
- o Climate trend impact on business operations

• 📋 Agricultural Reports

- Crop condition assessment reports
- Weather summary and analysis documents
- Climate-based business recommendation reports

• of Predictive Insights

- Long-term climate trend analysis
- o Seasonal business planning recommendations
- Weather-based market opportunity identification

🕑 Data Management Features

■ Complete Data Lifecycle Management

Seamlessly import, update, export, and analyze your business data

CSV Data Import System

Powerful bulk import capabilities with intelligent validation

Supported Import Types

Data Type	Features	Validation
11 Customers	Name, email, phone, address	Duplicate detection, format validation
Inventory	SKU, name, quantity, price, category	Stock validation, price verification
Suppliers	Company, contact, phone, email, address	Contact validation, duplicate prevention

Smart Import Features

- Q Preview Mode: Review data before committing to database
- **A Error Handling**: Detailed error messages for invalid entries
- ② Duplicate Detection: Automatically skip existing records
- 📋 Sample Generation: Create properly formatted CSV templates
- 📊 Import Summary: Complete report of successful and failed imports

Import Process

- 1. Select File: Choose your CSV file using the Import Data button
- 2. • Preview: Review data structure and identify any issues
- 3. Validate: System checks for duplicates and format errors
- 4. **/** Import: Bulk insert validated records into database

5. **Summary**: View detailed import statistics and results

▶ Necord Update System

Complete editing capabilities for all data types

Update Features

- 11 Customer Updates: Edit all customer information including contact details
- **Supplier Updates**: Modify supplier information and contact data
- Q Smart Search: Quickly find records by ID, name, or other criteria
- 💾 Instant Save: Changes are immediately saved to database
- S Auto Refresh: UI updates automatically after modifications

User Interface

- 📑 Dedicated Update Tabs: Separate interfaces for customers and suppliers
- Form-Based Editing: Intuitive forms with validation
- Q Load Functionality: Quickly populate forms with existing data
- Save Actions: One-click update with confirmation

► II Enhanced Reporting

Advanced analytics with professional formatting

Inventory Value Report Enhancements

- **©** Grand Total Display: Comprehensive total with thousands separators
- | Item Count Summary: Total number of products tracked
- \$ Real-time Calculations: Instant updates as inventory changes
- Professional Layout: Clean, business-ready formatting

Report Features

- A One-Click Export: Export any report to CSV format
- Q Real-Time Data: Always current information
- **Business-Ready**: Professional formatting for presentations
- **Comprehensive Totals**: Summary statistics for all reports

Reporting & Analytics

Comprehensive Business Intelligence Dashboard

Transform your business data into actionable insights with DigiClimate Store Hub's powerful reporting engine

Interactive Dashboard Interface

► II Dashboard Overview

Real-time business analytics with powerful filtering and export capabilities

Oashboard Tabs

Tab	Purpose	Key Features
✓ Overview	Key performance indicators	Sales summaries, top products, recent activities
■ Analytics	Deep-dive analytics	Advanced filtering, trend analysis, custom reports
Performance	Employee & supplier metrics	Performance tracking, productivity analysis
Simulation	Business forecasting	Scenario planning, predictive modeling

Advanced Filtering System

- 📅 Date Range Selection: Custom periods from days to years
- **Lemployee Filtering**: Track individual or team performance
- Supplier Analysis: Filter by supplier relationships
- **Product category-based analytics**
- **Auto-refresh**: Live updates as filters change

📊 Real-time Metrics Display

- 🖔 Total Sales: Revenue tracking with period comparisons
- Transaction Counts: Order volume and frequency analysis
- Average Values: Transaction size and customer behavior
- **Y** Top Products: Best-selling items with units sold
- **Frace Recent Activities**: Live transaction feed with profit margins

Multi-format Export

- CSV Export: Excel-compatible data export
- II Excel Integration: Advanced spreadsheet formatting
- PDF Reports: Professional business reports
- © Complete Dashboard Export: All metrics in single file

�© Core Reports



What it shows:

- · Products below their individual restock thresholds
- Current stock levels and pricing
- Supplier contact information for quick reordering
- Product categories and SKU details

Use cases:

- Prevent stockouts and lost sales
- · Optimize inventory purchasing decisions
- Maintain optimal stock levels
- Plan seasonal inventory adjustments

Sales Performance by Employee



What it shows:

- Individual sales metrics per staff member
- Transaction counts and revenue totals
- Performance rankings and comparisons
- Time period analysis (daily/weekly/monthly)

✓ Use cases:

- Track employee productivity
- Identify top performers for recognition
- Set sales targets and goals
- Optimize staff scheduling and training

Supplier Purchase Analysis



What it shows:

- · Purchase history by supplier
- · Product categories and volumes
- · Supplier reliability metrics
- · Cost analysis and trends

Use cases:

- Evaluate supplier performance
- Negotiate better pricing terms
- Diversify supplier portfolio
- Track procurement patterns

Inventory Adjustment History



What it shows:

- All stock adjustments with timestamps
- Reasons for adjustments (damage, theft, correction)
- Employee responsible for changes
- Before/after stock levels

Use cases:

- Maintain audit compliance
- Track inventory shrinkage
- Identify adjustment patterns
- Improve inventory accuracy

Financial & Value Reports

▶ **II** Inventory Value Report

Real-time inventory valuation with comprehensive financial insights and grand total calculations

Field	Description	Example
SKU	Product identifier	SKU-1001
Product Name	Item description	Premium Coffee Beans
Current Stock	Units on hand	45 units
Unit Price	Cost per item	\$12.50
Total Value	Stock × Price	\$562.50
Category	Product grouping	Beverages
Last Updated	Stock change date	2025-06-16 14:30

Enhanced Features:

- Grand Total Display: Comprehensive total inventory value with separator
- Item Count Summary: Total number of products in inventory
- Real-time Calculations: Instant updates as inventory changes
- Professional Formatting: Clean display with thousands separators

o Key Benefits:

- Financial Planning: Know your inventory investment at any time
- Insurance Claims: Accurate valuations for coverage purposes
- Tax Reporting: Precise inventory values for accounting

• Investment Decisions: Identify high/low value product categories

▶ **1** Customer Purchase History

Detailed customer behavior analysis and purchase tracking

Customer Insights Dashboard:

- Purchase Frequency: How often customers shop
- Average Transaction Value: Spending patterns per visit
- Product Preferences: Most purchased items by customer
- Seasonal Trends: Shopping behavior throughout the year
- Loyalty Metrics: Customer retention and repeat purchase rates

Business Applications:

- Personalized Marketing: Target customers with relevant offers
- Inventory Planning: Stock products based on customer demand
- Customer Service: Understand purchase history for better support
- Loyalty Programs: Reward frequent and high-value customers

Advanced Analytics Features



Trend Analysis

- Sales growth tracking
- Seasonal pattern detection
- Performance comparisons
- Predictive insights



Data Export

- CSV format compatibility
- Excel integration ready
- One-click export buttons
- Scheduled report delivery



Time-Based Filtering

- Daily report generation
- Weekly summaries
- Monthly analytics
 - Custom date ranges



Customizable Views

- Sortable columns
- Filterable data sets
- Personalized dashboards
- Role-based access

Report Generation & Access

How to Access Reports

1. II Navigate to Reports Tab

- o Click on the "Reports" tab in the main interface
- o Select from available report categories
- o Choose specific report type from dropdown menus

2. of Filter and Customize

- Set date ranges for time-specific analysis
- o Filter by employee, supplier, or customer
- Sort columns by any criteria (date, amount, quantity)

3. 📤 Export and Share

- Click "Export to CSV" for any report
- Share reports with stakeholders via email
- Save reports for record-keeping and compliance

4. Real-Time Updates

- o All reports reflect live data from your database
- o No manual refresh needed always current information
- Automatic recalculation when underlying data changes

Sample Report Output

Top Selling Products Report

Rank	SKU	Product Name	Units Sold	Revenue	Profit Margin
1	SKU-1001	Premium Coffee Beans	245	\$3,062.50	45%
ø.	SKU-1015	Artisan Chocolate	189	\$2,835.00	38%
3	SKU-1008	Organic Tea Blend	156	\$1,872.00	42%
4	SKU-1203	Fresh Croissants	134	\$1,206.00	35%
5	SKU-1067	Specialty Sandwiches	98	\$1,470.00	28%

Quick Insights:

- Top Category: Beverages (Coffee & Tea) dominate sales
- High Margin Products: Coffee beans offer best profit margins
- Growth Opportunity: Bakery items show consistent demand
- Recommendation: Increase coffee bean inventory for peak seasons

Business Automation Features

Intelligent Operations on Autopilot

DigiClimate Store Hub's Al-powered automation systems work 24/7 to monitor, alert, and optimize your business operations

6 Smart Alert Systems

Low Stock Alert System



What it monitors:

- Continuous inventory level surveillance
- Real-time stock depletion tracking
- Cross-reference with sales velocity

When it triggers:

- Stock falls below individual product threshold
- · During sales transactions
- · Manual inventory adjustments
- Bulk stock operations

Notification details:

- Recipient: Store Manager (auto-detected)
- Content: Product name, SKU, current stock, timestamp
- Format: Professional email with actionable insights
- Frequency: Immediate (real-time)

👗 Large Transaction Alert System



What it monitors:

- All sales transaction amounts
- Unusual purchase patterns
- · High-value customer activities

- Transactions exceeding \$10,000
- Suspicious transaction patterns
- Multiple large transactions

Notification details:

- Recipient: Store Manager + Security Team
- Content: Sale ID, amount, employee, customer, timestamp
- Format: Security-focused alert with transaction details
- Frequency: Immediate (real-time)

Automated Business Intelligence

End-of-Day Business Reports

Comprehensive daily analytics delivered automatically to management

▶ ✓ Daily Sales Performance Dashboard

Sales Summary Analytics:

- · Total daily transactions and revenue
- · Average transaction value and quantity
- Performance comparison vs. previous day (with %)
- · Sales trend analysis and insights

Top Performing Products:

- · Best-selling items by quantity sold
- Highest revenue-generating products
- Product performance rankings
- Inventory turnover metrics

▶ **11** Employee Performance Metrics

Individual Performance Tracking:

- · Sales metrics by staff member
- · Transaction count and revenue per employee
- Performance rankings and comparisons
- Productivity insights and recommendations

of Team Performance Overview:

- Department-wise performance analysis
- Top performers identification
- Training needs assessment
- · Goal achievement tracking

▶ **p** Inventory Intelligence Report

Stock Status Alerts:

- · Complete list of items below stock threshold
- Critical inventory requiring immediate attention
- · Reorder recommendations with quantities
- · Supplier contact information for quick restocking

Daily Inventory Activity Log:

- All stock adjustments made during the day
- Adjustment reasons and responsible employees
- Before/after stock levels for audit trail
- Inventory value changes and impact analysis

Automation Architecture



Trigger Points

- Sales transactions
- Stock adjustments
- User logout
- Application exit



Email Delivery

- Gmail SMTP integration
- SSL encrypted delivery
- App password security
- Manager auto-detection



Error Handling

- Graceful failure recovery
- Non-blocking operations
- Detailed error logging
- System continuity assured



1 Modular Design

- Centralized in Automations.py
- Clean separation of concerns
- Easy feature extension
- Maintainable codebase

Professional PDF Receipts

Enterprise-Grade Receipt Generation

Professional PDF receipts with logo integration and email delivery

- 📰 Brand Integration: Company logo automatically included in every receipt
- **Email Enhancement**: PDF receipts attached to customer emails
- Notes and branded styling Professional Layout: Clean formatting with tables and branded styling
- **Drganized Storage**: Receipts saved as both .txt and .pdf formats
- Auto Setup: ReportLab integration with automatic installation
- Reliable: Graceful fallback and error handling

Requirements

- Place your logo.jpeg file in the main directory (optional)
- ReportLab library (auto-installed via requirements.txt)

Quick Start

Get DigiClimate Store Hub Running in Under 5 Minutes

Prerequisites Checklist

- ✓ Python 3.8+ installed
- ✓ MySQL Server 8.0+ running
- ✓ Git for version control
- ▼ Text editor or IDE

X System Requirements

Component	Minimum	Recommended
RAM	4GB	8GB+
Storage	500MB	2GB+
CPU	Dual-core	Quad-core+
os	Windows 10/macOS/Linux	Latest versions

o Installation Steps

STEP 1 CLONE REPOSITORY

```
git clone https://github.com/Ahsan-Shah056/Storecore.git
cd Storecore
```

STEP 2 SETUP ENVIRONMENT

```
# Create virtual environment
python3 -m venv digiclimate_env

# Activate environment
# On macOS/Linux:
source digiclimate_env/bin/activate
# On Windows:
digiclimate_env\Scripts\activate

# Install dependencies
pip install -r requirements.txt
```

STEP 3 DATABASE SETUP

```
# Create database
mysql -u root -p -e "CREATE DATABASE store;"

# Import schema
mysql -u root -p store < storecore.sql

# Update database credentials in database.py</pre>
```

STEP 4 LAUNCH APPLICATION

```
# (Optional) Load sample data
python sample_data.py

# Launch DigiClimate Store Hub
python main.py
```

First Time Setup Guide

▶ (a) Configure User Accounts

1. Edit credentials.json to add your users:

2. Login with default credentials:

Username: ahsanPassword: 123

▶ ■ Email Automation Setup

1. Generate Gmail App Password:

- o Go to Google Account settings
- Enable 2-Factor Authentication
- Generate App Password for "Mail"

2. Update credentials.json:

- o Add your Gmail address
- Add the generated app password
- o Ensure manager role has email address

▶ 📊 Advanced Data Generation & Testing

Comprehensive test data generation for development and demonstration purposes

Interactive Data Generation Scripts

Script	Purpose	Features
<pre>generate_data_interactive.py</pre>	Comprehensive data generation	Interactive prompts, purchases, inventory adjustments
generate_customers.py	Customer database population	500+ realistic customer profiles
generate_sales.py	Sales transaction generation	Bulk sales with realistic customer distribution

Data Generation Workflow

```
# Step 1: Generate customer base (run once)
python generate_customers.py
# Creates 500 realistic customers with proper contact information

# Step 2: Interactive purchase and inventory generation
python generate_data_interactive.py
# Interactive prompts for:
# • Number of purchases to generate
# • Number of purchase items per transaction
# • Inventory adjustments with automatic stock updates

# Step 3: Generate sales transactions
python generate_sales.py
# Creates realistic sales data using the customer base
# Includes proper employee assignment and transaction timing
```

Generated Data Features

- 🖺 Realistic Purchases: Complete purchase orders with proper supplier relationships
- Purchase Items: Detailed line items with realistic quantities and pricing
- III Inventory Updates: Automatic stock adjustments based on purchase data
- 💰 Sales Transactions: Comprehensive sales with customer assignments
- Time-based Data: Realistic date/time distributions for historical analysis
- Scalable Volumes: Generate from hundreds to thousands of records

Legacy Sample Data

```
# Quick sample data for basic testing
python sample_data.py
# Includes:
```

```
#  $\infty$ 50+ sample products
#  $\infty$ 25+ customers
#  $\infty$ 15+ suppliers
#  $\infty$ 10+ employees
#  $\infty$ Sample transactions
```

Best Practices

- 1. Start Small: Begin with smaller datasets for testing
- 2. Customer First: Always run generate_customers.py before sales generation
- 3. Incremental Builds: Use interactive script for controlled data growth
- 4. Dashboard Testing: Generated data populates the analytics dashboard for comprehensive testing

► **New Features Guide (v1.1)**

Using the CSV Import System

1. Access Import Features:

- o Navigate to Customers, Inventory, or Suppliers tabs
- o Click the "Import Data" button in any of these sections

2. Import Process:

```
Select CSV File → •• Preview Data → ✓ Validate → ✓ Import → <a href="#">III</a> Summary
```

3. CSV Format Requirements:

- o Customers: name, email, phone, address
- o Inventory: sku, name, quantity, price, category
- o Suppliers: name, contact_person, phone, email, address

4. Sample CSV Generation:

- $\circ\hspace{0.1in}$ Use the import dialog to generate properly formatted sample files
- Modify the samples with your actual data

Using the Update System

1. Update Customers:

- Go to Customers tab → "Update" subtab
- Enter customer ID and click "Load"
- Edit information and click "Update"

2. Update Suppliers:

- \circ Go to Suppliers tab \rightarrow "Update" subtab
- Enter supplier ID and click "Load"
- Modify details and click "Update"

Enhanced Reporting Features

1. Inventory Value Report:

- Now displays grand total with thousands separators
- Shows total item count for complete overview
- Real-time calculations as inventory changes

2. Professional Formatting:

- All reports now include summary statistics
- o Business-ready formatting for presentations
- o Clear totals and separators for easy reading

© Quick Feature Test

Verify Installation Success

Test	Action	Expected Result
≅ Login	Use default credentials	Successful authentication & UI loads
	Add item to cart & checkout	Receipt generated & inventory updated
inventory	View inventory tab	Product list displays with stock levels
Reports Reports	Generate low stock report	Report displays with data
Automation	Make a sale to trigger low stock	Email sent to manager (if configured)

How the App Operates

For Sales Staff

- Start the Application: Launch main.py.
- Add to Cart: Enter SKU and quantity, click 'Add to Cart'.
- Select Customer: Use the dropdown to select a customer.
- Checkout: Click 'Checkout' to complete the sale and view the receipt.
- Error Handling: Any invalid input or DB error is shown in a popup, and the operation is safely rolled back.

For Managers/Admins

- Inventory: Add/delete products, adjust stock, and view inventory value.
- Import Data: Use the "Import Data" buttons to bulk import inventory from CSV files with validation
- II Enhanced Reports: Generate inventory value reports with grand totals and item counts
- Customers/Suppliers: Add, delete, and view all records. Supplier and customer dropdowns are always up-to-date.
- Image: Update Records: Use the "Update" subtabs to edit existing customer and supplier information
- Import Data: Bulk import customers and suppliers via CSV with duplicate detection
- · Reports:
 - Use the Reports tab to generate business insights (low stock, sales by employee, inventory value, customer purchase history, etc.).
 - o Use dropdowns to filter by employee, supplier, or customer as needed.
 - All reports are generated via optimized SQL queries for performance.
 - Enhanced Formatting: Reports now include professional formatting with grand totals and separators

For Developers

• Codebase Structure:

- o Each business domain (sales, inventory, etc.) is encapsulated in its own Python module.
- o UI logic is separated from business logic and data access.
- o All DB access uses parameterized queries and context management.

Adding New Features:

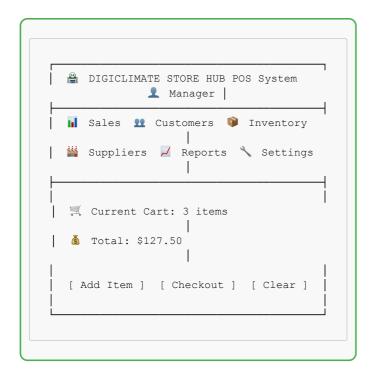
- To add a new report, create a function in reporting.py, add a callback in main.py, and wire a button/dropdown in Ui.py.
- To extend the UI, subclass or modify the relevant UI class in Ui.py.
- Testing & Debugging:
- Testing & Debugging:
 - All exceptions are caught and surfaced to the user.
 - Use print statements or logging for deeper debugging.

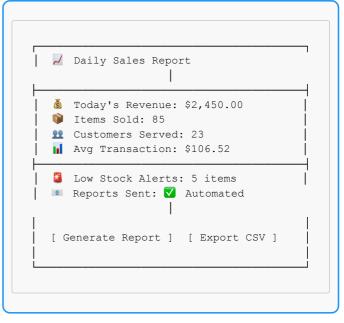
Application Preview

See DigiClimate Store Hub in Action

Main Dashboard

Analytics Dashboard





Key Capabilities at a Glance



Project Structure

```
DigiClimate-Store-Hub/
 — Dore Application Files
                                   # 🚀 Main application entry point with login system
     — main.py
     — Ui.py
                                   # No Core UI classes and modular interface logic
      — database.py
                                   # 🖥 Database connection and management (MySQL)
    └─ credentials.json
                                   # 🔐 User credentials, roles, and email configuration
  - 📁 Core Business Logic
     - core/
                                  # 🔼 Core module initialization
            _init__.py
                                   # 🖥 Database connection and management (MySQL)
         — database.py
                                   # 📦 Inventory management (CRUD, adjustments, import)
          - inventory.py
                                   # 🕉 Sales processing (cart, transactions, receipts)
         — sales.py
                                   # st Customer management (CRUD, updates, import)
         — customers.py
                                  # 🎬 Supplier management (CRUD, updates, import)
         — suppliers.py
                                  # 👤 Employee management and authentication
          - employees.py
          – reporting.py
                                   # 📊 Business intelligence and report generation
  - 📁 Automation & Data Processing
      - automation/
                                   # 🖮 Automation module initialization
          - __init__.py
          automations.py
                                   # 🍅 Smart automation (alerts, reports, emails)
         — data_exporting.py
                                  # 📤 Multi-format export (CSV, Excel, PDF)
         — data_importing.py
                                  # 📥 Bulk data import with validation
     — Dashboard tab/
         — __init__.py
                                   # 📊 Dashboard module initialization
          – dashboard.py
                                   # 📈 Backend dashboard data processing
                                  # T Base dashboard framework and utilities
         — dashboard_base.py
                                   # ➡️ Main dashboard UI with tabbed interface
         — dashboard_ui.py
         — dashboard_overview_ui.py # 📋 Overview dashboard with KPIs
        — dashboard_analytics_ui.py # 📊 Advanced analytics and filtering
        — dashboard_performance_ui.py # \( \neg \) Performance metrics and employee tracking
         — dashboard_simulation_ui.py # 💕 Business simulation and forecasting
          — dashboard_ui_backup.py # 💾 Dashboard UI backup version
```



Key Component Details

Advanced Dashboard System

- dashboard.py: Backend data processing and analytics calculations
- dashboard_analytics_ui.py: Interactive charts, graphs, and business intelligence
- dashboard_performance_ui.py: Employee performance, product rankings, cost analysis
- dashboard_overview_ui.py: Real-time business overview with key metrics
- dashboard_simulation_ui.py: Predictive modeling and business forecasting

Smart Automation Features

- automation/automations.py:
 - o Professional PDF daily reports via email
 - \(\Delta\) Low stock alerts with individual product thresholds

 - II Automated business intelligence reports

Data Management

- automation/data_importing.py: Robust data import with validation
- automation/data_exporting.py: Comprehensive export functionality
- generate_* files: Realistic test data generation for development

Enhanced User Experience

- Modern dashboard interface with real-time analytics
- Responsive design with professional charts and visualizations
- Theme-aware UI with consistent styling
- Professional PDF receipts with company branding

Configuration

Database Setup

- Use <u>DigiClimate_Store_Hub.sql</u> to set up your MySQL database schema. This file contains all necessary CREATE TABLE and relationship statements for DigiClimate Store Hub.
- Edit database.py to set your MySQL username, password, and database name (store).
- Ensure MySQL server is running before launching the app.
- All DB credentials are kept in code for simplicity; for production, use environment variables or a config file.

Email Configuration for Automation Features

To enable automated alerts and reports, configure email settings in credentials.json:

Requirements for Email Automation:

- Gmail Account: Recommended for SMTP configuration
- App Password: Generate a Gmail app password (not your regular password)
- Manager Email: At least one user with role "manager" must have an email address
- SSL Support: Ensure your network allows SSL connections on port 465

Automation Features Requiring Email:

- · Low stock alerts (using individual product thresholds)
- Large transaction alerts (> \$10,000)
- End-of-day business reports

March Login System Setup

The application now includes a secure login system with role-based access control:

1. Configure User Accounts:

- Edit the credentials.json file to manage user accounts
- o Each user entry requires a username, password, and role
- o Example format:

2. Role Permissions:

- o manager: Full access to all modules and features
- o salesperson: Access to Sales module and Customer view
- o inventory_manager: Access to Inventory and Suppliers modules
- o accountant: Access to Reports module and read-only access to other data
- o store_admin: Similar access to manager but focused on inventory and suppliers

3. Login and Logout:

- When the application starts, users must log in with valid credentials
- o The interface adapts based on the user's role, showing only relevant tabs and functions
- o Users can log out securely using the logout button, which returns to the login screen
- o All session data is cleared during logout for security

Troubleshooting

Common Issues

Email Automation Not Working:

- Verify email credentials in credentials.json are correct
- Ensure Gmail app password is used (not regular password)
- Check that at least one user has role "manager" with email address
- Confirm network allows SSL connections on port 465

Database Connection Issues:

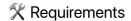
- · Verify MySQL server is running
- Check database credentials in database.py
- Ensure database store exists and is accessible
- Verify all tables are created using storecore.sql

Login Problems:

- Check user credentials in credentials.json
- Ensure username and password match exactly (case-sensitive)
- · Verify user role is valid

Low Stock Alerts Not Triggering:

- Thresholds are now set individually per product in the database
- Verify products actually have stock below threshold
- Check email configuration is properly set up



System Requirements

- Python 3.8+ (Recommended: Python 3.9 or higher)
- Operating System: Windows 10/11, macOS 10.14+, or Linux (Ubuntu 18.04+)
- RAM: Minimum 4GB (Recommended: 8GB for large datasets)
- Storage: 500MB free space (plus space for database and receipts)

Database Requirements

- MySQL Server 8.0+ (with InnoDB storage engine for ACID transactions)
- MySQL Connector: Included in Python dependencies
- (Optional) MySQL Workbench for visual database management

Python Dependencies

Install all required packages using:

```
pip install -r requirements.txt
```

Core Dependencies:

- mysql-connector-python==8.3.0 Database connectivity
- Pillow==11.2.1 Image processing and UI graphics
- ttkthemes==3.2.2 Enhanced UI themes
- reportlab==4.4.1 PDF receipt generation
- fpdf2==2.7.8 Alternative PDF generation

Analytics & Visualization:

- matplotlib==3.10.3 Charts and graphs for dashboard
- seaborn==0.13.2 Statistical data visualization
- numpy==2.1.3 Numerical computations

UI Enhancements:

- tkcalendar==1.6.1 Date picker widgets
- tkinter GUI framework (included with Python)

Email Configuration (Optional)

- Gmail Account with 2-Factor Authentication enabled
- App Password generated for email alerts
- Configure in credentials.json for climate alert notifications

Network Requirements

- Internet connection for:
 - Climate data updates
 - Email alert delivery
 - o Database synchronization (if using remote MySQL)

Report (Developer Guide)

```
# In reporting.py
def top_selling_products(cursor):
    query = """
        SELECT SKU, name, SUM(quantity) as total_sold
        FROM SaleItems
        JOIN Products USING(SKU)
        GROUP BY SKU, name
```

```
ORDER BY total_sold DESC
LIMIT 10;

"""

cursor.execute(query)
return cursor.fetchall()

# In main.py

def top_selling_products_callback():
    data = reporting.top_selling_products(cursor)
    columns = ("SKU", "Product Name", "Total Sold")
    rows = [(d['SKU'], d['name'], d['total_sold']) for d in data]
    pos_app.reports_ui.display_report(columns, rows)

# In Ui.py

# Add a button in ReportsUI and wire it to the callback
```

Contributing

Help Us Make DigiClimate Store Hub Even Better!

We welcome contributions from developers of all skill levels. Whether you're fixing bugs, adding features, or improving documentation, every contribution matters.





Sug Reports

Found a bug? Create an issue with detailed steps to reproduce.



Feature Ideas

Have a great idea? We'd love to hear about it in our issues.



Code Contributions

Fork the repo, make your changes, and submit a pull request.



Documentation

Help improve our docs, tutorials, and code comments.

Getting Started with Contributing

- 1. Fork the repository
- 2. Create a feature branch (git checkout -b feature/amazing-feature)
- 3. Commit your changes (git commit -m 'Add amazing feature')
- 4. Push to the branch (git push origin feature/amazing-feature)
- 5. Open a Pull Request

Contact & Support

Get in Touch



G GITHUB

LINKEDIN

- Technical Support: ahsanxhah056@gmail.com
- Sug Reports: Create an Issue
- Feature Requests: Start a Discussion

Thank You for Using DigiClimate Store Hub!

Made by Ahsan Shah

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