**Documentation for Stored Procedures, views, triggers, constraint and indices made by Abdelrahman Shear**

# **Constraints Documentation**

## **chk\_UnitPrice**

Brief: Ensures that the **UnitPrice** in the **[Order Details]** table is non-negative (greater than or equal to 0), preventing invalid pricing data.

## **chk\_Quantity**

Brief: Ensures that the **Quantity** in the **[Order Details]** table is positive (greater than 0), enforcing valid order quantities.

## **chk\_Discount**

Brief: Ensures that the **Discount** in the **[Order Details]** table is between 0 and 1 (inclusive), representing a valid discount range (0% to 100%).

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## **chk\_UnitPrice\_Product**

Brief: Ensures that the **UnitPrice** in the **Products** table is non-negative, maintaining valid pricing for products.

## **chk\_UnitsInStock**

Brief: Ensures that **UnitsInStock** in the **Products** table is non-negative, preventing negative stock levels.

## **chk\_UnitsOnOrder**

Brief: Ensures that **UnitsOnOrder**  in the **Products** table is non-negative, enforcing valid order quantities.

## **chk\_ReorderLevel**

Brief: Ensures that **ReorderLevel** in the **Products** table is non-negative, maintaining valid stock reorder thresholds.

## **chk\_Discontinued**

Brief: Ensures that the **Discontinued** flag in the **Products** table is either 0 or 1, representing a valid binary state.

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## **chk\_Fright**

Brief: Ensures that the **Freight** cost in the **Orders** table is non-negative, preventing invalid shipping costs.

## **df\_OrderDate**

Brief: Sets the default value of **OrderDate** in the **Orders** table to the current date (`GETDATE()`) if not specified, ensuring a timestamp for new orders.

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## **uniq\_CompanyName (Customers)**

Brief: Ensures that **CompanyName** in the **Customers** table is unique, preventing duplicate customer company names.

## **uniq\_ComapnyName (Suppliers)**

Brief: Ensures that **CompanyName** in the **Suppliers** table is unique, preventing duplicate supplier names.

## **chk\_HireDate**

Brief: Ensures that **HireDate** in the **Employees** table is not in the future (less than or equal to current date), maintaining realistic hire dates.

## **chk\_BirthDate**

Brief: Ensures that **BirthDate** in the **Employees** table is not in the future and is before **HireDate**, enforcing logical age and employment timelines.

## **uniq\_CategoryName**

Brief: Ensures that **CategoryName** in the **Categories** table is unique, preventing duplicate category names. A screenshot of a computer program

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# **Indices Documentation**

## **idx\_Orders\_CustomerID**

Brief: A non-clustered index on **CustomerID** in the **Orders** table to improve query performance for customer-specific order lookups.

## **idx\_Orders\_OrderDate**

Brief: A non-clustered index on **OrderDate** in the **Orders** table to enhance performance for date-based order queries.

## **idx\_OrderDetails\_ProductID**

Brief: A non-clustered index on **ProductID** in the **[Order Details]** table to optimize product-specific order detail retrieval.

## **idx\_Products\_CategoryID**

Brief: A non-clustered index on **CategoryID** in the **Products** table to speed up category-based product queries.

## **idx\_Customers\_Country**

Brief: A non-clustered index on **Country** in the **Customers** table to improve performance for country-specific customer searches.

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# **Procedures Documentation**

## **sp\_AddProduct**

Brief: Adds a new product to the **Products** table with specified details and returns the generated **ProductID**. Includes optional parameters with default values for stock and order fields.

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## **sp\_AddCustomer**

Brief: Inserts a new customer into the **Customers** table with required and optional contact and address details. A screenshot of a computer code

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## **sp\_AddOrder**

Brief: Creates a new order in the **Orders t**able with a transaction to ensure data integrity, returning the generated **OrderID.** Uses the current date if **OrderDate** is not provided.

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## **sp\_AddOrderDetail**

Brief: Adds a new order detail entry to the **[Order Details]** table within a transaction, ensuring atomicity for order line items.

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## **sp\_UpdateProductStock**

Brief: Updates the **UnitsInStock** for a specified product by adding a given number of units, useful for restocking operations.

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## **sp\_GenerateReorderReport**

Brief: Generates a report of products with stock levels below a specified threshold or reorder level, including order history from the last 30 days and reorder status.

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## **sp\_BulkShipOrders**

Brief: Updates the **ShippedDate** to the current date for a comma-separated list of unshipped order IDs, with error handling if no valid orders are found.

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## **sp\_ApplyTopCustomerDiscount**

Brief: Applies a discount to unshipped orders of the top-spending customer (based on **vw\_CustomerOrderSummary),** updating existing lower discounts.

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## **sp\_CheckEmployeeSalesGoals**

Brief: Evaluates employee sales performance against a specified sales goal for a given year, returning status and percentage to goal based on **vw\_EmployeeSalesPerformance.**

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## **sp\_ArchiveOldOrders**

Brief: Archives orders older than a specified number of years to the **OrderArchive** table and deletes them from **Orders** and **[Order Details]**, using a transaction for consistency.

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# **Triggers Documentation**

## **trg\_UpdateStockOnOrderInsert**

Brief: Reduces **UnitsInStock**  in the **Products** table when a new order detail is inserted, rolling back if insufficient stock is available.

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## **trg\_RestockOnOrderDelete**

Brief: Increases **UnitsInStock** in the **Products** table when an order detail is deleted, effectively restocking the product.

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## **trg\_IncreaseUnitsOnOrderOnInsert**

Brief: Increases **UnitsOnOrder**  in the **Products** table when a new order detail is inserted, tracking pending orders.

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## **trg\_WarnLowStock**

Brief: Logs a warning to the **LowStockWarnings** table and outputs a message when **UnitsInStock** falls below 10 after an update to the **Products** table.

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# **Views Documentation**

## **vw\_CurrentProducts**

Brief: Displays active products (not discontinued) with details including category and supplier names for inventory management. A screenshot of a computer

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## **vw\_MostOrderedProducts**

Brief: Summarizes the most ordered products with total quantities, order counts, and category details for sales analysis.

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## **vw\_InventoryStatus**

Brief: Provides an overview of product inventory with stock status (Critical, Low, Sufficient) based on **UnitsInStock** and **ReorderLevel.**

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## **vw\_CustomerOrderSummary**

Brief: Aggregates customer order data, including total orders, spending, and last order date for customer performance tracking.

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## **vw\_EmployeeSalesPerformance**

Brief: Summarizes employee sales by year, including total orders and sales amounts for performance evaluation.

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## **vw\_OrderDetailsWithTotals**

Brief: Combines order details with customer and employee information, including line totals for detailed order analysis.

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## **vw\_SupplierInventoryContribution**

Brief: Shows supplier contributions to inventory with product counts and stock levels for supplier performance insights.

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## **vw\_AllInvoices**

Brief: Provides a comprehensive invoice view with order, customer, employee, shipper, and product details, including subtotals and totals.

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