**Views:**

1-CustomerOrder:

The CustomerOrder view displays **customer details**, **total orders placed**, **total amount spent**, and the **last order date** for each customer. It helps analyze customer purchasing behavior and loyalty.

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2-SalesPerformance:

The SalesPerformance view summarizes sales data by product, showing the **total units sold** and **total revenue** for each product, grouped by product and category. It helps analyze product performance and revenue generation.

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3-ProductInventoryStatus:

The ProductInventoryStatus view displays product details like unitsinstock, unitsonorder, and reorderlevel, along with a **Product Status** column that categorizes products as **'Out of Stock'**, **'Low on Stock'**, or **'In Stock'** based on inventory levels. It helps monitor and manage product inventory effectively.

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4-CustomerRetention:

The CustomerRetention view provides insights into customer loyalty by showing the **first and last order dates**, **total orders placed**, and **total amount spent** for each customer. It helps businesses identify loyal customers and evaluate retention strategies.

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5- DiscontinuedProductList:

The DiscontinuedProductList view lists all products marked as discontinued (discontinued = 1) by retrieving their productname. It helps businesses track and manage discontinued inventory efficiently.

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6- SalesPerYear:

The SalesPerYear view calculates **total sales** for each year, factoring in discounts, and groups the results by OrderYear. It provides a clear overview of yearly revenue trends for business analysis.

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**Stored Procedures:**

1- OrderContents:

The OrderContents procedure takes an **@orderid** as input and returns the **product details**, **quantity**, **unit price**, and **total sales** for each item in the specified order. It helps analyze the contents and value of individual orders.

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2- OrderPrepTime:

The OrderPrepTime procedure takes an **@orderid** as input and calculates the **number of days** between the OrderDate and ShippedDate for the specified order. It helps monitor order processing efficiency and delivery timelines.

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3- OutOfStockProducts:

The OutOfStockProducts procedure takes a **@productid** as input and returns the **product name** and its **stock status** (either **'Out Of Stock'** or **'In Stock'**) based on the unitsinstock value. It helps quickly identify the availability of a specific product.

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4- SupplierProductList:

The SupplierProductList procedure takes a **@supplierid** as input and returns the **product name**, **units in stock**, and **category name** for all products associated with that supplier. It helps track and manage inventory supplied by specific vendors.

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5- GetTopNExpensiveProducts:

The GetTopNExpensiveProducts procedure takes an integer **@TopN** as input and returns the **top N most expensive products** based on their UnitPrice. It helps identify high-value products for pricing or promotional strategies.

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**Triggers:**

1- CheckStockOnOrder:

The CheckStockOnOrder trigger checks if the **available stock** (unitsinstock) is sufficient to fulfill the order quantity. If not, it raises an error and rolls back the transaction, preventing orders that exceed available inventory.

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2- OrderDateValidation:

The OrderDateValidation trigger ensures that the **OrderDate** is always earlier than both the **ShippedDate** and **RequiredDate**. If not, it raises an error and rolls back the transaction, maintaining data integrity for order timelines.

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3- EmployeeOverload

The EmployeeOverload trigger checks if an employee has more than **10 orders** assigned to them in a day. If so, it raises an error and rolls back the transaction, ensuring fair workload distribution among employees.

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4- ClearOrderDetail:

The ClearOrderDetail trigger deletes all rows from the **Order Details** table where the **OrderID** matches the deleted order. It ensures data consistency by removing orphaned order details.

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5- trg\_Orders\_Audit:

The trg\_Orders\_Audit trigger logs every change (insert, update, or delete) into an **OrderAuditLog** table, recording the **OrderID**, **action type**, **action date**, and **user** who performed the action. It helps maintain an audit trail for order-related activities.

