**ERP System Database Schema Documentation**

**1. Users & Roles (Authentication + RBAC)**

**Users**

Stores user account information.

* Id (PK) - INT - Unique identifier.
* Name - VARCHAR(255) - Full name of the user.
* Email - VARCHAR(255) - Unique email address.
* Password - VARCHAR(255) - Hashed password.
* Phone - VARCHAR(50) - Contact phone number.
* CreatedAt - DATETIME - Account creation timestamp.

**Roles**

Defines user roles.

* Id (PK) - INT
* Name - VARCHAR(100)
* Description - TEXT

**UserRoles**

Mapping table for many-to-many relationship between users and roles.

* Id (PK) - INT
* UserId (FK to Users.Id) - INT
* RoleId (FK to Roles.Id) - INT

**Features**

Defines individual access-controlled features.

* Id (PK) - INT
* Name - VARCHAR(100) (e.g. "Inventory.View")
* Module - VARCHAR(100) (e.g. "Inventory")
* Description - TEXT

**RolePermissions**

Permissions associated with roles and features.

* Id (PK) - INT
* RoleId (FK to Roles.Id) - INT
* FeatureId (FK to Features.Id) - INT
* CanRead - BIT
* CanCreate - BIT
* CanUpdate - BIT
* CanDelete - BIT

**2. Products & Inventory**

**Categories**

Defines product categories.

* Id (PK) - INT
* Name - VARCHAR(255)
* Description - TEXT

**Suppliers**

Stores information about product suppliers.

* Id (PK) - INT
* CompanyName - VARCHAR(255)
* ContactPersonName - VARCHAR(255)
* Phone - VARCHAR(50)
* Email - VARCHAR(255)
* Address - TEXT

**Products**

Product master table.

* Id (PK) - INT
* Name - VARCHAR(255)
* CategoryId (FK to Categories.Id) - INT
* SupplierId (FK to Suppliers.Id) - INT
* SKU - VARCHAR(100)
* Description - TEXT
* Unit - VARCHAR(50)
* Price - DECIMAL(12,2)
* CreatedAt - DATETIME

**Inventory**

Tracks inventory levels per product.

* Id (PK) - INT
* ProductId (FK to Products.Id) - INT
* Quantity - INT
* ReorderLevel – INT (A threshold value — when Quantity drops below this, it flags a low stock alert.)
* LastUpdated - DATETIME

**3. Sales Module**

**Customers**

Customer master table.

* Id (PK) - INT
* Name - VARCHAR(255)
* Email - VARCHAR(255)
* Phone - VARCHAR(50)
* Address - TEXT

**SalesOrders**

Tracks sales orders.

* Id (PK) - INT
* OrderNumber - VARCHAR(100)
* CustomerId (FK to Customers.Id) - INT
* OrderDate - DATE
* DeliveryDate - DATE
* DeliveryStatus - ENUM('Pending', 'Confirmed', 'Processing', 'Shipped', 'Delivered')
* Status - ENUM('Open', 'Closed', 'Cancelled')
* Notes - TEXT

**SalesOrderItems**

Line items for sales orders.

* Id (PK) - INT
* SalesOrderId (FK to SalesOrders.Id) - INT
* ProductId (FK to Products.Id) - INT
* Quantity - INT
* UnitPrice - DECIMAL(12,2)
* Discount - DECIMAL(12,2)

**Invoices**

Tracks invoices linked to sales orders.

* Id (PK) - INT
* SalesOrderId (FK to SalesOrders.Id) - INT
* InvoiceDate - DATE
* TotalAmount - DECIMAL(12,2)
* IsPaid - BIT
* DueDate - DATE

**4. Purchase Module**

**PurchaseOrders**

Tracks purchase orders.

* Id (PK) - INT
* OrderNumber - VARCHAR(100)
* SupplierId (FK to Suppliers.Id) - INT
* OrderDate - DATE
* ExpectedDeliveryDate - DATE
* DeliveryStatus - VARCHAR(50)
* Notes - TEXT

**PurchaseOrderItems**

Line items for purchase orders.

* Id (PK) - INT
* PurchaseOrderId (FK to PurchaseOrders.Id) - INT
* ProductId (FK to Products.Id) - INT
* Quantity - INT
* UnitPrice - DECIMAL(12,2)
* Discount - DECIMAL(12,2)

**Expenses**

Tracks company expenses.

* Id (PK) - INT
* PurchaseOrderId (FK to PurchaseOrders.Id, nullable) - INT
* Description - TEXT
* Amount - DECIMAL(12,2)
* ExpenseDate - DATE
* CategoryID - INT (FK to an ExpenseCategories table if defined)

**5. HR & Payroll**

**Departments**

Defines employee departments.

* Id (PK) - INT
* Name - VARCHAR(100)
* Description - TEXT

**Employees**

Employee records.

* Id (PK) - INT
* UserId (FK to Users.Id) - INT
* DepartmentId (FK to Departments.Id) - INT
* DateHired - DATE
* Salary - DECIMAL(12,2)
* Status - ENUM('Active', 'On Leave', 'Terminated')

**Attendance**

Tracks daily attendance.

* Id (PK) - INT
* EmployeeId (FK to Employees.Id) - INT
* Date - DATE
* CheckIn - TIME
* CheckOut - TIME
* Status - ENUM('Present', 'Absent', 'Leave')

**Payroll**

Salary details per pay period.

* Id (PK) - INT
* EmployeeId (FK to Employees.Id) - INT
* PeriodStart - DATE
* PeriodEnd - DATE
* BaseSalary - DECIMAL(12,2)
* Deductions - DECIMAL(12,2)
* Bonuses - DECIMAL(12,2)
* NetPay - DECIMAL(12,2)
* PaidOn - DATE

**6. Finance & Accounting**

**Accounts**

Chart of accounts.

* Id (PK) - INT
* Name - VARCHAR(255)
* Type - ENUM('Income', 'Expense', 'Asset', 'Liability', 'Equity')

**Transactions**

Financial transactions per account.

* Id (PK) - INT
* AccountId (FK to Accounts.Id) - INT
* Date - DATE
* Description - TEXT
* Amount - DECIMAL(12,2)
* Type - ENUM('Credit', 'Debit')

**Ledgers**

Double-entry accounting records.

* Id (PK) - INT
* EntryDate - DATE
* Description - TEXT
* DebitAccountId (FK to Accounts.Id) - INT
* CreditAccountId (FK to Accounts.Id) - INT
* Amount - DECIMAL(12,2)

**7. Reports, Notifications, Logs**

**Reports**

User-generated or system-generated reports.

* Id (PK) - INT
* Name - VARCHAR(255)
* Module - VARCHAR(100)
* CreatedBy (FK to Users.Id) - INT
* CreatedAt - DATETIME
* FiltersJson – TEXT (storing filter criteria)

**Notifications**

User-targeted alerts.

* Id (PK) - INT
* UserId (FK to Users.Id) - INT
* Title - VARCHAR(255)
* Message - TEXT
* IsRead - BIT
* CreatedAt - DATETIME

**8. System Settings & Company Profile**

**Settings**

Key-value settings for global configuration.

* Id (PK) - INT
* Key - VARCHAR(100)
* Value - TEXT
* UpdatedAt - DATETIME

**CompanyProfile**

Basic company info.

* Id (PK) - INT
* CompanyName - VARCHAR(255)
* Address - TEXT
* Email - VARCHAR(255)
* Phone - VARCHAR(50)
* TaxNumber - VARCHAR(100)
* Logo - TEXT (URL or file path)

**Note:** All foreign key constraints should be enforced for data integrity. Timestamps such as CreatedAt, UpdatedAt, and DeletedAt can be added as needed to support audit logging and soft deletes.