

# Asset Management System

## DDL : CREATE

### Admin :

```
CREATE TABLE [Admin] (  
    AdminID INT PRIMARY KEY IDENTITY(1,1),  
    AdminName VARCHAR(20)  
);
```

### MasterAssetType :

```
CREATE TABLE MasterAssetType (  
    AssetTypeID INT PRIMARY KEY IDENTITY(1,1),  
    AssetType VARCHAR(50) NOT NULL UNIQUE  
);
```

### MasterAssetStatus :

```
CREATE TABLE MasterAssetStatus (  
    AssetStatusID INT PRIMARY KEY IDENTITY(1,1),  
    AssetStatus VARCHAR(50)  
);
```

### MasterAssignedStatus :

```
CREATE TABLE MasterAssignedStatus (  
    AssignedStatusID INT PRIMARY KEY IDENTITY(1,1),  
    AssignedStatus VARCHAR(50)  
);
```

## Employees :

```
CREATE TABLE Employees (  
    EmployeeID INT PRIMARY KEY IDENTITY(1,1),  
    EmployeeName VARCHAR(100) NOT NULL,  
    Email VARCHAR(100) NOT NULL UNIQUE,  
    PhoneNumber VARCHAR(20),  
    Designation VARCHAR(100)  
);
```

## HardwareAssets :

```
CREATE TABLE HardwareAssets (  
    HardwareAssetID INT PRIMARY KEY IDENTITY(1,1),  
    AssetName VARCHAR(100) NOT NULL,  
    AssetType INT,  
    Vendor INT,  
    PurchaseDate DATE,  
    PurchasePrice DECIMAL(18,2),  
    WarrantyPeriod VARCHAR(50),  
    WarrantyEndDate DATE,  
    [Serial Number] VARCHAR(50),  
    PurchaseLocation VARCHAR(50),  
    AssetStatus INT,  
    ManagedBy INT,  
    Comments VARCHAR(MAX),  
    FOREIGN KEY (AssetType) REFERENCES MasterAssetType (AssetTypeID),  
    FOREIGN KEY (Vendor) REFERENCES Vendors (VendorID),  
    FOREIGN KEY (AssetStatus) REFERENCES MasterAssetStatus (AssetStatusID)  
);
```

## AssetAssignedHistory :

```
CREATE TABLE AssetAssignedHistory (  
    AssignedHistoryID INT PRIMARY KEY IDENTITY(1,1),  
    HardwareAssetID INT,  
    AssetName VARCHAR(50),  
    AssignedTO INT,  
    Comments VARCHAR(MAX),  
    FOREIGN KEY (HardwareAssetID) REFERENCES HardwareAssets (HardwareAssetID),  
    FOREIGN KEY (AssignedTO) REFERENCES Employees (EmployeeID)  
);
```

## SoftwareAssets :

```
CREATE TABLE SoftwareAssets (  
    SoftwareAssetID INT PRIMARY KEY IDENTITY(1,1),  
    AssetName VARCHAR(100) NOT NULL,  
    AssetType INT,  
    PurchaseDate DATE,  
    PurchasePrice DECIMAL(18,2),  
    [Subscription Period] VARCHAR(50),  
    ExpiryDate DATE,  
    AssetStatus INT,  
    ManagedBy INT,  
    Comments VARCHAR(MAX),  
    FOREIGN KEY (AssetType) REFERENCES MasterAssetType (AssetTypeID),  
    FOREIGN KEY (AssetStatus) REFERENCES MasterAssetStatus (AssetStatusID)  
);
```

## Vendors :

```
CREATE TABLE Vendors (  
    VendorID INT PRIMARY KEY IDENTITY(1,1),  
    VendorName VARCHAR(100) NOT NULL UNIQUE,  
    ContactPerson VARCHAR(100),  
    PhoneNumber VARCHAR(20),  
    Email VARCHAR(100),  
    [Address] VARCHAR(255),  
    City NVARCHAR(100),  
    [State] NVARCHAR(100),  
    Country NVARCHAR(100)  
);
```

## HardwareAssigned :

```
CREATE TABLE HardwareAssigned (  
    HardwareAssignedID INT PRIMARY KEY IDENTITY(1,1),  
    HardwareAssetID INT,  
    EmployeeID INT,  
    AssignedBy INT,  
    AssignedDate DATE NOT NULL,  
    AssignedStatus INT,  
    FOREIGN KEY (EmployeeID) REFERENCES Employees (EmployeeID),  
    FOREIGN KEY (AssignedBy) REFERENCES [Admin] (AdminID),  
    FOREIGN KEY (AssignedStatus) REFERENCES MasterAssignedStatus (AssignedStatusID),  
    FOREIGN KEY (HardwareAssetID) REFERENCES HardwareAssets (HardwareAssetID)  
);
```

## SoftwareAssociated :

```
CREATE TABLE SoftwareAssociated (  
    SoftwareAssociatedID INT PRIMARY KEY IDENTITY(1,1),  
    SoftwareAssetID INT,  
    HardwareAssetID INT,  
    AssignedBy INT,  
    AssignedDate DATE NOT NULL,  
    AssignedStatus INT,  
    FOREIGN KEY (HardwareAssetID) REFERENCES HardwareAssets (HardwareAssetID),  
    FOREIGN KEY (SoftwareAssetID) REFERENCES SoftwareAssets (SoftwareAssetID),  
    FOREIGN KEY (AssignedBy) REFERENCES [Admin] (AdminID),  
    FOREIGN KEY (AssignedStatus) REFERENCES MasterAssignedStatus (AssignedStatusID)  
);
```

## DML : INSERT

### Admin :

```
INSERT INTO [ADMIN] VALUES ('Prathik'), ('Ashwin');
```

### MasterAssetType :

```
INSERT INTO MasterAssetType VALUES ('Hardware'), ('Software'),('Operating System');
```

### MasterAssetStatus :

```
INSERT INTO MasterAssetStatus VALUES  
('Assigned'),  
('UnAssigned'),  
('Stock'),  
('Faulty/Repair'),  
('End of Life');
```

### MasterAssignedStatus :

```
INSERT INTO MasterAssignedStatus VALUES ('Active'),('Inactive');
```

## Employees :

```
INSERT INTO Employees VALUES
('Prathik' , 'prathik@gmail.com', '9876543213', 'Software Developer'),
('Sita Ram', 'sita.ram@example.com', '1234567890', 'Project Manager'),
('Amit Kumar', 'amit.kumar@example.com', '2345678901', 'Business Analyst'),
('Deepa Menon', 'deepa.menon@example.com', '3456789012', 'UX Designer'),
('Rajesh Gupta', 'rajesh.gupta@example.com', '4567890123', 'System Administrator'),
('Anjali Sharma', 'anjali.sharma@example.com', '5678901234', 'QA Engineer');
```

## HardwareAssets :

```
INSERT INTO HardwareAssets
VALUES
('Dell Laptop', 1, 1, '2023-01-15', 1500.00, '3 years', '2026-01-15', 'SN123456', 'New York', 1, 1, 'In stock'),
('HP Printer', 1, 2, '2023-02-10', 300.00, '1 year', '2024-02-10', 'SN789012', 'Los Angeles', 2, 2, 'In stock'),
('Cisco Router', 1, 3, '2023-03-20', 800.00, '2 years', '2025-03-20', 'SN345678', 'Chicago', 3, 1, 'Ready for deployment'),
('Lenovo Desktop', 1, 4, '2023-05-05', 1200.00, '3 years', '2026-05-05', 'SN901234', 'San Francisco', 1, 2, 'Available'),
('Samsung Monitor', 1, 5, '2023-06-15', 250.00, '2 years', '2025-06-15', 'SN567890', 'Houston', 2, 1, 'In stock');
```

## SoftwareAssets :

```
INSERT INTO SoftwareAssets
VALUES
('Adobe Photoshop', 2, '2023-04-05', 400.00, '1 year', '2024-04-05', 1, 1, 'In stock'),
('Microsoft Office 365', 2, '2023-01-10', 100.00, '1 year', '2024-01-10', 1, 2, 'In stock'),
('Norton Antivirus', 2, '2023-03-15', 50.00, '1 year', '2024-03-15', 1, 2, 'Ready for deployment'),
('AutoCAD', 2, '2023-02-20', 1500.00, '1 year', '2024-02-20', 2, 2, 'Licensed software'),
('Visual Studio', 2, '2023-06-25', 500.00, '1 year', '2024-06-25', 2, 1, 'Developer tool');
```

## Vendors :

```
INSERT INTO Vendors
VALUES
('Tech Supplies Inc.', 'Arun Kumar', '1234567890', 'arun.kumar@techsupplies.com', '1234 Elm St.', 'New York', 'NY', 'USA'),
('Office Essentials Co.', 'Murugesan', '2345678901', 'murugesan@officeessentials.com', '5678 Oak St.', 'Los Angeles', 'CA', 'USA'),
('Hardware Solutions', 'Sundar Raja', '3456789012', 'sundar.raja@hardwareresolutions.com', '9101 Pine St.', 'Chicago', 'IL', 'USA'),
('Software World', 'Lakshmi Narayan', '4567890123', 'lakshmi.narayan@softwareworld.com', '1122 Maple St.', 'San Francisco', 'CA', 'USA'),
('Network Systems', 'Vijay Sharma', '5678901234', 'vijay.sharma@networksystems.com', '3344 Cedar St.', 'Houston', 'TX', 'USA');
```

## HardwareAssigned :

```
INSERT INTO HardwareAssigned VALUES
(2,1,2,GETDATE(),1),
(3,1,2,GETDATE(),1),
(2,3,1,GETDATE(),1),
(2,4,1,GETDATE(),2);
```

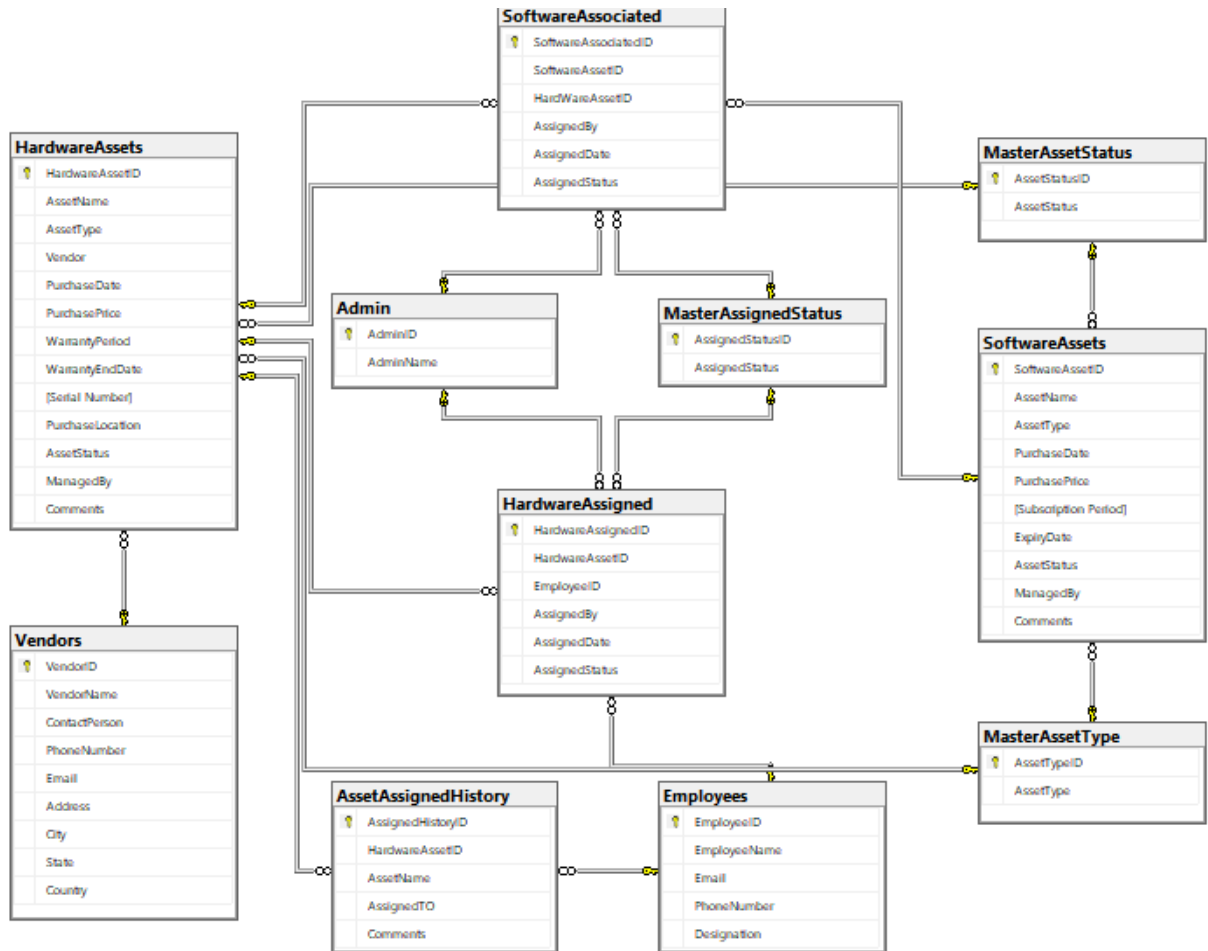
## SoftwareAssociated :

```
INSERT INTO SoftwareAssociated VALUES  
(1,2,2,GETDATE(),1),  
(2,2,2,GETDATE(),1),  
(3,5,1,GETDATE(),1),  
(1,5,1,GETDATE(),1);
```

## AssetAssignedHistory :

```
INSERT INTO AssetAssignedHistory VALUES (2,'Dell Laptop',4 , 'Employee Exit');
```

## ER DIAGRAM :



## Retrieve All Records from a Table :

```
SELECT * FROM HardwareAssets;
```

### RESULT :

	HardwareAssetID	AssetName	AssetType	Vendor	PurchaseDate	PurchasePrice	WarrantyPeriod	WarrantyEndDate	Serial Number	PurchaseLocation	AssetStatus	ManagedBy
1	2	Dell Laptop	1	1	2023-01-15	1500.00	3 years	2026-01-15	SN123456	New York	1	1
2	3	HP Printer	1	2	2023-02-10	300.00	1 year	2024-02-10	SN789012	Los Angeles	2	2
3	4	Cisco Router	1	3	2023-03-20	800.00	2 years	2025-03-20	SN345678	Chicago	3	1
4	5	Lenovo Desktop	1	4	2023-05-05	1200.00	3 years	2026-05-05	SN901234	San Francisco	1	2
5	6	Samsung Monitor	1	5	2023-06-15	250.00	2 years	2025-06-15	SN567890	Houston	2	1

## Filter Records Based on a Condition :

```
SELECT * FROM HardwareAssets
WHERE PurchasePrice > 500;
```

### RESULT :

	HardwareAssetID	AssetName	AssetType	Vendor	PurchaseDate	PurchasePrice	WarrantyPeriod	WarrantyEndDate	Serial Number	PurchaseLocation	AssetStatus	ManagedBy
1	2	Dell Laptop	1	1	2023-01-15	1500.00	3 years	2026-01-15	SN123456	New York	1	1
2	4	Cisco Router	1	3	2023-03-20	800.00	2 years	2025-03-20	SN345678	Chicago	3	1
3	5	Lenovo Desktop	1	4	2023-05-05	1200.00	3 years	2026-05-05	SN901234	San Francisco	1	2

```
SELECT * FROM HardwareAssets
WHERE PurchasePrice > 500 AND AssetStatus = 1;
```

### RESULT :

	HardwareAssetID	AssetName	AssetType	Vendor	PurchaseDate	PurchasePrice	WarrantyPeriod	WarrantyEndDate	Serial Number	PurchaseLocation	AssetStatus	ManagedBy
1	2	Dell Laptop	1	1	2023-01-15	1500.00	3 years	2026-01-15	SN123456	New York	1	1
2	5	Lenovo Desktop	1	4	2023-05-05	1200.00	3 years	2026-05-05	SN901234	San Francisco	1	2

## Join Two Tables :

```
SELECT A.AssetName, B.AssetType
FROM HardwareAssets A
INNER JOIN MasterAssetType B ON A.AssetType = B.AssetTypeID;
```

### RESULT :

	AssetName	AssetType
1	Dell Laptop	Hardware
2	HP Printer	Hardware
3	Cisco Router	Hardware
4	Lenovo Desktop	Hardware
5	Samsung Monitor	Hardware



## Aggregate Data Using Group By :

```
SELECT A.AssetType,  
       MAX(B.PurchasePrice) AS MaxPrice,  
       MIN(B.PurchasePrice) AS MinPrice  
FROM HardwareAssets B  
INNER JOIN MasterAssetType A ON B.AssetType = A.AssetTypeID  
GROUP BY A.AssetType;
```

### RESULT :

	AssetType	MaxPrice	MinPrice
1	Hardware	1500.00	250.00

## Filter Groups Using HAVING :

```
SELECT B.AssetStatus, COUNT(A.SoftwareAssetID) AS AssetCount  
FROM SoftwareAssets A  
INNER JOIN MasterAssetStatus B ON A.AssetStatus = B.AssetStatusID  
GROUP BY B.AssetStatus  
HAVING COUNT(A.SoftwareAssetID) > 1;
```

### RESULT :

	AssetStatus	AssetCount
1	Assigned	3
2	UnAssigned	2

## Order Results Using ORDER BY :

```
SELECT AssetName, PurchasePrice  
FROM SoftwareAssets  
ORDER BY PurchasePrice DESC;
```

### RESULT :

	AssetName	PurchasePrice
1	AutoCAD	1500.00
2	Visual Studio	500.00
3	Adobe Photoshop	400.00
4	Microsoft Office 365	100.00
5	Norton Antivirus	50.00

## Retrieve Data with a Subquery :

```
SELECT AssetName, PurchasePrice
FROM HardwareAssets
WHERE PurchasePrice > (
    SELECT AVG(PurchasePrice)
    FROM HardwareAssets
);
```

### RESULT :

	AssetName	PurchasePrice
1	Dell Laptop	1500.00
2	Lenovo Desktop	1200.00

## Use CASE Statements :

```
SELECT AssetName,
       PurchasePrice,
       CASE
           WHEN AssetStatus = 1 THEN 'Assigned'
           WHEN AssetStatus = 2 THEN 'UnAssigned'
           WHEN AssetStatus = 3 THEN 'Stock'
           WHEN AssetStatus = 4 THEN 'Faulty/Repair'
           WHEN AssetStatus = 5 THEN 'End of Life'
           ELSE 'Unknown Status'
       END AS StatusDescription
FROM HardwareAssets;
```

### RESULT :

	AssetName	PurchasePrice	StatusDescription
1	Dell Laptop	1500.00	Assigned
2	HP Printer	300.00	UnAssigned
3	Cisco Router	800.00	Stock
4	Lenovo Desktop	1200.00	Assigned
5	Samsung Monitor	250.00	UnAssigned