Data Requirements:

Let's consider Tti company which is a repair company basically is expanding their business into retail. In the light of this, line of businesses can be classified into 6 categories as follows

i.   **Buy Parts**
ii.   **Assemble Equipment**
iii.   **Sell Packages**
iv.   **Sell maintenance Plans**
v.   **Customers**
vi.   **Return all equipment to company**
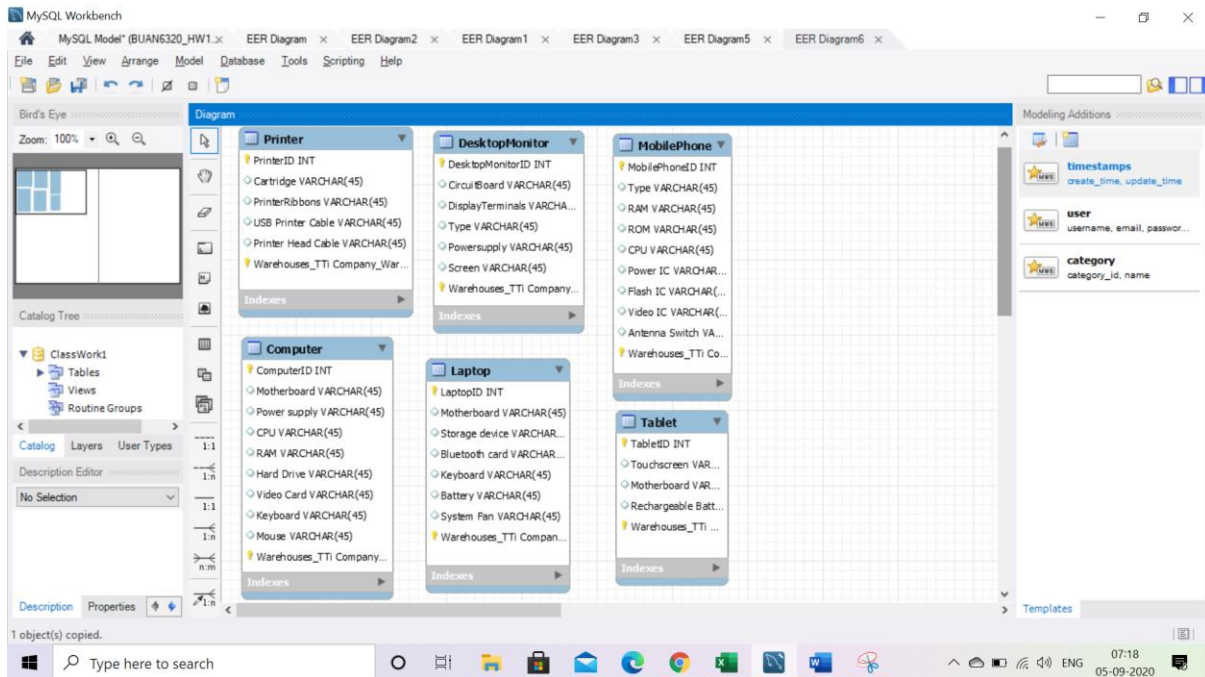

i.   **Buy Parts:**

   i.   **Entities:** Tti Company, Warehouse, Inventory, Contract, Manufacturer, Location, Part, Price

   ii. TTi company is the starting point wherein the company will rent one or more warehouses. Each Warehouse will have one-to-many Parts, and each Part will be in one warehouse. Each Part will have associated Inventory (count default to 0) and Price (default to 0.0). Inventory will be tracked separately in each warehouse. Each Contract will be for one Manufacturer and each Manufacturer can have one-to-many Contracts with Tti Company. Location will be an attribute of both Warehouse and Manufacturer, but will not be related to each other

ii.   **Assemble Equipment:**

   i.   **Entities:** Equipment, Equipment Package

   ii. Each Warehouse will assemble several equipment like Desktop, Monitor, Printer, Laptop, Phone, Tablet and one or more equipment when logically grouped in a collective manner will correspond to a equipment package

        Note: In the ERD equipment entity referred as a single entity, whose drill down will look like below and will be associated with Warehouse

iii. Sell Packages

Entities: Equipment Package, Sales, SalesPerson, Customer, Lease, SalesStates

A customer can buy one or more equipment package and an equipment package will always be associated with one customer instance at any time wherein Sales entity is an associative entity. Tti company will hire many SalesPerson who will be deployed to many neighbouring states for sales expansion and here too Sales entity acts as an associative entity. Tti company will sell/offer 3year lease terms to SMB customers, so the default term attribute within Lease entity will be set as 3 and Lease entity has an associative entity with SMB customers

Equipment package entity is represented as a whole in ERD and it will consist of 6 different packages namely

      i. Package 1 : Desktop computer, monitor and printer
     ii. Package 2 : Laptop and printer
   iii. Package 3 : Laptop and Phone
   iv. Package 4 : Tablet and Phone
    v. Package 5 : Desktop computer, monitor and tablet
   vi. Package 6 : Desktop computer, monitor and phone

ii. Sell maintenance Plans:

Entities: Sales, MaintenancePlan, RepairForce, Sales, SalesStates

- Maintenance plans include 90-day money back guarantee, 12-month cost-free repairs for any manufacturing defects and annual subscription for repairs afterwards at $100 dollars per year

Tti company is associated with Sales entity and offers/ sells 1 to many sales plans to customers and customers can be associated with one or more maintenance plans (Default and customized). Tti company will hire 2X repair force to help expand sales to the many neighbouring states

iii. Customers

Entities: Customer, Consumer, SMB

Customer can be further classified to generally consumers or SMBs. And a company will have either 0 to many consumers or SMBs. Each customer can buy one more equipment packages and could be associated with a maintenance plan at the least the default plan

iv. Return all equipment to company

Entities: Tti Company, SMB

SMB is associated with Tti Company entity and is bound to return all the leased equipment once the designated lease term ends.

ERD

Color coding in ERD

 - Represents starting point or primary entity

 - Flow represent buy parts

 - Flow represent equipment sales

 - Flow represent sales expansion

Price
- PriceID INT
- PartID INT
- Unit INT
- Price DECIMAL (2)
- Indexes

Part
- PartID INT
- Warehouse_WarehouseID INT
- Price_PriceID INT
- Inventory_InventoryID INT
- Indexes

Equipment
- EquipmentID INT
- Warehouse_WarehouseID INT
- Warehouse_Inventory_InventoryID INT
- Warehouse_TTiCompany_BranchID INT
- EquipmentPackage_EquipmentPackageID I...
- Indexes

EquipmentPackage
- EquipmentPackageID INT
- Sales_SalesID INT
- PackageName VARCHAR(45)
- PackagePrice INT
- Indexes

Inventory
- InventoryID INT
- PartID INT
- Count INT
- Indexes

Warehouse
- WarehouseID INT
- Inventory_InventoryID INT
- Location_LocationID INT
- TTiCompany_BranchID INT
- Indexes

SalesPerson
- SalesPersonID INT
- TTiCompany_BranchID INT
- Sales_SalesID INT
- Indexes

Sales
- SalesID INT
- Customer_CustomerID INT
- SalesName VARCHAR(...
- Indexes

SalesStates
- StatesID INT
- Sales_SalesID INT
- StateName VARCH...
- Indexes

Lease
- LeaseID INT
- Term INT
- StartDate DATE
- EndDate DATE
- Sales_SalesID INT
- Sales_Customer_CustomerID INT
- Indexes

Location
- LocationID INT
- Indexes

TTiCompa...
- BranchID INT
- SMB_SMBID INT
- 4 more...
- Indexes

RepairForce
- RepairForceID INT
- LOB VARCHAR(45)
- Title VARCHAR(45)
- Specialization VARC...
- TTiCompany_BranchI...
- Sales_SalesID INT
- Sales_Customer_Cust...
- Indexes

Customer
- CustomerID INT
- CustomerName VARCHAR(45)
- CustomerAddress VARCHAR(45)
- Indexes

MaintenancePlan
- MaintenancePlanID INT
- Sales_SalesID INT
- Sales_Customer_CustomerID INT
- 2 more...
- Indexes

Manufacturer
- ManufacturerID INT
- Location_LocationID INT
- ManufactureAddress VARCH...
- ManufacturerName VARCHA...
- Indexes

Contract
- ContractID INT
- Manufacturer_ManufacturerID INT
- TTiCompany_BranchID INT
- Indexes

Consumer
- ConsumerID INT
- Customer_CustomerID...
- Indexes

SMB
- SMBID INT
- Customer_CustomerID I...
- Lease_LeaseID INT
- Lease_Sales_SalesID INT
- Lease_Sales_Customer_...
- Indexes

Relationship labels: has, stored in, has, stored in, tracked by, tracks, assembled in, assembles parts as, rented by, hired by, rents, signs, signed by, has, tied with, hires, hired by, grouped as, consists of, sold to, buys, expands sales, expands sales, sales expanded with, sales expanded with, sold to, buys, sold to, buys, offers

Data Assumptions:

- Warehouses stores parts (Raw Materials) as well as assembled equipment within
- Sales entity will be managing equipment sales, maintenance plan sales and sales expansion related activities
- Tti Company entity will manage its branch level activities across Texas which is not in scope
- Once lease is over, the equipment is returned back to warehouse by SMB
- Each sales package will be logically grouped as follows and entries will be made available in "Equipment Package" Entity before onset of sales

    Package 1 : Desktop computer, monitor and printer

    Package 2 : Laptop and printer

    Package 3 : Laptop and Phone

    Package 4 : Tablet and Phone

    Package 5 : Desktop computer, monitor and tablet

    Package 6 : Desktop computer, monitor and phone