ER Modeling Exercise

Business requirements given –
Create an ER database model and map it into a relational schema

(Gym Fitness)
Gym Fitness Database: Requirements

The following are the requirements for the Gym Fitness Database

• For each MEMBER we keep track of the unique MemdID, as well as Name, Zip, and the Date the membership was paid
• For each MEMBERSHIP type we keep track of the unique Mid, as well as MName and Price
• For each PASS CATEGORY we keep track of the unique PassCatID, as well as PCName and Price
• For each ONE DAY PASS we keep track of the unique PassID and Date
• For each MERCHANDISE item we keep track of the unique MrchID, as well as Name and Price
• For each sale TRANSACTION we keep track of the unique Tid and Date
• Each member pays for exactly one membership type; each membership type has at least one member but can have many members
• Each member can buy many day passes but does not have to buy any, each day pass was bought by exactly one member
• Each day pass belongs to exactly one pass category; a pass category can have many individual day passes issued for it but does not have to have any
• Each sale transaction involves exactly one member; each member can be involved in many sale transactions but does not have to be involved in any
• Each merchandise item is sold via at least one sale transaction but it can be sold via many sale transactions; each sale transaction involves at least one merchandise item but can involve many merchandise items
• Every time a merchandise item is sold via a sale transaction, we keep track of the quantity (how many instances of that particular merchandise item were sold via that particular sale transaction)

Your task is to create and ER Diagram based on these requirements and then map it into a Relational Schema
Solution
Gym Fitness Database: ER Diagram
Solution

Gym Fitness Database: Relational Schema

Membership Table
- **Mid**
- MName
- Mprice

Member Table
- **MembID**
- Name
- Zip
- DateMembershipPaid
- Mid (FK)

Merchandise Table
- **MrchID**
- Mname
- Price

SoldVia Table
- **STid (FK)**
- **MrchID (FK)**
- NoOfItems

SalesTransaction Table
- **STid**
- Date
- MembID (FK)

Pass Category Table
- **PCatId**
- PCatName
- PCatPrice

One Day Pass Table
- **PassId**
- PassDate
- PCatID (FK)
- MembID (FK)