

1. What is the difference between DBMS and File Systems?

DBMS	File System
Software to create and manage databases Ex: MySQL, MSSQL, Oracle, DB2	Software that manages the data files in a computer system Ex: NTFS and Ext
Helps to easily store, retrieve and manipulate data in a database	Helps to store a collection of raw data files into the hard disk
DBMS is a collection of data and user is not required to write the procedures for managing the database	File system is a collection of data. Any management with the file system, user has to write the procedures
Updating, searching, selecting data is easier since it allows using SQL querying	Storing, retrieving, updating and searching are done manually. So, it is difficult to manage data
Provides higher data consistency using normalization	Has data inconsistency. When data is redundant, it is difficult to update.
There is low redundant data	There is more redundant data
There is no procedure to check the constraints automatically in File systems.	DBMS maintains the data integrity by enforcing the constraints by adding appropriate code
DBMS have high level security like encryption, passwords etc	Less data security. General security provided by file systems are locks, guards etc
Has a sophisticated backup and recovery	Backup and recovery process is not efficient because it is not possible to recover the lost data
Suitable for medium to large organizations or multiple users	Appropriate to handle data of a small-scale organization or individual users
In DBMS data can be shared very easily due to centralized system	File system doesn't allow sharing of data or data sharing is very complex
DBMS takes care of Concurrent access using some form of locking	Concurrent access to the data in the file system has many problems like: Reading the file while other form of locking. deleting some information, updating some information

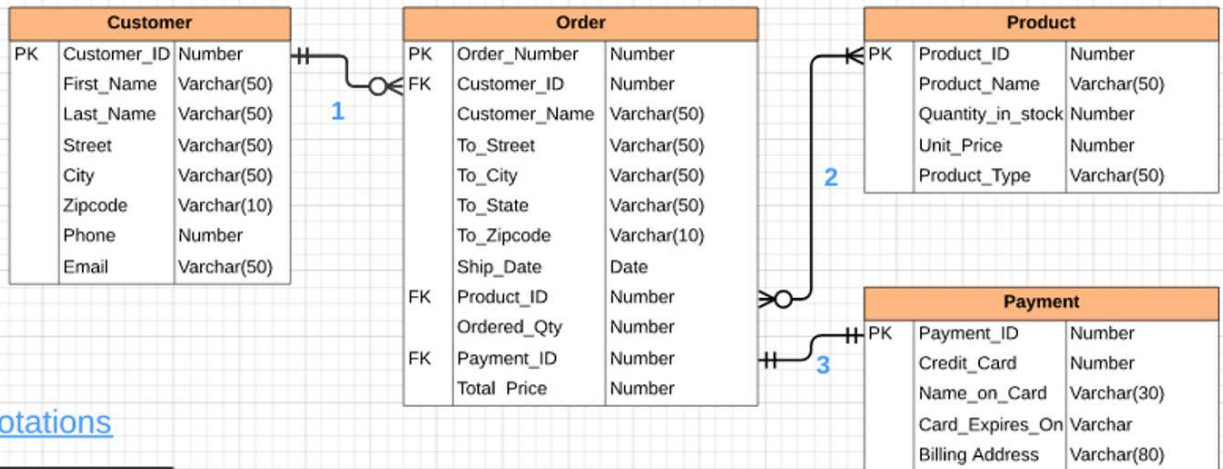
2. Please Write the ER Diagram for below

- a) Retail Software [Ex: Amazon]
- b) Hospital management system
- c) Banking Software
- d) Telecom Domain
- e) University Software
- d) Ticket Booking System

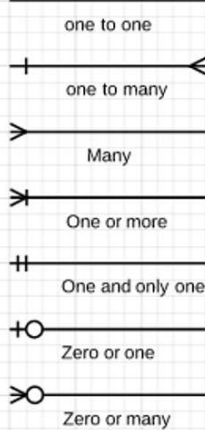
All these ER diagrams should contain Entities, Attributes, Relations (1:1, 1:M, M:1, M:M)
You can use any tool to Draw

ER Diagram for Retail Software [Ex: Amazon]

Retail Software

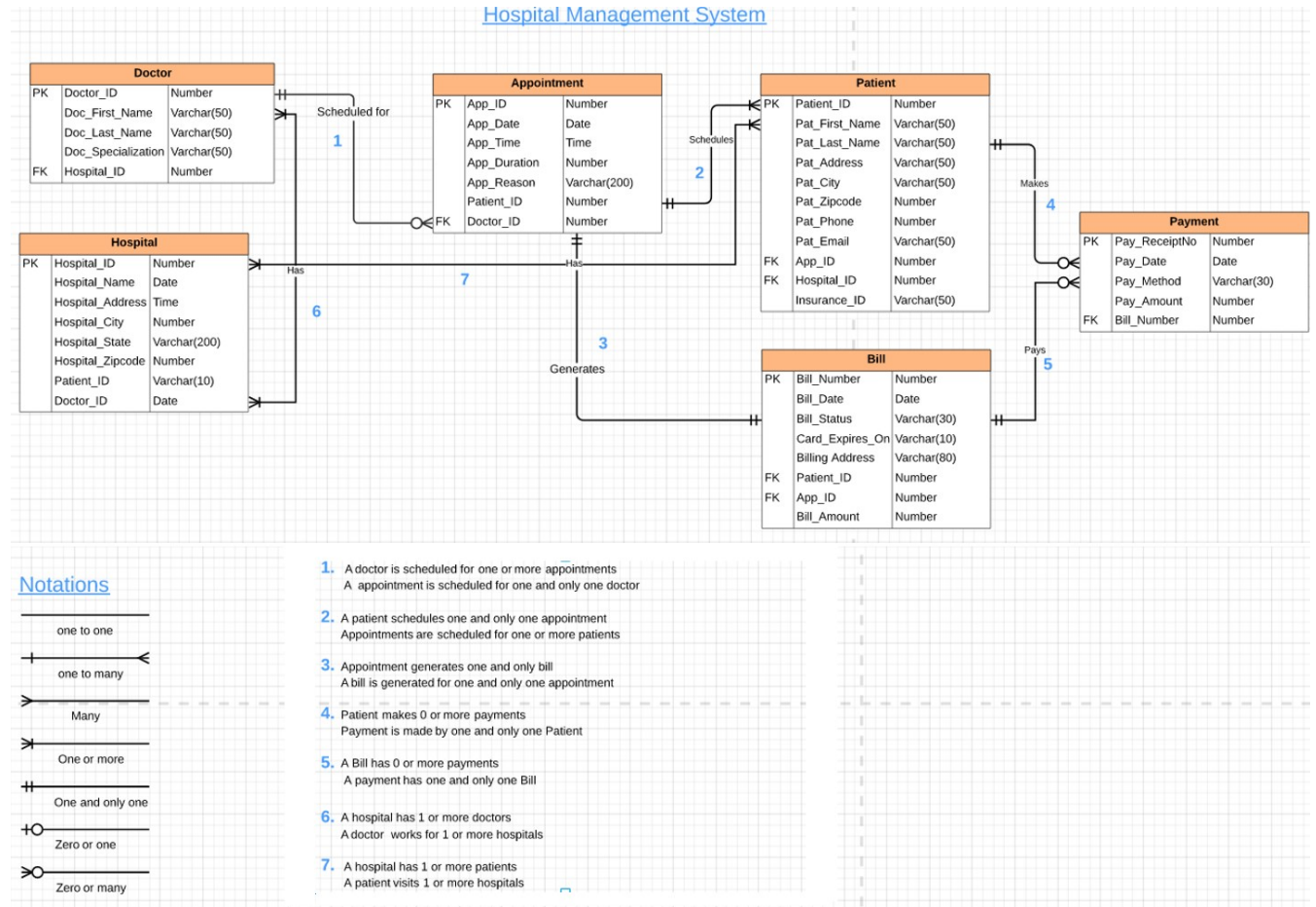


Notations



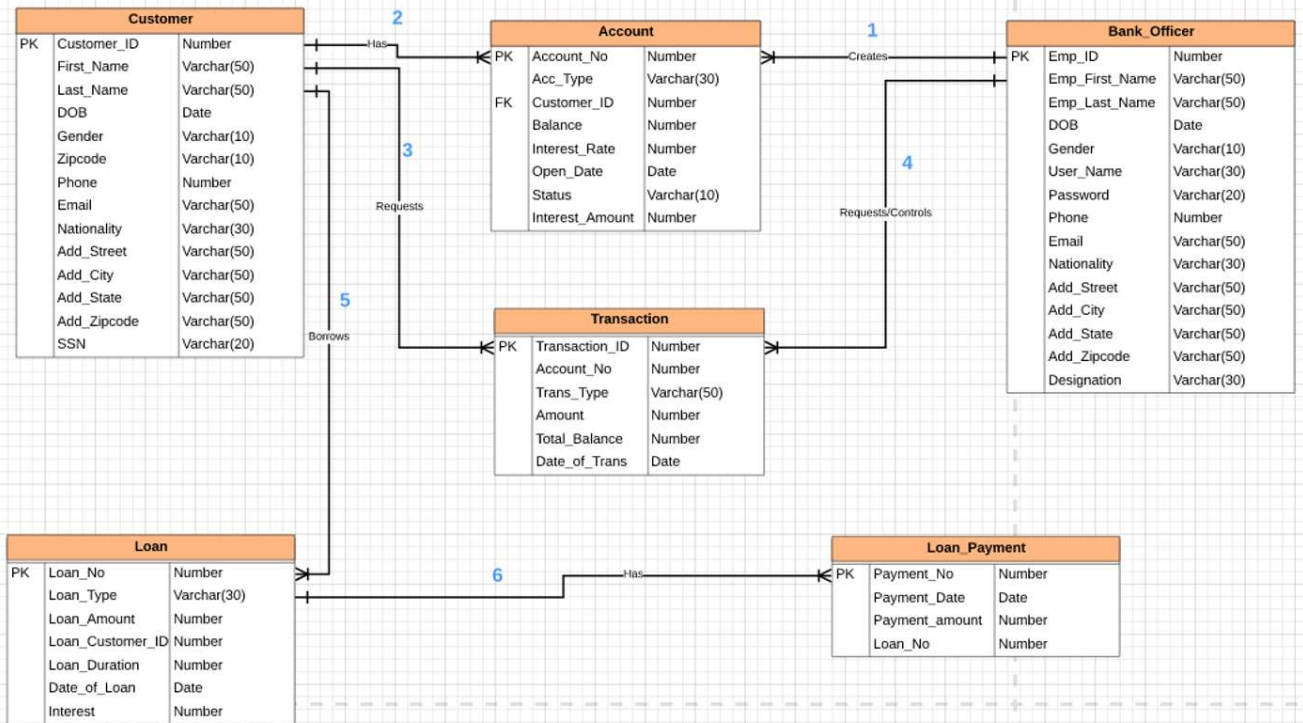
1. A customer places 0 or many orders
A order is placed by one and only one customer
2. A order has 1 or many products
A product is in 0 or many orders
3. A order has one and only one payment
A payment has one and only one Order

ER Diagram for Hospital management system

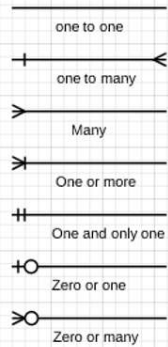


ER Diagram for Banking Software

Banking Software



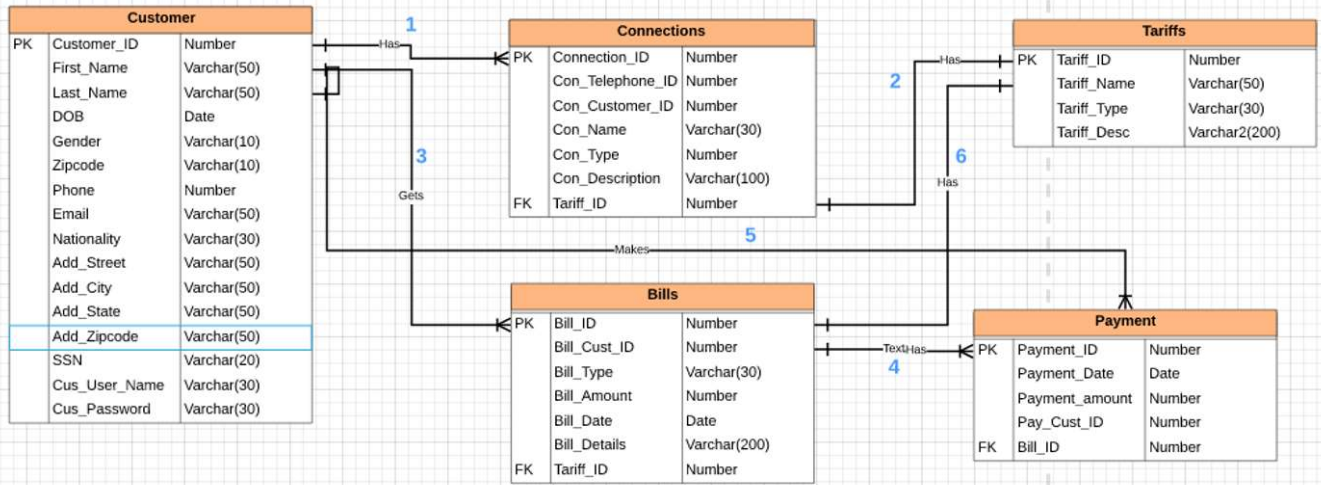
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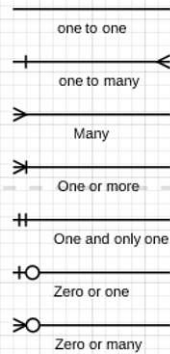
1. Bank Officer creates one or more accounts
Account is created by one Bank Officer
2. Customer has 1 or more Accounts
Each Account belongs to 1 customer
3. Customer requests 1 or more transactions
Each Transaction belongs to one customer Account
4. Bank office controls/requests 1 or more transactions
Each transaction is controlled by 1 Bank Officer
5. Customer borrows 1 or more Loans
Each Loan is borrowed by 1 customer
6. Loan has 1 or more payments
Each payment is for 1 Loan

ER Diagram for Telecom Domain

Telephone Billing Payment System (Telecom Domain)



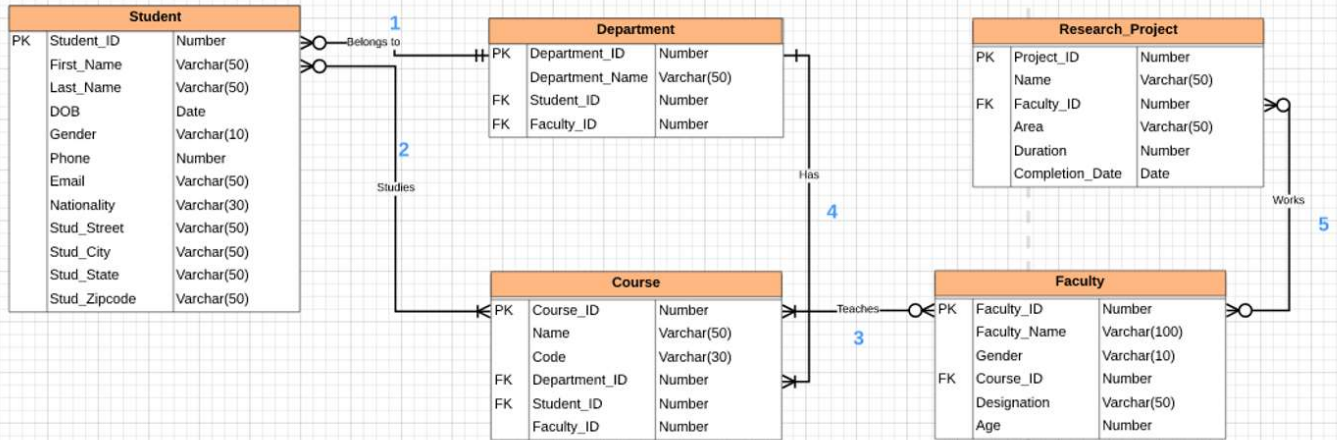
Notations



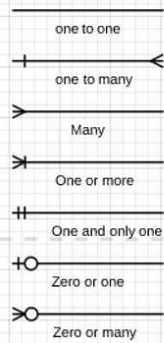
1. Customer has 1 or more Connections
Each connection has 1 customer
2. Each connection has 1 Tariff
Each Tariff has 1 connection
3. Customer gets 1 or more Bills
Each Bill belongs to 1 customer
4. Bill has 1 or more payments
Each Payment has 1 Payment
5. Customer makes 1 or more payments
Each payment belongs to 1 customer
6. Bill is calculated based on 1 tariff
Each Tariff is used to calculate 1 bill

ER Diagram for University Software

University Management System



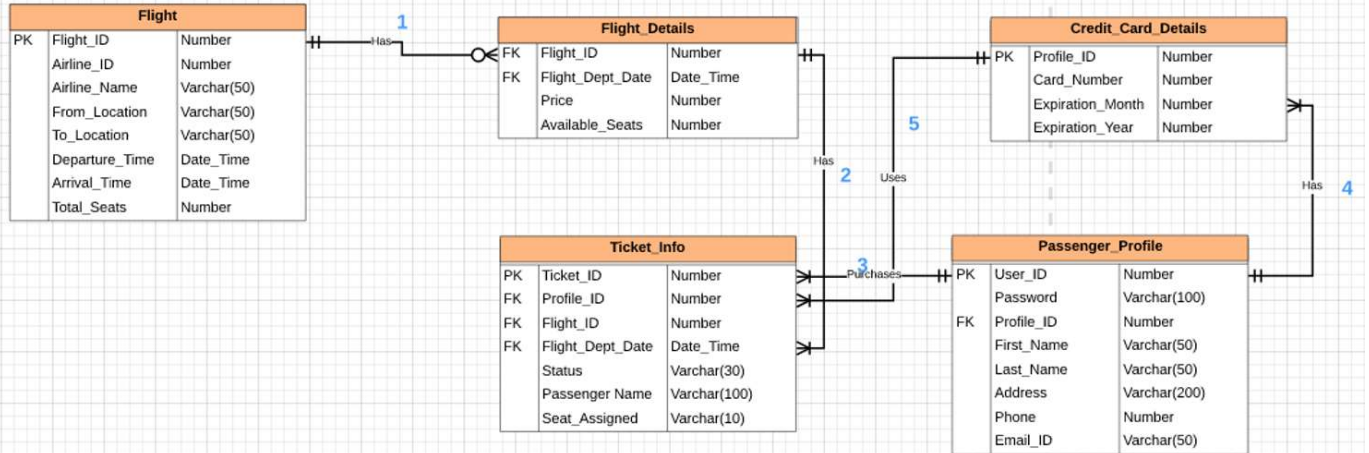
Notations



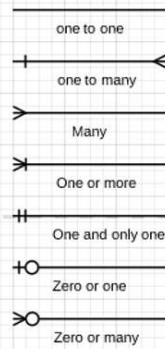
1. Student belongs to 1 and only 1 Department
Each department has 0 or more students
2. Student studies 1 or more courses
Each Course has 0 or more students
3. Faculty teaches 1 or more courses
Each course is taught by 0 or more faculty
4. Department has 1 or more courses
Each Course has 1 department
5. Faculty works for 0 or more research project
Research Project is worked by 0 or more Faculty

ER Diagram for Ticket Booking System

Air Ticket Booking System



Notations



1. Flight has 0 or more Flight Details matching with From and To Location and Departure Time
Each Flight Details has 1 and only 1 Flight
2. Flight Details has 1 or more Tickets
Each Ticket Info belongs to 1 and only 1 Flight Details
3. Passenger purchases 1 or more Tickets
Each Ticket is purchased by 1 and only 1 passenger
4. Passenger has 1 or more Credit Cards
Each Credit Card is assigned to 1 and only 1 Passenger
5. Each Ticket is bought using 1 and only 1 Credit Card
Credit Card is used to buy 1 or more Tickets