

CS 457 Data Modeling and Implementation Techniques

Pharmacy Store Information Analysis

Maryam Taherzadeh



Agenda:

- **ER Model**
- **Component of ER Model**
- **ER Model of Pharmacy store information**
- **SQL Commands**
- **Algebra Calculus**

Agenda:

- **ER Model:**

It stands for Entity Relationship model.

- It is used to define the data elements and relationship for a specified system.
- It develops conceptual design for the database
- It is necessary for Analyzing existing database to find and resolve problems

Component of ER Model:

- **Entity:**

A real-world object .

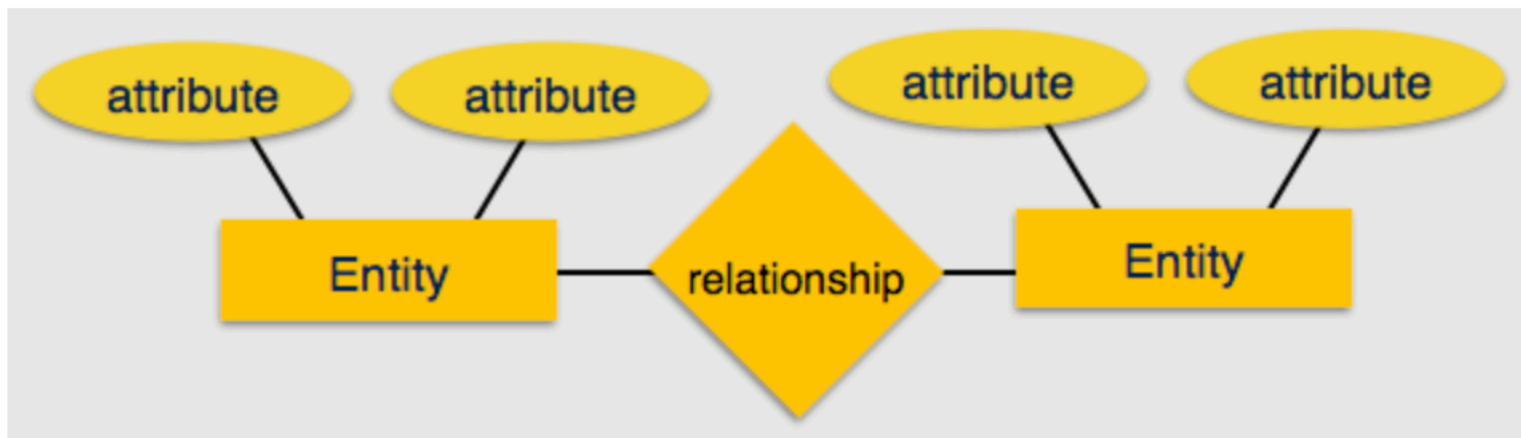
It can be any object,place person or class.

- **Attributes:**

Properties or characteristic of an entity types.

- **Relationships:**

A relationship type represents the association between entity types.



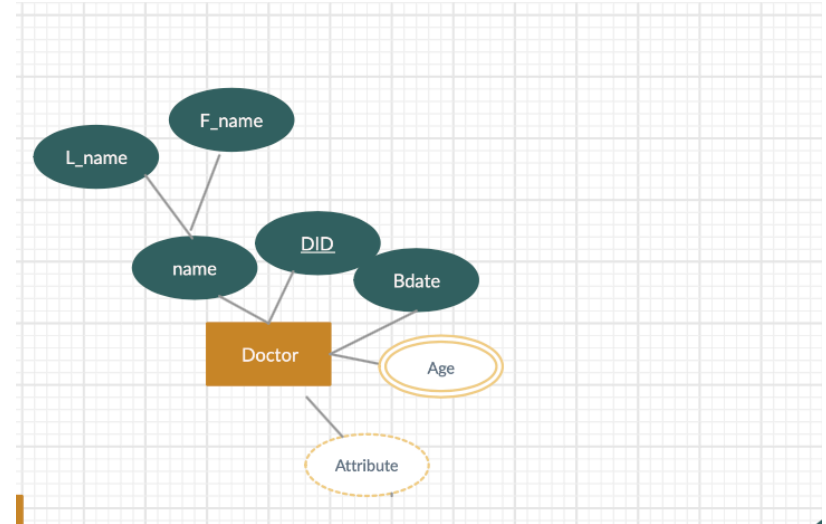
Several Types Of Attributes:

COMPOSITE ATTRIBUTE:

Further divided in a tree like structure.

SINGLE VALUED ATTRIBUTE:

It has only single value for an entity



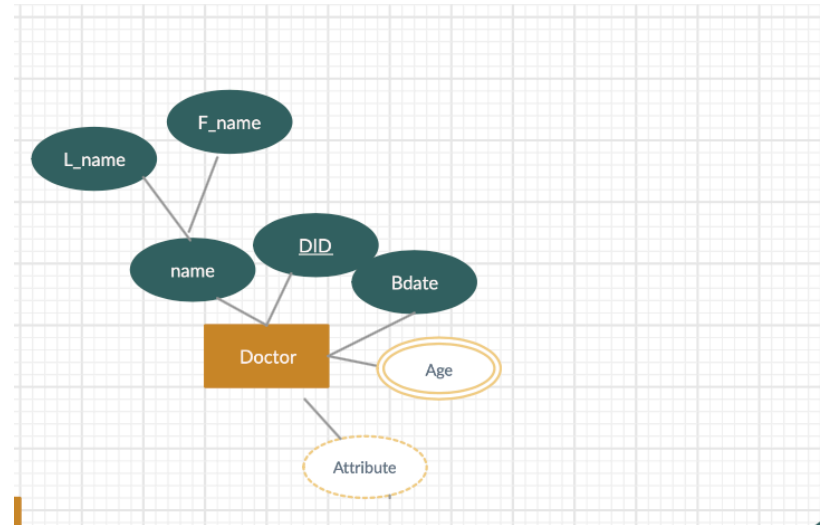
Types Of Attributes:

MULTI VALUED ATTRIBUTE:

An attribute that can have multiple values for an entity

DERIVED ATTRIBUTE:

An attribute that calculated (derived) from other attributes.



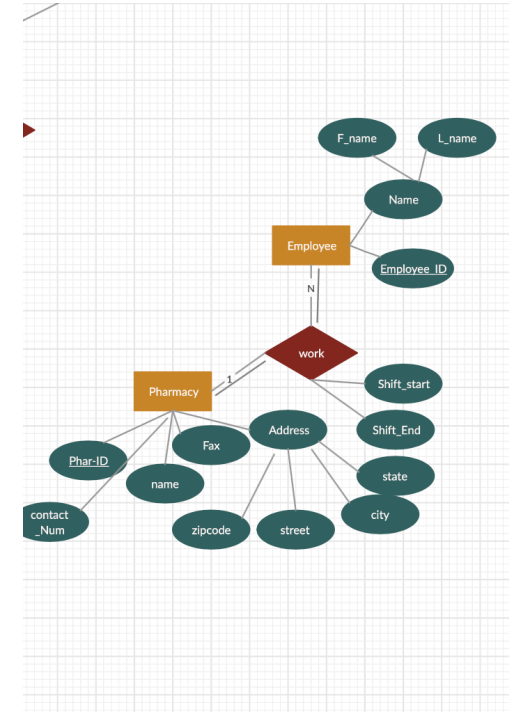
KEY ATTRIBUTE:

It is used to represent the main characteristics of an entity. It represents a primary key.

Types of Relationship:

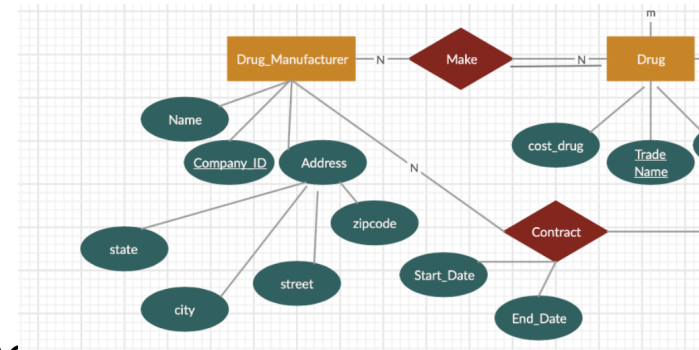
One to one :

one instance of an entity is associated with the relationship



One to many

When only one instance of the entity on the left,
and more than one instance of an entity on the right
associates with the relationship



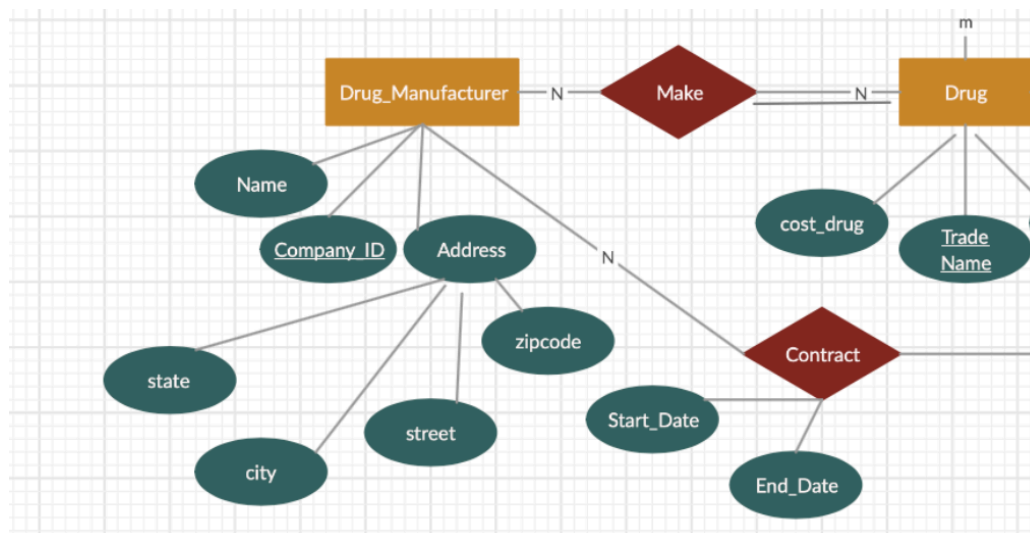
Many to many

When more than one instance of the entity on the left,
and more than one instance of an entity on the right
associates with the relationship

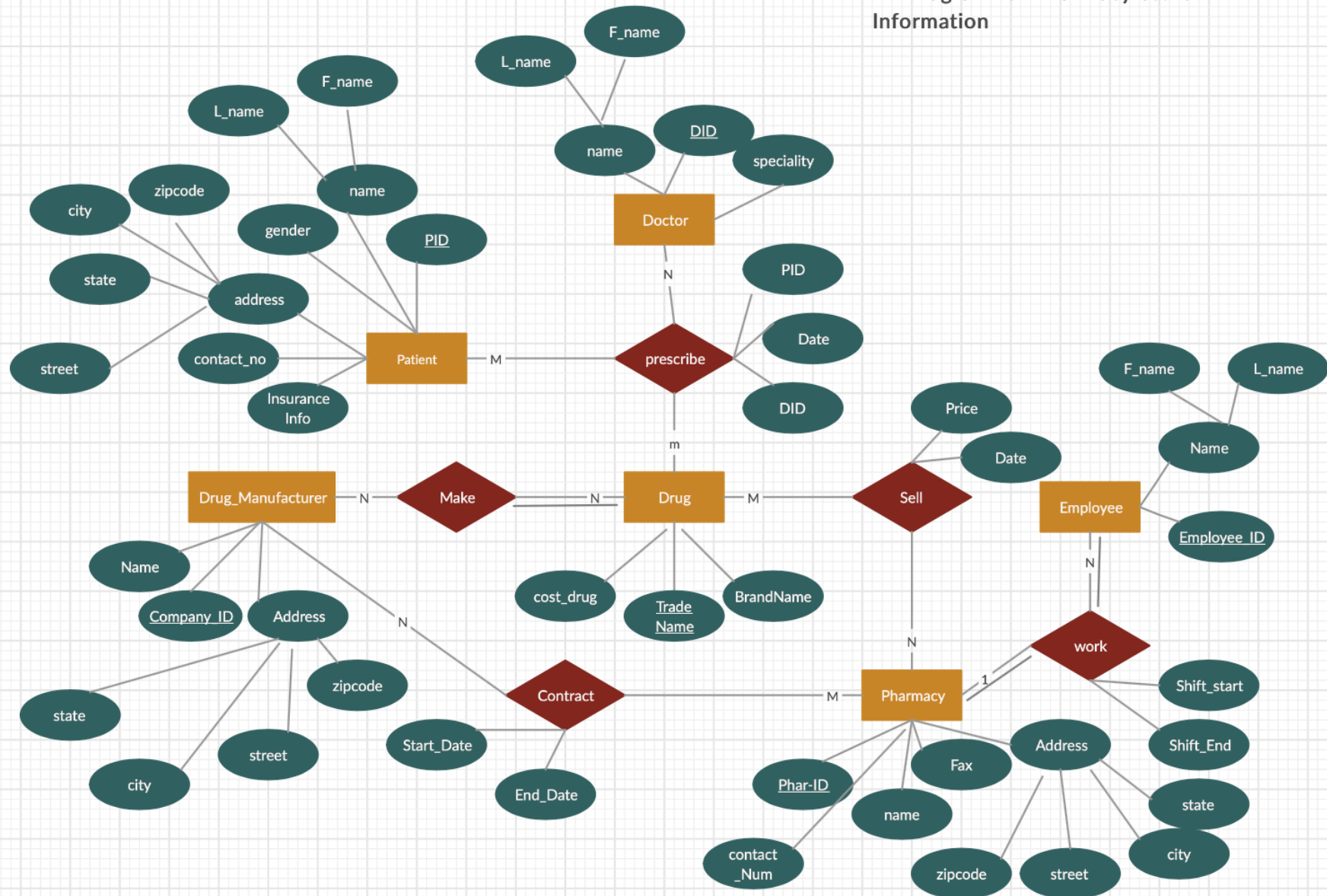
PARTICIPATION CONSTRAINTS

Total Participation: Each entity in the entity is involved in the relationship. Total participation is represented by double lines.

Partial participation: Not all entities are involved in the relation ship. Partial participation is represented by single line.



ER Diagram for Pharmacy Store Information



Patient Entity:

PID	Name	Gender	address	Contact _no	Email _ID	Age
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- Primary Key:PID
- All attributes are not Null
- Name and Address are composite attributes
- Contact Number can not be greater than 10 digits

Doctor Entity:

DID	D_Name	Speciality
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- Primary Key:DID
- All attributes are not Null
- Name are composite attribute.

Employee Entity:

Employee _ID	Name	Bdate	Address	Gender	Salary	
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- Primary Key:Employee_ID
- All attributes are not Null
- Name and Address are composite attributes

Name: Fname, Lname

Address: State, City, Street, Zipcode

Drug_Manufacture Entity:

Company_ ID	Name	Address
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- Primary Key:Company_ID
- All attributes are not Null
- Name and Address are composite attributes

Name: Fname, Lane

Address: State, City, Street, Zipcode

Drug Entity:

Trade_ Name	Brand_N ame	Cost_Drug		
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- Primary Key: Trade_Name
- All attributes are not Null

Pharmacy Entity:

Phar_ID	Name	Address	Fax	Contact_num
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- Primary Key: Pharmacy ID
- All attributes are not Null
- Address are composite attribute.
- Contact_no and Fax must be 10 digits.

Employee

Employee_ID	F_name	L_name	SSn	Bdate	Address	Gender	Salary
67890	Alice	Narayan	12356789	09-08-1984	San Jose	F	56800
87907	Joyce	Zelyan	545678901	06-06-1970	Sunnyvale	F	66890
77998	Ramesh	Jabber	678906781	10-05-1969	Palo Alto	F	89768
45675	Sina	Ahmad	567656743	08-09-1956	Cupertino	M	45000

Drug

Trade_Name	BrandName	Cost_Drug
Semi_Daonil	Gilbneclamide	\$30.00
Xanax	Alprazolam	\$10.00
Dizac	Diazepam	\$25.00

Drug_Manufacture:

Company_ID	Name	Address
1234	Accera	San Diego,CA
2345	Acadia Pharmaceuticals	San Diego
5678	Abbott Laboratories.	Santa Clara

Patient

PID	Fname	Lname	Gender	Address	Email_ID	Bdate	Insurance
FSP92253	Alicia	Brown	F	850 wCalifornia,Su unnyvale,CA	A.Brown@gmail.co m	1955-01-09	Blue Cross
FSP87965	Shannon	Wong	F	905 Barron Avenue,RedWo od city,CA	<u>S.Wong32@yahoo. com</u>	1980-09-09	Wellcare group
FSP89704	Aria	Mina	M	530 Lytton Ave, Palo Alto, CA 94301	<u>aria.Mina@gmail.co m</u>	1987-10-10	UHC of California
FSP98780	John	Smith	M	3000 El Camino Real STE 130	<u>john.Smith@gmail. com</u>	1999-10-08	Metropolitan

Pharmacy

Phar_ID	Name	Address	Fax	Contact_Num
PC021	CVS Pharmacy	Sunnyvale, CA	408-7389430	408-9876789
PC201	Safeway Pharmacy	San Jose,CA	408-4813302	4086789878
PC201	Wallgreens Pharmacy	Cupertino,CA	650-4998767	650-9876782

Doctor

DID	Fname	Lname	Speciality
45785	Nina	Brog	Cardiologist
78987	John	Smith	Dermathology
78906	James	Wallace	Allergist

SQL Commands:

Manipulation:

Create Table, Insert, Alter, Delete, Update

Queries:

Where, And, Or, Like, Distinct, Group By,

Aggregate Function:

Min, Max, Count, Sum, ...

Multiple Tables:

Outer Join, Union, Cross Join, Inner Join

MariaDB [npudb1]> SELECT * FROM EMPLOYEE2;

employee_ID	Fname	Lname	SSN	Bdate	Address	Gender	Salary
45675	Sina	Ahmad	567656743	1956-08-09	Cupertino	M	45000
67890	Alice	Narayan	123456789	1984-09-08	Sanjose	F	56800
77998	Ramesh	Jabber	678906781	1969-10-05	Palo Alto	F	89768
87907	Joyce	Zelyan	545678901	1970-06-06	Sunnyvale	F	66890

MariaDB [npudb1]> SELECT * FROM EMPLOYEE2 WHERE Salary > 56000;

employee_ID	Fname	Lname	SSN	Bdate	Address	Gender	Salary
67890	Alice	Narayan	123456789	1984-09-08	Sanjose	F	56800
77998	Ramesh	Jabber	678906781	1969-10-05	Palo Alto	F	89768
87907	Joyce	Zelyan	545678901	1970-06-06	Sunnyvale	F	66890

MariaDB [npudb1]> select * from EMPLOYEE2 where Lname like 'a%';

employee_ID	Fname	Lname	SSN	Bdate	Address	Gender	Salary
45675	Sina	Ahmad	567656743	1956-08-09	Cupertino	M	45000

1 row in set (0.001 sec)

Relational Algebra

Question:

Select all records from EMPLOYEE who Salary is greater than 56000;

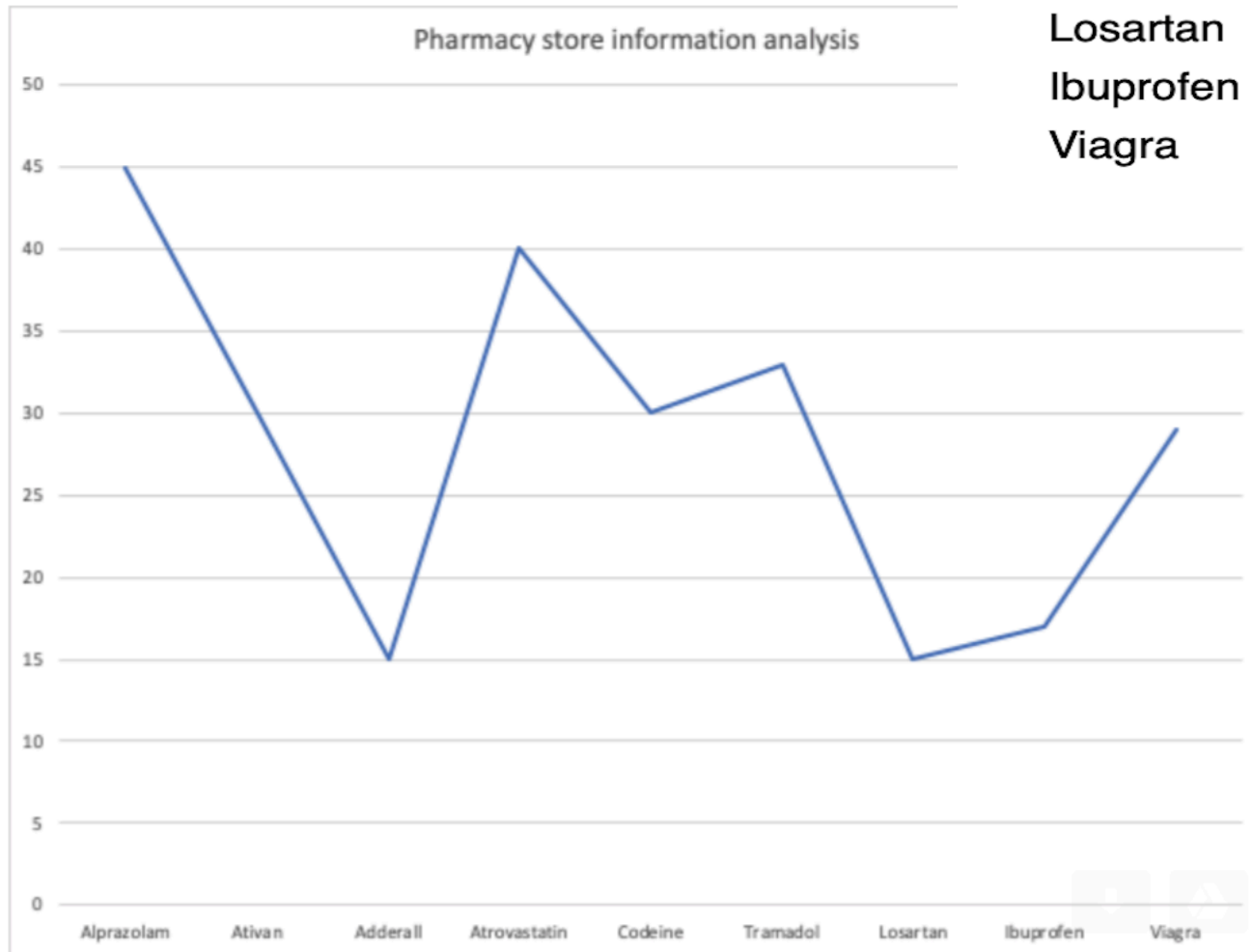
Select * from Employee where Salary > 56000;

$\pi(\text{ID_employee, Fname, Lname, Ssn, Bdate, Address, gender, Salary}) \sigma_{\text{Salary}=56000}(\text{Employee})$

```
MariaDB [npudb1]> SELECT * FROM EMPLOYEE2 WHERE Salary > 56000;
```

employee_ID	Fname	Lname	SSN	Bdate	Address	Gender	Salary
67890	Alice	Narayan	123456789	1984-09-08	Sanjose	F	56800
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87907	Joyce	Zelyan	545678901	1970-06-06	Sunnyvale	F	66890

Drug	Expensive Drug
Alprazolam	45
Ativan	30
Adderall	15
Atrovastatin	40
Codeine	30
Tramadol	33
Losartan	15
Ibuprofen	17
Viagra	29



Expensive Drug
\$

Name of the Drug

Thank you