# PHARMINFORMATION

CSC 4720

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# INTRODUCTION

Many drugs are available to a vast and growing pharmaceutical market.

Practices in the industry such as consultation, dispensing, regulation, and sales are the key drivers that must harmonize in order to meet the demands of the consumer!

Thus, having a database which will improve the interaction and relations within the fundamental pharmaceutical practice is a must.

*Pharminformation is a database management system that stores, organizes and processes data for pharmacy companies.*

# INTRODUCTION

Pharminformation databases stores information on the following:

- Customers, doctors and insurance companies
- Drug manufacturers, pharmaceutical companies and their branches
- Various details about drugs
- Information on employees that work for the pharmaceutical companies

# REQUIREMENTS ANALYSIS PT. I

**Companies, their branches and employees**

- Companies are uniquely identified by their Company ID. Each company is required to have a license number and a name.
- Branches are uniquely identified by their Branch ID. Each branch has a name and a phone number. Branches have multiple locations.
- Employees are uniquely identified by their SSN. Each employee has a name, gender, birth date, phone number, an employee ID, an address, and a pay rate. Employees can have dependents.
- Primary positions of employees are cashier, pharmacist, and intern. Each position requires a degree.

# REQUIREMENTS ANALYSIS PT.2

## Drug manufacturers and drug details

- Manufacturers are uniquely identified by their license number. Each manufacturer has a name and an address.
- Drugs are uniquely identified by their Drug ID. Each drug has an issue date and an expiry date. There are 4 types of drugs: Vaccine, Liquid, Tablet, and Ointment.

# REQUIREMENTS ANALYSIS PT.3

**Doctors, customers, insurance companies.**

- Doctors are uniquely identified by their Doctor ID. Each doctor has a name and a phone number. They can have multiple locations.
- Customers are uniquely identified by their patient ID. Each customer has a name, gender, birth date, and a phone number.
- Insurance companies are identified by their insurance ID. Each insurance company can have different types of coverages, a name of the policy, a phone number, and multiple agency locations.



# FUNCTIONAL REQUIREMENTS

- The company is required to have at least one employee, and can have many. It is required to own at least one branch.
- Employee holding a pharmacist position must manage a branch.

- The manufacturers supply/sell drugs to the branches. There is no limit on the amount that a branch can purchase from the manufacturer.
- Manufacturers can produce multiple types of drugs, and each drug can be produced by exactly 1 manufacturer.
- Same type of drug may be produced by different manufacturers.

- The customer can choose whether he/she purchases the medication or not.
- The customer may or may not use insurance. If insurance is used, up to 5 policies can be utilized. Each insurance claim from the policy will fully cover the drugs from the associated prescription.

# OUR DATA

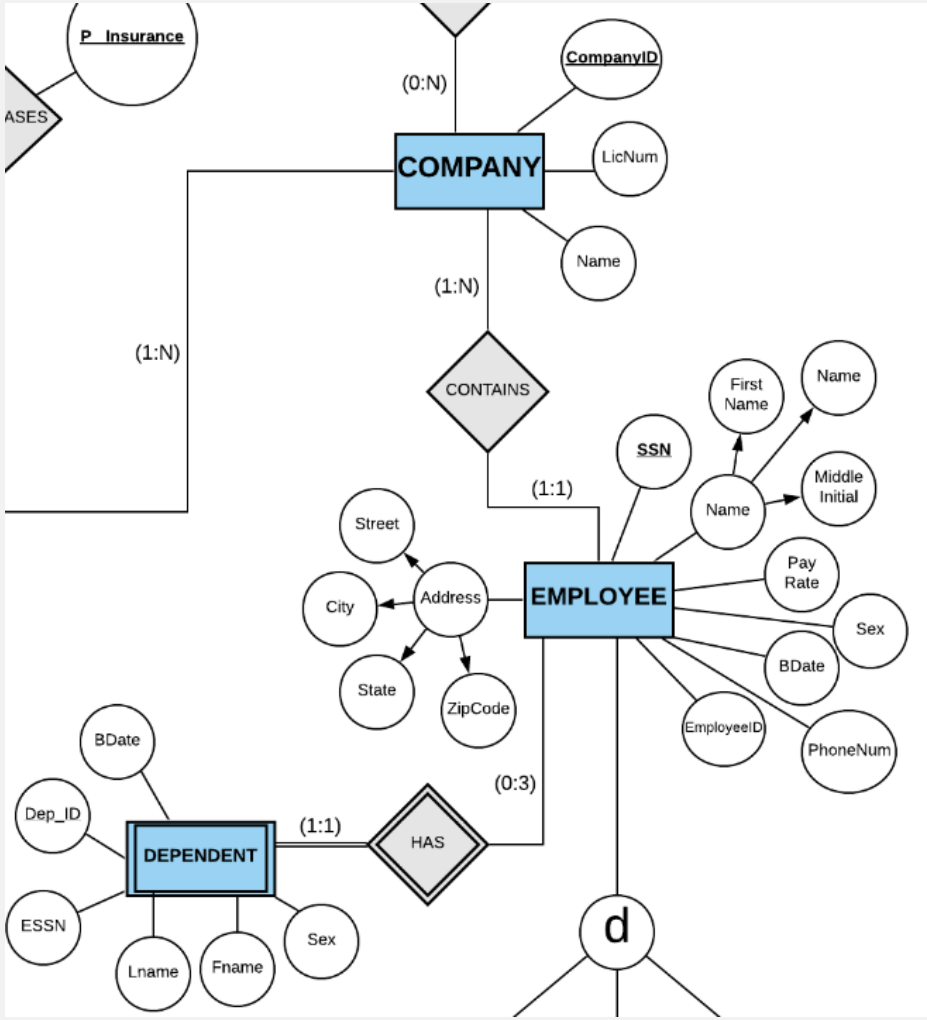
Data generator tool

- www.freedatagenerator.com was used to generate large INSERT SQL files
- Number of rows required was specified
- Various data types were able to be used

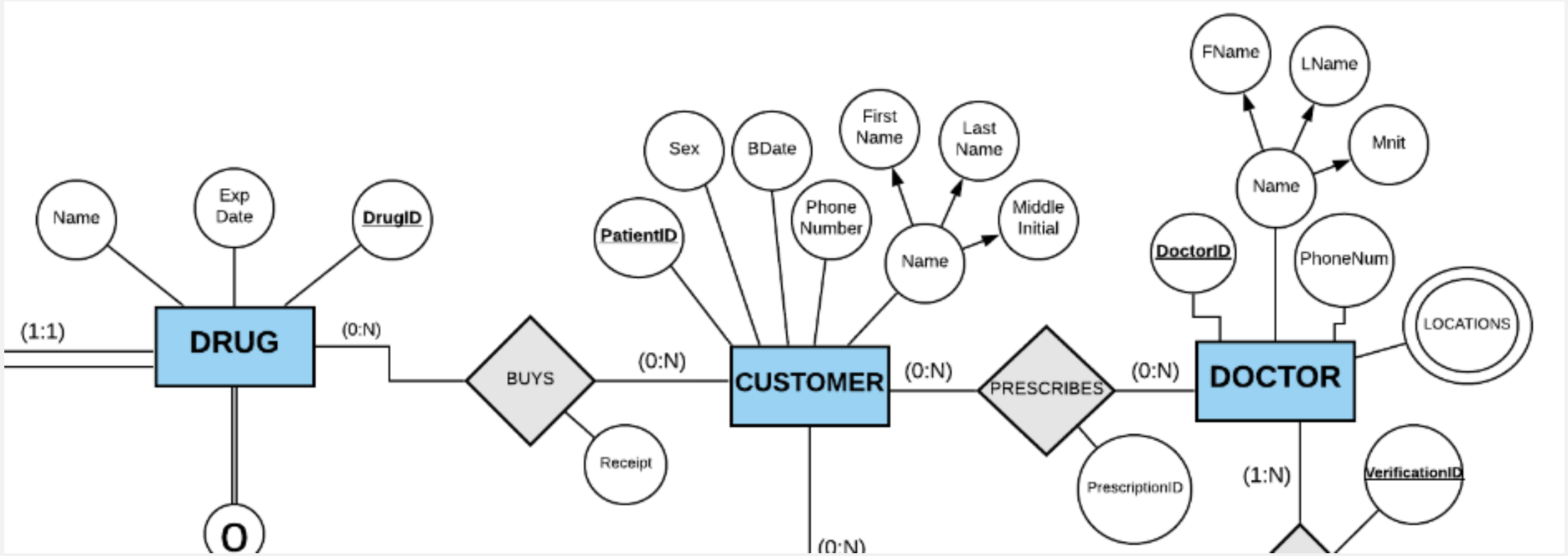
Example INSERT SQL Statement

- INSERT INTO customer (PATIENT_ID, FNAME, MNAME, LNAME, SEX, BIRTH_DATE, PHONE_NUMBER) VALUES (50000, 'Kelvin', 'Nirvana', 'Raymond', 'M', '1962-10-09', '8174325623');

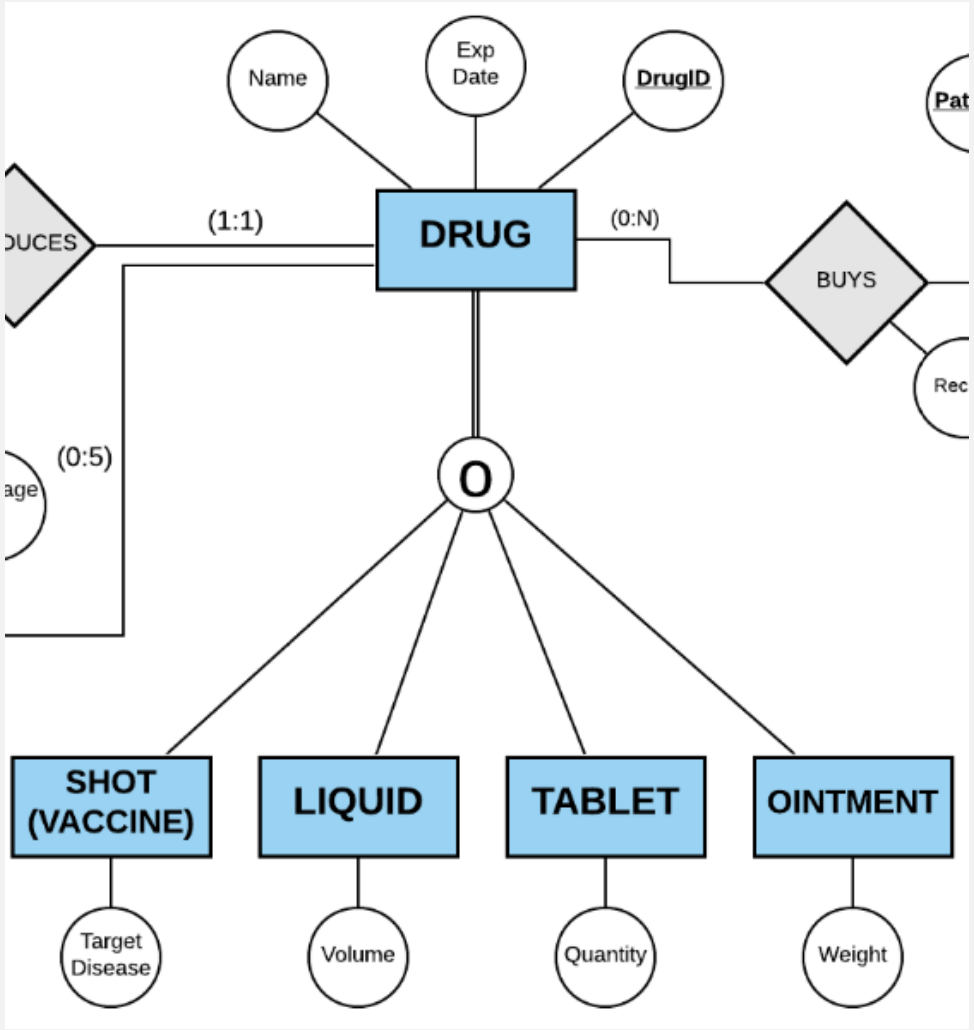
# ER DESIGN PT. I

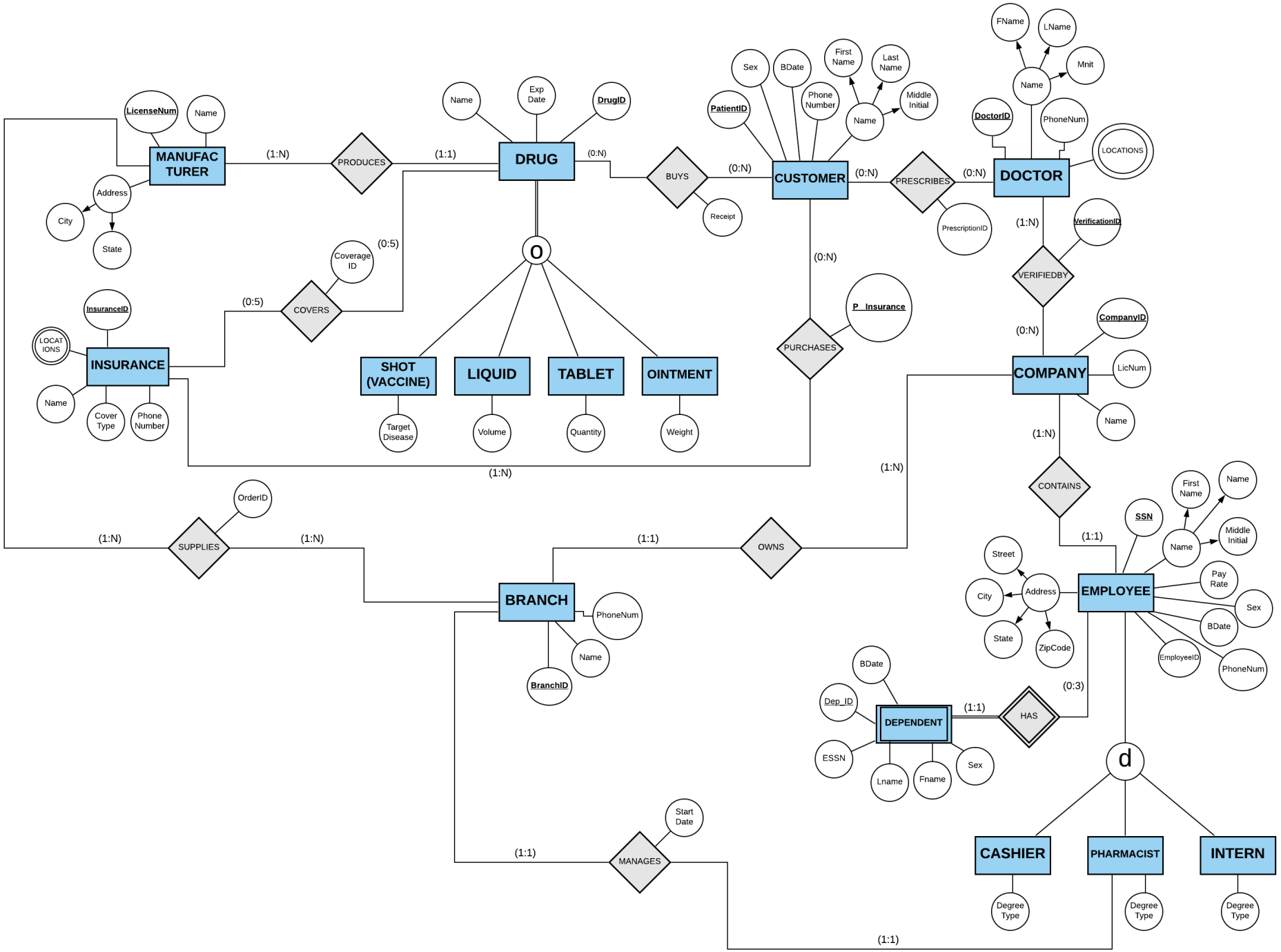


# ER DESIGN PT.2



# ER DESIGN PT.3




MANUFACTURER
LicenseNum
Name
Address
City
State
(1:N)
PRODUCES
(1:1)
DRUG
Name
Exp Date
DrugID
(0:N)
BUYS
Receipt
CUSTOMER
PatientID
Sex
BDate
Phone Number
First Name
Last Name
Middle Initial
Name
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PRESCRIBES
PrescriptionID
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DOCTOR
FName
LName
Mnit
Name
DoctorID
PhoneNum
LOCATIONS
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Sex
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City
Address
State
ZipCode
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HAS
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DEPENDENT
Dep_ID
BDate
ESSN
Lname
Fname
Sex
d
CASHIER
Degree Type
PHARMACIST
Degree Type
INTERN
Degree Type
(1:1)
OWNS
(1:N)
PURCHASES
(0:N)
P_Insurance
(1:N)
BRANCH
BranchID
Name
PhoneNum
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SUPPLIES
OrderID
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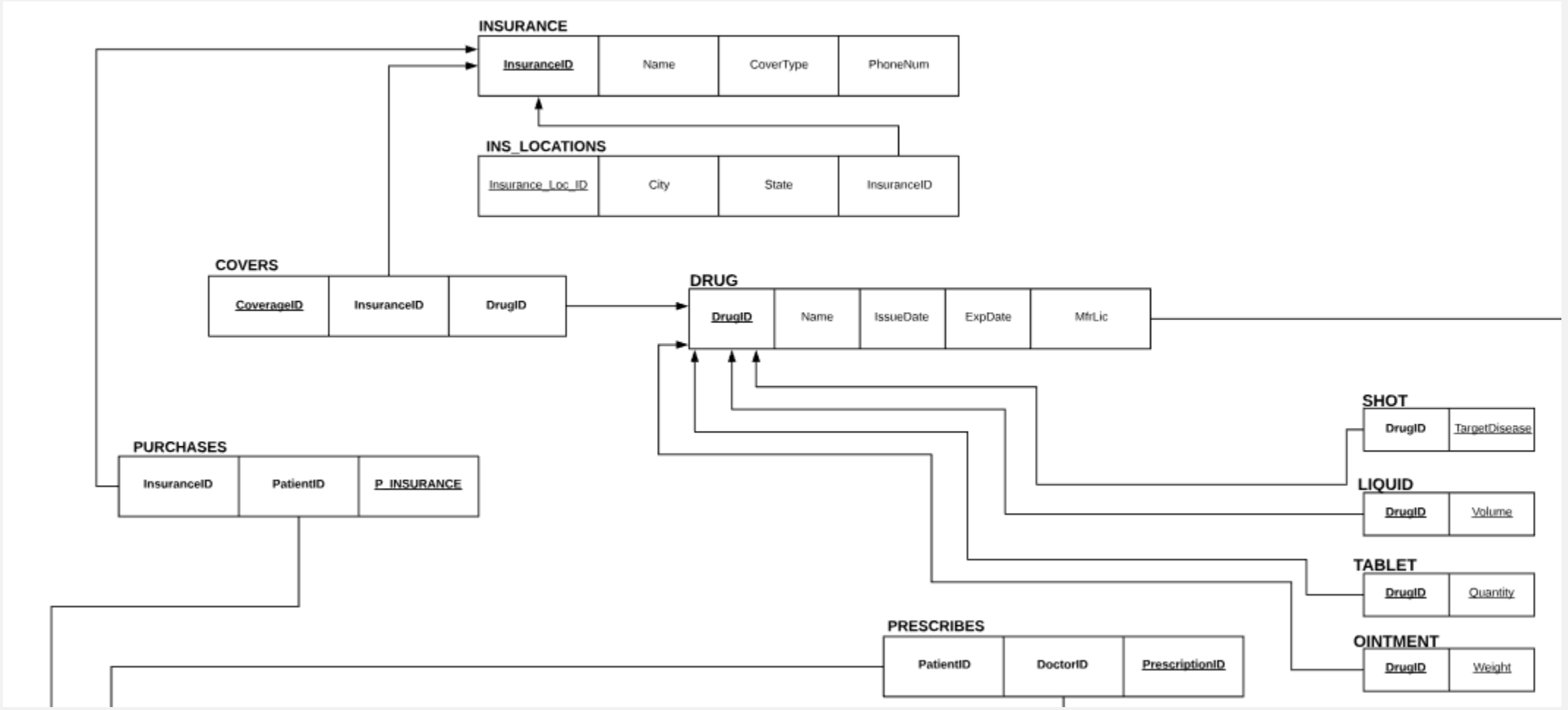
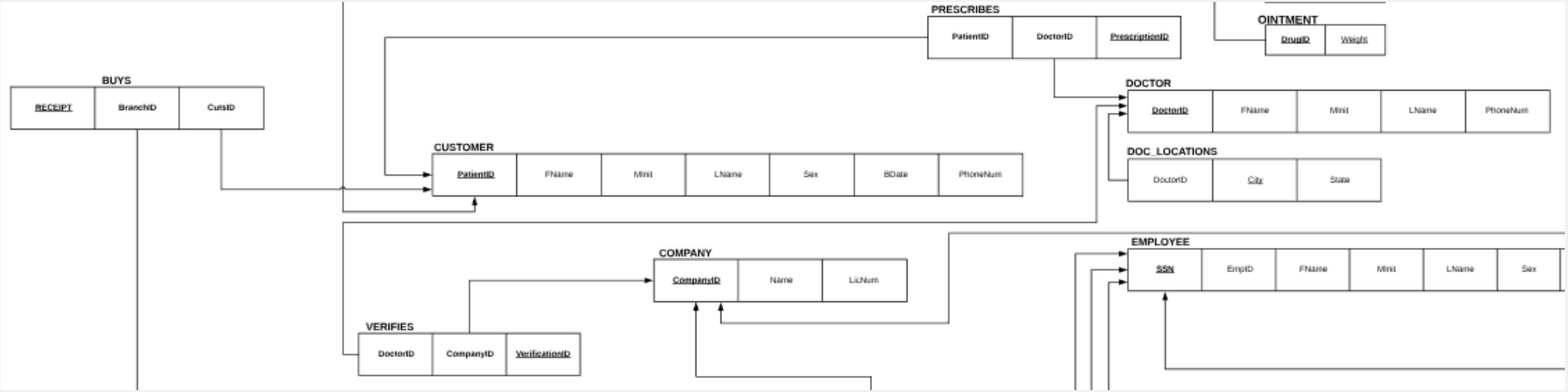
MANAGES
Start Date
(1:1)
(0:5)
COVERS
Coverage ID
(0:5)
INSURANCE
InsuranceID
LOCATIONS
Name
Cover Type
Phone Number
O
SHOT (VACCINE)
Target Disease
LIQUID
Volume
TABLET
Quantity
OINTMENT
Weight

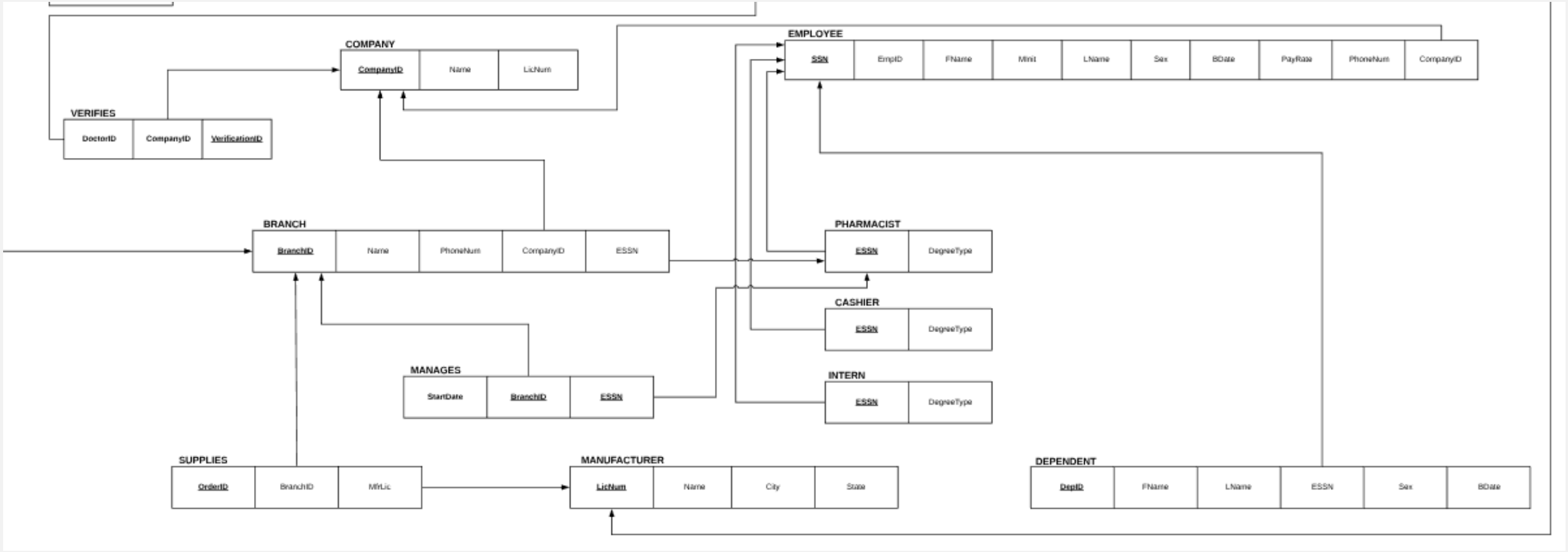
# RELATIONAL MODEL PT. I



# RELATIONAL MODEL PT.2

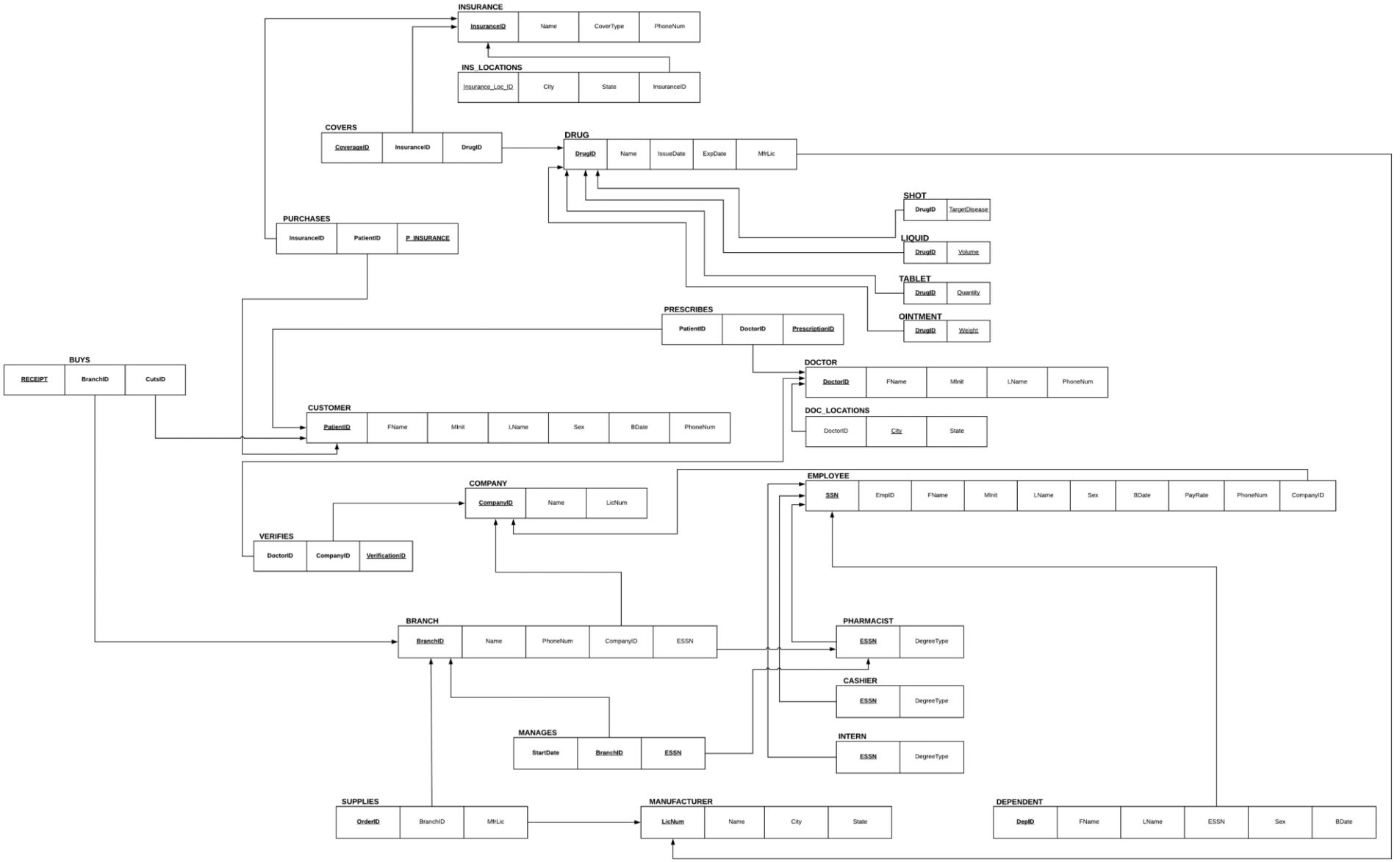


# RELATIONAL MODEL PT.3



Final Document

# Relational Model



# FUNCTIONALITIES

- List the Drug ID's and expiration dates that have been issued after the date xxxx-xx-xx
- List employees and their ID's, first, middle, and last names along with genders that are pharmacists and manage branches that are part of a specific company name ‘xxxxxxxxxxxx’
- Get the name of manufacturer that supplied drugs to a branch under order Id xxxxx

# FUNCTIONALITIES PT.2

- List customer ID's and the respective drugs purchased
- Delete all of the dependents that are age 21 or older due to insurance policy for minor coverage.
- List name, sex and birth date of customers who bought drugs with insurance policies
- Delete all the drugs that have an issue date older than 3 years

# SUMMARY AND CONCLUSION

It is very important to gather and understand *all* database requirements initially, because after work has begun, it is difficult to make changes.

Our biggest challenge was not focusing enough initially on the importance of foreign keys that make querying a breeze.

Our finalized product is a working concept database that could be used by pharmacies which have multiple branches and directly deal with manufacturers that supply them with different drugs.