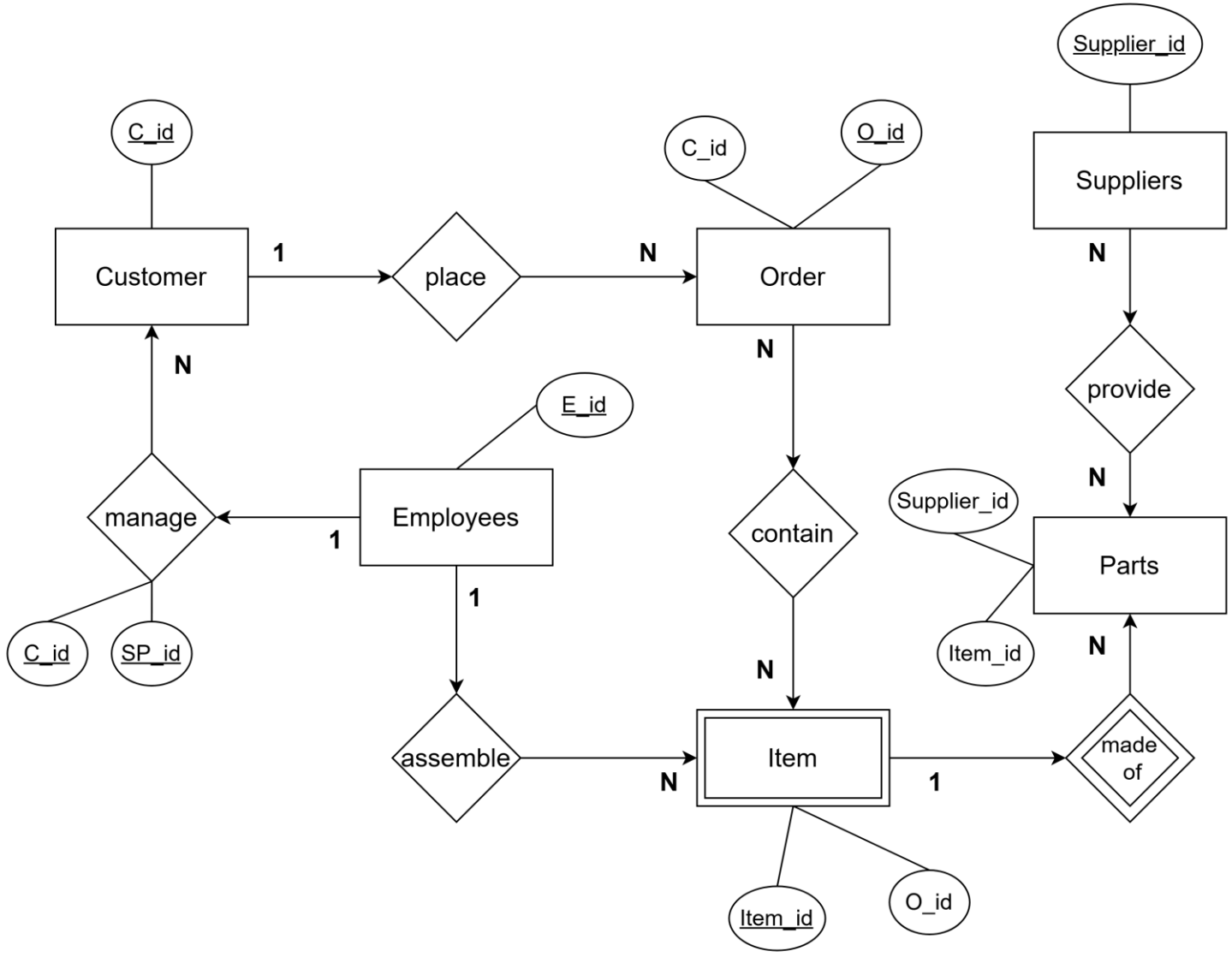
Problem Solving Sheet

Sales and Inventory Management System



List of assumptions:

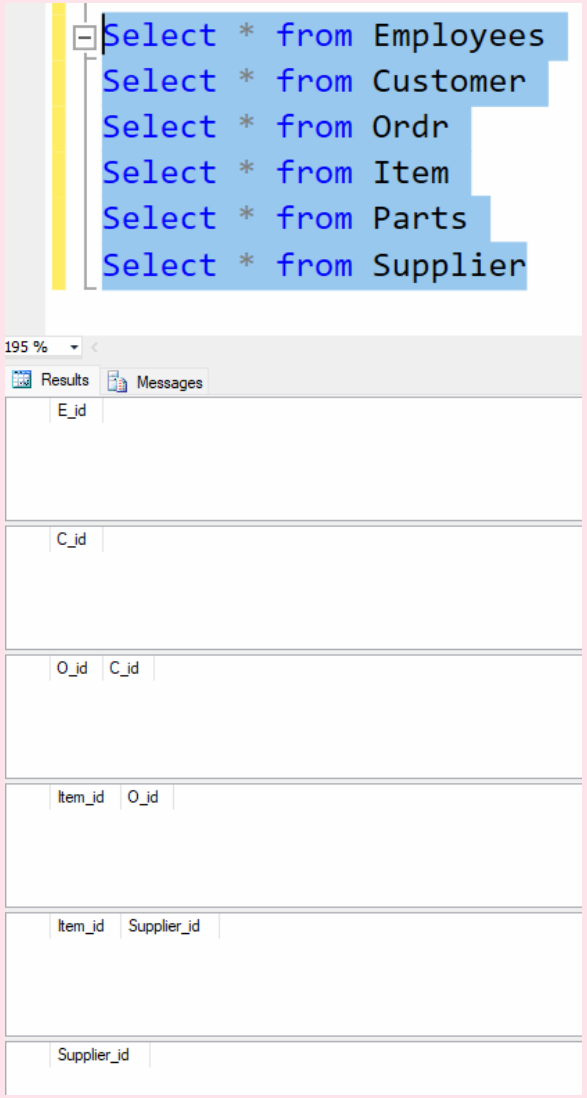
An ***Employee*** can be a sales representative

The ***employee*** entity doesn't have foreign key with the ***item*** entity, as it is not essential.

Item is a weak entity to the ***part*** entity, as if no parts, no item.

SQL database schema

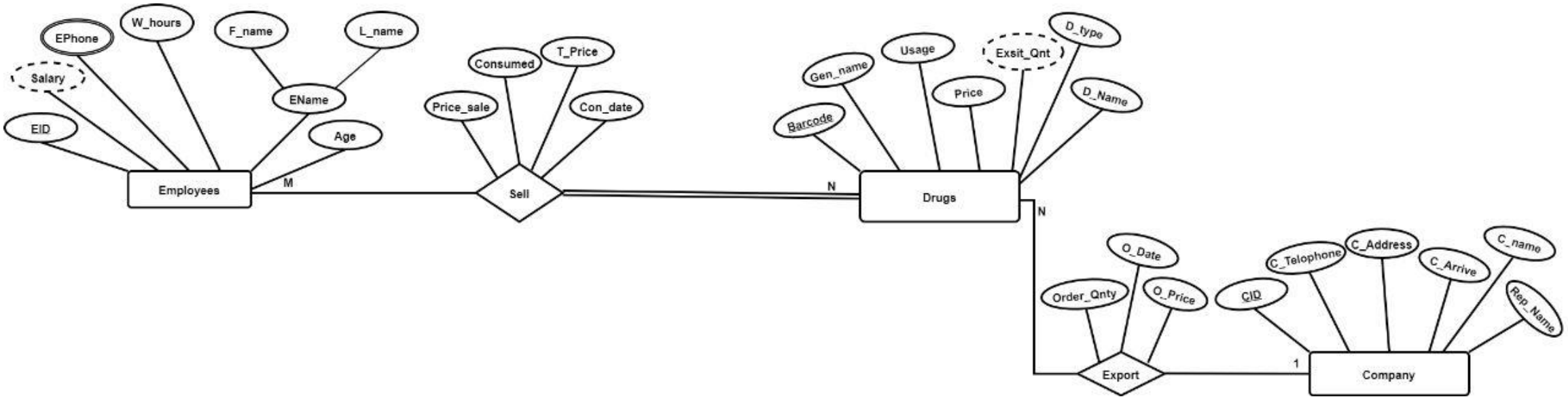
Note: Ignore `go` lines




```
CREATE DATABASE sims --Sales and Inventory Management System
go
CREATE TABLE Employees(
E_id INT PRIMARY KEY
);
go
CREATE TABLE Customer(
C_id INT PRIMARY KEY
);
go
CREATE TABLE Ordr(
O_id INT PRIMARY KEY, C_id INT,
FOREIGN KEY (C_id) REFERENCES Customer
);
go
CREATE TABLE Item(
Item_id INT PRIMARY KEY, O_id INT,
FOREIGN KEY (O_id) REFERENCES Ordr
);
go
CREATE TABLE Supplier(
Supplier_id INT PRIMARY KEY
);
go
CREATE TABLE Parts(
Item_id INT, Supplier_id int,
FOREIGN KEY (Item_id) REFERENCES Item,
FOREIGN KEY (Supplier_id) REFERENCES Supplier
);
go
CREATE TABLE cust_man(-- of `manage` relationship
C_id INT, SP_id INT --analogous to E_id
, FOREIGN KEY (C_id) REFERENCES Customer, FOREIGN KEY (SP_id) REFERENCES Employees
);
```

Relationship Rules for ERD

A pharmacy database stores details about the drugs and employees who work in the pharmacy that sells the drugs. Keep in mind that the pharmacy has only one main branch.



List of assumptions:

1. The employees in the pharmacy sells some drugs, and each drug has attributes: Barcode (primary key), trade name, generic name, the total number in the pharmacy, the drug usage, type of each drug, and its price.

2. Each employee has an EID (primary key), name (composite: first_ and last_), age, work hours, phone number(multivalued), and salary.

3. The pharmaceutical company has a CID (primary key), address, telephone number, its name indeed, the time to deliver the orders of the drug, and the representative who will be responsible for providing the order.

4. Each order (exportation) must contain the barcode of the required drug, in addition to its quantity, price, and the date of Exportation.

5. Each sell operation must contain the barcode of the required drug, in addition to its quantity and basic price, in addition to its price after applying the 20% discount and the date of the purchase.

- https://github.com/omarneg m2022/Pharmacy-DB

Have a look at it ^^

```
create database pharmacy
go
use pharmacy
create type string from varchar(30);

create table Drugs (
Barcode int primary key,
D_name string,
Gen_name string not null,
Usage string,
D_type string,
Price float,
Exist_Qnt int )

create table Employees(
EID int primary key,
F_name string,
L_name string,
W_hours int,
Age int not null,
Salary int)

create table E_numbers (
EID int  foreign key references Employees,
Phone_num string check (len(Phone_num) = 10),
 primary key(EID, Phone_num) )
```

```
create table Company (
CID int primary key,
C_name string,
C_Address string,
C_Arrive int not null,
Rep_name string)
/* we made telephone of company as single-valued, not as in ER -for simplicty-*/
alter table Company
add C_telephone string check( len(C_telephone) = 10)

--* drop E_telephone to change the constraint to the proper
--drop table E_numbers

create table Sell(

EID int foreign key references Employees,
Barcode int foreign key references Drugs,
T_price int,
Price_sale int default 0,
Consumed int default 0,
Con_date Datetime,
primary key(EID,Barcode,Con_date)
)

create table Export(
Barcode int foreign key references Drugs,
CID int foreign key references Company,
Order_Qnty int default 0,
O_date datetime,
O_price int,
primary key(Barcode,O_date)
)
```

```
SELECT top 1 * FROM Employees
SELECT top 1 * FROM Drugs
SELECT top 1 * FROM Export
SELECT top 1 * FROM Company
SELECT top 1 * FROM Sell
SELECT top 1 * FROM E_numbers
```

214 %

Results | Messages

	EID	F_name	L_name	W_hours	Age	Salary
1	10	Vishal	Verma	5	24	2500

	Barcode	D_name	Gen_name	Usage	D_type	Price	Exist_Qnt
1	1000	OLFEN	diclofenace	treat mild to moderate pain	ampoule	26.5	10

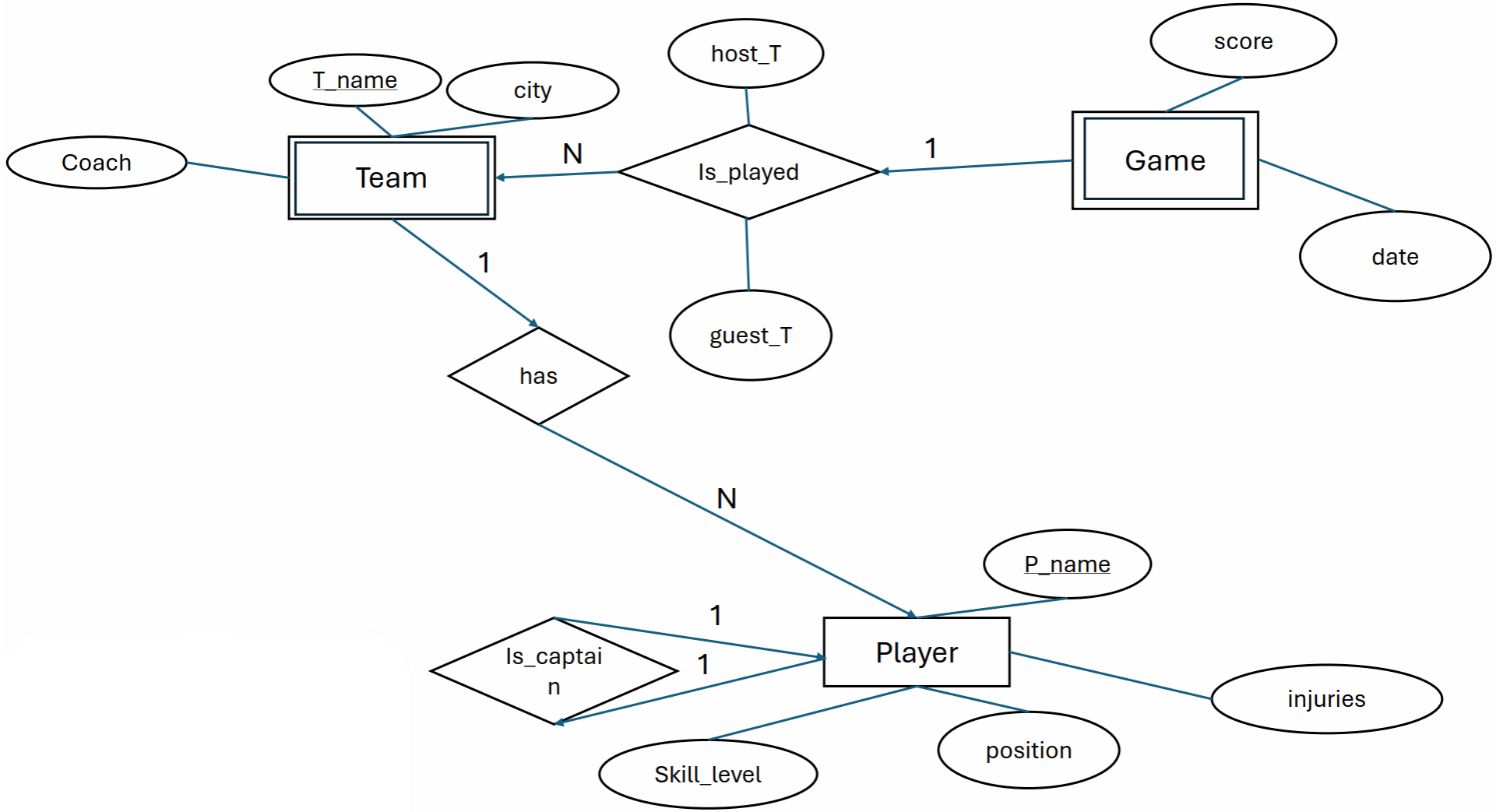
	Barcode	CID	Order_Qnty	O_date	O_price
1	1000	5	100	2018-02-12 10:25:25.000	1500

	CID	C_name	C_Address	C_Arrive	Rep_name	C_telephone
1	1	Ibnsina pharma	EL Mahala	1	Ahmed Alaa	1552345341

	EID	Barcode	T_price	Price_sale	Consumed	Con_date
1	10	1000	79	63	3	2022-12-03 05:35:24.000

	EID	Phone_num
1	10	1035667866

NHL Database Design



List of assumptions:

A ***Player*** can be also a team **captain**

The ***Game*** is weak to the ***team***, and in turn:

Team is weak to the ***player***… that's why

Player is the only strong Entity.

The *SQL database schema*

```sql
Select * from Player
Select * from Team
Select * from Game
Select * from Is_played
Select * from candidates
```

214 %

Results | Messages

P_name	Skilvl	position	Is_captain

T_name	city	Coach	C_name	pos

Score	dat	T_name	Coach

host_T	guest_T	dat	Score	T_name	Coach

P_name	position	T_name	Coach

```sql
CREATE DATABASE NHL --National Hockey League
go
Use NHL
go
CREATE TABLE Player(
P_name varchar(20),
Skilvl int,
position varchar(10),
Is_captain varchar(1) --'Y' 'N'
, PRIMARY KEY (P_name, position)
);
go
CREATE TABLE Team( -- being the 1-side with the `player` entity
T_name varchar(10),
city varchar(15),
Coach varchar(20),
PRIMARY KEY(T_name, Coach),
C_name varchar(20), pos varchar(10),
FOREIGN KEY(C_name, pos) REFERENCES Player
);
go
CREATE TABLE Game(
Score float,
dat date,
T_name varchar(10), Coach varchar(20),
PRIMARY KEY (dat, Score),
FOREIGN KEY(T_name, Coach) REFERENCES team
);
go
```

```sql
CREATE TABLE Is_played(
host_T varchar(10), guest_T varchar(10),
dat date,Score float
, T_name varchar(10), Coach varchar(20),
FOREIGN KEY (dat, Score) REFERENCES Game,
FOREIGN KEY (T_name, Coach) REFERENCES team,
Primary key(host_T,guest_T)
);
go
CREATE TABLE candidates(-- of `has` relationship between Team and Player
P_name varchar(20),
position varchar(10),
T_name varchar(10),
Coach varchar(20)
FOREIGN KEY (Coach, position) REFERENCES Player,
FOREIGN KEY (T_name, Coach) REFERENCES team,
Primary key(P_name,T_name)
);
```