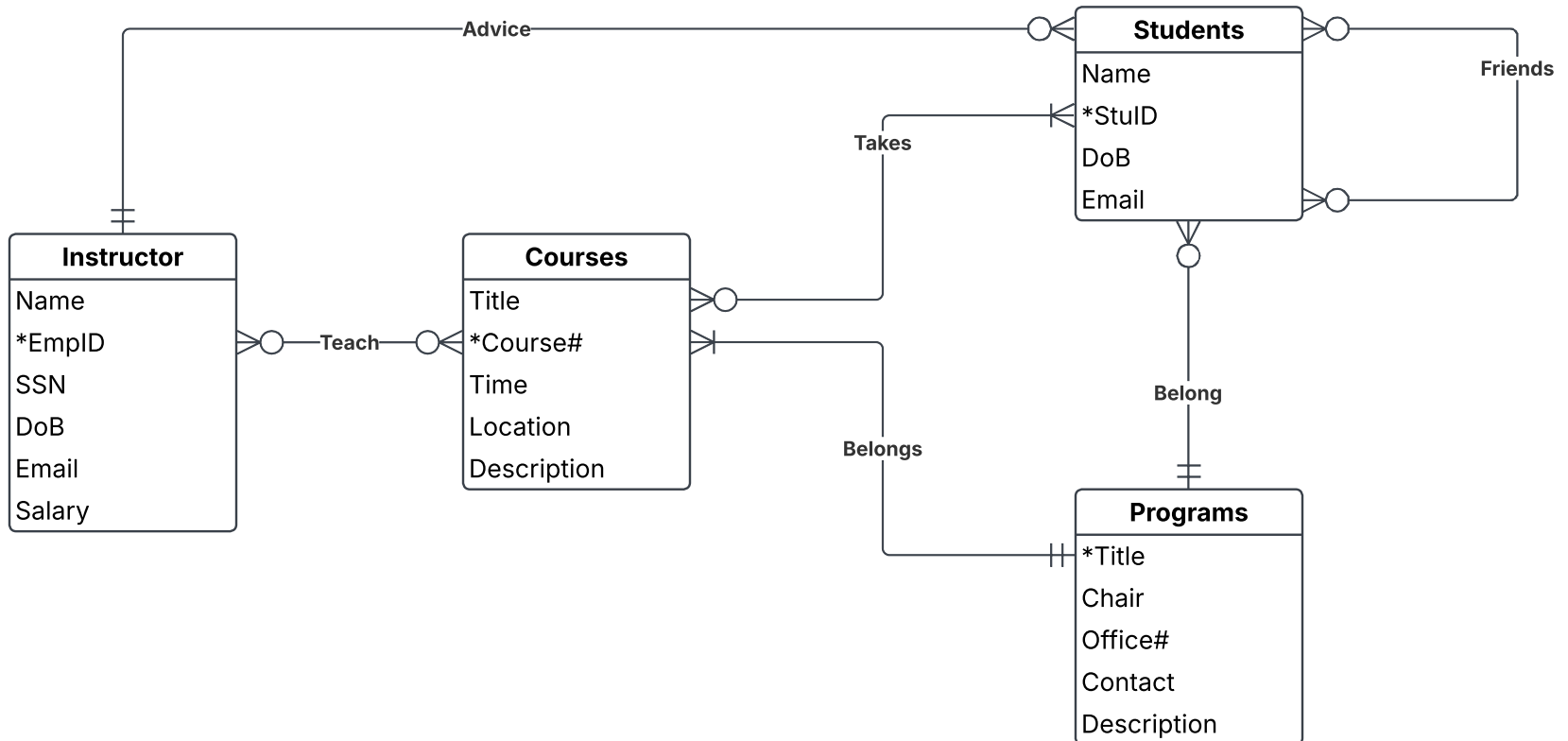# Online Education Company

- An instructor <u>may</u> teach multiple courses, and a course <u>might</u> be taught by multiple instructors
- Each course must belong to one and only one online-program, and each program must have one ore more courses.
- A student may take muliple courses, and a course must have one or more students
- A student must belong to exactly one program, and a program may have one or more students
- A student may be friend of other students
- A student must have exactly one instructor as advisor, and one instructor may advice one or more students

Pizza Hot - Food Chain

Your client is a local fast food restaurant - PizzaHot. The background story is as below:
PizzaHot is a local restaurant serving the community and bringing people happiness. Recent years, PizzaHot is adopting a franchising strategy and is moving towards a chain-restaurant in the State. A database system for Inner Management is crucial for the expansion of the business.
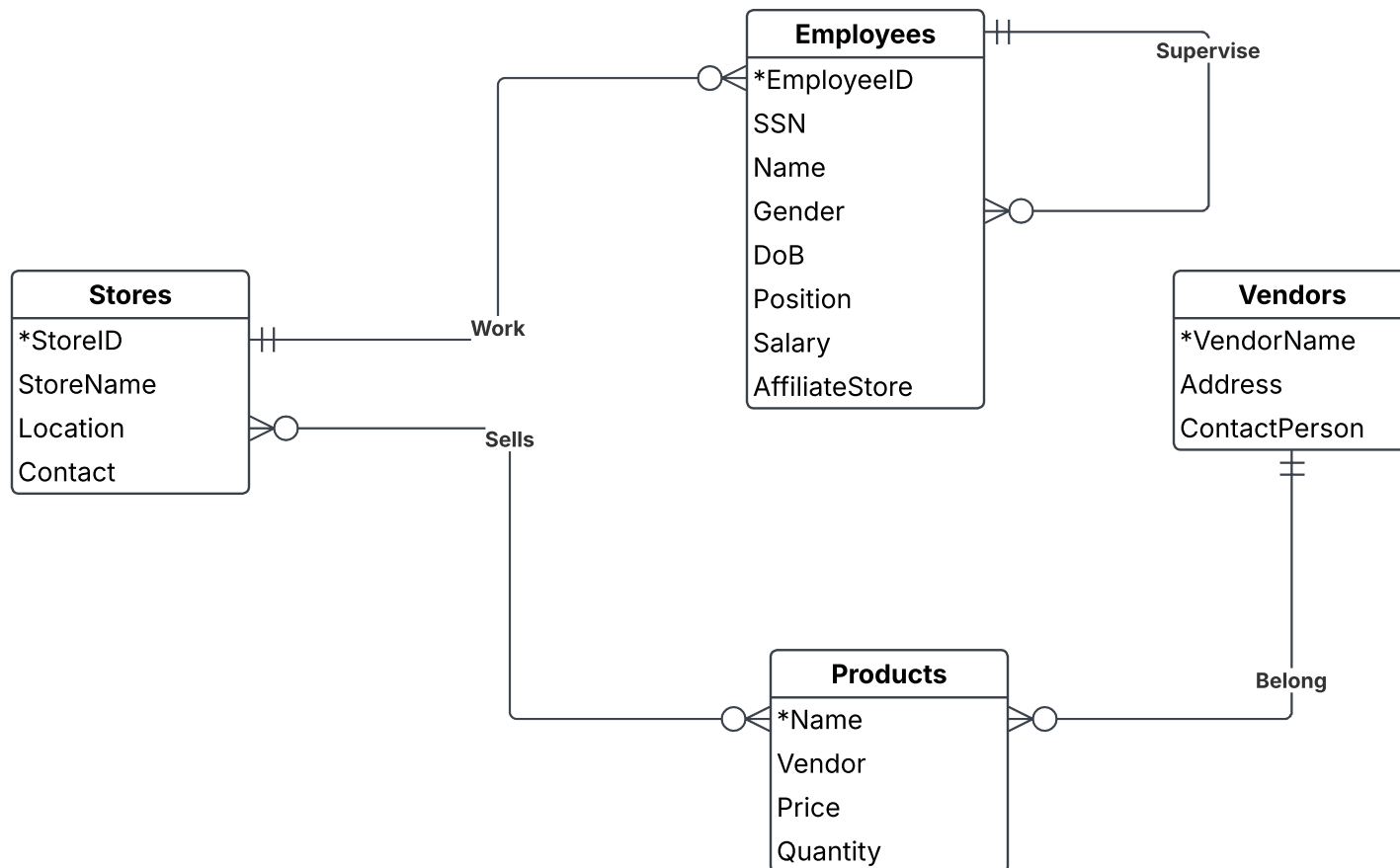The information needed is:
- Stores: including ID, name, location, contact information.
- Employees: including ID, SSN, name, gender, DoB, position, salary, AffiliateStore.
- Vendors: including name, address, contactPerson
- Products: including name, Vendor, price, quantity

A Store <u>may</u> have many employees, and one employee <u>must</u> work for one store.
A Store may sell many products, and each product can be sold at many stores
A product must belong to one and only one Vendor, and a Vendor may provide one or more products.
An employee must be supervised by another employee, and an employee may supervise many other employees

Stock Exchange Company

Your client is a stock-exchange company. The background story is as below:
TrueTrade provides excellent financial services to customers all over the world. Customers can buy/sell stock via TrueTrade easily and securely. TrueTrade also provides detailed information for every stock so customers can make the best decision.
The information needed for TrueTrade is:
- Stocks: including stock#, companyName, ExchangeMarket, Description
- Customers: including CustomerID, Name, Contact
- Portfolio: including CustomerName, currentValue
- Logs: including stock#, openPrice, closePrice, date
- Transactions: CustomerID, Portfolio, stock, quantity, price, date, time.

Relationships
- A customer must have one or more portfolios, and a portfolio must belong to one and only one customer.
- A portfolio may have one or more stocks, and a stock may belong to one or more portfolios.
- A stock must have one or more logs, and one log must belong to one and only one stock
- A customer may have one or more transactions, and each transaction must be done by one and only one customer
- A portfolio may be in one or more transactions, and each transaction must include one and only one portfolio
- A transaction must have a stock, and a stock may be in one or more transactions.

Logs
*Stock
OpenPrice
ClosePrice
Date

Have

Stocks
*Stock
companyName
exchangeMarket
description

Contains

Costomers
*CustomerID
Name
Contact

Have

Portfolio
CustomerName
CurrentValue

Have

Transactions
*TransactionID
CustomerID
Portolio
Stock
Quantity
Price
Date
Time