Beyond 3rd normal form?

Do you agree with the two best practice answers?

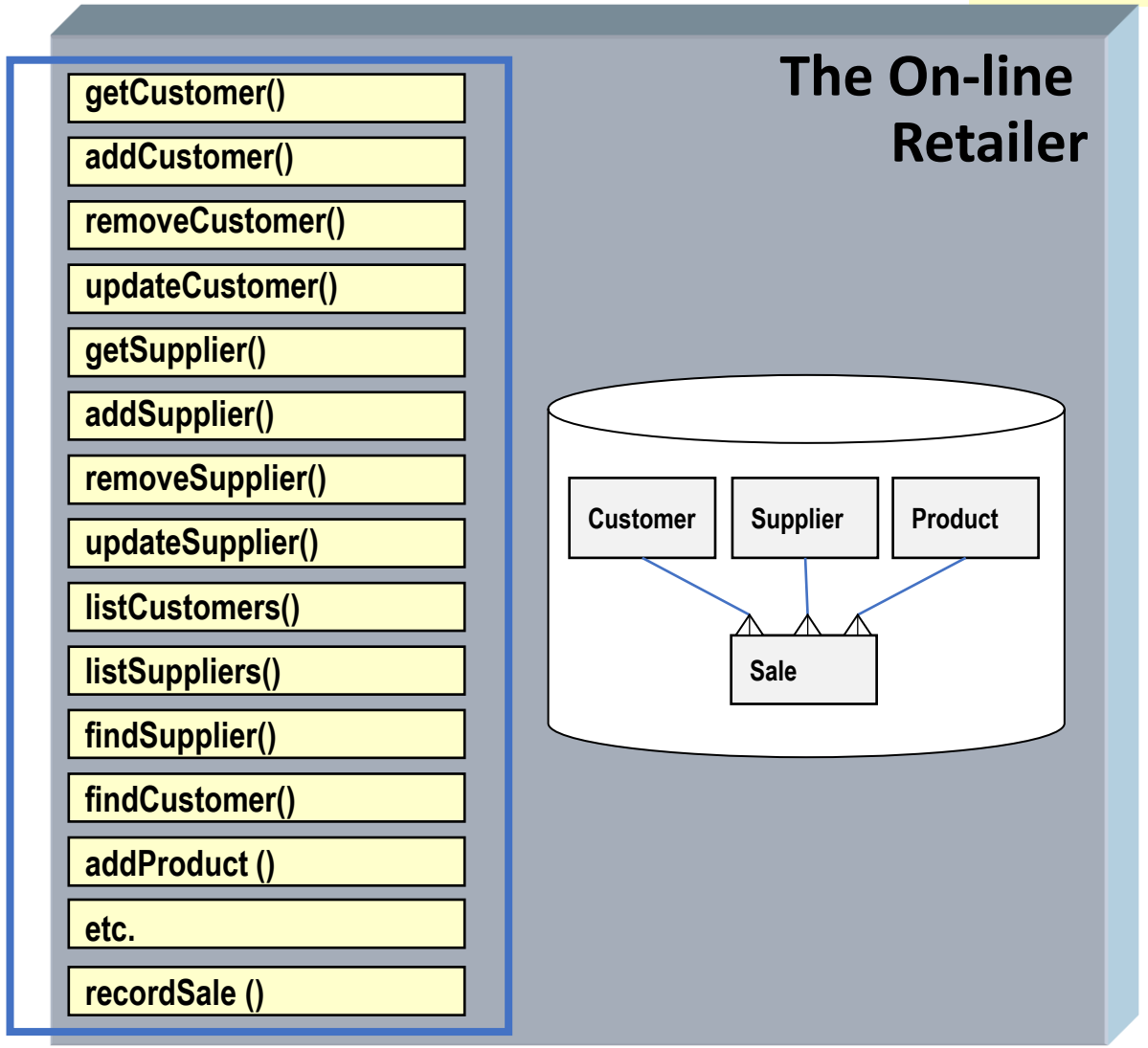
Can you answer the theory question at the end?

The On-line Retailer

An interface definition
- contains discretely invokable services
- hides what performs them
- may (at run time) provide access to them

"A component has an *external or* "black-box" view by means of its externally visible services."
"A component defines its behavior in terms of provided and required interfaces." UML

"it is important that the interfaces to a building block are published and reasonably stable."
TOGAF 9



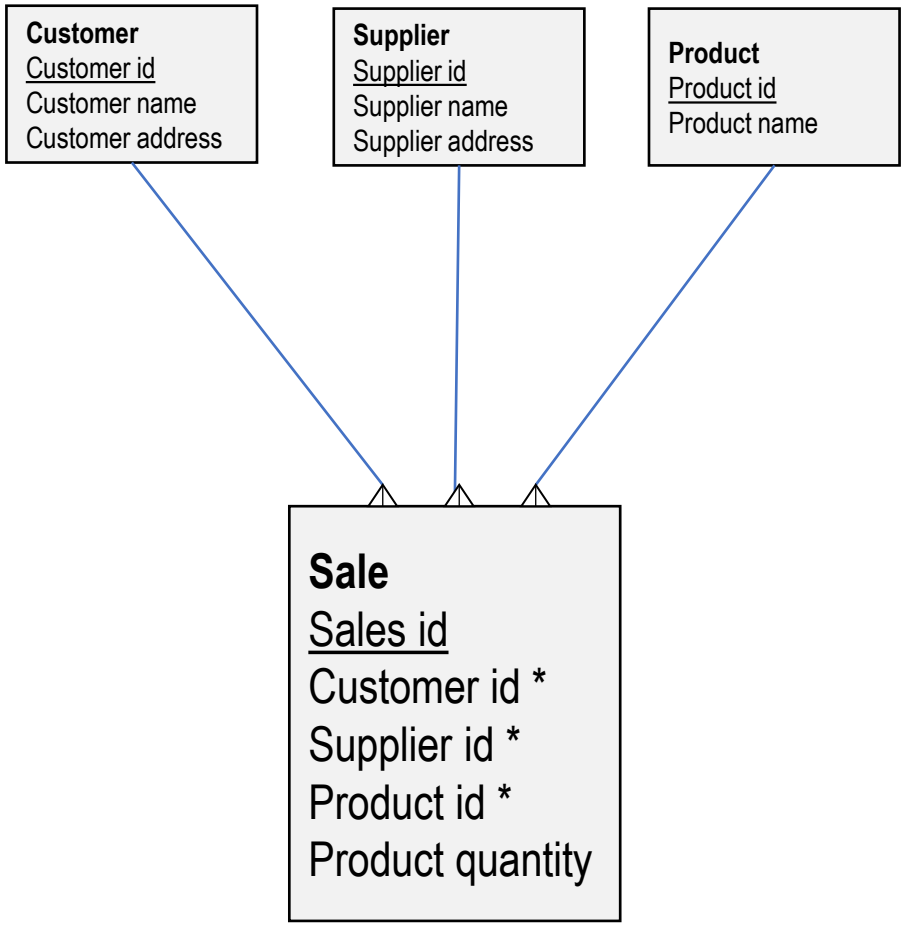
Looking for dependencies between attributes

Look at the Customer, Supplier and Product ids

1. Can a Supplier supply any Product?
2. Can a Customer can buy from any Supplier?
3. Can a Customer buy any Product?

Where the answer is Yes, there is no constraint.

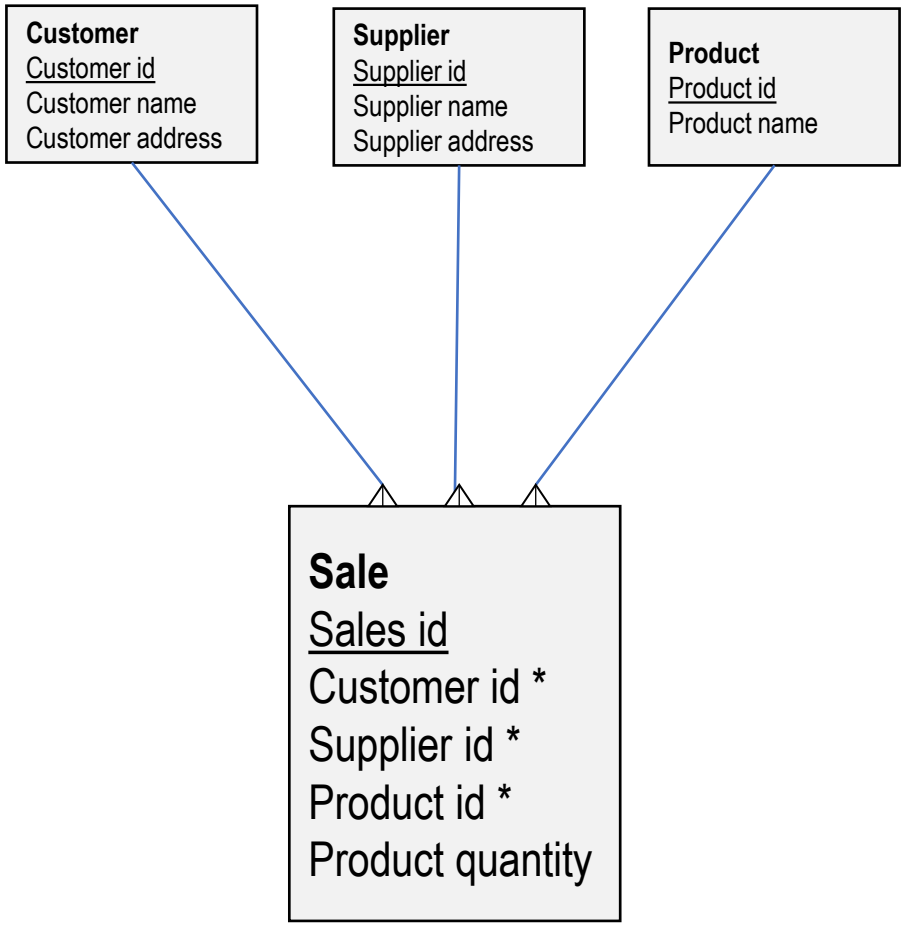
Where the answer is No, there is a constraint, and that business rule can be expressed in the data model.



3-way V structure

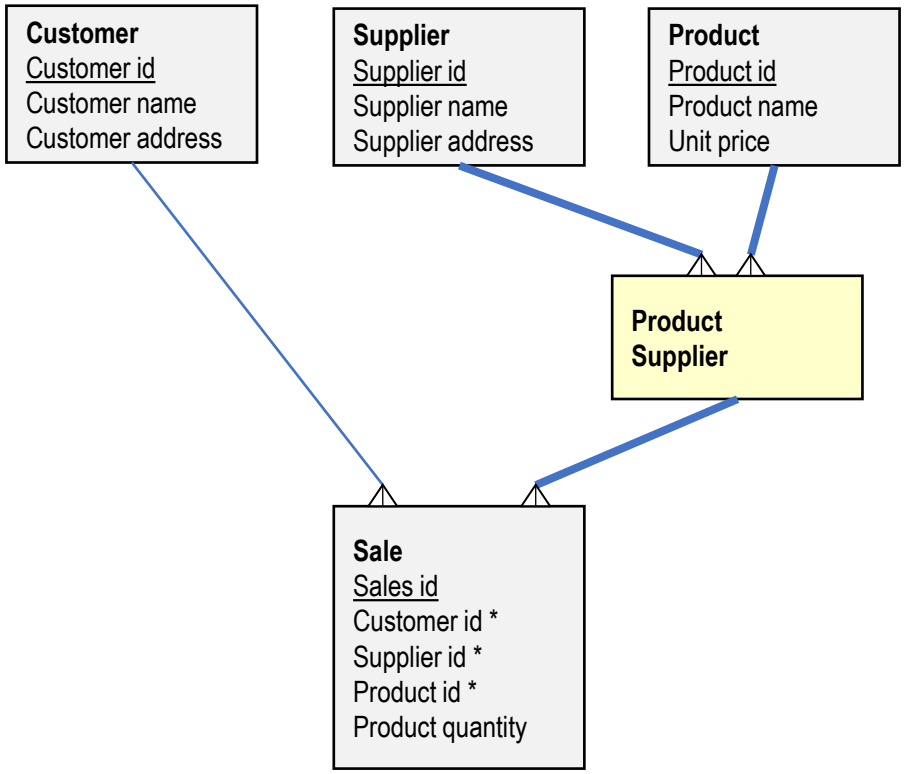
1. Can a Supplier supply any Product? Yes
2. Can a Customer can buy from any Supplier? Yes
3. Can a Customer buy any Product? Yes

- **An exercise for you**
- Add this constraint business rule
- Can a Supplier supply any Product? No, only those Products the Supplier makes or can source



Single Y constraint

1. Can a Supplier supply any Product? No, only those Products the Supplier makes or can source.
2. Can a Customer can buy from any Supplier? Yes
3. Can a Customer buy any Product? Yes

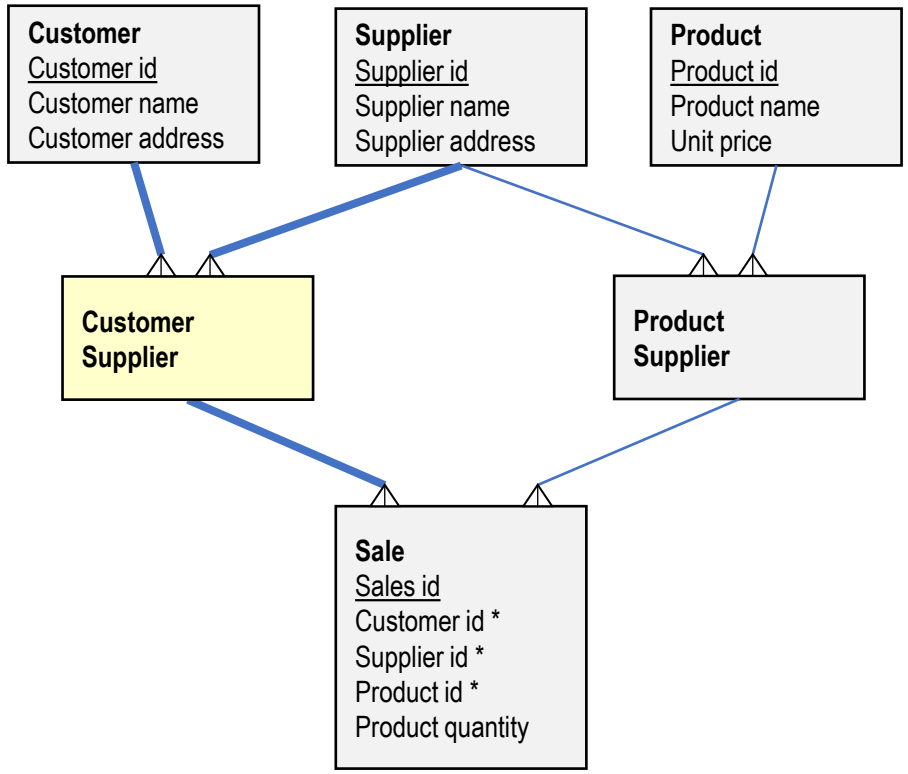


- **An exercise for you**
- Add this constraint business rule
- Can a Customer can buy from any Supplier? No, only from Suppliers they have a contract with.

Double Y constraint

1. Can a Supplier supply any Product? No, only those Products the Supplier makes or can source.
2. Can a Customer can buy from any Supplier? No, only from Suppliers they have a contract with.
3. Can a Customer buy any Product? Yes

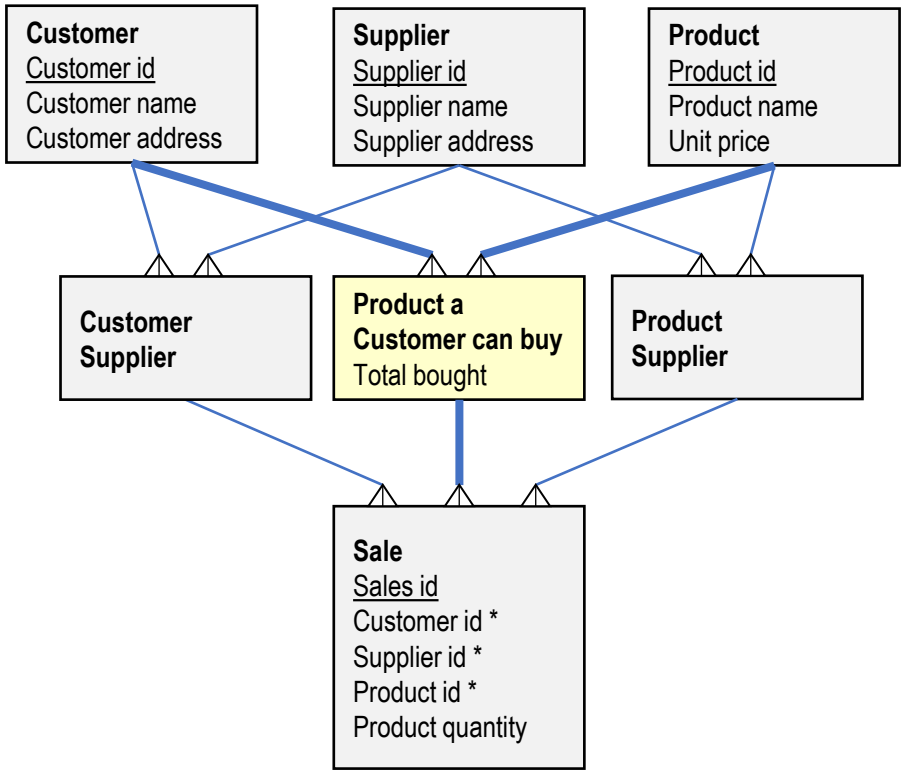
- **An exercise for you**
- Add this constraint business rule
- Can a Customer buy any Product? No, only those it is permitted to buy.



Triple Y constraint

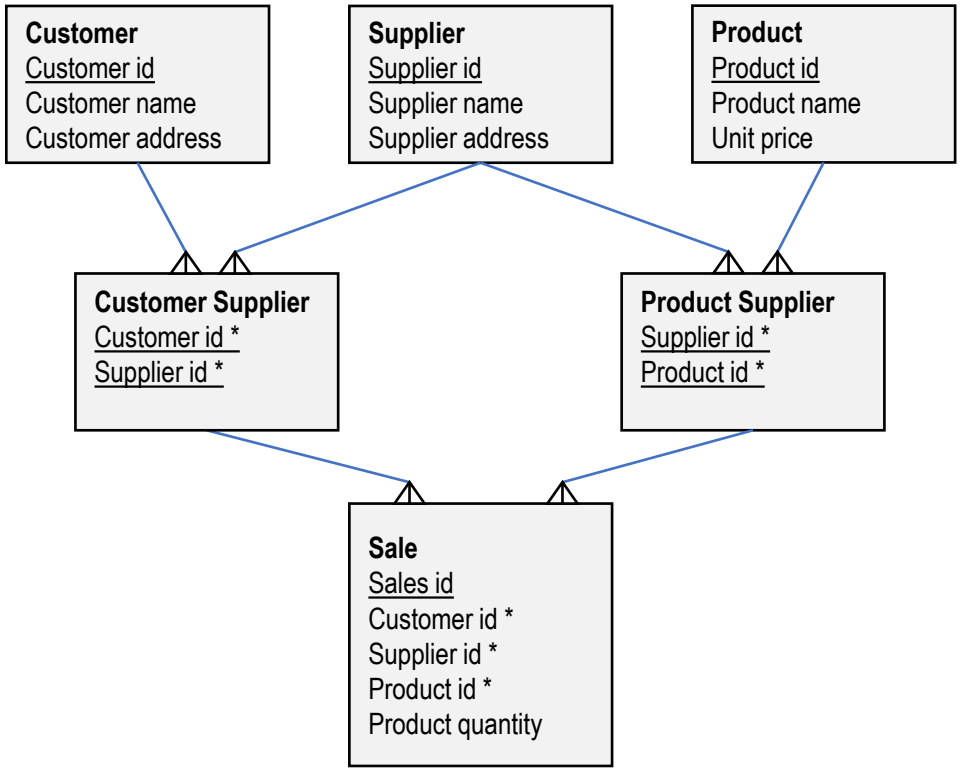
1. Can a Supplier supply any Product? No, only those Products the Supplier makes or can source.
2. Can a Customer can buy from any Supplier? No, only from Suppliers they have a contract with.
3. Can a Customer buy any Product? No, only those it is permitted to buy.

- (Now we can record for each customer, the total amount they have bought, of each product they have bought.)

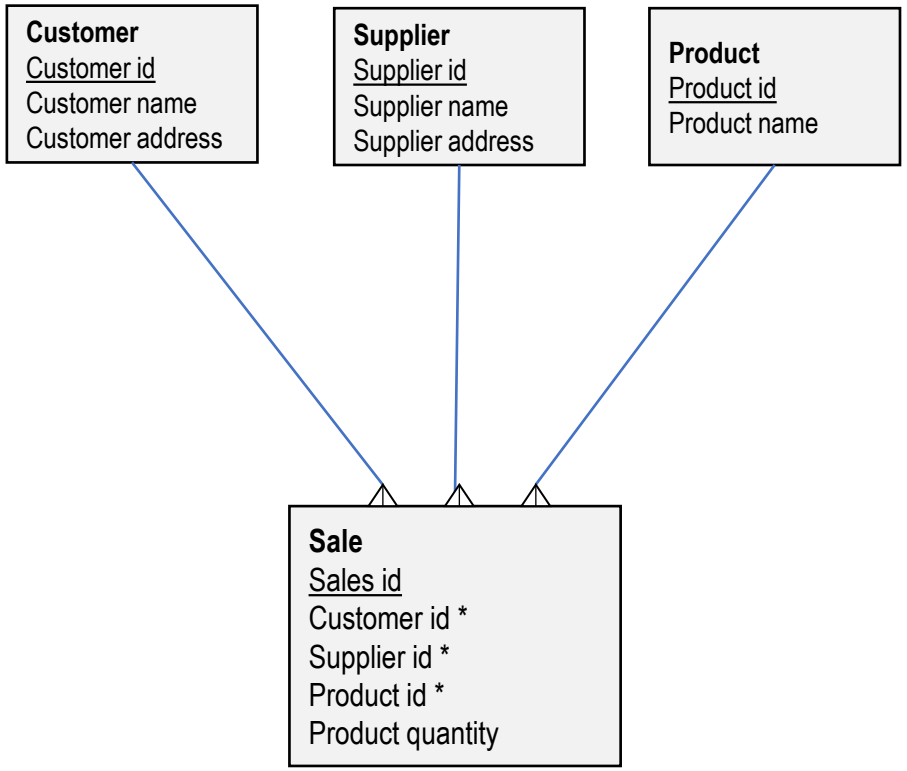


Q1) Which is best practice?

A) Implement this data structure?

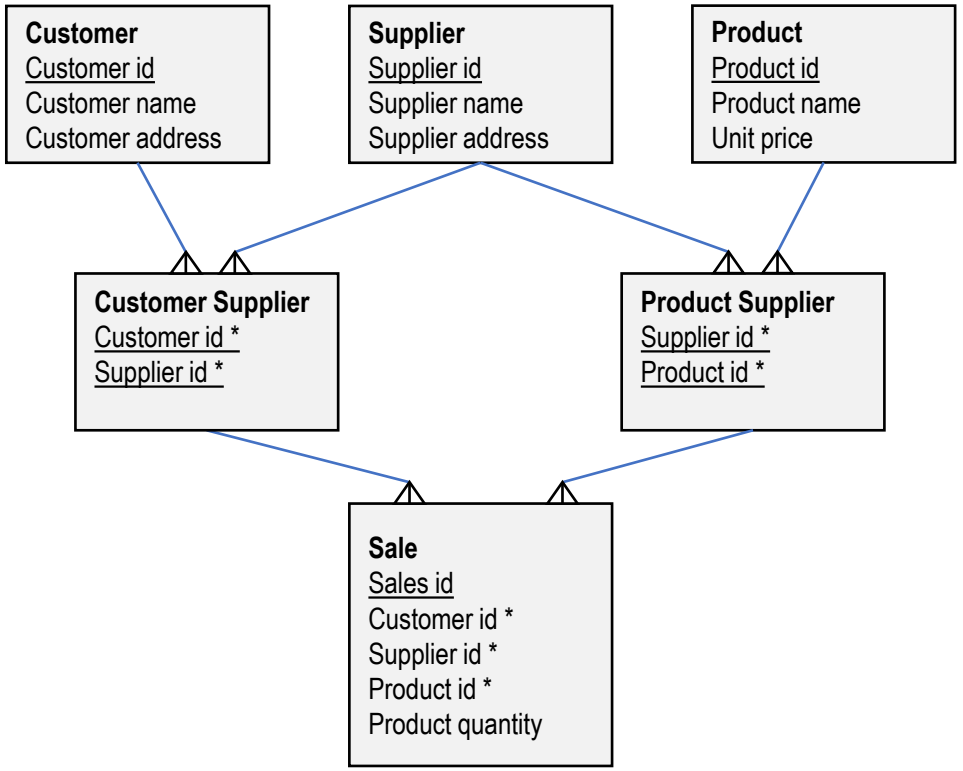


B) Leave programmers to ensure rules are applied properly?

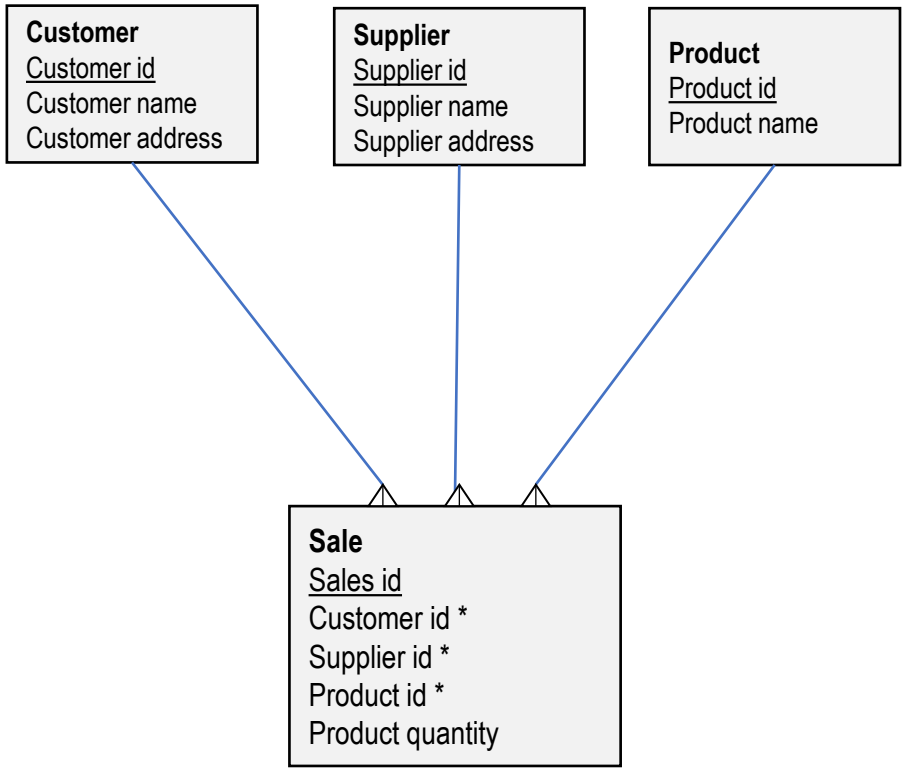


A1) Which is best practice?

A) Better?

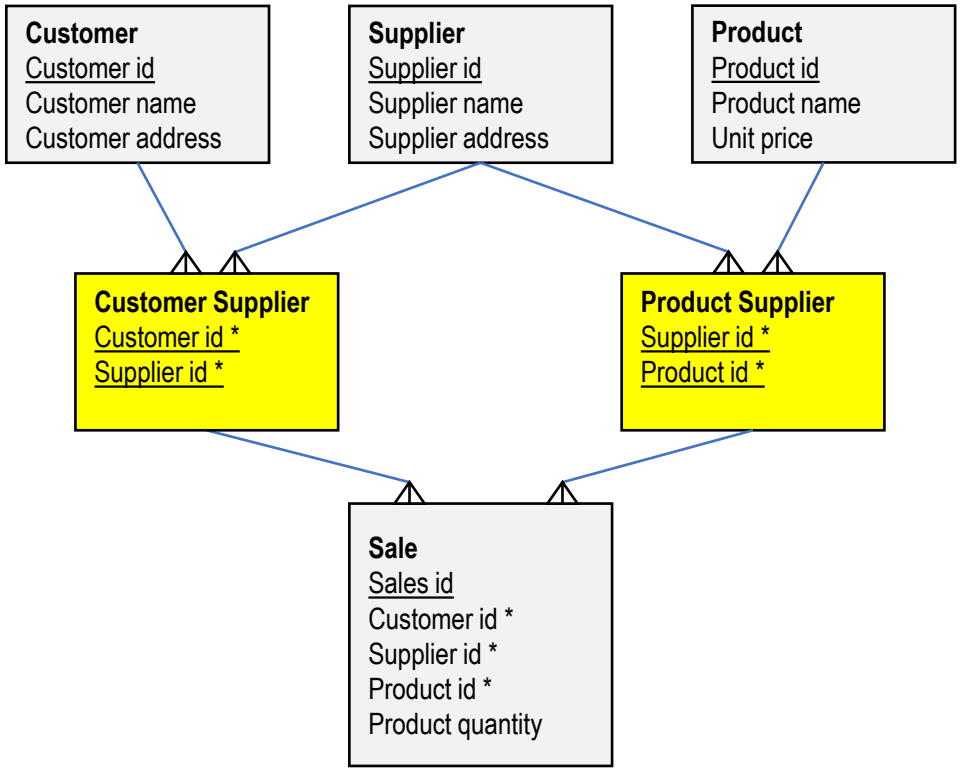


B) Worse?

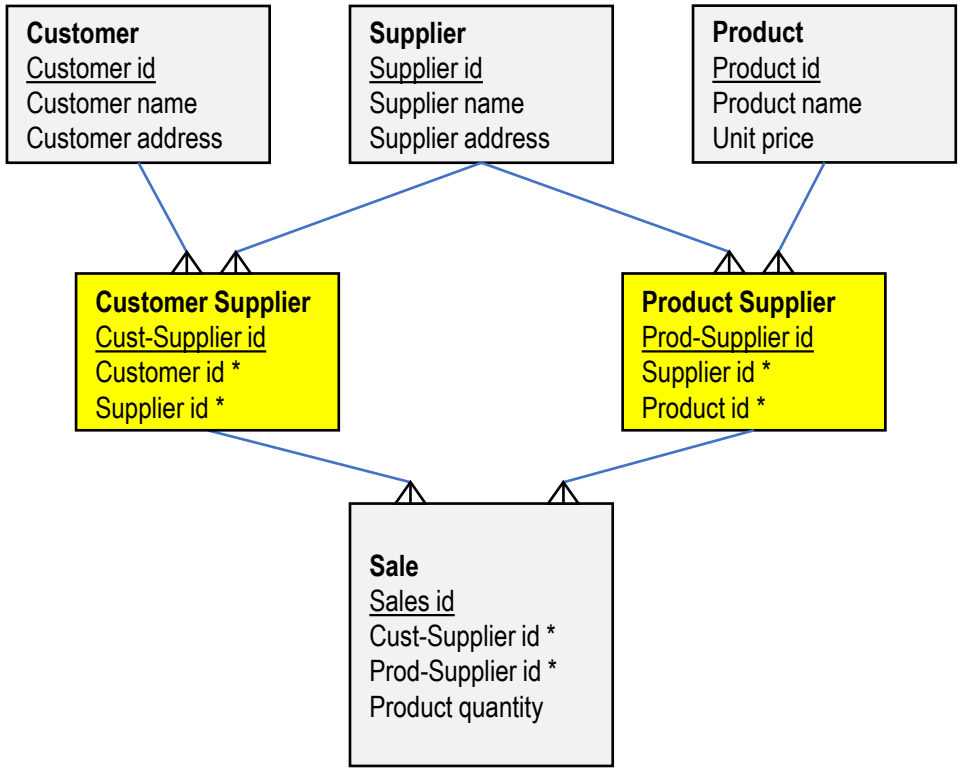


Q2) Which is best practice for a link entity's primary key?

A) Compound of the two foreign keys?



B) Additional unique identifier?



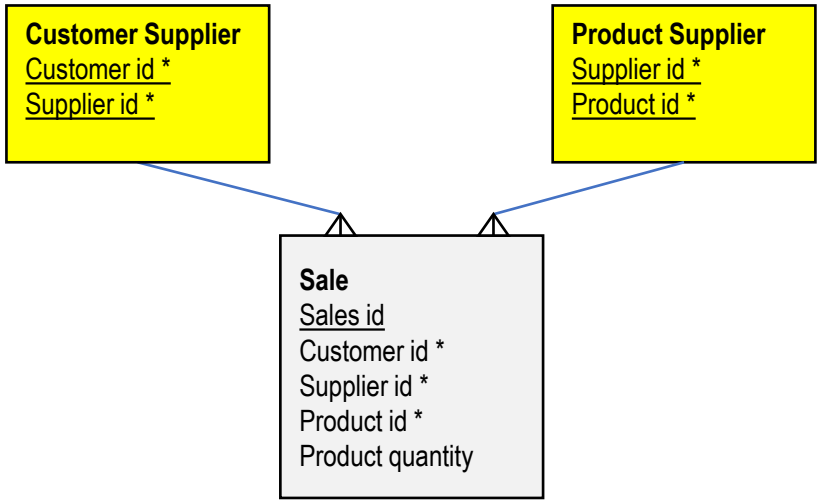
A2) Which is best practice for a link entity's primary key?

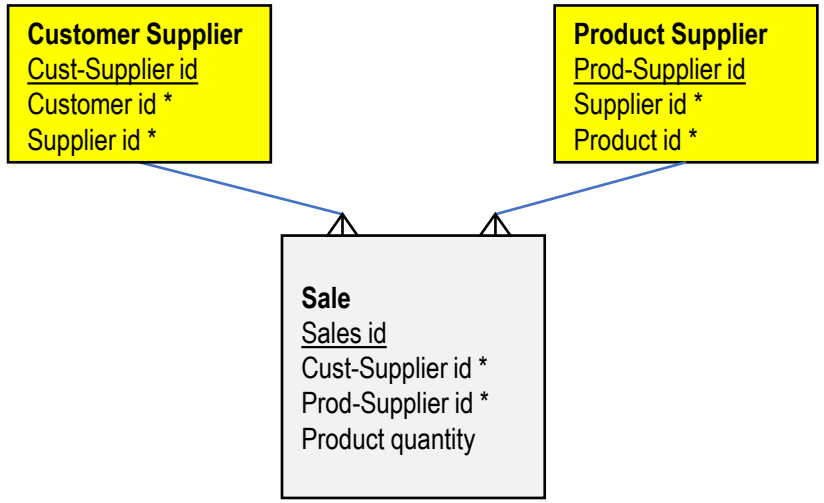
A) Compound of the two foreign keys?

OK in a logical data model?

B) Additional unique identifier?

- Natural keys are OK but can be clunky in keys cascaded from parent to child to grandchild. and using dates in keys can be tricky
- So, a common practice is to introduce single surrogate (GUID) key/ This can simplify cascaded keys, and taxonomy creation.
- But don't show the GUID to users?





Q3) Which of these is in 4th and/or 5th normal form?