Database Design and Diagramming with Dia

Your Instructor:

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Task 1: Exploring Dia

Database Design and Diagramming with Dia

For this Course:

Dia:

- Diagramming Software
- Loaded on your virtual desktop
- Free for you to download on your own computer after this course

Dia Diagrams:

- Made up of “objects”
  - Shapes
  - Lines
  - Text
  - Images

Task 2: Database Design

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Requirements Analysis:

- What is the scope (how big is this thing going to be?)
- Who are the players?
- What do they hope to use the database for?
- What are they doing right now?

Requirements Analysis:

- Collect information about:
  - Entities and attributes
  - Processes in place
  - New processes needed

Database Design:

- Collect information about:
  - Entities and attributes
  - Processes in place
  - New processes needed

Database Design:

- ERD (Entity Relationship Diagram)
  - Logical Design
- Relational Model Diagram
  - Converts the logical design into a physical design

Task 3: Meet the ERD

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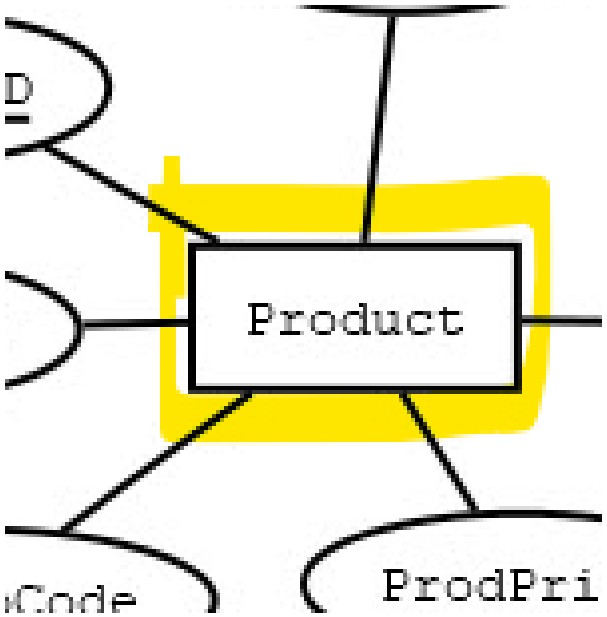
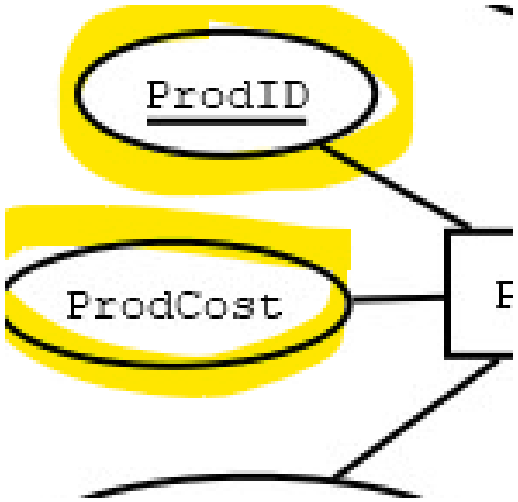
ERD Components:



- Each rectangle represents an ENTITY
  - A person, place, thing, or event important enough to have data stored to describe it

ERD Components:



- Each oval represents an ATTRIBUTE
  - A characteristic or piece of data that describes the Entity it's connected to

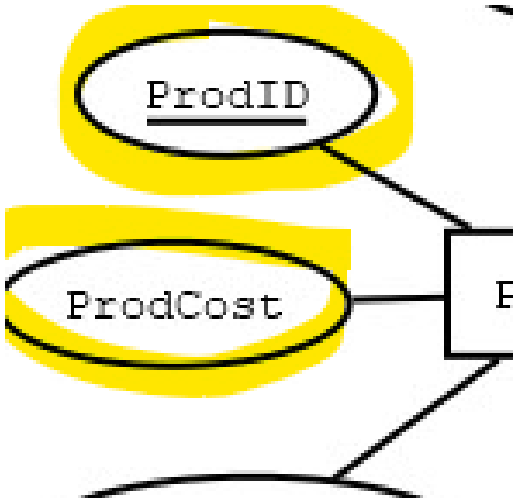
About those attributes:

- Each attribute has a single value for each instance of the Product.
  - Each individual product can have only product ID, one cost, one description, one price, one fabric code.

About those attributes:

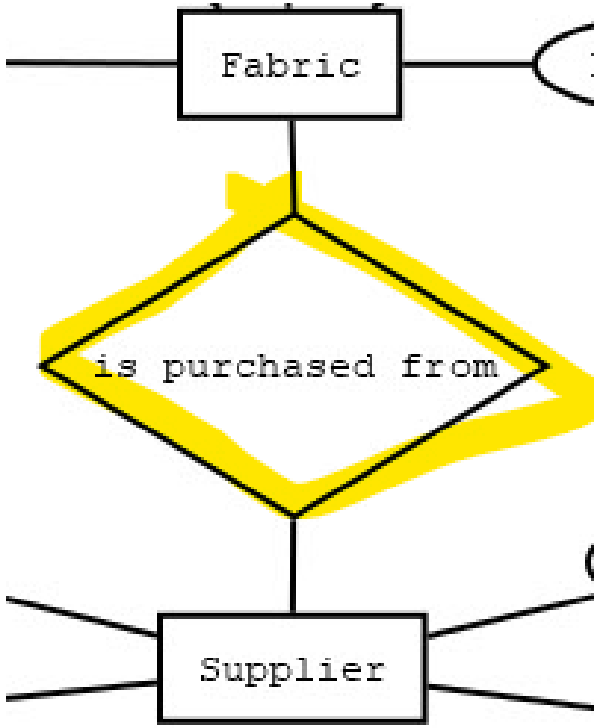
- Each entity instance must be identifiable.
  - Each student is identified by his or her studentID.

ERD Components:



The attribute that’s underlined is the primary key of the entity it is connected to.

ERD Components:



- Each diamond represents a RELATIONSHIP
  - A logical description of the interaction between two entities

Task 4: Find the Good Stuff

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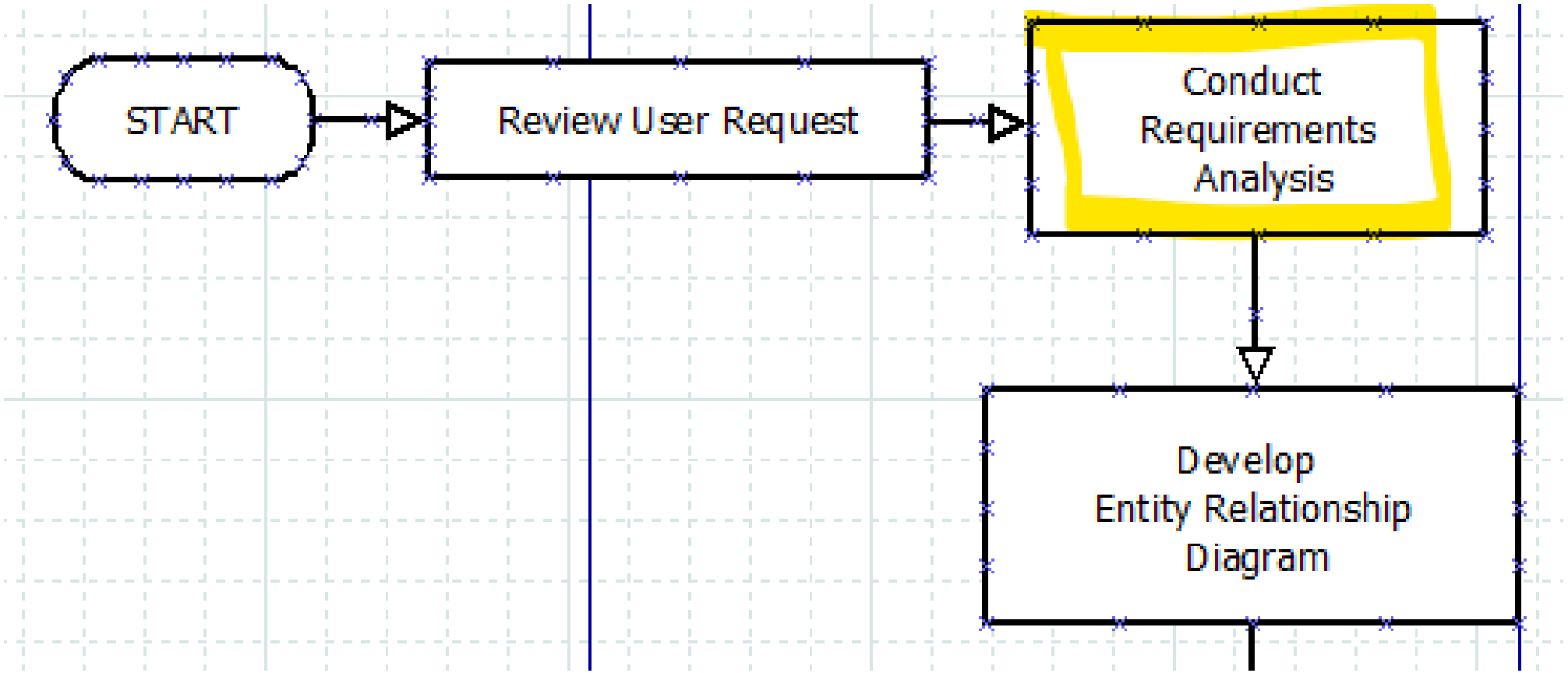
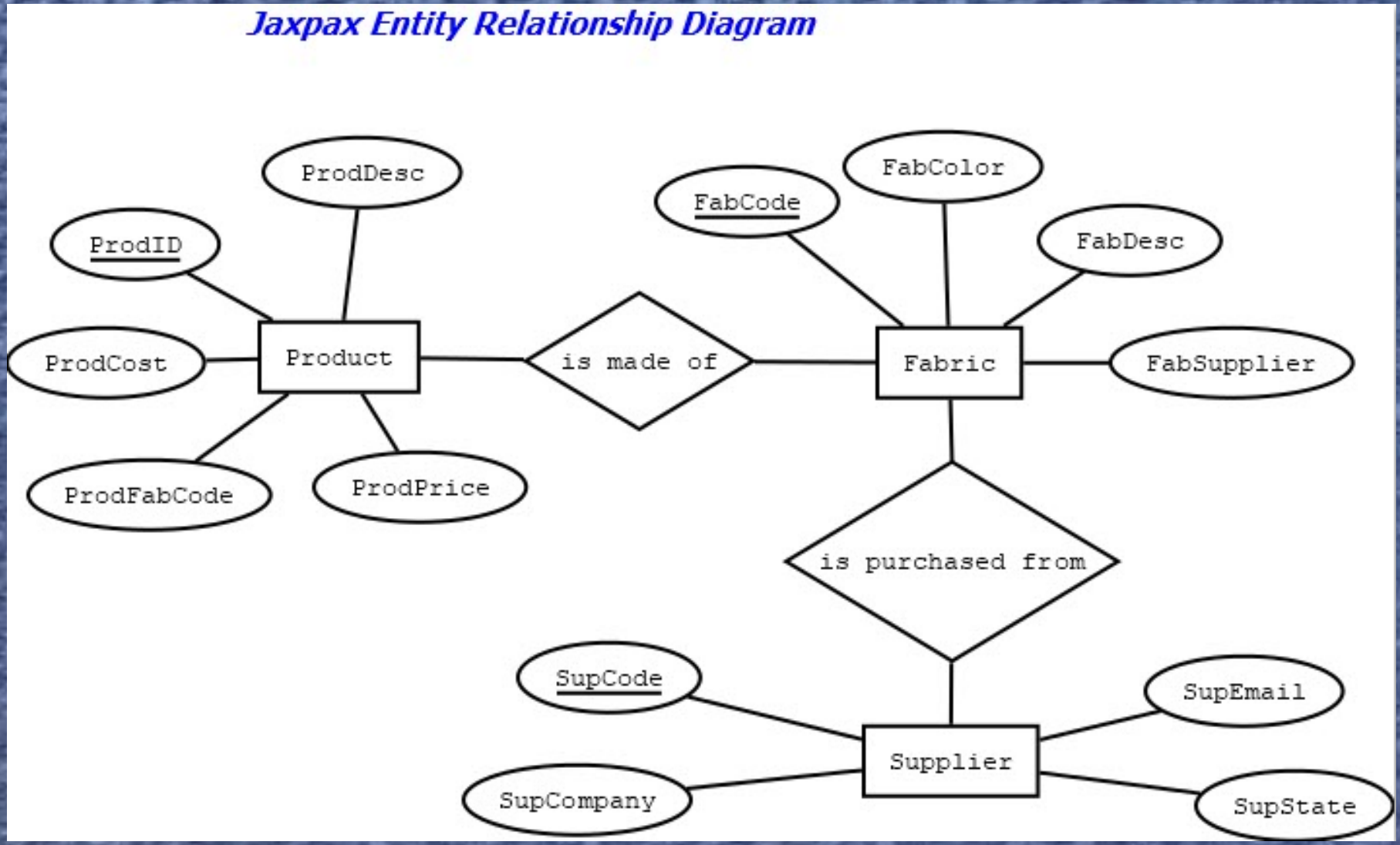
Database Design Steps:



Jaxpax ERD (so far…):



Identify:

- ENTITIES
  - Person, place, thing, activity, event, etc.
- ATTRIBUTES
  - Characteristics or descriptors of entities

Transcript:

"We use a really large spreadsheet currently to track which products our customers have ordered, when each order was placed and who we used to ship the products."

Task 5: Entities and Attributes in the ERD

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Task 6: Relationships Complete the ERD

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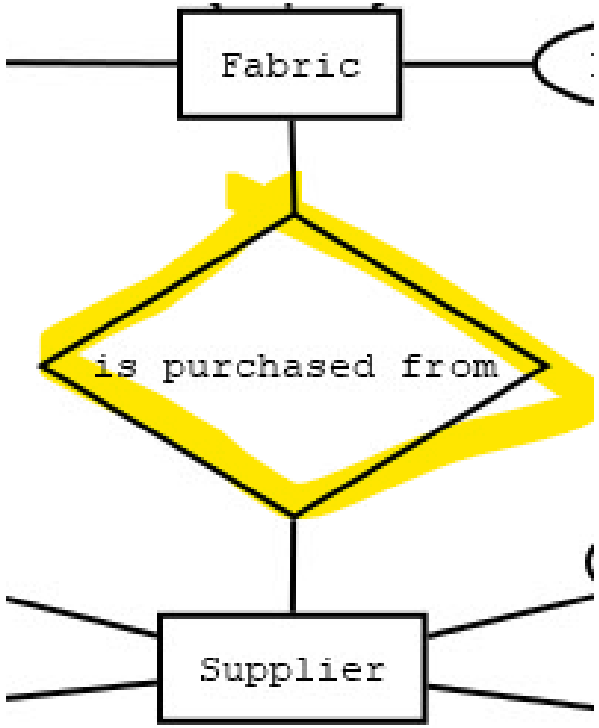
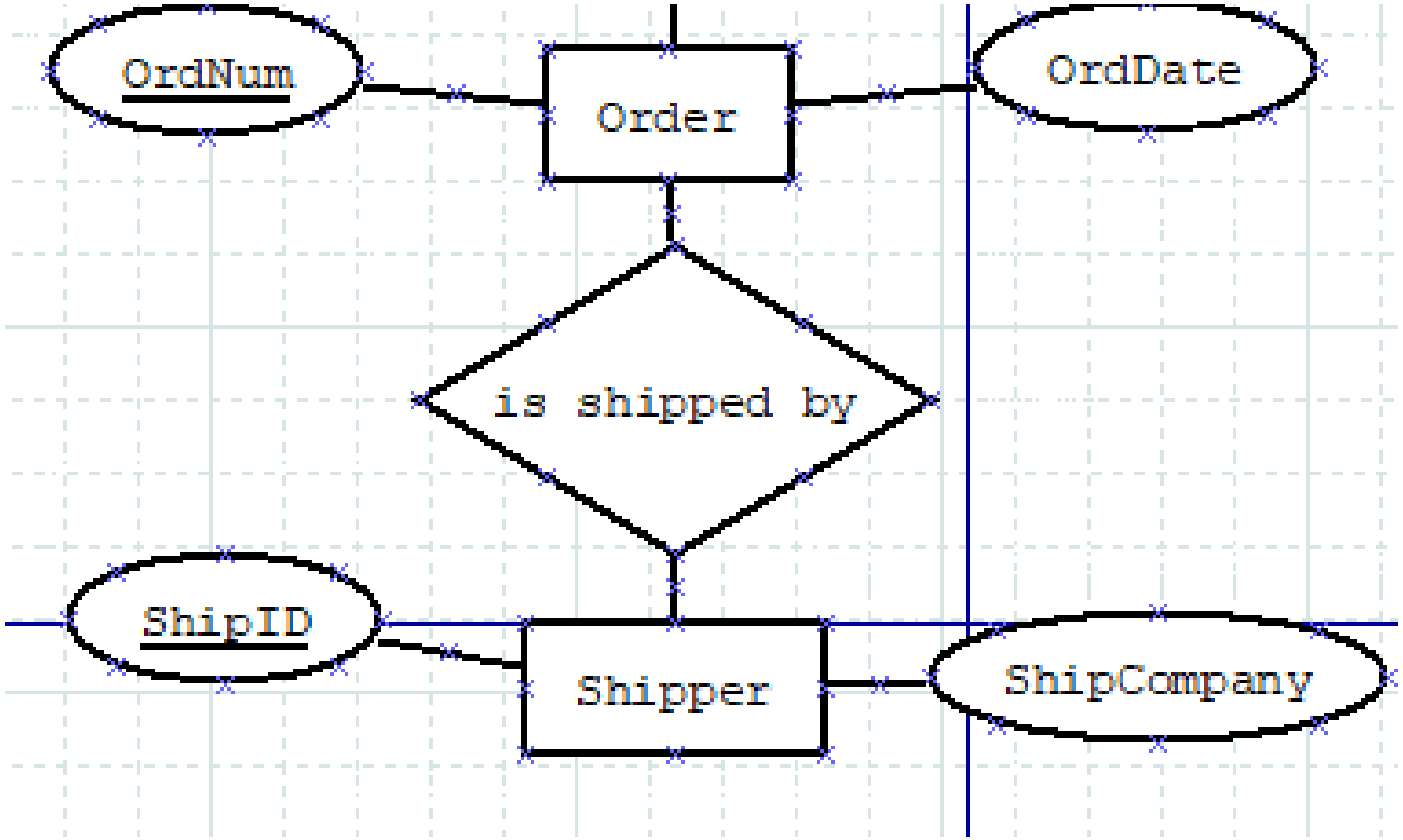
ERD Components:



- Each diamond represents a RELATIONSHIP
  - A logical description of the interaction between two entities

Add the Relationship:

An order IS SHIPPED BY a shipper.



Customers and Products:

A customer purchases a product.

How?

By placing an order for the product!

Cardinality:

How many times does an instance of one entity relate to another?

- 1:1
- 1:n
- N:n

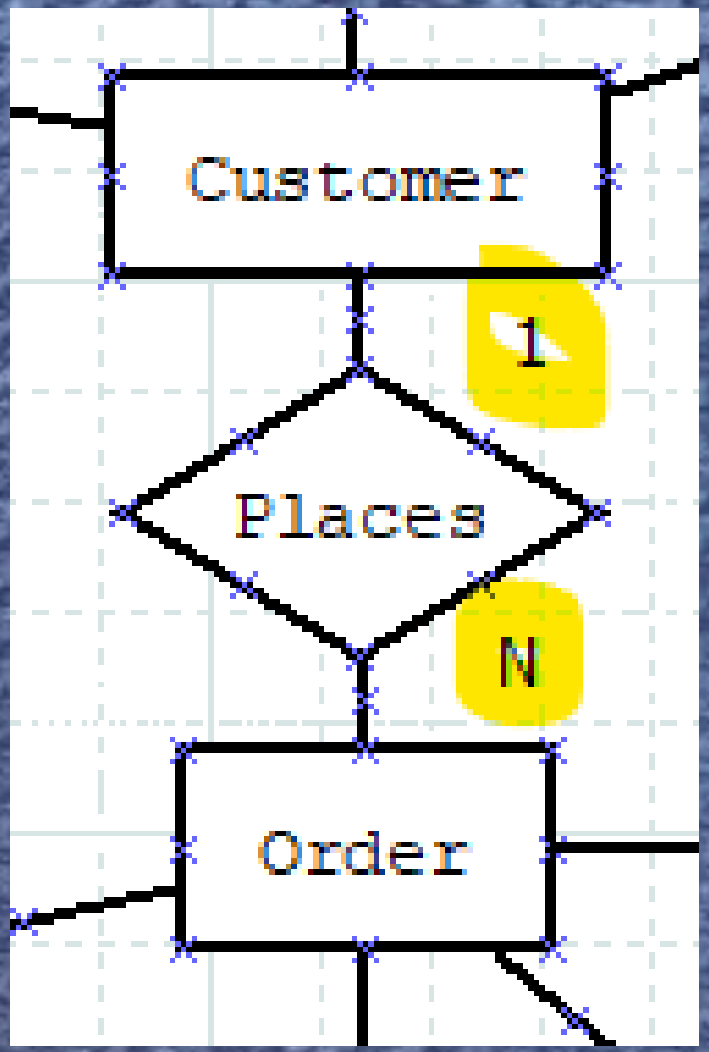
Cardinality:

Can a customer place many (more than one) orders? YES

One customer can place many orders

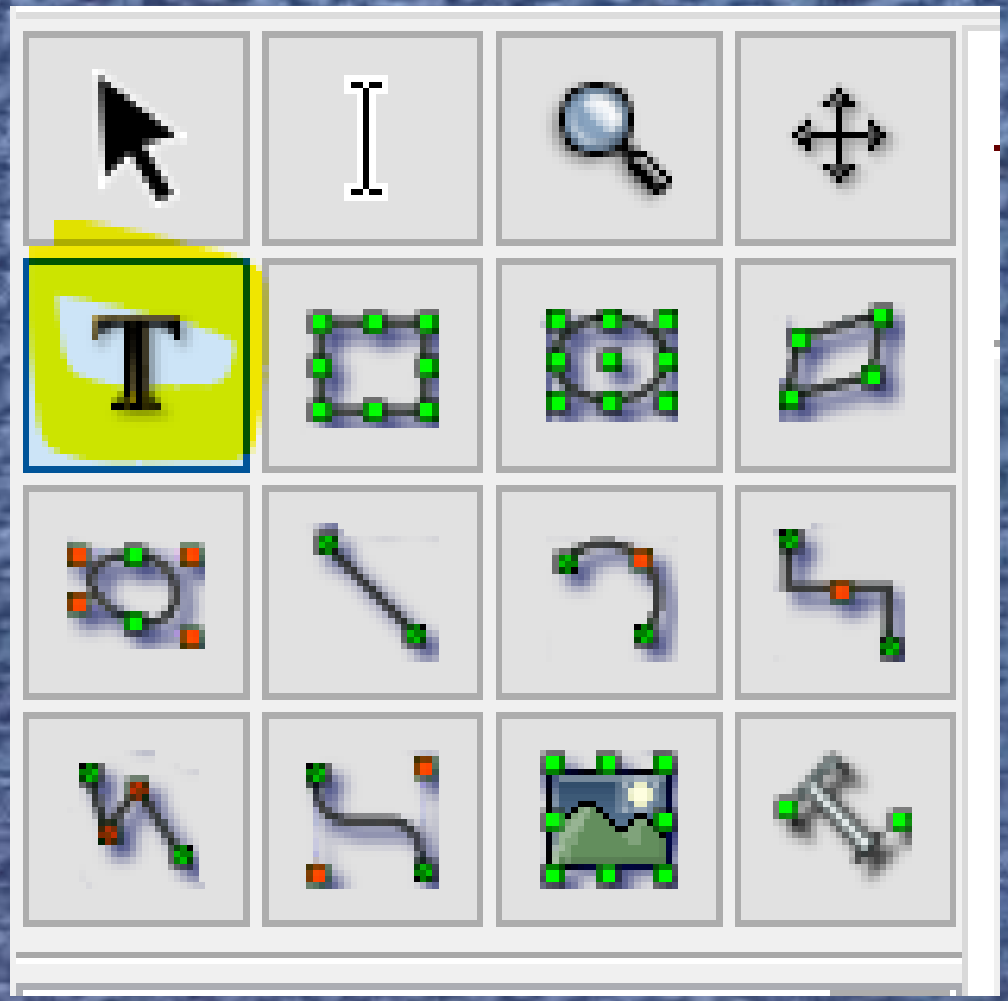
Can and order be placed by many customers? NO

Cardinality in the ERD:



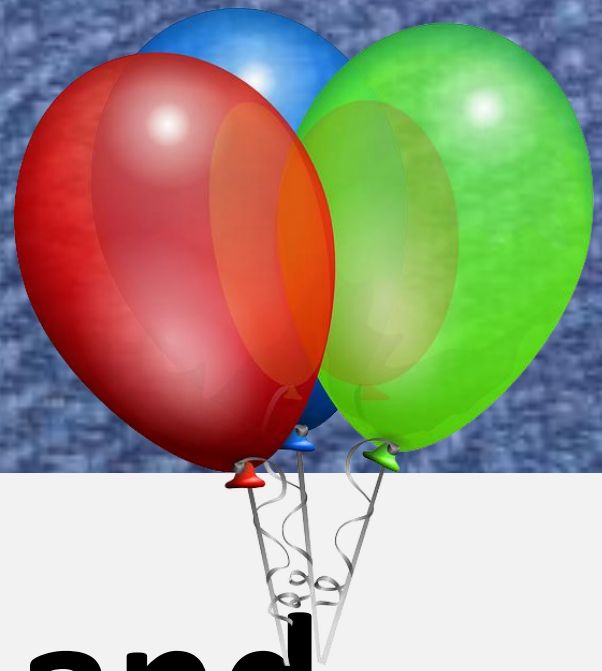
- Customer and Order have a one-to-many relationship.
- Each customer could place zero, one, or many orders.
- Each order was placed by one specific customer.

Cardinality in the ERD:



- Add the 1s and Ns with the Text Tool

Congratulations on completing



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