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### 1. What is a Primary Key in a Table?

A primary key is a column (or combination of columns) that uniquely identifies each row in a table.

➡ In Power BI, it's typically used in dimension tables to link to fact tables.

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### 2. Two Types of Table Relationships in Power BI

One-to-many (1:\*) : Most common, e.g., one Customer → many Sales.

Many-to-many (:): Used when neither table has unique values for join columns.

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### 3. How to Create a Relationship Between Two Tables

Go to Model view.

Drag the column (e.g., CustomerID) from one table to the matching column in the other.

Set the cardinality and cross-filter direction.

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### 4. What is a Star Schema?

A star schema is a data model with:

A central fact table (e.g., Sales),

Connected to multiple dimension tables (e.g., Customers, Products, Dates),

Shaped like a star .

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### 5. Which Table is Typically the Fact Table in a Sales Dataset?

✓ Sales is the fact table — it holds transactions (quantities, revenue, etc.).

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### 6. Link Sales.csv to Customers.csv using CustomerID (One-to-Many)

Make sure:

CustomerID in Customers is unique → one side.

CustomerID in Sales has duplicates → many side.

Create a relationship:

Customers[CustomerID] → Sales[CustomerID]

(One-to-Many, Single Direction).

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### 7. Why is ProductID in Sales.csv a Foreign Key?

Because it references the ProductID in the Products table, linking each sale to product details.

➡ It's a foreign key in Sales pointing to the primary key in Products.

## 9. Why Star Schema Improves Performance

Relationships are simple (1:\*), enabling efficient DAX calculations.

Minimizes joins, keeping the model clear and fast.

Encourages reusability of dimensions and consistent filtering.

## 11. Optimize a Model with Circular Relationships

Circular relationships cause ambiguity.

✓ Fixes:

Break the loop by removing unnecessary relationships.

Replace physical relationships with DAX using TREATAS(), LOOKUPVALUE(), or measures instead of columns.

Consider adding a bridge table.

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## 12. Create Role-Playing Dimension for OrderDate and ShipDate

Load the Date table once.

Duplicate it (right-click → Duplicate) for each role (e.g., Order Date, Ship Date).

Relate each copy to the appropriate column in the fact table.

Use user-friendly names like OrderDateTable, ShipDateTable.

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## 13. Handle Many-to-Many Between Customers and Products

If both tables are related via Sales:

Use the Sales table as a bridge.

Avoid direct many-to-many unless necessary.

If required, use composite models or bridge tables to manage relationships.

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## 14. Use Bidirectional Filtering Sparingly – When is it Appropriate?

✓ Only when:

You need filters to flow both ways (e.g., slicers affecting lookup and fact tables).

You're modeling many-to-many relationships with intermediate tables.

⚠ Overuse can cause performance issues or ambiguous relationships.