1. What is the difference between "Merge" and "Append" in Power Query?

- **Merge** → like SQL *JOIN*. Combines two tables **horizontally** based on a key (e.g., CustID).
- **Append** → like SQL *UNION*. Combines tables **vertically**, stacking rows on top of each other.

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2. How do you split a "Full Name" column into "First Name" and "Last Name"?

- Home → Split Column → By Delimiter (choose space).
- Example: `"John Smith"` → `"John"` | `"Smith"`

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3. What is "Pivot Columns" used for?

- Converts **rows into columns**.
- Example:

```
Product    Month    Quantity
Pen        Jan      10
Pen        Feb      12
Book       Jan      5
```

Pivot on `Month` →

```
Product    Jan    Feb
Pen        10     12
Book       5      null
```

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4. How do you undo a step in Power Query?

- In the **Applied Steps** pane (right side) → click the ✖ on the step you want to remove.

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5. What is the purpose of "Reference" vs. "Duplicate" in queries?

- **Duplicate** → makes a full copy (independent). Changes won't affect the original.
- **Reference** → creates a linked copy (dependent). If the original changes, reference updates too.

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6. Merge Orders.csv and Customers.xlsx on CustID (inner join).

1. Load both queries.
2. Home → Merge Queries → Choose `CustID` in both → Join Kind = Inner.

M-code example:

```
= Table.NestedJoin(Orders, {"CustID"}, Customers, {"CustID"}, "CustomerData",
JoinKind.Inner)
```

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7. Pivot the Product column to show total Quantity per product.

- Select `Product` → Transform → Pivot Column → Values Column = `Quantity` → Aggregation = Sum.

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8. Append two tables with identical columns (Orders_Jan + Orders_Feb).

- Home → Append Queries → Select both.

M-code example:

```
= Table.Combine({Orders_Jan, Orders_Feb})
```

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9. Use "Fill Down" to replace nulls in the Email column with the previous value.

- Select `Email` column → Transform → Fill → Down.

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10. Extract the domain (e.g., "example.com") from the Email column.

- Transform → Extract → Text After Delimiter (`@`).

M-code:

```
= Table.TransformColumns(Data, {{"Email", each Text.AfterDelimiter(_, "@")}})
```

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11. Write M-code to merge queries dynamically based on a parameter (e.g., JoinType = "Inner").

```
let
    JoinType = "Inner",
    JoinKindDynamic = if JoinType = "Inner" then JoinKind.Inner else
JoinKind.LeftOuter,
    MergedTable = Table.NestedJoin(Orders, {"CustID"}, Customers, {"CustID"},
"CustomerData", JoinKindDynamic)
in
    MergedTable
```

12. Unpivot a table with columns like "Jan_Sales," "Feb_Sales".

- Select those columns → Transform → Unpivot.

Before:

```
Product    Jan_Sales    Feb_Sales
Pen        10           12
Book       5            6
```

After:

```
Product    Month        Sales
Pen        Jan_Sales    10
Pen        Feb_Sales    12
Book       Jan_Sales    5
Book       Feb_Sales    6
```

13. Handle errors in a custom column (e.g., division by zero).

```
= Table.AddColumn(Data, "SafeDivision", each try [Value1]/[Value2] otherwise
null)
```

14. Create a function in Power Query to clean phone numbers (e.g., remove dashes).

```
CleanPhone = (phone as text) =>
    Text.Select(phone, {"0".."9"})  // keeps only numbers
```

Usage:

```
= Table.TransformColumns(Data, {{"Phone", CleanPhone}})
```

15. Optimize a query with 10+ steps—identify bottlenecks and simplify.

- Combine steps (e.g., multiple filters → 1 filter step).
- Remove columns early if not needed.
- Avoid expanding too many nested tables before filtering.
- Use `Table.Buffer()` only if performance issues with query folding.
- Push transformations back to the source (SQL database, etc.) where possible.