

AdventureWorks (2022) — String Functions Practice Problems

This set covers beginner → advanced string-function challenges using the AdventureWorks2022 database. No solutions are included unless you request them.

Beginner Level

1. Extract First Name Initial

Return the **first letter** of each person's first name from `Person.Person`.

2. Uppercase Territory Names

Convert all territory names from `Sales.SalesTerritory` to **UPPERCASE**.

3. Clean Extra Spaces

Trim leading/trailing spaces from `AddressLine1` in `Person.Address`.

4. Find Names Containing "son"

Retrieve all people whose last name contains the substring `son` (case-insensitive).

5. Email Domain Extraction

From `Person.EmailAddress`, extract the email domain (everything after `@`).

Intermediate Level

6. Proper Case Names

Convert first and last names to "Proper Case" (first letter uppercase, rest lowercase).

7. Build Full Address Line

Concatenate `AddressLine1`, `City`, and `PostalCode` into a single readable address.

8. Mask Credit Card Numbers

In `Sales.CreditCard`, display only the last 4 digits of the card number, masking the rest.

9. Extract Product Size Unit

From `Production.Product`, extract the unit part of the `Size` field when it contains text like `50 CM` or `20 L`.

10. Validate Phone Numbers

Return phone numbers from `Person.PersonPhone` that contain exactly **10 digits** after removing special characters.

Advanced Level

11. Parse Product Numbers

Split the `ProductNumber` (e.g., `BK-M68B-42`) into its components using string functions.

12. Standardize Territory Codes

Format all territory codes as: `TERR-<uppercase-first-three-letters>` from `Sales.SalesTerritory.Name`.

13. Classify Cities by First Letter

Group cities from `Person.Address` by their **starting letter** and return counts for each.

14. Detect Abbreviations in Product Names

Identify product names containing uppercase sequences (like "XL", "GPS", "HD").

15. Generate URL Slugs for Product Names

Turn product names into web-friendly slugs:

- lowercase
- spaces replaced with hyphens
- remove non-alphanumeric characters

16. Extract Model Series

From `ProductNumber`, extract the middle section (e.g., `M68B` from `BK-M68B-42`).

17. Fuzzy Product Search Using SOUNDEX

Find products whose names sound similar to a given input term (e.g., "helmet").

18. Detect Product Colors Embedded in Name

Identify colors (e.g., red, black, silver) mentioned inside product names.

19. Reverse Customer Names

Reverse each customer's full name using string functions only.

20. Generate Hashed Customer Identifier

Create a SHA hash (using `HASHBYTES`) from concatenation of first name, last name, and business entity ID.
