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What is a Regular Expression?

- A way of describing data (text)

- Based on a set of accepted and standardized patterns

- Introduced in 1951

  - Incorporated into Unix

  - Led to *grep*

  - *"Global search for Regular Expressions and Print lines"*

- PowerShell supports the full regular expression library from .NET

Why Regular Expressions

- Validating data

- Finding data

- Fixing data
    - Splitting
    - Replacing

Patterns

- (202) 555-9876
- 192.168.2.3
- \\server01\public

Patterns

- \(\d{3}\)\s\d{3}-\d{4}

- (\d{1,3}\.){3}\d{1,3}

- \\\\\w+\\\w+

Regular Expressions are Classy

Pattern	Match
\w	Any word character, including numbers
\d	Any digit
\D	Any non-digit
\s	Any whitespace
\W	Any non-word character
\S	Any non-whitespace

Case-Sensitive

With Qualifiers

Qualifier	Description
*	Match 0 or more of the preceding pattern
+	Match 1 or more of the preceding pattern
?	Match 0 or 1 instance of the preceding pattern
{n}	Match *exactly* N number of the preceding pattern
{n,m}	Match *at least* N number of the preceding pattern and *no more* than M number
{n,}	Match *at least* N number of the preceding pattern

Special Characters

Character	Description
.	Any single character
[xyz]	Match at least one of the characters in the brackets
[a-zA-Z]	Match at least one of the characters in the range. Case sensitive.
[^xyz]	Match any character *except* what is in brackets
^	Match the beginning characters
$	Match the ending characters
\	The regular expression escape character

Show Me

Regular Expression "Gotchas"

- Comparisons are True/False

- Watch the float
  - How exact do you need to be?

- Test for known failures

- You still might need to validate

- You have to know your data
  - It should be predictable
  - It should be consistent

Advanced Stuff

- Look ahead and look behind
  - (?<=\d)\s\w+\.\w+

- Optional matches
  - \d{3}(\-[a-z]+)?

- Regex Options
  - Configuring case
  - Multiline search

- More with the [regex] type accelerator
  - [regex]$rx = "[a-z]{1}\.\w{2,7}@company.com"

Resources

Help about_regular_expressions

Help about_comparison_operators

Help about_wildcards

Resources

https://www.regular-expressions.info

https://rubular.com

https://regex101.com

https://pluralsight.pxf.io/psregex

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Thank you.