5. QUALIFICATIONS

Using Curly Braces

Introduction

Another "qualification metacharacter" is the curly braces { } characters, which are commonly also known as braces, or curly brackets. They are used to specify the number of instances of a character or grouping of characters. ***The Curly Braces metacharacters are a repetition qualification that specifies the number of instances of the preceding character (or grouping) in a Regular Expression***.

Why Use the Curly Braces?

If we know the number of times a character, or a group of characters is going to repeat, or even if we know a minimum and/or maximum number of occurrences of a character or grouping, we should use the Curley Braces. We can use it in four ways, to indicate that the preceding character (or grouping) appears the following times:

{num}	Appears exactly num times.
{min,}	Appears at least min times.
{,max}	Appears up to max times.
{min,max}	Appears between min and max times.

For example, if we are looking for the phrase "aaaaa", we can do:

```
RegEx_Pattern = "a{5}"
```

If we are trying to match no less than 4 "a" characters in a row, we can do:

```
RegEx_Pattern = "a{4,}"
```
And this will match with "aaaa", "aaaaa", "aaaaaa", etc., but not "a", "aa" or "aaa".

If we are trying to match no more than 4 "a" characters in a row, we can do:

```
RegEx_Pattern = "a{,4}"
```
And this will match with "a", "aa", "aaa", and "aaaa".

If we aren't sure exactly how many times "a" will appear in a row, but we know it will be at least 2 times, but no more than 5 times, we can do:

```
RegEx_Pattern = "a{2,5}"
```
And this will match with "aa", "aaa", "aaaa" and "aaaaa", but nothing else.

Matching the Curly Braces Character

If we are searching for the Curly Braces characters (not the metacharacter), then mathematically we represent the Open Curly Brace as follows: \{

and for the Close Bracket we can mathematically represent it as follows: \}

However, most programming languages prefer we state the Open Curly Brace as:

```
RegEx_Pattern = "\\{"
```

and most programming languages prefer we state the Close Curly Brace as:

```
RegEx_Pattern = "\\}"
```

And this will allow us to locate Curly Braces in a String.

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