Using Quantifiers

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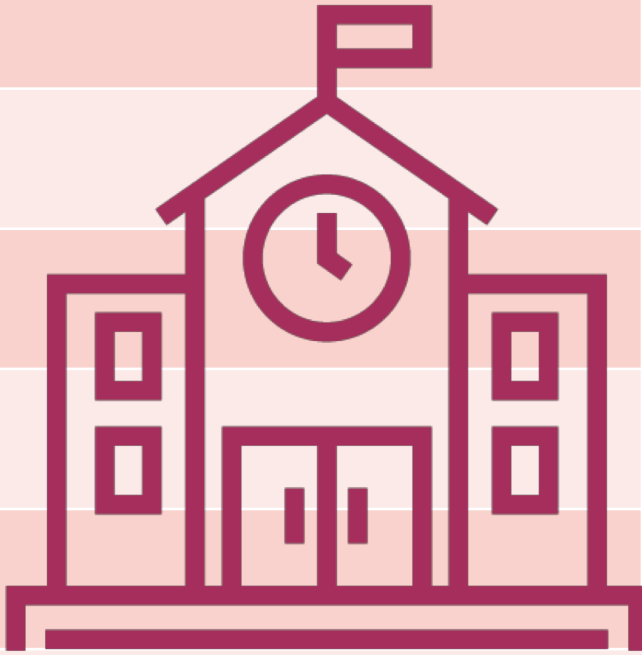
Introduction

Quantifiers

- **Used to specify a fixed or variable repeat count to match a set of characters**
  - Greedy
  - Reluctant
  - Possessive

Quantifier	Meaning	Example
*	0 or more	\d*
+	1 or more	\s+
?	0 or 1	\w?
{m}	Exactly m reps	\w{3}
{m, }	At least m reps	\s{2, }
{m, n}	From m to n reps	\d{3,5}
{0, n}	At most n reps	\s{0 ,5}

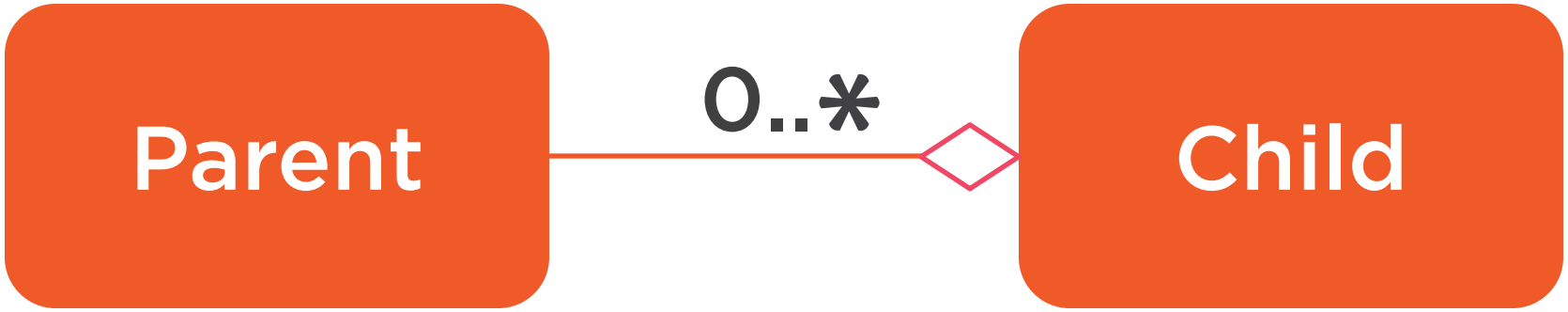


* Quantifier- Zero or More

Default Quantifier- Exactly One

Omit any quantifier after the character set

UML Diagram



Parent contains 0 or more instances of Child

+ Quantifier- One or More

+ means positive...
greater than zero

? Quantifier- Zero or One

? Means question...
Is it 1 (yes)?
Or 0 (no)?

```
<html>
  <body>
    …
    <a href=www.pluralsight.com>
      Pluralsight
    </a>
    …
</html>
```

Greedy Backtracking

```
.*TAIL
```

```
WAG THE TAIL NOT THE DOG AND THE TAIL
```

Passive Backtracking

NOT THE DOG AND THE TAIL

Quantifier Mode	Meaning	Example
(default) Greedy	Match as much as possible	\d* - as many digits as possible
? Lazy	Match as little as possible	\s+? - As few spaces as possible
+ Possessive	Like Greedy but no back off	\w*? – As many word characters as possible, but no back-off

Possessive Mode

Also “Greedy”
No back-off
Optimized performance
Test carefully

Summary

Quantifiers

- * = 0 or more
- + = 1 or more
- ? = 0 or 1
- {m,n} at least m and at most n

- **Quantifier modes:**
  - Greedy
  - Reluctant
  - Possessive
- **Back-off**