

For Aptech Centre Use Only

Session 2

Matching Patterns in JavaScript

Objectives

By the end of this session, students will learn to:

- ▶ Explain Regular Expressions in JavaScript and its uses
- ▶ Identify RegExp object and matching patterns in JavaScript
- ▶ Describe the uses of modifiers, brackets and Metacharacters
- ▶ Describe properties and methods of RegExp in JavaScript

Overview of Regular Expressions

Regular Expressions (RegExp):

- ▶ Used to search specific data in a text based on a pattern.
- ▶ Consists of pattern and optionally flags.

Benefits are:

Used to find specific data from a code, spreadsheets, log files, and documents.

Retrieves all the search results in one go, minimizing effort and time.

Formulates RegExp with a special syntax where developers can search text, replace substring, and extract information from a string.

RegExp Objects: Pattern and Matcher

There are two classes for creating RegExp Objects: Pattern and Matcher.

Pattern

- Is a keyword that needs to be searched in a document or code.
- Can be a string of characters or just one character.
- Has no constructors.

Matcher

- Is used after creating a Pattern.
- Is used to match the pattern against a sequence of characters.
- Is created by the `matcher ()` method.

RegExp Objects: Creation

Two ways to define RegExp are:

1. Instantiating a new RegExp object using the constructor.
2. Using the RegExp Literal Form.

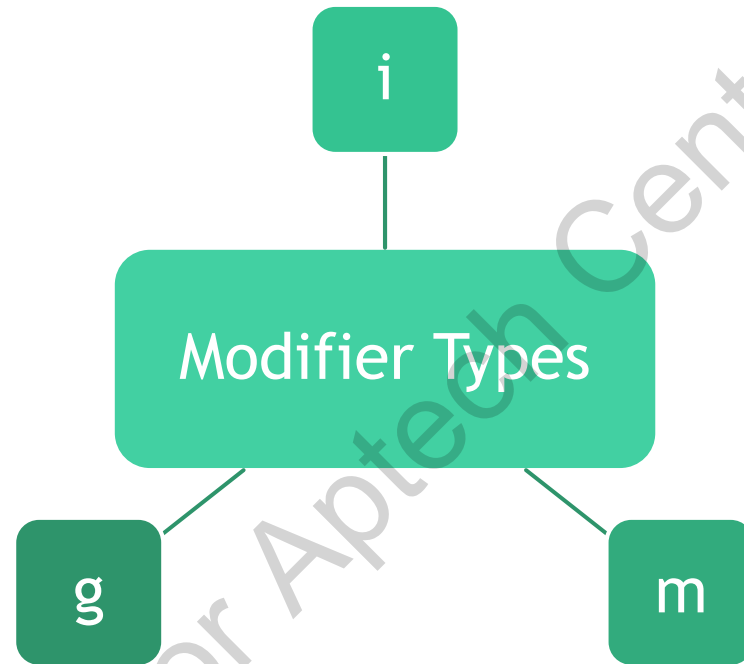
RegExp Objects

- ▶ **Object Literal:** A string that has a 'name: value' separated by a comma and enclosed in curly brackets.
- ▶ **Methods:** Methods match, extract, and replace a string.
- ▶ **Reg Flags:** Additional flags specified to control the use of Patterns.

| RegExp Flags | Description |
|--------------|--|
| g | Searches until method returns null. |
| i | Performs case in-sensitive search. |
| m | Uses ^ and \$ to match the beginning and end of each line. |
| u | Interprets Unicode points. |

Modifiers

Modifiers perform case insensitive and global searches.



Brackets

Brackets are used to find a variety of characters.

[abc]

[^abc]

[0-9]

[^0-9]

(x|y)

Metacharacters

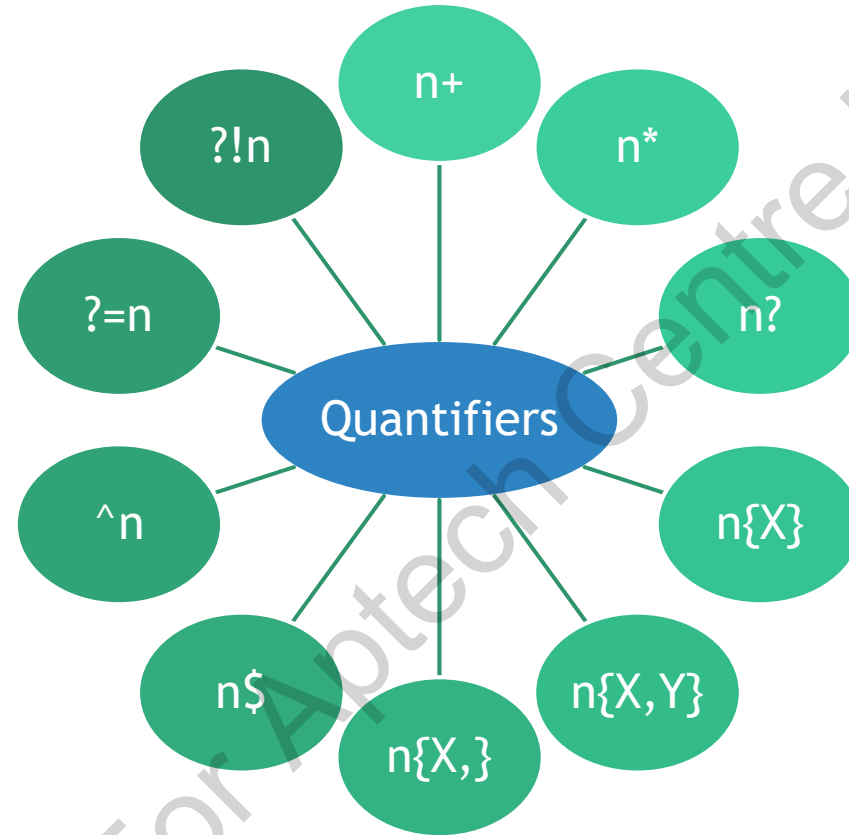
Metacharacters are characters that have a special meaning in RegExp.

Example of Metacharacters:

| | | | |
|----|----|----|-------|
| . | \s | \n | \xxx |
| \w | \S | \f | \xdd |
| \W | \b | \t | \uxxx |
| \d | \B | \w | |
| \D | \0 | \v | |

Quantifiers

Quantifiers help to specify the number of occurrences of a particular pattern.



RegExp Object: Properties

| Name | Description | Version |
|--------------|--|----------------|
| constructor | Returns the function that creates the RegExp objects' prototype. | JavaScript 1.1 |
| Global | Determines to test with regular expression. | JavaScript 1.2 |
| ignoreCase | Specifies the case is to be ignored during pattern matching in a string. | JavaScript 1.2 |
| Input | String against which a regular expression is matched. | JavaScript 1.2 |
| lastIndex | Specifies the starting index for the next match. | JavaScript 1.2 |
| lastMatch | Indicates the last matched characters. | JavaScript 1.2 |
| Multiline | Specifies if a multiline search is required. | JavaScript 1.2 |
| Prototype | Adds new properties and methods to all instances of a class. | JavaScript 1.1 |
| rightContext | Substring following the most recent match. | JavaScript 1.2 |
| Source | Contains the search text of the pattern. | JavaScript 1.2 |

RegExp Object: Methods

| Name | Description | Version |
|----------|---|----------------|
| Compile | Executes the search for matching a specified string | JavaScript 1.2 |
| Exec | Executes a search for matching its string parameter | JavaScript 1.2 |
| Test | Implements a search for a match between a regular expression and a specified string | JavaScript 1.2 |
| toSource | Used to get a string representation of the object | JavaScript 1.3 |
| toString | Represents the source code of the specified object | JavaScript 1.1 |

Summary

- ▶ Regular Expression or RegExp is used for searching specific data in a text.
- ▶ The RegExp object has predefined properties. There are two classes involved in creating a RegExp object: Pattern and Matcher.
- ▶ The RegExp has methods to match, extract, and replace a string.
- ▶ RegExp Flags match against other strings and additional flags can be specified to control the use of Patterns.
- ▶ Modifiers are used to perform case insensitive and global searches in RegExp.
- ▶ Brackets are used to find a range of characters.
- ▶ Metacharacters are characters with a special meaning in RegExp.
- ▶ Quantifiers help to specify number of occurrences of a particular pattern.