|  |  |
| --- | --- |
| **.net framework** | **C:\Users\handans\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\03FYTM1T\MC900292572[1].wmf** |
| **regular expressions** | |

**single characters**

|  |  |
| --- | --- |
| Use | To match any character |
| [*set*] | In that set |
| [^*set*] | Not in that set |
| [*a–z*] | In the *a-z* range |
| [^*a–z*] | Not in the a-z range |
| . | Any except \n (new line) |
| \*char* | Escaped special character |

**control characters**

|  |  |  |
| --- | --- | --- |
| Use | To match | Unicode |
| \t | Horizontal tab | \u0009 |
| \v | Vertical tab | \u000B |
| \b | Backspace | \u0008 |
| \e | Escape | \u001B |
| \r | Carriage return | \u000D |
| \f | Form feed | \u000C |
| \n | New line | \u000A |
| \a | Bell (alarm) | \u0007 |
| \c *char* | ASCII control character | − |

**Non-ascii codes**

|  |  |
| --- | --- |
| Use | To match character with |
| \*octal* | 2-3 digit octal character code |
| \x *hex* | 2-digit hex character code |
| \u *hex* | 4-digit hex character code |

**character classes**

|  |  |
| --- | --- |
| Use | To match character |
| \p{*ctgry*} | In that Unicode category or block |
| \P{*ctgry*} | Not in that Unicode category or block |
| \w | Word character |
| \W | Non-word character |
| \d | Decimal digit |
| \D | Not a decimal digit |
| \s | White-space character |
| \S | Non-white-space char |

**quantifiers**

|  |  |  |
| --- | --- | --- |
| Greedy | Lazy | Matches |
| \* | **\*?** | 0 or more times |
| + | **+?** | 1 or more times |
| ? | **??** | 0 or 1 time |
| {*n*} | **{*n*}?** | Exactly *n* times |
| {*n,*} | **{*n,*}?** | At least *n* times |
| {*n,m*} | **{*n,m*}?** | From *n* to *m* times |

**anchors**

|  |  |
| --- | --- |
| Use | To specify position |
| ^ | At start of string or line |
| \A | At start of string |
| \z | At end of string |
| \Z | At end (or before \n at end) of string |
| $ | At end (or before \n at end) of string or line |
| \G | Where previous match ended |
| \b | On word boundary |
| \B | Not on word boundary |

**groups**

|  |  |
| --- | --- |
| Use | To define |
| (*exp*) | Indexed group |
| (?<*name*>*exp*) | Named group |
| (?<*name1-name2*>*exp*) | Balancing group |
| (?:*exp*) | Noncapturing group |
| (?=*exp*) | Zero-width positive lookahead |
| (?!*exp*) | Zero-width negative lookahead |
| (?<=*exp*) | Zero-width positive lookbehind |
| (?<!*exp*) | Zero-width negative lookbehind |
| (?>*exp*) | Non-backtracking (greedy) |

**inline options**

|  |  |
| --- | --- |
| Option | Effect on match |
| i | Case-insensitive |
| m | Multiline mode |
| n | Explicit (named) |
| s | Single-line mode |
| x | Ignore white space |

|  |  |
| --- | --- |
| Use | To |
| (?imnsx-imnsx) | Set or disable the specified options |
| (?imnsx-imnsx:*exp*) | Set or disable the specified options within the expression |

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**backreferences**

|  |  |
| --- | --- |
| Use | To match |
| \*n* | Indexed group |
| \k<*name*> | Named group |

**alternation**

|  |  |
| --- | --- |
| Use | To match |
| *a* |*b* | Either *a* or *b* |
| (?(*exp*)  *yes* | *no*) | *yes* if *exp* is matched *no* if *exp* isn't matched |
| (?(*name*)  *yes* | *no*) | *yes* if *name* is matched *no* if *name* isn't matched |

**substitution**

|  |  |
| --- | --- |
| Use | To substitute |
| $*n* | Substring matched by group number *n* |
| ${*name*} | Substring matched by group *name* |
| $$ | Literal $ character |
| $& | Copy of whole match |
| $` | Text before the match |
| $' | Text after the match |
| $+ | Last captured group |
| $\_ | Entire input string |

**comments**

|  |  |
| --- | --- |
| Use | To |
| (?# *comment*) | Add inline comment |
| # | Add x-mode comment |

For detailed information and examples, see **http://aka.ms/regex**

To test your regular expressions, see **http://regexlib.com/RETester.aspx**

**supported unicode categories**

|  |  |
| --- | --- |
| Category | Description |
| Lu | Letter, uppercase |
| LI | Letter, lowercase |
| Lt | Letter, title case |
| Lm | Letter, modifier |
| Lo | Letter, other |
| L | Letter, all |
| Mn | Mark, nonspacing combining |
| Mc | Mark, spacing combining |
| Me | Mark, enclosing combining |
| M | Mark, all diacritic |
| Nd | Number, decimal digit |
| Nl | Number, letterlike |
| No | Number, other |
| N | Number, all |
| Pc | Punctuation, connector |
| Pd | Punctuation, dash |
| Ps | Punctuation, opening mark |
| Pe | Punctuation, closing mark |
| Pi | Punctuation, initial quote mark |
| Pf | Puntuation, final quote mark |
| Po | Punctuation, other |
| P | Punctuation, all |
| Sm | Symbol, math |
| Sc | Symbol, currency |
| Sk | Symbol, modifier |
| So | Symbol, other |
| S | Symbol, all |
| Zs | Separator, space |
| Zl | Separator, line |
| Zp | Separator, paragraph |
| Z | Separator, all |
| Cc | Control code |
| Cf | Format control character |
| Cs | Surrogate code point |
| Co | Private-use character |
| Cn | Unassigned |
| C | Control characters, all |

For named character set blocks (e.g., Cyrillic), search for "supported named blocks" in the MSDN Library.

**regular expression operations**

Class: System.Text.RegularExpressions.Regex

**Pattern matching with Regex objects**

|  |  |
| --- | --- |
| To initialize with | Use constructor |
| Regular exp | Regex(String) |
| + options | Regex(String, RegexOptions) |
| + time-out | Regex(String, RegexOptions,  TimeSpan) |

**Pattern matching with static methods**

Use an overload of a method below to supply the regular expression and the text you want to search.

**Finding and replacing matched patterns**

|  |  |
| --- | --- |
| To | Use method |
| Validate match | Regex.IsMatch |
| Retrieve single match | Regex.Match (first)  Match.NextMatch (next) |
| Retrieve all matches | Regex.Matches |
| Replace match | Regex.Replace |
| Divide text | Regex.Split |
| Handle char escapes | Regex.Escape  Regex.Unescape |

**Getting info about regular expression patterns**

|  |  |
| --- | --- |
| To get | Use Regex API |
| Group names | GetGroupNames GetGroupNameFromNumber |
| Group numbers | GetGroupNumbers  GetGroupNumberFromName |
| Expression | ToString |
| Options | Options |
| Time-out | MatchTimeOut |
| Cache size | CacheSize |
| Direction | RightToLeft |