ECE 325 OBJECT-ORIENTED SOFWARE DES (LEC A1 Fa18)

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Assignment 2: Java Regular Expressions

·Source code: *CookieTest.java*

·Due date: **Thursday 27th of September (5:00 pm)**. A working copy of your solution must be submitted to eClass before this date.

Valid or invalid that is the question?

Web applications have several challenges; perhaps the most serious being the difficultly in maintaining state information. A common solution to this issue is to use cookies as a mechanism to encode and distribute this information. However, as the cookie passes from a server to a client and back neither side can assume that the cookie is valid.

You are required to produce a Java program, which uses the regular expression to answer the question: "Is this cookie (supplied as an input) valid or not?"

For this assignment, a valid cookie is defined by these subset of rules found in *RFC 6265 (HTTP State Management Mechanism)*, along with RFC 2616, RFC 1123, and RFC 1034. Note that only the rules in this assignment have to be implemented. A fully functional cookie checker is not required.

```
set-cookie-header = "Set-Cookie:" SP set-cookie-string
set-cookie-string = cookie-pair *( ";" SP cookie-av )
cookie-pair       = cookie-name "=" cookie-value
cookie-name       = token
token             = 1*<any CHAR except CTLs or separators>
separators        = "(" | ")" | "<" | ">" | "@"
                  | "," | ";" | ":" | "\" | <">
                  | "/" | "[" | "]" | "?" | "="
                  | "{" | "}" | SP | HT
cookie-value      = *cookie-octet / ( DQUOTE *cookie-octet DQUOTE )
cookie-octet      = %x21 / %x23-2B / %x2D-3A / %x3C-5B / %x5D-7E
                       ; US-ASCII characters excluding CTLs,
                       ; whitespace DQUOTE, comma, semicolon,
                       ; and backslash
cookie-av         = expires-av / max-age-av / domain-av /
                     path-av / secure-av / httponly-av
expires-av        = "Expires=" rfc1123-date
rfc1123-date      = wkday "," SP date1 SP time SP "GMT"
date1             = 2DIGIT SP month SP 4DIGIT
                       ; day month year (e.g., 02 Jun 1982)
time              = 2DIGIT ":" 2DIGIT ":" 2DIGIT
                       ; 00:00:00 - 23:59:59
wkday             = "Mon" | "Tue" | "Wed"
                  | "Thu" | "Fri" | "Sat" | "Sun"
month             = "Jan" | "Feb" | "Mar" | "Apr"
                  | "May" | "Jun" | "Jul" | "Aug"
                  | "Sep" | "Oct" | "Nov" | "Dec"
max-age-av        = "Max-Age=" non-zero-digit *DIGIT
non-zero-digit    = %x31-39
                       ; digits 1 through 9
domain-av         = "Domain=" domain-value
domain-value      = <domain>
path-av           = "Path=" path-value
path-value        = <any CHAR except CTLs or ";">
secure-av         = "Secure"
httponly-av       = "HttpOnly"

<domain>        ::= <subdomain> | "." <subdomain> | ""
<subdomain>     ::= <label> | <subdomain> "." <label>
<label>         ::= <letter> [ [ <ldh-str> ] <let-dig> ]
<ldh-str>       ::= <let-dig-hyp> | <let-dig-hyp> <ldh-str>
<let-dig-hyp>   ::= <let-dig> | "-"
<let-dig>       ::= <letter> | <digit>
<letter>        ::= any one of the 52 alphabetic characters A through Z in upper case and
<digit>         ::= any one of the ten digits 0 through 9
```

Hint: to understand the definition, you may need *Augmented Backus-Naur Form*.

Examples/Testcases

Here are the examples of cookies (test cases, both valid and invalid) to assist you in constructing suc

```
HTTP/1.x 200 OK
Server: Apache-Coyote/1.1
 1. Set-Cookie: ns1="alss/0.foobar^"                         # name=value
 2. Set-Cookie: ns1=                                         # empty value
 3. Set-Cookie: ns1=; Expires=Wed, 19 Nov 2008 16:35:39 GMT  # Expires=time_stamp
 4. Set-Cookie: ns1=; Domain=                                # empty Domain
 5. Set-Cookie: ns1=; Domain=.srv.a.com-0                    # Domain=host_name
 6. Set-Cookie: lu=Rg3v; Expires=Wed, 19 Nov 2008 16:35:39 GMT; Path=/; Domain=.example.com; HttpOnl
 7. Set-Cookie:                                              # empty cookie-pair
 8. Set-Cookie: sd                                           # no "="
 9. Set-Cookie: =alss/0.foobar^                              # empty name
10. Set-Cookie: ns@1=alss/0.foobar^                          # illegal name
11. Set-Cookie: ns1=alss/0.foobar^;                          # trailing ";"
12. Set-Cookie: ns1=; Expires=Wed 19 Nov 2008 16:35:39 GMT   # illegal Expires value
13. Set-Cookie: ns1=alss/0.foobar^; Max-Age=01               # illegal Max-Age: starting 0
14. Set-Cookie: ns1=alss/0.foobar^; Domain=.0com             # illegal Domain: starting 0
15. Set-Cookie: ns1=alss/0.foobar^; Domain=.com-             # trailing non-letter-digit Domain
16. Set-Cookie: ns1=alss/0.foobar^; Path=                    # empty Path
17. Set-Cookie: ns1=alss/0.foobar^; httponly                 # lower case of "HttpOnly"
Cache-Control: private
Pragma: no-cache
Content-Encoding: gzip
Content-Type: text/html;charset=UTF-8
Content-Length: 22784
Date: Tue, 18 Nov 2008 16:35:39 GMT
```

⚙ CookieTest.java ➕

Submission status

Attempt number	This is attempt 1 (1 attempts allowed).
Submission status	Submitted for grading
Grading status	Graded
Due date	Thursday, 27 September 2018, 5:00 PM
Time remaining	Assignment was submitted 1 day 2 hours early
Last modified	Wednesday, 26 September 2018, 2:08 PM
File submissions	⚙ CookieTest.java ➕ Export to portfolio

Submission comments

➕ Comments (0)

Edit submission

Make changes to your submission

Feedback

Grade	20.00 / 20.00
Graded on	Friday, 28 September 2018, 7:51 PM
Graded by	Mingjun Zhao

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