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>    ::= <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 a through z
<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 cons

```
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; HttpOnly
 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	No attempt
Grading status	Not graded
Due date	Thursday, 27 September 2018, 5:00 PM

Time remaining	8 days 5 hours
Last modified	-
Submission comments	➕ Comments (0)

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