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Questions

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Writing a Grammar

1/1 point (graded)

Consider the grammar from the reading:

```
url ::= 'http://' hostname (':' port)? '/'
hostname ::= word '.' hostname | word '.' word
port ::= [0-9]+
word ::= [a-z]+
```

Suppose we want this grammar to also match strings of the form:

```
https://websis.mit.edu/
ftp://ftp.athena.mit.edu/
```

but not strings of the form:

```
ptth://web.mit.edu/
mailto:bitdiddle@mit.edu
```

So we change the grammar to:

```
url ::= protocol '://' hostname (':' port)? '/'
protocol ::= TODO
hostname ::= word '.' hostname | word '.' word
port ::= [0-9]+
word ::= [a-z]+
```

What could you put in place of TODO to match the desirable URLs but not the undesirable ones?

☐ word

☑ 'ftp' | 'http' | 'https'

☑ ('http' 's'?) | 'ftp'

☑ ('f' | 'ht') 'tp' 's'?

✔

Explanation
Using word would allow the protocol to match all possible words, including ptth, which was one of the undesirable URLs.
The other choices would safely match https and ftp but not match ptth or mailto.

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