

CS536: Homework 2

Sahit Mandala

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Problem 1

a) $\{\text{SLASH}\}\{\text{STAR}\}[\wedge(*\wedge)]*\{\text{STAR}\}\{\text{SLASH}\}$

False negative: The pattern doesn't allow for the characters `"/", "(", ")",` or `"**"` to exist within the body of a comment. For example, `"/* Hello / World* */"` would be deemed an invalid comment.

b) $\{\text{SLASH}\}\{\text{STAR}\}(\cdot)*\{\text{STAR}\}\{\text{SLASH}\}$

False positive: The pattern allows for the characters `"*/"` to appear within the comment body. For example, `"/* Hello */ World */"` would be deemed a valid comment.

c) $\{\text{SLASH}\}\{\text{STAR}\}([\wedge^*]*\{\text{STAR}\}+[\wedge^*/])*\{\text{STAR}\}+\{\text{SLASH}\}$

False Negative: The pattern requires that every non-empty comment body contain at least 1 star. For example, `* Hello World *\` would be deemed invalid because nothing in the body matches to $\{\text{STAR}\}^+$.

d) $\{\text{SLASH}\}\{\text{STAR}\}([\wedge^*][\wedge^*/])+\{\text{STAR}\}\{\text{SLASH}\}$

False negative: The pattern requires that the body contains at least 1 letter. For example, `"/**/"` would fail with an empty body.

False positive. The pattern allows `"*/"` to occur within the comment body. For example, `"/***/"` would be a valid comment since `"*/"` satisfies $([\wedge^*/])[\wedge^*]$.

e) $\{\text{SLASH}\}\{\text{STAR}\}[\wedge^*]*\{\text{STAR}\}+\{\text{SLASH}\}+$

False negative: The pattern does not allow `"**"` to occur before a letter in the comment body. For example, `"/**HelloWorld*/"` would be deemed an invalid comment.

False positive: The pattern allows any nonzero number of leading `"/"`. For example, `"/***/"/"` would be deemed a valid comment, even though the last 3 `"//"` should be cut off/ignored.

Problem 2

$\{\text{SLASH}\}\{\text{STAR}\}([\wedge^*](\{\text{STAR}\}+[\wedge^*/])*\{\text{STAR}\}+\{\text{SLASH}\})$