

Regular Expression

Describe the language denoted by the following regular expression

- $a(a \mid b)^*a$

Answer:

String of a`s and b`s begin and end with a

- $(a \mid b)^* a(a \mid b) (a \mid b)$

Answer:

String of a`s and b`s, with an a in the 3rd letter from the right.

Cont...

- $(a \mid b)^* b (a \mid b)^* b (a \mid b)^*$

Answer:

String of a`s and b`s that contain at least two b`s

Write regular definition for the following languages:

- All string of lowercase letters that contain the five vowels in order.

Answer:

L \longrightarrow **[b-d f-h j-n p-t v-z]**

String \longrightarrow **$L^*(a|A)^+ L^*(e|E)^+ L^*(i|I)^+$**
 $L^*(o|O)^+ L^*(u|U)^+L^*$

Cont...

- Comments, consisting of a string surrounded by `/*` and `*/`, without an intervening `*/`, unless it is inside double-quotes(“)

Answer:

L \longrightarrow **[a-zA-Z0-9]**

C \longrightarrow **“*/”**

comment \longrightarrow **/* (L*C*)* */**

Cont..

- String of a`s and b`s that contains odd number of b

Answer:

$a^*b(a^*ba^*b)^*a^*$

Cont..

- String of a`s and b`s that contains just two or three b`s

Answer:

$a^*ba^*ba^*b^?a^*$

Cont..

- All strings of a's and b's that do not contain the substring abb.

Answer:

$b^* (a (\epsilon | b))^*$

Cont..

- All strings of a's and b's with an even number of a's.

Answer:

$b^*(a b^* a b^*)^*$

Cont..

- All strings of a's and b's that contain at most two b's.

Answer:

$a^* (\epsilon | b) a^* (\epsilon | b) a^*$

Cont..

- All strings of a's and b's that do not contain the subsequence abb.

Answer:

$b^* a^*(\epsilon | b) a^*$