Solu: \[ A = [0|1] [0*1+0]* 0*1 \]

What is a comment?

- stuff -/ (- to avoid)

\( a = \) any char including

\( a^* - 1\) is a comment yes?

Great let's make a comment FSA

\[ \text{A} \xrightarrow{a} \text{B} \xrightarrow{a} \text{C} \xrightarrow{0} \text{D} \xrightarrow{1} \text{E} \]

done? wait -

a was any char,
we have a non-deterministic FSA

? Well we didn't really mean any char
we meant any but -

\( b = \) any char but -

\[ / - 3 - 1 = 2 - / \] not a comment!

oops
Let's do this more carefully

eliminate non-determinism

alphabet = \{ l, - \}

k = any char but \( l \) or \(-\)

<table>
<thead>
<tr>
<th></th>
<th>-</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>B</td>
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<td>C</td>
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<td>C</td>
<td>[CD]</td>
<td>[CD]</td>
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<tr>
<td>[CE]</td>
<td>[CE]</td>
<td>C</td>
</tr>
</tbody>
</table>

Has interesting property

\[ \downarrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow \]

START ACCEPT ACCEPT ACCEPT
Worse still:

\[
\text{START} \quad \text{ACCEPT} \quad \text{ACCEPT}
\]

That's really not what we want.

**LEX**
matches the longest string
(and 'good thing, too!')

\[
\text{ID} = \text{letter} \ [\text{letter}|\text{digit}]^*
\]

\[
\text{foo} = 3
\]

I could accept just this!

What do we do?

Let's edit the DFA we got from

\[
/ - [k] - [j] * /
\]

![Diagram]

```
ACCEPT accept
comment
```
1) Get unique start state

$T_1$

$T_2$

$T_3$

$T$

$A \rightarrow B \rightarrow C \rightarrow D \rightarrow E$

$C \rightarrow D \rightarrow C$

$A \rightarrow C \rightarrow D \rightarrow O$

$K$
\[ A \xrightarrow{\lambda} C \xrightarrow{\lambda} O \]

\[ \neg \neg K \]

\[ 1 - \left( \neg \neg K \right)^* \neg \neg \]