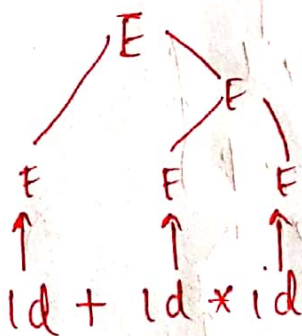


Parse the string by operator precedence table

Example . $id + id * id \$$

Stack	Input string	Action
\$	<u>id</u> + id * id \$	push id ($\$ \prec id$)
\$ id	+ id * id \$	($+ \prec id$) pop id and reduce ($E \rightarrow id$) ^t
\$ +	+ id * id \$	($+ > \$$) push +
\$ +	<u>id</u> * id \$	($id > +$) pop id and reduce it
\$ + id	* id \$	($id > *$) pop id & reduce it ($E \rightarrow id$)
\$ +	* id \$	($* > +$) push *
\$ + *	<u>id</u> \$	($id > *$) push id
\$ + * id	\$	pop id ($id > \$$) (id id id)
\$ + *	\$	pop * ($* > \$$) (id id * id)
\$ +	\$	pop + ($+ > \$$) (id + id * id)
\$	\$	Accept



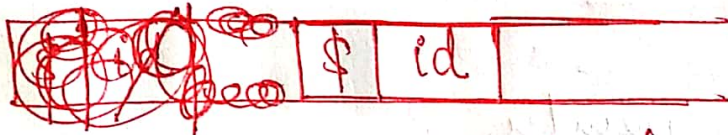
Rules :-

When top of the stack is less than or equal to than id , push it otherwise pop it

Explanation:-

Operator Precedence Parser parse the input with the help of operator precedence table

id + id * id \$



when top of stack is less than equal to id, push it otherwise pop it

- ① in case of \$ and id push id
- ② Now increment pointer, \therefore pointer is now pointing to +. compare + and id. and + is having less precedence than id \therefore pop id

$$\begin{array}{ccccccc} id & + & id & * & id & \$ \\ \downarrow & & \uparrow & & & & \\ E & & & & & & \end{array}$$

Now id is reduced to E and pointer is still pointing to +

\$	id	
----	---------------	--

pop id and push +

\$	+	
----	---	--

Increment the pointer, it is now pointing to id

$$\begin{array}{ccccccc} id & + & id & * & id & \$ \\ | & & \uparrow & & & & \\ E & & & & & & \end{array}$$

\$	+	
----	---	--

compare + and id
id has higher precedence \therefore push

\$	+	id
----	---	----

Now increase the pointer

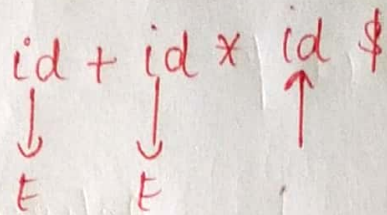
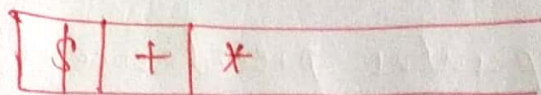
$$\begin{array}{ccccccc} id & + & id & * & id & \$ \\ | & & \uparrow & & & & \\ E & & & & & & \end{array}$$

id and *
id has higher precedence than * then pop id

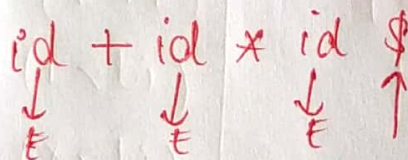
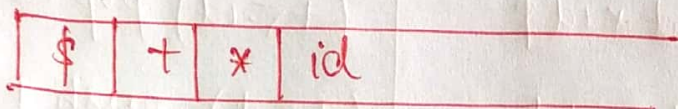
\$	+	id
----	---	---------------

$$\begin{array}{ccccccc} id & + & id & * & id & \$ \\ | & & \downarrow & \uparrow & & & \\ E & & E & & & & \end{array}$$

Now + and *
 \therefore push * and increment pointer

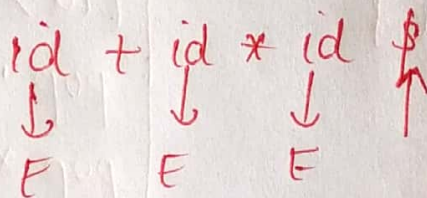


Now compare * with id
 \therefore push id & increment pointer

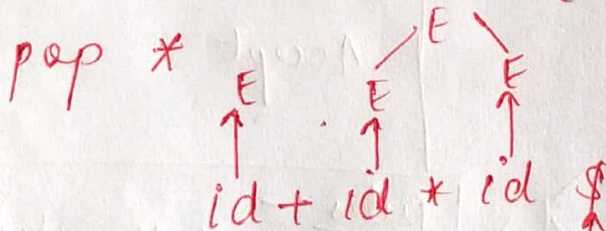


Now \$ and id ($id > \$$)

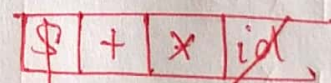
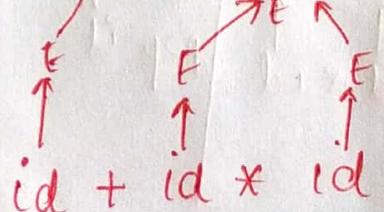
\therefore pop id & reduce it to E



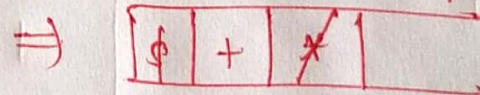
Now * and \$ ($* > \$$)



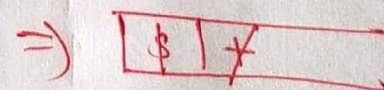
+ and \$ ($+ > \$$)



id + id * id \$



id + id * id \$



Now \$ and \$

Accept

Answer