

$\langle \text{start} \rangle \rightarrow \langle \text{expr} \rangle \text{EOF}$

$$\langle expr \rangle \rightarrow \langle term \rangle \langle expr \rangle$$
$$\langle \text{expr} \rangle \rightarrow + \langle \text{term} \rangle \langle \text{expr} \rangle \mid - \langle \text{term} \rangle \langle \text{expr} \rangle \mid \epsilon$$
$$\langle \text{term} \rangle \rightarrow \langle \text{fact} \rangle \langle \text{term} \rangle$$
$$\langle \text{term} \rangle \rightarrow * \langle \text{fact} \rangle \langle \text{term} \rangle \mid / \langle \text{fact} \rangle \langle \text{term} \rangle \mid \epsilon$$
$$\langle \text{fact} \rangle \rightarrow (\langle \text{expr} \rangle) \mid \text{NUM}$$
$$\text{First}(\langle \text{start} \rangle) = \text{First}(\langle \text{expr} \rangle) = \{ (, \text{NUM} \}$$
$$\text{First}(\langle \text{expr} \rangle) = \text{First}(\langle \text{term} \rangle) = \{ (, \text{NUM} \}$$
$$\text{First}(\langle \text{expr} \rangle) = \{ +, - \}$$
$$\text{first}(\langle \text{term} \rangle) = \text{first}(\langle \text{fact} \rangle) = \{ (, \text{NUM} \}$$

First ($\langle \text{temp} \rangle$) = $\{*, / \}$

$$\text{First}(< \text{fact} >) = \{ (, \text{NUM} \}$$

$\$ \in \text{Follow}(\langle \text{start} \rangle)$

$$\{ \text{EOF} \} \in \text{Follow}(<\text{expr}>)$$
$$\text{Follow}(k\text{expr}) \subseteq \text{Follow}(\text{expr})$$
$$\{+, -\} \in \text{Follow}(<\text{term}>)$$
$$\text{Follow}(\langle \text{expr} \rangle) \subseteq \text{Follow}(\langle \text{term} \rangle)$$
$$\text{Follow}(\langle \text{expr} \rangle) \subseteq \text{Follow}(\langle \text{term} \rangle)$$
$$\text{Follow}(<\text{term}>) \subseteq \text{Follow}(<\text{term}_p>)$$
$$\{*, / \} \in \text{Follow}(\langle \text{fact} \rangle)$$
$$\text{Follow}(\langle \text{term} \rangle) \subseteq \text{Follow}(\langle \text{fact} \rangle)$$
$$\text{Follow}(\langle \text{term } p \rangle) \subseteq \text{Follow}(\langle \text{fact} \rangle)$$
$$\{ \mid \} \in \text{Follow}(<\text{expr}>)$$

A	\rightarrow	α	B	β
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$\langle \text{start} \rangle \rightarrow \langle \text{expr} \rangle \text{ EOF}$

$$\langle \text{expr} \rangle \rightarrow \langle \text{term} \rangle \langle \text{expr} \rangle$$
$$\langle \text{expr} \rangle \rightarrow \langle \text{term} \rangle \langle \text{expr} \rangle$$

11

1
NULL

$$\langle \text{expr} \rangle \rightarrow + \langle \text{term} \rangle \langle \text{expr} \rangle$$

11 NULL

$$\langle \text{expr} \rangle \rightarrow + \langle \text{term} \rangle \langle \text{expr} \rangle$$
$$\langle \text{term} \rangle \rightarrow \langle \text{fact} \rangle \langle \text{term} \rangle$$
$$\langle \text{term} \rangle \rightarrow \langle \text{fact} \rangle \langle \text{term} \rangle$$

“ |
NULL

$$\langle \text{temp} \rangle \rightarrow * \langle \text{fact} \rangle \langle \text{temp} \rangle$$

11

1
NULL

$$\langle \text{term} \rangle \rightarrow * \langle \text{fact} \rangle \langle \text{term} \rangle$$
$$\langle \text{fact} \rangle \rightarrow (\langle \text{expr} \rangle)$$

x	$\text{Follow}(x)$
$\langle \text{start} \rangle$	$\$$
$\langle \text{expr} \rangle$	$\text{EOF}, ,)$
$\langle \text{exprp} \rangle$	$\text{EOF}, ,)$
$\langle \text{term} \rangle$	$\text{EOF}, +, -, ,)$
$\langle \text{termp} \rangle$	$\text{EOF}, +, -, ,)$
$\langle \text{fact} \rangle$	$\text{EOF}, +, -, *, /, ,)$

$A \rightarrow \alpha$	Guida ($A \rightarrow \alpha$)
$\langle \text{start} \rangle \rightarrow \langle \text{expr} \rangle \text{EOF}$	$\text{First}(\langle \text{expr} \rangle) = \{ (, \text{NUM} \}$
$\langle \text{expr} \rangle \rightarrow \langle \text{term} \rangle \langle \text{exprp} \rangle$	$\text{First}(\langle \text{term} \rangle) = \{ (, \text{NUM} \}$
$\langle \text{exprp} \rangle \left \begin{array}{l} \rightarrow + \langle \text{term} \rangle \langle \text{exprp} \rangle \\ \rightarrow - \quad \quad \quad \text{"} \\ \rightarrow \epsilon \end{array} \right.$	$\{ + \}$ $\{ - \}$ $\text{Follow}(\langle \text{exprp} \rangle) = \{ \text{EOF}, , \}$
$\langle \text{term} \rangle \rightarrow \langle \text{fact} \rangle \langle \text{termp} \rangle$	$\text{First}(\langle \text{fact} \rangle) = \{ (, \text{NUM} \}$
$\langle \text{termp} \rangle \left \begin{array}{l} \rightarrow * \langle \text{fact} \rangle \langle \text{termp} \rangle \\ \rightarrow / \quad \quad \quad \text{"} \\ \rightarrow \epsilon \end{array} \right.$	$\{ * \}$ $\{ / \}$ $\text{Follow}(\langle \text{termp} \rangle) = \{ \text{EOF}, +, -, , \}$
$\langle \text{fact} \rangle \left \begin{array}{l} \rightarrow (\langle \text{expr} \rangle) \\ \rightarrow \text{NUM} \end{array} \right.$	$\{ (\}$ $\{ \text{NUM} \}$

ES funzionanti

$\text{NUM} + (\text{NUM}) \text{ EOF}$

(NUM)

EOF

$\langle \text{Prog} \rangle = P$

$\langle \text{statlist} \rangle = SL$

$\langle \text{statlist}p \rangle = SLp$ $NULL(SLp)$

$\langle \text{stat} \rangle = S$

$\langle \text{whenlist} \rangle = WL$

$\langle \text{whenlist}p \rangle = WLp$ $NULL(WLp)$

$\langle \text{when item} \rangle = Wi$

$\langle \text{bexpr} \rangle = B$

$\langle \text{expr} \rangle = E$

$\langle \text{exprlist} \rangle = EL$

$\langle \text{exprlist}p \rangle = ELp$ $NULL(ELp)$

$\text{First}(x)$

$\text{First}(P) = \text{First}(SL) = \{ =, \text{print}, \text{read}, \text{comd}, \text{while}, \} \}$

$\text{First}(SL) = \text{First}(S) = \{ =, \text{print}, \text{read}, \text{comd}, \text{while}, \} \}$

$\text{First}(SLp) = \{ ; \}$

$\text{First}(S) = \{ =, \text{print}, \text{read}, \text{comd}, \text{while}, \} \}$

$\text{First}(WL) = \text{First}(Wi) = \{ \text{when} \}$

$\text{First}(WLp) = \text{First}(Wi) = \{ \text{when} \}$

$\text{First}(Wi) = \{ \text{when} \}$

$\text{First}(B) = \{ \text{RELOP} \}$

$\text{First}(E) = \{ +, -, *, /, \text{NUM}, \text{ID} \}$

$\text{First}(EL) = \text{First}(E) = \{ +, -, *, /, \text{NUM}, \text{ID} \}$

$\text{First}(ELp) = \text{First}(E) = \{ +, -, *, /, \text{NUM}, \text{ID} \}$

X	Follow(X)
P	\$
Se	EOF }
Sep	EOF }
S	EOF, i, else, }, when
Wl	else
Wlp	else
Wi	else when
B)
E	EOF, ;,), else, }, when, +, -, *, /, num, ID
El)
Elp)

$A \rightarrow \alpha$	Guida ($A \rightarrow \alpha$)
$P \rightarrow Se EOF$	$First(Se) = \{ =, print, read, comd, while, \} \}$
$Se \rightarrow S Sep$	$First(S) = \{ =, print, read, comd, while, \} \}$
$Sep \rightarrow ; S Sep$	$\{ ; \}$
$Sep \rightarrow \epsilon$	$Follow(Sep) = \{ EOF, \} \}$
$S \rightarrow = IDE$	$\{ = \}$
$S \rightarrow print(El)$	$\{ print \}$
$S \rightarrow read(ID)$	$\{ read \}$
$S \rightarrow comd(Wl) else S$	$\{ comd \}$
$S \rightarrow while(B) S$	$\{ while \}$
$S \rightarrow \{ Se \}$	$\{ \{ \}$
$Wl \rightarrow Wi Wlp$	$First(Wi) = \{ when \}$
$Wlp \rightarrow Wi Wlp$	$First(Wi) = \{ when \}$
$Wlp \rightarrow \epsilon$	$Follow(Wlp) = \{ else \}$
$Wi \rightarrow when(B) do S$	$\{ when \}$
$B \rightarrow Relop(E) (E)$	$\{ relop \}$
$E \rightarrow + (El)$	$\{ + \}$

$$E \rightarrow - E E$$
$$E \rightarrow *(E E)$$
$$E \rightarrow / E E$$
$$E \rightarrow \text{NUM}$$
$$E \rightarrow \text{ID}$$
$$E_e \rightarrow E E_p$$
$$E_p \rightarrow E E_p$$
$$E_p \rightarrow \epsilon$$
$$\{ - \}$$
$$\{ * \}$$
$$\{ / \}$$
$$\{ \text{NUM} \}$$
$$\{ \text{ID} \}$$
$$\text{First}(E) = \{ +, -, *, /, \text{NUM}, \text{ID} \}$$
$$\text{First}(E) = \{ +, -, *, /, \text{NUM}, \text{ID} \}$$
$$\text{Follow}(E_p) = \{) \}$$