Viper

Gramática

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$\langle program \rangle$ ::= $[\![\langle function \rangle]\!]^{+}$

$\langle function \rangle$ ::=   **def ID** ([$\langle formal \rangle$ $[\![,\ \langle formal \rangle]\!]^{*}$]) : $\langle rtype \rangle$ **{** $[\![\langle statement \rangle]\!]^{*}$ $[\![\langle return \rangle]\!]^{?}$ **}**

$\langle formal \rangle$ ::=   **ID** : $\langle dtype \rangle$

$\langle rtype \rangle$ ::=   **int**
                     | **bool**
                     | **str**
                     | **void**

$\langle dtype \rangle$ ::=   **int**
                     | **bool**
                     | **str**

$\langle statement \rangle$ ::= $\langle expr \rangle$ **;**
                     | **if** ($\langle expr \rangle$) **{** $[\![\langle statement \rangle]\!]^{*}$ **} else {** $[\![\langle statement \rangle]\!]^{*}$ **}**
                     | **while** ($\langle expr \rangle$) **{** $[\![\langle statement \rangle]\!]^{*}$ **}**
                     | $\langle dtype \rangle$ **ID** = $\langle expr \rangle$ **;**

$\langle return \rangle$ ::=   **return** $\langle expr \rangle$ **;**

$\langle expr \rangle$ ::= $\langle expr \rangle$ + $\langle expr \rangle$
                     | $\langle expr \rangle - \langle expr \rangle$
                     | $\langle expr \rangle * \langle expr \rangle$
                     | $\langle expr \rangle / \langle expr \rangle$
                     | $\langle expr \rangle \% \langle expr \rangle$
                     | $\langle expr \rangle < \langle expr \rangle$
                     | $\langle expr \rangle \leq \langle expr \rangle$
                     | $\langle expr \rangle = \langle expr \rangle$
                     | **!** $\langle expr \rangle$
                     | ($\langle expr \rangle$)
                     | **ID** ([$\langle expr \rangle$ $[\![,\ \langle expr \rangle]\!]^{*}$)
                     | **ID**
                     | integer
                     | string
                     | **true**
                     | **false**