ChocoPy v2.2 Grammar

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\begin{array}{rcl}
\textit{program} & ::= & \llbracket \textit{var\_def} \mid \textit{func\_def} \mid \textit{class\_def} \rrbracket^{*}\ \textit{stmt}^{*} \\
\textit{class\_def} & ::= & \textbf{class}\ \text{ID}\ \texttt{(}\ \text{ID}\ \texttt{)}\ \texttt{:}\ \text{NEWLINE INDENT}\ \textit{class\_body}\ \text{DEDENT} \\
\textit{class\_body} & ::= & \text{pass NEWLINE} \\
 & \mid & \llbracket \textit{var\_def} \mid \textit{func\_def} \rrbracket^{+} \\
\textit{func\_def} & ::= & \textbf{def}\ \text{ID}\ \texttt{(}\ \llbracket \textit{typed\_var}\ \llbracket \texttt{,}\ \textit{typed\_var} \rrbracket^{*} \rrbracket^{?}\ \texttt{)}\ \llbracket \texttt{->}\ \text{type} \rrbracket^{?}\ \texttt{:}\ \text{NEWLINE INDENT}\ \textit{func\_body}\ \text{DEDENT} \\
\textit{func\_body} & ::= & \llbracket \textit{global\_decl} \mid \textit{nonlocal\_decl} \mid \textit{var\_def} \mid \textit{func\_def} \rrbracket^{*}\ \textit{stmt}^{+} \\
\textit{typed\_var} & ::= & \text{ID}\ \texttt{:}\ \textit{type} \\
\textit{type} & ::= & \text{ID} \mid \text{IDSTRING} \mid \texttt{[}\ \textit{type}\ \texttt{]} \\
\textit{global\_decl} & ::= & \textbf{global}\ \text{ID NEWLINE} \\
\textit{nonlocal\_decl} & ::= & \textbf{nonlocal}\ \text{ID NEWLINE} \\
\textit{var\_def} & ::= & \textit{typed\_var}\ \texttt{=}\ \textit{literal}\ \text{NEWLINE} \\
\textit{stmt} & ::= & \textit{simple\_stmt}\ \text{NEWLINE} \\
 & \mid & \textbf{if}\ \textit{expr}\ \texttt{:}\ \textit{block}\ \llbracket \textbf{elif}\ \textit{expr}\ \texttt{:}\ \textit{block}\ \rrbracket^{*}\ \llbracket \textbf{else}\ \texttt{:}\ \textit{block} \rrbracket^{?} \\
 & \mid & \textbf{while}\ \textit{expr}\ \texttt{:}\ \textit{block} \\
 & \mid & \textbf{for}\ \text{ID}\ \textbf{in}\ \textit{expr}\ \texttt{:}\ \textit{block} \\
\textit{simple\_stmt} & ::= & \textbf{pass} \\
 & \mid & \textit{expr} \\
 & \mid & \textbf{return}\ \llbracket \textit{expr} \rrbracket^{?} \\
 & \mid & \llbracket\ \textit{target}\ \texttt{=}\ \rrbracket^{+}\ \textit{expr} \\
\textit{block} & ::= & \text{NEWLINE INDENT}\ \textit{stmt}^{+}\ \text{DEDENT} \\
\textit{literal} & ::= & \textbf{None} \\
 & \mid & \textbf{True} \\
 & \mid & \textbf{False} \\
 & \mid & \text{INTEGER} \\
 & \mid & \text{IDSTRING} \mid \text{STRING} \\
\textit{expr} & ::= & \textit{cexpr} \\
 & \mid & \textbf{not}\ \textit{expr} \\
 & \mid & \textit{expr}\ \llbracket \textbf{and} \mid \textbf{or} \rrbracket\ \textit{expr} \\
 & \mid & \textit{expr}\ \textbf{if}\ \textit{expr}\ \textbf{else}\ \textit{expr} \\
\textit{cexpr} & ::= & \text{ID} \\
 & \mid & \textit{literal} \\
 & \mid & \texttt{[}\ \llbracket \textit{expr}\ \llbracket \texttt{,}\ \textit{expr} \rrbracket^{*} \rrbracket^{?}\ \texttt{]} \\
 & \mid & \texttt{(}\ \textit{expr}\ \texttt{)} \\
 & \mid & \textit{member\_expr} \\
 & \mid & \textit{index\_expr} \\
 & \mid & \textit{member\_expr}\ \texttt{(}\ \llbracket \textit{expr}\ \llbracket \texttt{,}\ \textit{expr} \rrbracket^{*} \rrbracket^{?}\ \texttt{)} \\
 & \mid & \text{ID}\ \texttt{(}\ \llbracket \textit{expr}\ \llbracket \texttt{,}\ \textit{expr} \rrbracket^{*} \rrbracket^{?}\ \texttt{)} \\
 & \mid & \textit{cexpr}\ \textit{bin\_op}\ \textit{cexpr} \\
 & \mid & \texttt{-}\ \textit{cexpr} \\
\textit{bin\_op} & ::= & \texttt{+} \mid \texttt{-} \mid \texttt{*} \mid \texttt{//} \mid \texttt{\%} \mid \texttt{==} \mid \texttt{!=} \mid \texttt{<=} \mid \texttt{>=} \mid \texttt{<} \mid \texttt{>} \mid \textbf{is} \\
\textit{member\_expr} & ::= & \textit{cexpr}\ \texttt{.}\ \text{ID} \\
\textit{index\_expr} & ::= & \textit{cexpr}\ \texttt{[}\ \textit{expr}\ \texttt{]} \\
\textit{target} & ::= & \text{ID} \\
 & \mid & \textit{member\_expr} \\
 & \mid & \textit{index\_expr}
\end{array}
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