Grammar v0.5

December 2, 2019

$$INT := {'}\text{int}{'}$$
$$FLOAT := {'}\text{float}{'}$$
$$ID := alpha \; + \; (alphanum)^*$$
$$VOID := {'}\text{void}{'}$$
$$(:= {'}({'}$$
$$) := {'}){'}$$
$$\{ := {'}\{{'}$$
$$\} := {'}\}{'}$$
$$[:= {'}[{'}$$
$$] := {'}]{'}$$
$$, := {'},{'}$$
$$+ := {'}+{'}$$
$$++ := {'}++{'}$$
$$- := {'}-{'}$$
$${'}/{'} := {'}/{'}$$
$$* := {'}*{'}$$
$$> := {'} >{'}$$
$$< := {'} <{'}$$
$$; := {'};{'}$$
$$= := {'} ={'}$$
$$NUM := (num)^+$$
$$\mid \quad (num)^* \; + \; {'}.{'} \; + \; (num)^+$$
$$\mid \quad (num)^+ \; + \; {'}.{'}$$
$$FOR := {'}\text{for}{'}$$
$$IF := {'}\text{if}{'}$$
$$RETURN := {'}\text{return}{'}$$
$$STRING := {'}"{'} \; + \; (stuff)^* \; + \; {'}"{'}$$

$$< goal > :=\ < funcs >$$
$$< funcs > :=\ \epsilon$$
$$|\ \ < func >< funcs >$$
$$< func > :=\ INT/FLOAT\ ID\ (\ < args > \{< stmts >\}$$
$$< args > :=\ VOID\ )$$
$$|\ \ \epsilon\ )$$
$$|\ \ INT/FLOAT\ \epsilon/* \ ID\ :,\ INT/FLOAT\ \epsilon/* \ ID\ :^*\ )$$
$$< stmts > :=\ :< decl >;/ < stmt >:^*$$
$$< stmt > :=\ < instr >\ ;$$
$$|\ \ < forst >$$
$$|\ \ < ifst >$$
$$|\ \ \{< stmts >\}$$
$$|\ \ < retst >$$
$$< instr > :=\ < expr >$$
$$|\ \ \epsilon$$
$$< decl > :=\ INT/FLOAT\ ID/ID[NUM]\ :,\ ID/ID[NUM]\ :^*$$
$$< expr > :=\ < expr > +/- < term >$$
$$|\ \ < term >$$
$$|\ \ ID/ID[< expr >]\ = < expr >$$
$$|\ \ < expr >\ >/< \ \ < expr >$$
$$< term > :=\ < factor >$$
$$|\ \ < term > * /'/'\ < factor >$$
$$< factor > :=\ ID$$
$$|\ \ ID/ID[< expr >]\ ++$$
$$|\ \ ++\ ID/ID[< expr >]$$
$$|\ \ ID[< expr >]$$
$$|\ \ ID(< call >)$$
$$|\ \ NUM$$
$$|\ \ (< expr >)$$
$$|\ \ +/- factor$$
$$< call > :=\ \epsilon$$
$$|\ \ < expr >:,< expr >:^*$$
$$< forst > :=\ FOR\ (\ < instr >/< decl >;\ < expr >;\ < instr >)\ < stmt >$$
$$< ifst > :=\ IF\ (\ < expr >)\ < stmt >$$
$$< retst > :=\ RETURN\ < expr >;$$

1. $< stmt > :=\ < instr >;$
2. $\qquad\ |\ \ < forst >$
3. $\qquad\ |\ \ < ifst >$
4. $\qquad\ |\ \ \{< stmts >\}$
5. $\qquad\ |\ \ < retst >$

1. $< instr >: =$
2. $\qquad |$
3. $\qquad | \quad < expr >$
4. $\qquad | \quad \epsilon$

1. $< expr >: = \quad < term > | < expr > +/- < term > | < expr > > / < \ < expr >$
2. $\qquad | \quad lhs =< expr >$

1. $< factor >: = lhs | ++lhs | lhs ++$
2. $\qquad | \quad ID(< call >)$
3. $\qquad | \quad NUM$
4. $\qquad | \quad NUM2$
5. $\qquad | \quad (< expr >)$
6. $\qquad | \quad +/- < factor >$