# CSSE 404, MiniJava Grammar

Dillon Scroggin, Kyle Dooley

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| | | |
|---|---|---|
| Program | $\rightarrow$ | MainClassDecl ClassDecl* |
| ClassDecl* | $\rightarrow$ | ClassDecl ClassDecl* |
| | $\mid$ | $\epsilon$ |
| MainClassDecl | $\rightarrow$ | class ID { public static void main(String[] ID ){ Stmt* }} |
| Stmt* | $\rightarrow$ | Stmt Stmt* |
| | $\mid$ | $\epsilon$ |
| ClassDecl | $\rightarrow$ | class ID { ClassVarDecl* MethodDecl* } |
| | $\mid$ | class ID extends ID { ClassVarDecl* MethodDecl* } |
| MethodDecl* | $\rightarrow$ | MethodDecl MethodDecl* |
| | $\mid$ | $\epsilon$ |
| ClassVarDecl* | $\rightarrow$ | ClassVarDecl ClassVarDecl* |
| | $\mid$ | $\epsilon$ |
| ClassVarDecl | $\rightarrow$ | Type ID ; |
| MethodDecl | $\rightarrow$ | public Type ID ( Formal* ){ Stmt* return Expr;} |
| Formal* | $\rightarrow$ | Formal+ |
| | $\mid$ | $\epsilon$ |
| Formal+ | $\rightarrow$ | Formal , Formal+ |
| | $\mid$ | Formal |
| Formal | $\rightarrow$ | Type ID |
| Type | $\rightarrow$ | int |
| | $\mid$ | boolean |
| | $\mid$ | ID |
| Stmt | $\rightarrow$ | Type ID = Expr; |
| | $\mid$ | { Stmt* } |
| | $\mid$ | if( Expr ) Stmt else Stmt |
| | $\mid$ | while( Expr ) Stmt |
| | $\mid$ | System.out.println( Expr ); |
| | $\mid$ | ID = Expr; |

| | | |
|---|---|---|
| Expr | → | Expr2 \|\| Expr |
| | \| | Expr2 |
| | | |
| Expr2 | → | Expr3 && Expr2 |
| | \| | Expr3 |
| | | |
| Expr3 | → | Expr4 == Expr3 |
| | \| | Expr4 != Expr3 |
| | \| | Expr4 |
| | | |
| Expr4 | → | Expr5 < Expr4 |
| | \| | Expr5 > Expr4 |
| | \| | Expr5 <= Expr4 |
| | \| | Expr5 >= Expr4 |
| | \| | Expr5 |
| | | |
| Expr5 | → | Expr6 + Expr5 |
| | \| | Expr6 - Expr5 |
| | \| | Expr6 |
| | | |
| Expr6 | → | Expr7 * Expr6 |
| | \| | Expr7 / Expr6 |
| | \| | Expr7 |
| | | |
| Expr7 | → | - Expr7 |
| | \| | ! Expr7 |
| | \| | Expr8 |
| | | |
| Expr8 | → | Expr9 . ID ( Expr8* ) |
| | \| | Expr9 |
| | | |
| Expr8* | → | Expr8+ |
| | \| | $\epsilon$ |
| | | |
| Expr8+ | → | Expr , Expr8+ |
| | \| | Expr |
| | | |
| Expr9 | → | new ID () |
| | \| | ID |
| | \| | this |
| | \| | Integer |
| | \| | null |
| | \| | true |
| | \| | false |
| | \| | ( Expr ) |