01FB16ECS450 Vishal Rao
01FB16ECS451 Vishnu Singh
01FB16ECS452 Vishruth R G

CD Lab Project (Phase 1: Part A)

Python CFG : While Loop and If-Else Statement

Grammar		Expression
digit	→	[0-9]
constant	→	[digit]+	QUOTE [_a-zA-Z]+ QUOTE
variable	→	[_a-zA-Z][_a-zA-Z0-9]*
term	→	variable	constant
bool_exp	→	True	False	arith_exp ROP arith_exp
		bool_exp or bool_exp	bool_exp and bool_exp	
		not bool_exp	
		L_Paren bool_exp R_Paren
arith_exp	→	term	L_Paren arith_exp R_Paren	arith_exp + arith_exp	
		arith_exp - arith_exp	
		arith_exp * arith_exp	
		arith_exp / arith_exp
assign_stmt	→	variable EQL term
pass_stmt	→	"pass"
import_stmt	→	"import" <pkg_name>
expression_stmt	→	bool_exp	arith_exp
basic_stmt	→	expression_stmt	assign_stmt	pass_stmt
stmt_list	→	basic_stmt NL stmt_list	basic stmt
suite	→	stmt_list NL	NL ID stmt + DD
stmt	→	basic_stmt NL	cmpd_stmt
cmpd_stmt	→	if_stmt	while_stmt
while_stmt	→	"while" bool_exp CLN NL ID stmt_list DD
if_stmt	→	"if" bool_exp CLN suite ("elif" bool_exp CLN suite)* ["else" CLN suite]
comment	→	HASH STR	Trip_Quote STR multiline_comment
multiline_comment	→	Trip_Quote	STR NL multiline_comment

Legend

CLN : Colon (' : ')
NL : New Line (' \n ')
EQL : Equal (' = ')
L_Paren : '('
R_Paren : ')'
ROP : Relational Operators ('<', '>', '==' ..)
ID : Indent
DD : Dedent
QUOTE : "
STR : Any String
Trip_Quote : '''
HASH : #