prog -> prog \n stmt | stmt

stmt -> cond | loop | assign | alloc | func

alloc -> type ‘ ‘ ID

type -> ‘int’ | ‘float’ | ‘string’ | ‘boolean’ | ‘Location’ | ‘Shape’| ‘Size’ | ‘Color’

assign -> ID ‘=’ assign\_tail

assign\_tail -> ID | prim\_exp | comp\_exp | string\_exp

prim\_exp -> int\_exp | float\_exp | boolean\_exp

int\_exp -> INT int\_exp\_tail

int\_exp\_tail -> OP prim\_exp | ε

float\_exp -> FLOAT float\_exp\_tail

float\_exp\_tail -> OP prim\_exp | ε

string\_exp -> STRING | string\_exp + int\_exp | string\_exp + float\_exp | string\_exp +

boolean\_exp | string\_exp + string\_exp

boolean\_exp -> logic bool\_exp\_tail

bool\_exp\_tail -> logic\_concat logic bool\_exp\_tail | ε

logic -> ‘!’ logic

| ID logic\_op ID

| ID logic\_op prim\_exp

| prim\_exp logic\_op prim\_exp

| prim\_exp logic\_op ID | ID | prim\_exp