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Programming Assignment-6 **-** Implementation of Syntax Checker using Yacc Tool

Develop a Syntax checker to recognize the tokens necessary for the following statements by writing suitable grammars

Assignment statement

Conditional statement

Looping statement

Syncheck.l

%{

#include<stdio.h>

#include<stdlib.h>

#include"y.tab.h"

void yyerror(char\*);

extern int yylval;

%}

%%

[0-9]+ {

yylval=atoi(yytext);

return NUMBER;

}

for {return FOR;}

while {return WHILE;}

if {return IF;}

else {return ELSE;}

[a-zA-Z\_]([a-zA-z\_]|[0-9])\* {return ID;}

[{};()] {return \*yytext;}

[-+\*/^()=&|%] {return \*yytext;}

"<"|">" {return \*yytext;}

">=" {return GTE;}

"<=" {return LTE;}

"!=" {return NE;}

"==" {return EQ;}

"&&" {return AND;}

"||" {return OR;}

"!" {return NOT;}

"<<" {return LS;}

">>" {return RS;}

[\t] ;

[\n] return 0;

[ ] {return SPACE;}

. {yyerror("invalid case");}

%%

int yywrap(void)

{

return 1;

}

Syncheck.y

%{

#include<stdio.h>

#include<stdlib.h>

#include<math.h>

#include"y.tab.h"

int yylex(void);

void yyerror(char \*str);

%}

%token NUMBER OR AND NOT GTE LTE NE EQ LS RS FOR IF ELSE ID WHILE SPACE

%right '='

%left OR

%left AND

%left NOT

%left '|'

%left '&'

%left EQ NE

%left '<' '>' GTE LTE

%left LS RS

%left '+' '-' '%'

%left '\*' '/'

%left '^'

%left '(' ')'

%%

S: ST{printf("\nNo Syntax Error\n");return 0;};

ST: FOR'('SA';'C';'E')'BLOCK

|WHILE'('C')'BLOCK

;

BLOCK:'{'BODY'}'

|BODY

;

BODY:BODY BODY

|SP SA';' SP

|SP IF'('C')'BLOCK SP ELSE BLOCK SP

|SP IF'('C')'BLOCK SP

|ST

|

;

SP:SP SP

|SPACE

|

;

SA:ID'='E

|E'+''+'

|E'-''-'

;

E:E'+'E

|E'-'E

|E'\*'E

|E'/'E

|E'%'E

|E'^'E

|'('E')'

|E'&'E

|E'|'E

|E LS E

|E RS E

| '-' E

|E'+''+'

|E'-''-'

|NUMBER

|ID

;

C:NOT E

|E'<'E

|E'>'E

|E GTE E

|E LTE E

|E EQ E

|E NE E

|E AND E

|E OR E

%%

void yyerror(char \*str)

{

fprintf(stderr,"%s\n",str);

}

void main()

{

yyparse();

}

Output:

