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INTERMEDIATE CODE GENERATOR FOR IF THEN ELSE - YACC PROGRAM - COMPILER LAB

(lex Program : intif.l) ALPHA [A-Za-z]

Program:

ALPHA [A-Za-z] DIGIT [0-9]

%%

if return IF;

then return THEN; else return ELSE;

{ALPHA}({ALPHA}|{DIGIT})* return ID;

{DIGIT}+ {yylval=atoi(yytext); return NUM;}

[\t] ;

\n yyterminate();
. return yytext[0];

%%

(Yacc Program : intif.y)

%token ID NUM IF THEN ELSE

%right '='

%left '+' '-'

%left '*' '/'

%left UMINUS

%%

 $S: IF \ '(' E \ ')'\{lab1();\} \ THEN \ E \ ';'\{lab2();\} \ ELSE \ E \ ';'\{lab3();\} \ THEN \ E';'\{lab2();\} \ ELSE \ E';'\{lab3();\} \ ELSE \ E';'[lab3();] \ ELSE \ ELSE \ E';'[lab3();] \ ELSE \ ELSE$

;

E :V '='{push();} E{codegen_assign();}

| E '+'{push();} E{codegen();}

| E '-'{push();} E{codegen();}

| E '*'{push();} E{codegen();}

| E '/'{push();} E{codegen();}

| '(' E ')'

| '-'{push();} E{codegen_umin();} %prec UMINUS

| V

| NUM{push();}

:

V : ID {push();}

; %%

#include "lex.yy.c"

#include<ctype.h>

char st[100][10];

int top=0;

char i_[2]="0";

char temp[2]="t";

int label[20];

int Inum=0;

int Itop=0;

main()

{

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Intermediate Code Generator for While - Yacc Progr...

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Parser for SWITCH Statements - YACC Program - Comp...

```
printf("Enter the expression: ");
yyparse();
}
push()
{
 strcpy(st[++top],yytext);
}
codegen()
{
strcpy(temp,"t");
strcat(temp,i_);
 printf("%s = %s %s %s\n",temp,st[top-2],st[top-1],st[top]);
 top-=2;
strcpy(st[top],temp);
i_[0]++;
}
codegen_umin()
strcpy(temp,"t");
strcat(temp,i_);
printf("%s = -%s\n",temp,st[top]);
top--:
strcpy(st[top],temp);
i_{0}++;
}
codegen_assign()
printf("%s = %s\n",st[top-2],st[top]);
top-=2;
}
lab1()
{
Inum++;
strcpy(temp,"t");
strcat(temp,i_);
printf("%s = not %s\n",temp,st[top]);
printf("if %s goto L%d\n",temp,Inum);
i_[0]++;
label[++ltop]=lnum;
}
lab2()
{
int x;
Inum++;
x=label[ltop--];
printf("goto L%d\n",Inum);
printf("L%d: \n",x);
label[++ltop]=lnum;
}
lab3()
{
int y;
y=label[ltop--];
printf("L%d: \n",y);
}
Output:
nn@linuxmint ~ $ lex intif.l
nn@linuxmint ~ $ yacc intif.y
nn@linuxmint ~ $ gcc y.tab.c -II -ly
nn@linuxmint~$./a.out
```

Parser for DO WHILE Statements - YACC Program - Co... Parser for WHILE Statements - YACC Program - Compi... Parser for IF-THEN-ELSE Statements -YACC Program ... Expression Evaluation - Yacc Program -Compiler De... Graph Theory & Combinatorics (GTC) -Assignment Environmental Engineering & Disaster Management - ... ► May (13) ► April (12) ► March (19) ► February (27) ► January (2) 2010 (55) ▶ 2009 (41) 2008 (2)



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Enter the expression : if(k+8) then k=18;else c=s;
t0 = k + 8
t1 = not t0
if t1 goto L1
k = 18
goto L2
L1:
c = s
L2:
nn@linuxmint ~ \$
Labels: Compiler Design, Compiler Lab, IF-THEN-ELSE, Intermediate Code Generator, Semester 6, YACC

5 comments:



Deepti Khanduja March 4, 2013 at 10:00 PM

It gives error.. Undeclared yytext in push function

Renly



Anonymous October 27, 2015 at 4:31 PM

Lai avghad ahe he...

Reply



Unknown October 30, 2015 at 10:39 AM

This comment has been removed by the author.

Reply



Sid Sonawane October 30, 2015 at 10:42 AM

He already included lex.yy.c in yacc , you don't have to compile lex again , so you are getting this error as undeclared yytext in push functions or multiple definitions of lex files..

just do

nn@linuxmint ~\$ex intif.l nn@linuxmint ~ \$ yacc intif.y nn@linuxmint ~ \$ gcc y.tab.c -ll -ly

works fine

Reply



Anna December 31, 2015 at 2:59 PM

Great and Useful Article.

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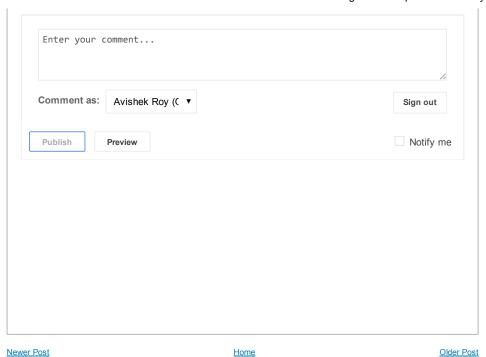
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