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2K8CSE

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

Program :

(lex Program : intif.l)

```
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();}
  ;
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 lnum=0;
int ltop=0;

main()
{
```

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```
    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()
    {
     lnum++;
     strcpy(temp,"t");
     strcat(temp,i_);
     printf("%s = not %s\n",temp,st[top]);
     printf("if %s goto L%d\n",temp,lnum);
     i_[0]++;
     label[++ltop]=lnum;
    }

    lab2()
    {
    int x;
    lnum++;
    x=label[ltop--];
    printf("goto L%d\n",lnum);
    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 -ll -ly
nn@linuxmint ~ $ ./a.out
```

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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

[Reply]()

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.

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Sid Sonawane [October 30, 2015 at 10:42 AM]()

He already included lex.yy.c in yacc , you dont 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

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Anna [December 31, 2015 at 2:59 PM]()

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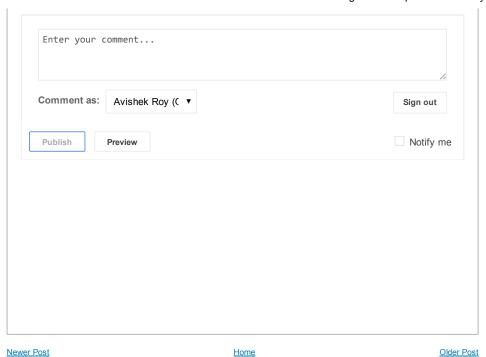
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