



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}+    {yyval=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

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Anonymous [October 27, 2015 at 4:31 PM](#)

Lai avghad ahe he...

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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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