Date: 23/10/2023

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Course Code and Name: Compiler Construction (2CS701)

Practical No.: 7

Aim:

To implement grammar rules for control statements, and Loopcontrol

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Input Files:

- **7.y**

```
%{
#include <stdio.h>
#include <stdlib.h>
%}

%token ID NUM IF '{' '}' LE GE EQ NE OR AND ELSE ELSEIF
   FOR
%right '='
%left AND OR
%left '<' '>' LE GE EQ NE
%left '+"-'
%left '*"/'
%left '!'
%%
Z:Ifelse|S;
Ifelse: ST{
          printf("Valid If else Statement\n");
          return 0;
      };

S: A {
       printf("Valid for loop Statement.\n");exit(0);
     };

ST:IF '(' E2 ')' '{' ST1';"}' ELSE '{' ST1';"}'
```

```
  |IF '(' E2 ')' '{' ST1';"}' G ELSE '{' ST1';"}'
  |IF '(' E2 ')' '{' ST1';"}'
  |IF '(' E2 ')' '{' '}'

G:ELSEIF '(' E2 ')' '{' ST1';"}'
 |ELSEIF '(' E2 ')' '{' ST1';"}' G

A: FOR '(' E ';' E2 ';'E ')' B;

B:'{'
D '}'
 |E';'
 |A
 |
 ;

D:D D
 |E';'
 |A
 |
 ;


ST1:ST
   | E
   |
   ;

E  : ID'='E
   | E'+'E
   | E'-'E
   | E'*'E
   | E'/'E
   | E'<'E
   | E'>'E
```

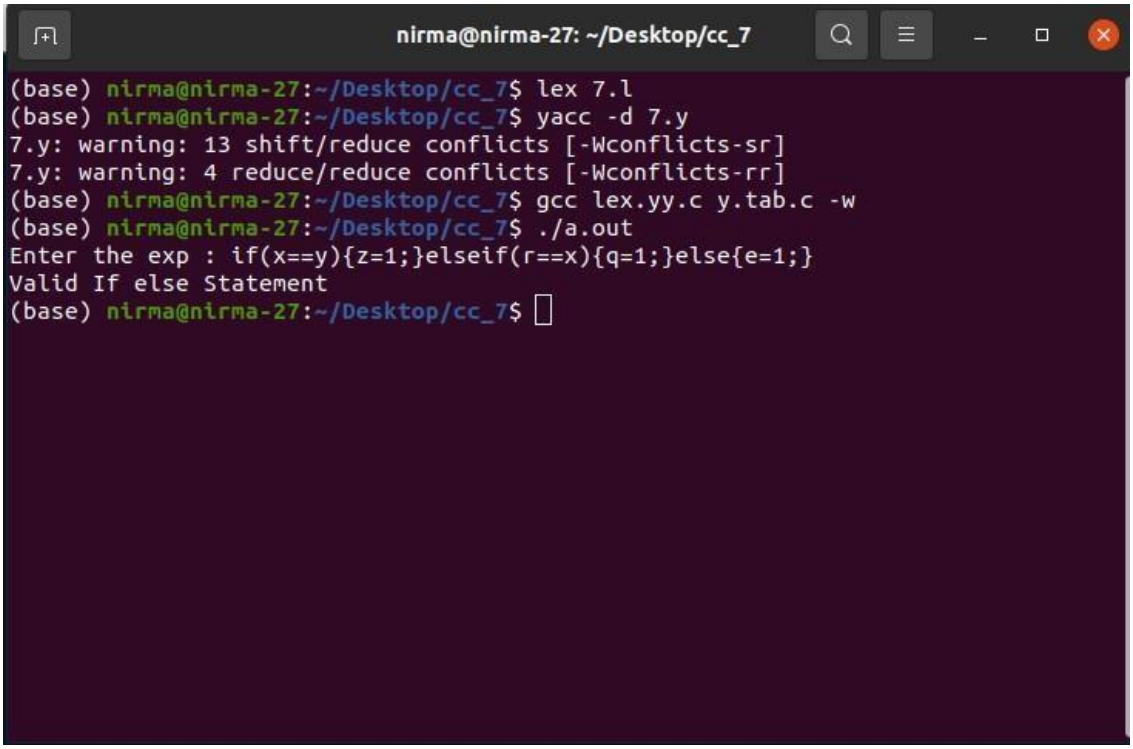
```
   | E LE E
   | E GE E
   | E EQ E
   | E NE E
   | E OR E
   | E AND E
   | ID
   | NUM
   | E'+"+'
   | E'-"-'
   ;

E2 : E'<'E
   | E'>'E
   | E LE E
   | E GE E
   | E EQ E
   | E NE E
   | E OR E
   | E AND E
   | ID
   | NUM
   ;

%%

void main()
{
  printf("Enter the exp : ");
  yyparse();
}
void yyerror(){
   printf("\nEntered Statement is Invalid\n\n");
}
```

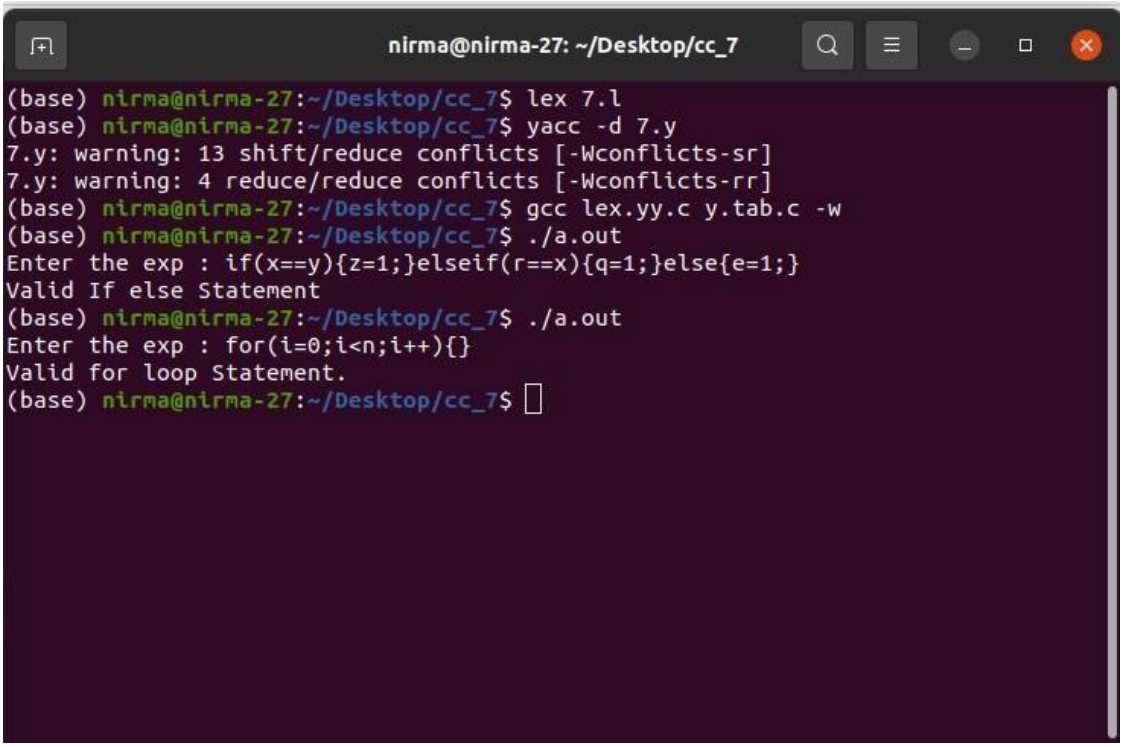
//if(x==y){z=1;}elseif(r==x){q=1;}else{e=1;}

- **7.l**

```
%{
#include<stdio.h>
#include "y.tab.h"

%}

alpha [A-Za-z]
digit [0-9]
%%

[ \t\n]
if    return IF;
else    return ELSE;
elseif  return ELSEIF;
for    return FOR;
{digit}+    return NUM;
{alpha}({alpha}|{digit})*    return ID;
"{"    return '{';
"}"    return '}';
"<="    return LE;
">="    return GE;
"=="    return EQ;
"!="    return NE;
"||"    return OR;
"&&"    return AND;
.    return yytext[0];
%%
int yywrap()
{
return 1;
}’
```

- **Output:**





Conclusion:

After performing this practical, I learn how to implement grammar rules for control statements, and Loopcontrol

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