VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.



LAB REPORT

on

COMPILER DESIGN

Submitted by

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Under the Guidance of Prof. Sunayana S Assistant Professor, BMSCE

in partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING



B.M.S. COLLEGE OF ENGINEERING

(Autonomous Institution under VTU)

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B. M. S. College of Engineering,

Bull Temple Road, Bangalore 560019

(Affiliated To Visvesvaraya Technological University, Belgaum) Department of Computer Science and Engineering



CERTIFICATE

This is to certify that the Lab work entitled "Compiler Design" carried out by JEEVANTHI KASHYAP(1BM21CS080), who is bonafide student of B. M. S. College of Engineering. It is in partial fulfilment for the award of Bachelor of Engineering in Computer Science and Engineering of the Visvesvaraya Technological University, Belgaum during the year 2023-24.

The Lab report has been approved as it satisfies the academic requirements in respect of **Compiler Design- (22CS5PCCPD)** work prescribed for the said degree.

Prof. Sunayana S Dr. Jyothi Nayak

Assistant professor Professor and Head

Department of CSE Department of CSE

BMSCE, Bengaluru BMSCE, Bengaluru

B. M. S. COLLEGE OF ENGINEERING DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



DECLARATION

I, Jeevanthi Kashyap (1BM21CS080), student of 5th Semester, B.E, Department of Computer Science and Engineering, B. M. S. College of Engineering, Bangalore, here by declare that, this lab report entitled " **Compiler Design**" has been carried out by me under the guidance of Prof. Sunayana S, Assistant Professor, Department of CSE, B. M. S. College of Engineering, Bangalore during the academic semester November-2023-February-2024.

I also declare that to the best of my knowledge and belief, the development reported here is not from part of any other report by any other students.

TABLE OF CONTENTS

1	6	CD- Observation I No DE EN X	sted	JE .
-52.55				
Name	Jeevant	ni Kashyap std Compiler Logic Design School/College	Sec Sec	-
Roll No.	Subject	Logic Design School/College		
School/	College Tel. No	Parents Tel. No.	talt los	01
51. No.	Date	notitle generation	Page No.	Teacher Sign / Remarks
No. 1	30/11/23	Program to count the		redifful red
		number of mowels and	ichhe	11
		consonante de de		
	- Julos	de l'il dans a bannas de	adiler	21
2.	2011/53	Edentify tokens, keywords	willia	- 61
		and superator		
3.	27/11/23	Parogram to demonstrate		
		floating point numbers		
4.	4/12/23	Psogram-Replacing sequence		
		:of non-empty spaces		
		with single space		
5.	11/10/100	S		
0,	11/12/23	Program to recognize tokens oner alphabets		
		\$08,92		
44.14		70	1	
6.	18/12/23	Program to design		
314 17		Program to design Lerical analyses		
De la		9		
7.	1101/24	Program - Ricussine		
9.71.		Descent		
1-01	1 15 15 15			
8.	11/1/24	Program to demonstrate		
714		Program to demonstrate disk Calculator		

73	of want	CD- Charevo	Paga	Te
SI. No.	Date	Title Title	Page No.	Re
9.	ul flou	Pameam to demonstrate	EV D V33	2
Vis I	1112	Program to dimonstrate Storing Parsier	739 du2	
10			The second secon	170
10.	211124	Program to show syntax true generator	5100	
		MELLING COUNT BY	ES 11 0	ō
11.	39/1/24	Program to show infin to postfix EYACC)		
12.	29/1/24	Thou-address Code generator using YACC	8911 00	000
		Bagram Lo demenstrate	Ec[11]E	9

```
Lex Program to identify alphabeach character as vowel or consonants in a
    given sentence.
[aciou A EIOU] & print f (" 1 c is a nowel",
yetext [o]);?

[a-ZA-Z] & print f (" 1 c is a consonant",
yetext [o]);?
              print + (" Enter the file name: "
   int main () { (mont in the ) from }
      seturn 0;
     Output :-
   Hi World
   H is a Consonant
          · vowel
         " consorant
       n no vonelso no trugtore tring of
          n consonant
  Lower start world Hing ? world toolf this
```

```
/ option nogywrap

// E

#include (station)

#
```

```
Enter a sentence:
Compiler design
No of vowels and consonants are 5 and 9
This is a book
No of vowels and consonants are 5 and 6
```

```
#include ( stdio by
  -1.79
  [0-9]+ { printf (" Integer: 1.5", yytext), ?
 [a-zA-z]+ { printf (" variable: 1/15, yytext);
 [ ye In] { prints (" Whitespace
  void main ()
 I paint + (" Enter the file name: ");
  Searl (4-1.5", frame);
yylen = fopen (frame,
    fclose (yylen);
   Output:
   Reignords: float
  nuribes: 0978
   character: abc
To paint output on output file
-1--1-
int Ifloat Ichar & printf (44yout, " keyword: 4.5")
 [0-9] * Aprint (yyout, "number: 1,8 yytent), ?
[a-3A-Z) * Sprintf (eyyout, "character 1 16 "
word mais ()
 printf (" Enter input file name: "); 3;
Scanf ("/8", frame);
printf ("Enter output file name: ");
       scanfly,s"> frame);
```

Count the no of words # include Latdio h> following input cases. 177 [a-8A-ZB-9] + & C++; ? 16/2 bullion + In { print (Count is 1/ds", c);? int Lyyweap() Horing? (P-015[-1]) int main () print + (" Enter the sentence?"); yylex(); setuno; Dutput: Enter the sentence: My name is Jeevanthi Count 4. yen = fopen (frame, ""); gyput = foren (forance)"""); Tycfdose (yyin); prosent o tole 2 output: enter input file name enter output file name pout tat

```
enter the input file name
input.txt
enter the output file name
output.txt
```



int Keywords a Identifiers, Seperatorb Identifiers; Seperator

PROGRAM-3:

```
Diverde a program in LEX to sucognize
   Floating Point Numbers Chick for all the
   following input cases.
    # include (stdio.h) } + [P-0] S-A
   //: 3
^[+-]?[0-9] + [.][0-9]+ [printf ( Flotating Point
   Number"); ?
   ^[4-]?(0-9)* [printf (" Not a valid floating
   point Number"); ?
   int yywordp. Onother set who " I trieze
    int main ()
    yylex ()
   greturn O
Output:
Not a valid floating point Number
Floating point Number
Not a floating point number ( ) 13
-625.D
Floating point number
Floating point number of other
```

```
Enter a number:

23

Not a floating point number!

0.5

Floating point number!

.8

Floating point number!

-.9

Floating point number!

+56

Not a floating point number!
```

```
1) Weite a LEX program that copies a file, orplacing each nonempty sequence of white space by a single blank.
                                                                yyla
                                                               int
  %-5
  # include (stdio. h)
  # isclude (string.h)
                                                               Outpu
  # include < stallib h>
  char ste 1[200]:
                                                                  i
  1.2
[in] ffpsintf (yyout, "1.s\n", strl); strl[o]="10";?
                                                                 En
 []* 1[it] Efprint (yyout, "/s", str); my to
     stx[0]=10'; + prints (yyouts "/, "");?
    streat (sta 1, yytext);
  <= EDF>> {f paint f(yyout, "75", stil);
            return 0; ?
                 in suntence day not en
 int main ()
 extern FILE * yyin, * yyorit;
char filename [100];
printf (* Enter the name of the file to copy : \t');
scanf (* 1.1", filename);
  yyin = fopen (filename, "2");
 is (yyin = = NULL)
9 exit (0);
perint (" Enter the name of the file to wide: 1+");
scanf ("218", filename);
scanf ("18", filename, "w");
    exit(1);
```

2

yylex();

int yywrap()

Output:

Enter the name of the file to copy

input. txt

Enter the name of the file to copy

output. txt.

Enter the name of the file to copy: input.txt
Enter the name of the file to write: output.txt





```
2) Write a LEX program to recognize the
    following tokens over the alphabets
    70,1,92
                                             # i
  a) Set of all strings ending with 00
                                             #
                                             int
                                              ./. 2
  [0-9]*00 & printf ("String accepted");?
                                             10
   [0-9] * & printf ("String rejected"); ?
  inthygywapl its file Ogarwyg the
  ant main ()
  yylexl);
  neturn 0;
  Output:
  10100
  String accepted
  34550
  Storing rejected
5] Set of all strings with 3 consecutive 222's
 [0-9] * 222 [8-97* {printf (4 string accepted))
                    & paint (" string rejected")
 TO-9)*
```

```
d)./. {
                            4 include (station h)
 # include (stdio.h)
 # include ( math. h)
 int value =0, i, j=0, flag=0;
 1/1/2 * { for (i= yyleng-1; i>= 0; i-)
 1/3
  E value = value + (yytext [i]-48) * pow(2i);
j++;
           (value 1.5==0) ) Itting ? * Satisfab?
  [in] setun 0;
  int yourap() § ? int main()
                                         neutur 0
                                          Output :-
  fyylex(); if (flag = = 2)
     printf ("fail\n"); (1 dtoxx) ibulon #
   situen 0;
  Success
                   (84-(1)+x+pp)=+20000 g
```

```
e) 1/5
      # include (stdio.h)
                          value = 0, i j = 0, flag = 0
      digite [0-9]
     {digits}* 1 {digits } {digits } {digits } {digits } {digits }
    {digite? { digite? { digite? { digite?
                                                    my si
        {printf ("1.5 10th symbol from right end is
                                                     1.-1
                                                      in
                                                      ur
     Edigite? * & peint (" / s not 11", yytent) 3}
     int yywap()$ }
    & yylex();
                                   int yourapus ??
     return 0;
    Output:
  10428169.73

4 10 th symbol from sight end is 1 thing
    10428169.73
 f) 1. 8
  # include (stdio.h)
   # include < math. h) ("n/1107-") this
  int value = 0, i, g=0, flag=0;
 digita [0-9]
Sougite? {digite} {digite} {digite} {for (i=1)leng!)
       2 value + = (yytent[i]-48);
```

```
24 (value = = 9)
    f flag = 2;
Myseteen O;
 int yy wap () 8? int main ()
 g yylen (); =1)
  & peints (" success(n");
    peints (" fail (n");
 Between D;
  I include (stdio.h)
   # wellede < math. hy
   int value =0, i, j=0, flag=1;
 Sdigte? digite? fdigite? fdigite? for (i=0;

digte? digite? fdigite? fdigite? fdigite?; i++)

fil (yytext (i) > yytext (i+1))

flag=0;

flag=0;
```

```
int yyweap () { ?

int main ()

E yylen ():

if (flag = = 1):

E printf (" nucces \n");

else

E printf (" fail \n");

entumb;

Interpose of the print of the pri
```

```
bmscecse@bmscecse-OptiPlex-5070:-/Documents/18M21CS083$ ./a.out
1111
successbmscecse@bmscecse-OptiPlex-5070:-/Documents/18M21C5083$ ./a.out
bmscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS083$ lex re5.l
bmscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21C5083$ cc lex.vy.c
bmscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21CS083$
bmscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS083$ ./a.out
1023002245
1023002245 10th symbol from right end id 1
^Z
[1]+ Stopped
                               ./a.out
bmscecse@bmscecse-OptiPlex-5070: /Documents/18M21CS083$ lex re6.l
bmscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21C5083$ cc lex.yy.c
bmscecse@bmscecse-OptiPlex-5070:-/Documents/18M21C5083$ ./a.out
9000
success
bmscecse@bmscecse-OptiPlex-5070:~/Documents/18M21C5083$ ./a.out
4005
success
bmscecse@bmscecse-OptiPlex-5070:-/Documents/18M21CS083$ ./a.out
123
123fail
```

```
fail
bmscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS083$ lex blank.l
bmscecse@bmscecse-OptiPlex-5070:-/Documents/18M21CS083$ cc lex.yy.c
bmscecse@bmscecse-OptiPlex-5070:~/Documents/1BMZ1C5083$ ./a.out
Enter the name of the file to copy:
                                        input.txt
Enter the name of the file to write:
                                        output.txt
bmscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS0B3$ lex re1.l
bmscecse@bmscecse-OptiPlex-5070:-/Documents/18M21CS083$ cc lex.yy.c
bmscecse@bmscecse-OptiPlex-5070:~/Documents/18M21C5083$ ./a.out
24900
24900 string ends with 00
2352
2352 string does not end with 00
^Z
[2]+ Stopped
                              ./a.out
bmscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21C5083$ lex re2.l
bmscecse@bmscecse-OptiPlex-5070:-/Documents/18M21CS683$ cc lex.yy.c
bmscecse@bmscecse-OptlPlex-5070:-/Documents/1BM21CS083$ ./a.out
12142
12142 string does not have 222
24322245
24322245 string has 222
```

```
mscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS083$ cc lex.yy.c
usr/bin/ld: /tmp/ccNpRHPT.o: in function `yylex':
ex.yy.c:(.text+0x33f): undefined reference to `pow'
ollect2: error: ld returned 1 exit status
mscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21C5083$ cc lex.yy.c -lm
mscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS083$ ./a.out
01
uccessbmscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21CS083$ cc lex.yy.c -lm
mscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21C5083$ ./a.out
uccessbmscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21CS083$ ./a.out
mscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS083$ lex re5.l
mscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS0B3$ cc lex.yy.c
mscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS083$
mscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21CS083$ ./a.out
023002245
023002245 10th symbol from right end id 1
1]+ Stopped
                             ./a.out
nscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21C50B3$ lex re6.l
mscecse@bmscecse-OptiPlex-5070:-/Documents/1BM21C5083$ cc lex.yy.c
mscecse@bmscecse-OptiPlex-5070:-/Do
```

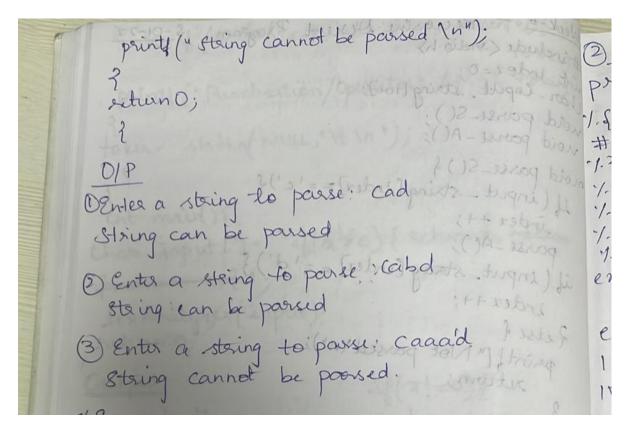
```
bmscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21CS083$ lex re7.l
bmscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21CS083$ gcc lex.yy.c
bmscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21CS083$ ./a.out
45612
2fail
bmscecse@bmscecse-OptiPlex-5070:~/Documents/1BM21CS083$ ./a.out
1234
success
```

```
Waite a program to design Lexical Analyzer in
 C/C++/Java/Plython Language (to recognize any fine keywords, Edentifiers, nos, operators
#include (stdio.h)
# include (string. h)
# include (ctype.h)
roid lex Analyzer (char input [7) {
 char * keyword[] = {"if", "else", "while", for
char * operator [] = {"+", "-","+
char * punctuation []= [",",",","(",")",
chou + token [] = statkn (input, " (tln");
while (token! = NULL) {
  if ( isdigit (token [o] )) {
     printf ("Number: 11/s In", token);
 ? else if (isalpha (tokun[0]) 11 token[0] == 1-
   int iskeyword = 0;
 for (int i = 0; iz size of (Reynords)/
size of (Reynords [0]); i++)?
  if (strong (token, Reynord[i]) = 0){
     printf (*Keyword: 1.8 \n", token);
      isky word = 1;
 if (! keyword) f
    printf (" & dentifier: 1.8 \n", token);
```

```
? else if (steche("+-+/= <>; (), ", token(0))!=
                                               Week
    print ("Punctuation/Operator: /sln", token)
                                               #ir
                                                unt
    token = statkn(NULL, "It In");
                                               nois
     int main() {
   Char input [) = "if(x = 0) { seturn ; relse
    facture x; ? "
   len Analyzes (input);
                         ] if(x!=0){000
  Punctivation Deperator:
                        MAN
 Keyword: its
 Punctuation / Operators ( ) signs is for sels &
  Identifier: 2
 Punctuation / Operator: =
  Number: 0
Punction Operator: ) and growth
10 Keyword: sitish
 Punctuation/Operator:;
     " - dentifica: 12 / " token):
```

```
enter c code
int a = 1234 ;
Keyword: int
Identifier: a
Punctuation/Operator: =
Number: 1234
Punctuation/Operator: ;
```

```
(-))1=
          Week-6 - Recursine Descent Program 8-01-22
         # include (stdio. h)
         unt indez=0;
         char input stoing [100];
         noid parse-S();
         noid pourse - A();
         moid parse_S() {
ons di
          if (input - string [index] = = 'c') of
            index ++;
            pourse -A();
          if (input_string [index] == 'd') }
index ++;
          Felse &
          perint ("Not passed \n"); of puttern;
         else &
         prints (" Not parsed In");
       nold parse_A() {
         af (input_string [index] = = 'a') {
           af (input string [index) == 'b') {
             index ++;
       int main () {
       prints ("Enter a string to peursi:");
scanf ("1.8", input string);
       parse_S();
       if (input - & bring [index] = = 1(0') {
prints (" Stoing can be parsed "n");
      9 else 1
```



```
inter the input string:
ad
ello
arsing failed. Extra characters found.
mscecse@bmscecse-HP-Elite-Tower-600-G9-Desktop-PC:-/Documents$ ./recursive_descent
nter the input string:
aaad
ello
arsing failed. Extra characters found.
mscecse@bmscecse-HP-Elite-Tower-600-G9-Desktop-PC:-/Documents$ ./recursive_descent
nter the input string:
ab$
ello
arsing successful.
mscecse@bmscecse-HP-Elite-Tower-600-G9-Desktop-PC:-/Documents$ ./recursive_descent
nter the input string:
aad$
ello
arsing failed. Extra characters found.
mscecse@bmscecse-HP-Elite-Tower-600-G9-Desktop-PC:-/Documents$ ./recursive_descent
nter the input string:
abd$
ello
arsing successful.
mscecse@bmscecse-HP-Elite-Tower-600-G9-Desktop-PC:-/Documents$ ./recursive_descent
nter the input string:
aaad$
ello
arsing failed. Extra characters found.
```

```
3. Desk Calculator)-
                             THON BY ENTED !!
      1. of include < stdio. h)
     1/token NUM
       1. left 1+1
       1. right '-'
       enpr: e of printf ("Valid expression \n");
       painty ("Result: ".d(n", $ $); ection 0; ?
       e:e+'e {$$=$17$3;}
2 else
       1c'-'e {$$=$1-$3;}
       1, cp = $ $ = $1; }
       1.1.
      int main ()
      Speintf ("In Enter an arithmetic expression \n");
       Jyparse();
       returno;
      int yyerror ()
      prints (" In Invalid expression(n");
      setuin 0;
     progJ.l:-
    #include ytab, h"
    [-6-9] + Sylval=atoi (zytext); seturn NUM; {
    in actiono;
```

netion & Eyytent(o);

///

Output:

commands:

> lex prog!!

> yacc -d prog! y

(acc lex yy c y tab c

> lex an arithmetic expression

Enter an arithmetic expression

S+6-3-6

Valid expression

Rusult: 14.

OUTPUT SCREENSHOT:

Enter an arithmetic expression: 2+3*4 Valid expression! Result:14

Enter an arithmetic expression: 2++3-Invalid expression!

```
String Match Program:
                                             (clay lay (bai) set offer) has
                                                                                                                                                 8: SA
                   P. L:
                  Hinclude < stdio hy
                                                                                                                                                  roid me
                  # include < stallib, h>
                # include "y tab his ) was thing you
                                                                                                                                                    prints
                  exten int yylval; (1-1-bal-ous)
              [aA] {yyval = yytext [0]; return A; }
              [bB] fyyral= yytext [0]; setten B;?
                                                                                                                                                   & prints
              In { outron NI; ?
                 . { setuen yytest FoJ; ?... bis 200)
                                                                                                                                                        Outpu
              int yywaap () what about recovery ) there
                                                                                                                                                          Entes
                                                                                                                                                             aa
                outur 1 jot mer bus cont back robot
                                                                                                                                                          Pours
            val, syn-ter (cus-ind). Les syn-trus (cus)
                                                                                                                                                              Va
                                 11. print tout syn-true [ cossino]. Is
                                                                                                                                                              ab
                                                                                                                                                             In.
      # include (states by see - 190) sod bis
     # include (stallib h)
      and yyerros ( char + 5);
 ant yyers (char

ant yyers (noid);

ant yyer (noid);

ant yyers (char

ant yyers (ch
   ./. token A: was o extent cabolt bulg
1. Lokun B. mov & Frebrit Caboli whom
  1. boken NL stand 1 19616
   smta: A A A A A S B NL Print (" Parsed neing the sule (a'i)b, n>= 5. In Valid Stir
```

```
dupin to Postfin Program .
           S: SA
                                              I molude & state A>
          Sprints (" Enter a string ! h"); doct g"
yyparse ();
                                          include ( stalls . hs
         int yyers (char * s) ;

{ print ( "Invalid String! \n");
          geturn D;
         Output:
       Enter a string:

aaaaaaab

poorsed using the stule (a^n) b, n7=5

Valid String!

ab

Anvalid String
20
```

```
Enter a string!
aaaaaaab
Parsed using the rule (a^n)b, n>=5.
Valid String!
ab
Invalid String!
```

```
Enter a string!
abc
Invalid String!
```

```
Write a YACC program to generate syntax true for the given anothmetic expression.
  word my paint true (int scor ind): 1.9
  1.8
  #include "y. tab. h" gol true bondo tol.
  extern int yylval;
  -13
  [0-9] + { yyval = atoi(yytext); return digit;?
  FEXT of $ 1 - munode ($1.43; [+3])
   [In] neturn 0; Silt = tot } t
   action yytent [0];
  int yyurap ()
                 FC 1 - $27 ( 1) 1 1
      1) digit f chas that [10]: sprints ( but "/
#include < moth h> 1-1-) aboutor = + b
#include < ctype b>
# include < stdio h>
                              Union Int.
# Include (Stallib. h)
# include < storing h)
struct Free node
   char val[10];
   int de;
    int oc;
              of MARS WOMEN Hing !
```

```
int ind;
struct truenode syn-teu [100];
      noid my-paint-tace (int curr-ind);
      int menode (int les int re chair)
     -1.3
  ./ token digit
 S: E { my-print true ($1);}
 É: E'+'T of $$ = mknode ($1,$3,"+"
  1+ { $$=$1;?
T:T* F {$$=mknode ($1, $3, "*");
   IF f $ = $1; 2
   F: ('t')' &$$ = $2;7
  Il digit & char buf [10]; sprintly (but "1.d",
  $$ = mknode (-1, -1, but) in 2 a subulari
                        wholude c etype 1>
 1.1.
                        include (stationy)
                        include Catallib. h)
 { ind = 0;
 prints (" Enter an expression (n"); shulain
   yyparse ();
   return D;
                            chas val(10).
int yyerros ()
                               ione dris
 & prints (" NITH Error In");
```

```
unt mknode ( int le, int rc, chas, val [10])
         E strepy (syn-tree [ind]. val, val);
syn-tree [ind], lc = lc;
val [10]
           syn_thee [ind] . 9c = 9c;
           ind ++; return ind =1,000 > souloin to
                           the wicheda extellib. hs
         noid my-print-tone (int cue-ind)
        of if (cur-ind==-1) therty took mostly
15 51
           return:
         if (syn_tre[cus_ind].lc==1 && syn_trie
            [ icus. ind] . oc == -1)
          prints ("Digit Node -> Index: 1. d",
              cur-ind, syn-tace [ cua-ind]. val);
       prints ("Operator Node -> Index: 1/d, Value:
          1.8, Left Child Index: Y.d. Right Child
        Index: 1. d In", cus_ ind, syn-tile [cuaind].
          val, syn-tou [cus-ind). lc. syn-true[cus-
                                          ind ]. 90);
       my-print tree (syn-tree [cus-ind]. Le);
       my print tree (syn-true [aux ind]. sc)
                              It include Latellie has
                            ist experse ( char + 5):
    Dutput;
   Enter an expression:
                              your (noid);
   Operator Node > Index: 4, Value + , left child
                  index: 0, Right child Index: 3
   Digital Node - Index: 0, Value: 4 Mode.
   Operator Node > Index: 3, Value: *, left child
                   Inder: 1, Right Child Index: 2.
   Digit Node - Index: 1, Value: 6
    Digit Node - Index+2, Value 9.
```

```
Enter an expression:

2*3+5*4

Operator Node -> Index : 6, Value : +, Left Child Index : 2,Right Child Index : 5

Operator Node -> Index : 2, Value : *, Left Child Index : 0,Right Child Index : 1

Digit Node -> Index : 0, Value : 2

Digit Node -> Index : 1, Value : 3

Operator Node -> Index : 5, Value : *, Left Child Index : 3,Right Child Index : 4

Digit Node -> Index : 3, Value : 5

Digit Node -> Index : 4, Value : 4
```

```
India to Postfix Program :
                                                         e ; e +
      P.1:-
     # include < stdio h>
     # include (stallib.h)
    # include "y. tab. h" ! griet o (1) in
extern int yylval;
    1.1.

[0-9] + fyylval= atoi (yytext); return rum;
    [1+];
     In & greturn 0;?
    · faitun yytext[0];?
   P.4:
  .1.5
 # include (stdio.h)
 # indude < stalis h>
# int yyeror (const eher + s);
int yyer (noid);
                                                           netu
                                                         Output.
                                                           Enter
                                                             2 1
  1. token nump
                                                            238
s: e & prints ("In")?
```

```
e, e + t { prints ("+"); de show which
   1e' -t' & print ("-"); ?
   it:/'nfprints ("/"); it districts abusin the
  h: f'n'h { prints (" ^"); it clause sons neither
  Incum & printh (">d", $1)?
 (of February Lides, system): The L-1.
 word main ()
  prints ("Enter an infin expression: \n');

Yyparse ();

Int yyerror (const char + s)

Sprints ("Invalid Infin Expression!\n');

Intyperson ("Invalid Infin Expression!\n');
  return D:
Output:
```

Enter an infix expression: 2+3*8/4^3-3 238*43^/+3-

```
Address Code - Program
   P.l
   #include <stdio.hy(" * ") thing | No
  1.8
  # include & stallib. h) ( ) frigg
  # include "y.tab.h"
extern int yylval;
   extern int gylval; extern chas iden[20]; " ) from
  7.2
   d [0-9]+
   a [a-zA-z]+
  fol ? yybral = atoi (yytext); return digit;
  far f strepy (iden, yytext); yynal=1;
  [1+] fift missinger signi en attage ) the
  In suttern D;
  · Situan jytext[0];
                 (2 + world terror) somery IN
              eneques eight bilowet " place
   niturn 1
#include (math. h)
# include < ctype by
int yyearor (char * s);
 int yylex (noid);
 int var_cut = 0;
char iden [20];
 1.3
```

```
(x = podo ) 1000 (xp. 100)
     1. token id
    1. token digit
    S: id = E { printb ("/s = t/d \n', iden, vox. cnt-1)
    E: E + + $$$ = var - ent; var - ent ++; printb (14/d=
                     tツd+tツd; \n", $$, $1, $3); 2
    It - 'T& $$= var_cnt; mas_cnt ++; prints
                          [ wed = t /d+ t/d; In;
                            $$,$1,$3);3
    IT = {$$ = $1;?
   T: T '* F & $ = var-cnt; mar cont ++;
             print("t).d = t/.d * t/.d; \n", s),
                                (83), (83), 2
   17 11 Fd $ $ = var-cnt; var-cnt ++; prints / 4+1 d-
            +1d/+1d; \n", $$,$1,$3),3
   1F. 511 = $1;?
  F:P ' n' F $$$ = var-cnt; var - (nt++; print) ("+-1d=
           t/d ^t/d; \n", $$,$1,$3); }
  IP . f$$ = $ 13 }
  P: ((E)) + 1$ = $23}
 | digit &$=vour_cnt; var-cnt ++; print("+1/d=1/d")
                                           n 1, $$, $1)
int mais ()
printy (" Enter an Expression: In");
1 var_ ent = 0;
  yy passe ();
 situano;
```

```
Enter an expression:

a=2*3/6-4

t0 = 2;

t1 = 3;

t2 = t0 * t1;

t3 = 6;

t4 = t2 / t3;

t5 = 4;

t6 = t4 - t5;

a=t6
```