

11/03/2021

A5: Implementation of Desk Calculator using YACC Tool

185001188
Vanathi G
CSE-C

Code -

a5.l :

```
%{
    #include <stdio.h>
    #include "y.tab.c"
    extern YYSTYPE yylval;
}%

%%

[0-9]+ {yylval = atoi(yytext); return NUM;}
[t] ;
[n] return 0;
. return yytext[0];

%%

int yywrap(){
    return 1;
}
```

a5.y :

```
%{
    #include <stdio.h>
    #include <math.h>
    #define YYSTYPE double
    void yyerror();

    int err_flag = 0;
}%

%token NUM
/* for prec., first declared = lowest prec and left, right used to specify associativity */
%left '|'
%left '&'
%left '+' '-'
%left '*' '/'
%right '^'
%right '!'
%left '(' ')'
```

%%

```
S : E {printf("Result: %.2f\n", $$);}
E : E '+' E {$$ = $1 + $3;}
  | E '-' E {$$ = $1 - $3;}
  | E '*' E {$$ = $1 * $3;}
  | E '/' E {$$ = $1 / $3;}
  | E '^' E {$$ = pow($1, $3);}
  | E '&' E {$$ = $1 && $3;}
  | E '|' E {$$ = $1 || $3;}
  | '!' E {$$ = !$2;}
  | '(' E ')' {$$ = $2;}
  | NUM {$$ = $1;}
```

%%

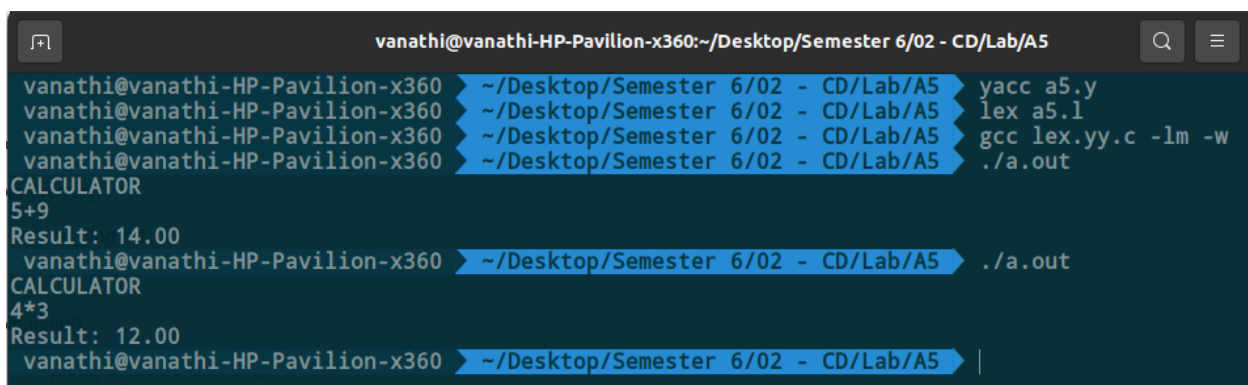
```
void yyerror()
```

```
{
    err_flag = 1;
    return;
}
```

```
void main()
```

```
{
    printf("CALCULATOR\n");
    yyparse();
    if(err_flag)
    {
        printf("Enter numbers and operators only!\n");
    }
}
```

Output Screenshot -



```
vanathi@vanathi-HP-Pavilion-x360:~/Desktop/Semester 6/02 - CD/Lab/A5
vanathi@vanathi-HP-Pavilion-x360 ~/$ yacc a5.y
vanathi@vanathi-HP-Pavilion-x360 ~/$ lex a5.l
vanathi@vanathi-HP-Pavilion-x360 ~/$ gcc lex.yy.c -lm -w
vanathi@vanathi-HP-Pavilion-x360 ~/$ ./a.out
CALCULATOR
5+9
Result: 14.00
vanathi@vanathi-HP-Pavilion-x360 ~/$ ./a.out
CALCULATOR
4*3
Result: 12.00
vanathi@vanathi-HP-Pavilion-x360 ~/$
```