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A5: Implementation of Desk Calculator using YACC Tool

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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 -