

## Exp 7b : A^n B

### LEX

1. Start
2. Lex Section – Rules
  1. [aA] Return the token `A` when the letter 'a' or 'A' is matched
  2. [bB] Return the token `B` when the letter 'b' or 'B' is matched
  3. \n Return the token `NL` when a newline character is matched
  4. . Return the matched character as is
3. yywrap Function - Return 1 to indicate the end of input
4. Stop

### YACC

1. Start
2. %token A B NL: Define token names for 'A', 'B', and newline.
3. T -> A A A A A S B NL  
Defines a rule for a valid string consisting of five (minimum) 'A's followed by 'B' and a newline. When matched, it prints "valid string" and returns 0.
4. S -> S A | ;  
Defines a rule for a sequence of 'A's, possibly empty.
5. yyerror() : This function is called when a syntax error is encountered. It prints "invalid string" and returns 1.
6. main() : Prompts the user to enter a string and calls yyparse() to start the parsing process
7. Stop

### a^n b ( Lex )

```
%{  
    #include "y.tab.h"  
%}
```

```
%%  
[aA] {return A;}  
[bB] {return B;}  
\n {return NL;}  
. {return yytext[0];}  
%%
```

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

a^n b ( YACC )

```
%{
    #include<stdio.h>
}%
%token A B NL

%%

T: A A A A A S B NL {printf("valid string\n");
                      return 0;
};

S: S A | ;
%%
```

```
int yyerror(){
    printf("invalid string\n");
    return 1;
}

int main(){
    printf("enter the string\n");
    yyparse();
    return 0;
}
```

output

```
● deadpool@daredevil:~/Desktop/s7-CD/03 YACC/a^n b$ flex anb.l
● deadpool@daredevil:~/Desktop/s7-CD/03 YACC/a^n b$ yacc -d anb.y
● deadpool@daredevil:~/Desktop/s7-CD/03 YACC/a^n b$ gcc lex.yy.c y.tab.c -o anb
y.tab.c: In function 'yyparse':
y.tab.c:1021:16: warning: implicit declaration of function 'yylex' [-Wimplicit-function-declaration]
1021 |         yychar = yylex ();
      |                  ^~~~~~
y.tab.c:1164:7: warning: implicit declaration of function 'yyerror'; did you mean 'yyerrok'? [-Wimplicit-function-declaration]
1164 |         yyerror (YY_("syntax error"));
      |         ^~~~~~
      |         yyerrok
● deadpool@daredevil:~/Desktop/s7-CD/03 YACC/a^n b$ ./anb
enter the string
AAAAAB
valid string
● deadpool@daredevil:~/Desktop/s7-CD/03 YACC/a^n b$ ./anb
enter the string
AAAB
invalid string
● deadpool@daredevil:~/Desktop/s7-CD/03 YACC/a^n b$ ./anb
enter the string
AAAABBBB
invalid string
● deadpool@daredevil:~/Desktop/s7-CD/03 YACC/a^n b$ ./anb
enter the string
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAB
valid string
● deadpool@daredevil:~/Desktop/s7-CD/03 YACC/a^n b$
```