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221IT085

IT250 Lab Assignment 10

Q.Write Lex and Yacc program for the following

1) which accepts strings that start and end with p or q.

Lex Code

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

%%
p { return 'p'; }
n { return 'n'; }
q { return 'q'; }
\n { return newline; }
. { printf("Invalid Expression\n"); exit(0); }
%%

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

Yacc Code

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

void yyerror(char *);
int yylex(void);
%}

%token p n q newline

%%
line : term newline { printf("Sequence Accepted\n"); exit(0); };
term : p power n q { printf("Sequence Accepted\n"); exit(0); };
power : n power | n n | ;
%%

void yyerror(char *msg) {
    printf("Invalid Expression\n");
    exit(0);
}

int main () {
    printf("Enter the string: ");
    yyparse();
}
```

OUTPUT

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ lex 1.l
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ yacc 1.y
1.y: warning: 69 shift/reduce conflicts [-Wconflicts-sr]
1.y: note: rerun with option '-Wcounterexamples' to generate conflict counterexa
mples
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ cc lex.yy.c y.tab.c
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: qppqppq


Sequence Accepted
```

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: ppqqqpq


Sequence Accepted
```

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: agcp


Invalid Expression
```

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: p12pytrq


Sequence Accepted
```

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: q$rtgpp


Sequence Accepted
```

2) to recognize strings of { p^nq | n ≥ 3 }

Lex Code

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

%%
p { return 'p'; }
n { return 'n'; }
q { return 'q'; }
\n { return newline; }
. { printf("Invalid String\n"); exit(0); }
%%

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

Yacc Code

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

void yyerror(char *);
int yylex(void);
%}

%token p n q newline

%%
line : term newline { printf("Valid String\n"); exit(0); };
term : p power n q { printf("Valid String\n"); exit(0); };
power : n power | n n | n n n | ;
%%

void yyerror(char *msg) {
    printf("Invalid String\n");
    exit(0);
}

int main () {
    printf("Enter the string: ");
    yyparse();
}
```

OUTPUT

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ lex 2.l
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ yacc -d 2.y
2.y: warning: 69 shift/reduce conflicts [-Wconflicts-sr]
2.y: note: rerun with option '-Wcounterexamples' to generate conflict counterexa
mples
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ cc lex.yy.c y.tab.c
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: ppppppq


Valid String
```

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: ppppppqq


Invalid String
```

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: ppqq


Invalid String
```

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: 1ppp&thq


Invalid String
```

```
nithin@nithin1729s:~/Codes/Sem4/IT250/Lab/Lab_10$ ./a.out
Enter the string: rtuj5pppq


Invalid String
```