

Quiz 7 Solution

Quiz 7 Solution

Implement a lex and yacc file that determines if an input file is syntactically correct based on the grammar shown below. You can assume the input comes from stdin (i.e. you are not using IOMngr or the macro I gave you for the (lex file). Your program should output the string "Success" when the input is correct and it should output "Failure" when the input is not correct.

Quiz 7 Solution

Goal \rightarrow { List }

List \rightarrow NestedList List

List \rightarrow ϵ

NestedList \rightarrow (NestedList List)

NestedList \rightarrow (ItemList)

ItemList \rightarrow Ident, ItemList

ItemList \rightarrow IntLit, ItemList

ItemList \rightarrow Ident

ItemList \rightarrow IntLit

An Ident is a sequence of one or more letters and an IntLit is a sequence of one or more digits.

Quiz 7 Solution

{(10)}

{(10,20,abc)}

{(10)(20)(30)}

{((10))}

{((10,20)(abd))}

{((10, 20)(abc,def,100)(2,4,8,16))(1,2,3)((9,99)(8,88))}

Quiz 7 Solution

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

```
letter [A-Za-z]  
digit [0-9]
```

Quiz 7 Solution

```
%%  
{letter}{letter}* {return Ident;}  
{digit}+ {return IntLit;}  
\( {return '(';}  
\) {return ')'}  
\[ {return '[';}  
\] {return ']'}  
\, {return ',';}  
\{ {return '{'}  
\} {return '}';}  
\t {}  
\n {}  
[ ] {}  
%%
```

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

Quiz 7 Solution

```
%{
```

```
extern int yylex();  
extern int yyerror(char *);  
extern char * yytext;  
#include <stdio.h>  
#include <stdlib.h>  
%}
```

```
%token Ident  
%token IntLit
```

Quiz 7 Solution

%%

```
Goal      : '{' List '}'      {printf("Success\n");};
List      : NestList List    {};
```

List	:		{};
NestList	:	(' NestList List ')	{};
NestList	:	(' ItemList ')	{};
ItemList	:	Ident ',' ItemList	{};
ItemList	:	IntLit ',' ItemList	{};
ItemList	:	Ident	{};
ItemList	:	IntLit	{};

%%

Quiz 7 Solution

```
int yyerror(char *s) {  
    printf("%s Failure\n", yytext);  
    exit(1);  
}  
  
int main(int argc, char * argv[]) {  
    yyparse();  
}
```