

```
//-----  
//File mcr.cpp processes command line arguments and invokes lex (yylex)  
//to find tokens in the input file.  
//-----  
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//-----  
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//-----  
//C++ include files  
//-----  
#include <cstdlib>  
#include <cstring>  
#include <iostream>  
#include <fstream>  
#include <cstdio>  
#include <string>  
#include <iomanip>  
using namespace std;  
//-----  
//Application include files  
//-----  
#include "mcrlex.h"  
//-----  
//FileException is thrown when a file whose name is given on the command line  
//cannot be opened.  
//-----  
struct FileException {  
    FileException(const char* fn)  
    { cout << endl;  
      cout << "File " << fn << " cannot be opened.";   
      cout << endl;  
    }  
};  
//-----  
//-----  
//CommandLineError is thrown when too many arguments are put on the  
//command line  
//-----  
struct CommandLineException {  
    CommandLineException(int m,int a)  
    { cout << endl;  
      cout << "Too many file names on the command line.";   
      cout << endl;  
      cout << "A maximum of " << m << " file names can appear on the command line.";   
      cout << endl;  
    }  
};
```

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    cout << a << " file names were entered.";
    cout << endl;
    cout << "p01 (<input file name> (<output file name>))";
}
};
//-----
//Function Title prints a title
//-----
void Title(ostream& o)
{ o << endl;
  o << setw(15) << "Token Code";
  o << " ";
  o << setw(15) << "Token Name";
  o << " ";
  o << "Token Spelling";
}
//-----
//Function LexMgr processes the input file, calls yylex, the scanner, and
//produces the output file.
//-----
void LexMgr(FILE* i,ostream& o)
{ static const char* TokenName[]=
  {"EOF"    ,"BEGIN"  ,"END"    ,"READ"   ,"WRITE"
   ,"INTLIT" ,"ID"     ,"ASSIGN" ,"SEMICOLON","COMMA"
   ,"LPAREN" ,"RPAREN" ,"PLUS"   ,"MINUS"  ,"ERROR"
  };
  Lexer L(i);          //Redirect yylex to read file i instead of
                        //the command line
  Title(o);
  for (int t=yylex();t>0;t=yylex()){
    o << endl;
    o << setw(15) << t;
    o << " ";
    o << setw(15) << TokenName[t];
    o << " ";
    o << L.FetchSpelling();
  }
  o << endl;
}
//-----
//Function main processes command line arguments
//-----
int main(int argc, char* argv[])
{ try {
  char ifn[255],ofn[255];
  switch (argc) {
    case 1://no files on the command line
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    cout << "Enter the input file name. ";
    cin >> ifn;
    cout << "Enter the output file name. ";
    cin >> ofn;
    break;
case 2://input file on the command line/output file
    strcpy(ifn,argv[1]);
    cout << "Enter the output file name. ";
    cin >> ofn;
    break;
case 3://Both files on the input line
    strcpy(ifn,argv[1]);
    strcpy(ofn,argv[2]);
    break;
default:
    throw CommandLineException(2,argc-1);
    break;
}
FILE* i=fopen(ifn,"r"); if (!i) throw FileNotFoundException(ifn);
ofstream o(ofn); if (!o) throw FileNotFoundException(ofn);

LexMgr(i,o);

fclose(i);
o.close();
} catch ( ... ) {
    cout << endl;
    cout << "Program Terminated!";
    cout << endl;
    cout << "I won't be back!";
    cout << endl;
    exit(EXIT_FAILURE);
}
return 0;
}
```