/\*

\* assign6\_test.cpp

\* Tests for assignment 6

\*/

#include <iostream>

#include <string>

#include <vector>

using namespace std;

ostream& operator<< (ostream& out, const vector<string>& vs) {

if(vs.empty())

return out;

for(size\_t i = 0; i < vs.size()-1; ++i)

out << "`" << vs.at(i) << "`, ";

out << "`" << vs.back() << "`";

return out;

}

bool tokenize(string s, vector<string>& tokens);

bool check\_tokenization(string s, vector<string> tokens) {

vector<string> output;

bool b = tokenize(s,output);

if(!b) {

cout << "CHECK: string \"" << s << "\" should tokenize without errors.\n";

return false;

}

if(tokens != output) {

cout << "CHECK: tokenization of string \"" << s << "\" is incorrect:\n";

cout << " Expected: " << tokens << endl;

cout << " Found: " << output << endl;

return false;

}

return true;

}

bool check\_error(string s) {

vector<string> output;

if(tokenize(s,output)) {

cout << "CHECK: tokenization of string \"" << s << "\" should fail with errors"

", but succeeds.\n";

return false;

}

return true;

}

bool check\_success() {

return check\_tokenization("abc", {"abc"}) &&

check\_tokenization("123", {"123"}) &&

check\_tokenization("123.456", {"123.456"}) &&

check\_tokenization("abc123", {"abc123"}) &&

check\_tokenization("123abc", {"123", "abc"}) &&

check\_tokenization("()+-\*/", {"(", ")", "+", "-", "\*", "/"}) &&

check\_tokenization(" abc 123 ", {"abc", "123"}) &&

check\_tokenization("123.456abc", {"123.456", "abc"}) &&

check\_tokenization("123<abc", {"123", "<", "abc"}) &&

check\_tokenization("123<=abc", {"123", "<=", "abc"}) &&

check\_tokenization("123>abc", {"123", ">", "abc"}) &&

check\_tokenization("123>=abc", {"123", ">=", "abc"}) &&

check\_tokenization("<<>><>", {"<", "<", ">", ">", "<", ">"}) &&

check\_tokenization("abc\n\t123", {"abc", "123"});

}

bool check\_errors() {

return check\_error("123.") &&

check\_error(".123") &&

check\_error("123=456") &&

check\_error("abc.def") &&

check\_error("123..456") &&

check\_error("123.456.789") &&

check\_error("123<==456") &&

check\_error("123>==456") &&

check\_error(" . ") &&

check\_error("abc=def");

}

int main(int argc, char\*\*) {

if(argc > 1) {

while(true) {

string input;

cout << "> ";

getline(cin, input);

vector<string> tokens;

bool b = tokenize(input, tokens);

if(b) {

cout << "Tokens (" << tokens.size() << "): " << tokens << endl;

}

else

cout << "Error during tokenization" << endl;

}

}

else if(check\_success() && check\_errors())

cout << "\*\*\* All Tests Passed Successfully! \*\*\*\*\n";

}