# Exercise 1: MadLibs

Write a program that reads a MadLib story description from a text file and prompts the user to enter the fill-ins. Then it prints the story filling in the inputs in the text.

A sample story is shown below. A single “%” on a line separates the inputs from the story. You should ignore blank lines in the input section.

AliensInClass.txt

%person% Tell me the name of someone you know.

%animal% Name an animal.

%compLanguage% What is your favorite programming language?

%animal2% Name a small animal.

%

\*\*\*\* ALIENS IN THE CLASSROOM!!! \*\*\*\*\*

\*\*\*\*\*\* a madlib story \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

It started out an uneventful %compLanguage% class that evening.

But then %person% pulled a live %animal% out of a bag and

began to eat it. We tried to stop %person% but it was too late

for the %animal%.

"TAKE ME TO YOUR LEADER," %person% said pulling out a %animal2%

and pointing it like a weapon.

Suggestions:

1. Create a main that opens a hardcoded file name and reads/prints the lines one by one. Ignore any line that does not start with “%”. Break out of the loop with a lone “%”.
2. Parse the line into a key and a prompt. Print the prompt and read a string from the user.
3. Store the key and value in a global array with fixed size. 1000 should be plenty.
4. Add a second loop after the first to print the remaining lines of the story as-is.
5. Make a helper function that looks up the value of a key. Return “??” if the key is not found.
6. Make a loop that finds all “%....%” in the string and replaces them with the lookup value.
7. Use a command-line argument for the name of the story file (launch with CMD prompt).

## Step 1

#include <iostream>

#include <fstream>

#include <string>

using namespace std;

int main() {

fstream storyFile;

storyFile.open("c:\\cpp\_7\_2012\\Day4\\AliensInClass.txt", fstream::in);

string s;

while(!storyFile.eof()) {

getline(storyFile,s);

if(s.size()==0 || s[0]!='%') continue;

if(s=="%") break;

cout << "::" << s << "::" <<endl;

}

storyFile.close();

system("pause");

}

## Step 2

while(!storyFile.eof()) {

getline(storyFile,s);

if(s.size()==0 || s[0]!='%') continue;

if(s=="%") break;

int secondPercent = s.find('%',1);

string key = s.substr(0,secondPercent+1);

string prompt = s.substr(secondPercent+2);

cout << prompt << " :";

string value;

cin >> value;

}

## Step 3

string keys[1000];

string values[1000];

int numberOfKeys = 0;

int main() {

...

while(!storyFile.eof()) {

...

cin >> value;

keys[numberOfKeys] = key;

values[numberOfKeys] = value;

++numberOfKeys;

}

...

}

## Step 4

cout << endl << endl << endl;

while(!storyFile.eof()) {

getline(storyFile,s);

cout << s << endl;

}

## Step 5

string lookupKeyValue(string key) {

for(int x=0;x<numberOfKeys;++x) {

if(keys[x] == key) {

return values[x];

}

}

return "??";

}

## Step 6

while(!storyFile.eof()) {

getline(storyFile,s);

while(true) {

int per = s.find('%');

if(per<0) break;

int per2 = s.find('%',per+1);

int keyLength = per2-per;

string first = s.substr(0,per);

string key = s.substr(per,keyLength+1);

string second = s.substr(per2+1);

s = first+lookupKeyValue(key)+second;

}

cout << s << endl;

}

## Step 7

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

fstream storyFile;

storyFile.open(argv[1], fstream::in);

#include <iostream>

#include <fstream>

#include <string>

using namespace std;

string keys[100];

string values[100];

int numberOfKeys = 0;

string lookupKeyValue(string key) {

for(int x=0;x<numberOfKeys;++x) {

if(keys[x] == key) {

return values[x];

}

}

return "??";

}

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

fstream storyFile;

storyFile.open(argv[1], fstream::in);

string s;

while(!storyFile.eof()) {

getline(storyFile,s);

if(s.size()==0 || s[0]!='%') continue;

if(s=="%") break;

int secondPercent = s.find('%',1);

string key = s.substr(0,secondPercent+1);

string prompt = s.substr(secondPercent+2);

cout << prompt << " :";

string value;

cin >> value;

keys[numberOfKeys] = key;

values[numberOfKeys] = value;

++numberOfKeys;

}

cout << endl << endl << endl;

while(!storyFile.eof()) {

getline(storyFile,s);

while(true) {

int per = s.find('%');

if(per<0) break;

int per2 = s.find('%',per+1);

int keyLength = per2-per;

string first = s.substr(0,per);

string key = s.substr(per,keyLength+1);

string second = s.substr(per2+1);

s = first+lookupKeyValue(key)+second;

}

cout << s << endl;

}

storyFile.close();

}