

```
1 #include <iostream>
2 #include <fstream>
3 #include <map>
4 #include <set>
5 #include <vector>
6 using namespace std;
7
8 vector<char> readinfile(string filename) {
9     vector<char> result;
10    ifstream f(filename);
11    char ch;
12    while(f>>noskipws>>ch) {
13        if(isprint(ch)){
14            ch = toupper(ch);
15            result.push_back(ch);
16        }
17        else {
18            ch = ' '; //this basically replaces /n
with a space to fix words between liens combining
19            result.push_back(ch);
20        }
21    }
22    return result;
23 }
24 void buildMap(int level, string filename, map<string
, vector<char>> &markovMap) {
25     vector<char> text = readinfile(filename);
26
27     for(int i = 0; i < text.size()-level-1; i++) {
28         string key;
29         for(int j = 0; j < level; j++) {
30             key += text[i+j];
31         }
32         char value = text[i+level];
33         markovMap[key].push_back(value);
34     }
35
36     //print map to test
```

```
37  /*
38      for(auto iter = markovMap.begin(); iter !=
        markovMap.end(); iter++) {
39          cout << iter->first << ": ";
40          vector<char> chars = iter->second;
41          for(char c: chars) {
42              cout << c << " ";
43          }
44          cout << endl;
45      }*/
46
47 }
48 string getText(const map<string, vector<char>> &
        markovMap) {
49     cout << "Enter a number of characters: ";
50     int textLen;
51     cin >> textLen;
52
53     string result;
54
55     auto iter = markovMap.begin();
56     advance(iter, rand() % markovMap.size());
57     string key = iter->first;
58     result = key;
59     vector<char> chars;
60
61     for(int i = key.length()-1; i < textLen; i++) {
62         chars = markovMap.at(key);
63         char value = chars.at(rand() % chars.size());
64         result += value;
65
66         key += value;
67         key = key.substr(1, key.length()-1);
68     }
69
70     return result;
71 }
72
```

```
73 int main() {
74     srand(time(0));
75     cout << "Hello, Markov Chain!" << endl;
76     cout << "Enter level (1-10): ";
77     int level;
78     cin >> level;
79     cout << "Enter file name: ";
80     string filename;
81     cin >> filename;
82
83     map<string, vector<char>> markovMap;
84     buildMap(level, filename, markovMap);
85
86     string text = getText(markovMap);
87
88     cout << text << endl;
89
90     return 0;
91 }
92
```