```cpp
 1: // Copyright 2017 Sam Pickell
 2: #ifndef MARKOVMODEL_HPP
 3: #define MARKOVMODEL_HPP
 4:
 5: #include <string>
 6: #include <map>
 7: #include <iostream>
 8: #include <stdexcept>
 9:
10: class MarkovModel {
11:  public:
12:   MarkovModel(std::string text, int k);
13:   ˜MarkovModel();
14:   int order() {return private_order;}
15:   int freq(std::string kgram);
16:   int freq(std::string kgram, char c);
17:   char randk(std::string kgram);
18:   std::string gen(std::string kgram, int T);
19:
20:   friend std::ostream& operator<< (std::ostream &out, MarkovModel &mm);
21:
22:  private:
23:   unsigned int private_order;
24:   std::map <std::string, int> kgrams;
25:   std::string alphabet;
26: };
27: #endif
```