Huffman 编码案例-Entropy

输入一个字符串，分别用普通 ASCII 编码（每个字符 8bit）和 huffman 编码，输出编码后的长度，并输出压缩比。

Sample Input：

AAAAABCD

THE_CAT_IN_THE_HAT

END

Sample Output：

64 13 4.9

144 51 2.8

参考代码：

```
#include <cstdio>
#include <cstring>
#include <string>
#include <iostream>
#include <algorithm>
#include <queue>
using namespace std;

string s;
priority_queue <int, vector<int>, greater<int> > q;
//priority_queue <int> q;
int main()
{
	while(getline(cin, s) && s != "END"){
		int t = 1;
		sort(s.begin(), s.end());
		for(int i = 1; i < s.length(); i++){
			if(s[i] != s[i-1]){
				q.push(t);
				t = 1;
			}
			else t++;
		}
		q.push(t);

		if(q.size() == 1) {
			printf("%d %d 8.0\n", s.length()*8, s.length());
			q.pop();
			continue;
		}

		int ans = 0;
```

```
            while(q.size() > 1){
                int a = q.top(); q.pop();
                int b = q.top(); q.pop();
                q.push(a+b);
                ans += a+b;
            }
            q.pop();
            printf("%d %d %.1lf\n", s.length()*8, ans, (double)s.length()*8.0/(double)ans);
        }
    }
```