```
1 #include <iostream>
2 #include <string>
3 #include <vector>
4 #include <algorithm> // to use sort
 6 using namespace std;
7
8
9 // The most naive solution is to read the input into a string and then
10 // manually scraping data: read a letter (a or b) then read digits until
11 // the next space, then convert to number, save the number, and repeat...
12 // It can become a tedious task for a long sequence and it's not very elegant.
13
14 // In this version this naive solution is implemented.
15
16 // Note_ passing vectors and strings to a function works by value unlike arrays.
17 // const is used when the function is not supposed to make changes on
18 // the string or vector passed.
19
20 bool createSet(const string& s, vector<int>& Va, vector <int>& Vb);
21 void display(const vector<int>& V);
22
23 // Va and Vb may be global since different functions work with them
24 // and need to change their values.
25
26 int main() {
27
       string s;
28
       vector<int> Va, Vb;
29
30
       // Input a line from console into s.
31
       getline(cin, s);
32
33
       if (createSet(s, Va, Vb)) {
34
           sort(Va.begin(), Va.end());
35
           display(Va);
           sort(Vb.begin(), Vb.end());
36
37
           display(Vb);
38
       }
39
       else
40
           cout << "Error" << endl;</pre>
41
       return 0;
42 }
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
```

```
...\source\repos\Assignment5-1\Assignment5-1\Assignment5-1.cpp
```

```
2
```

```
60 // Prints the vector elements separated by a white space.
61 // Uses range based for loop - Available since C++11
63
64 void display(const vector<int> & V) {
     for (auto n : V)
65
        cout << n << " ";
66
67 }
68
69
70
71
72
73
74
76 // Read from s and create 2 sets of int, Va and Vb.
77 // Returns true if that's done successfully.
79
   bool createSet(const string & s, vector<int> & Va, vector <int> & Vb) {
80
81
     int j;
82
     char c;
83
     string n;
84
     for (int i = 0 ; i < s.size() ; ) {
85
        if ((c = s[i]) == 'a' || s[i] == 'b') {
86
87
           i += 2;
88
           j = 0;
89
           while (std::isdigit(s[i]))
             n[j++] = s[i++];
90
91
           if (c == 'a')
             Va.push_back(stoi(n));
92
93
           else
94
              Vb.push_back(stoi(n));
95
           i++;
        }
96
97
        else
98
           return false;
99
     }
100
     return true;
101 }
102
103
INSIGHTS
105 //
106 // I don't like to to this manual scraping of the vector (typical of C
107 // programming). In C++, it's more elegant to use the string as a stream and
108 // extract formatted data from it.
```