

```
1  #include <iostream>
2  #include <string>
3  #include <vector>
4  #include <algorithm> // to use sort
5
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);
36         sort(Vb.begin(), Vb.end());
37         display(Vb);
38     }
39     else
40         cout << "Error" << endl;
41     return 0;
42 }
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59 ////////////////////////////////////////////////////
60 // Prints the vector elements separated by a white space.
61 // Uses range based for loop - Available since C++11
62 ////////////////////////////////////////////////////
63
64 void display(const vector<int> & V) {
65     for (auto n : V)
66         cout << n << " ";
67 }
68
69
70
71
72
73
74
75 ////////////////////////////////////////////////////
76 // Read from s and create 2 sets of int, Va and Vb.
77 // Returns true if that's done successfully.
78 ////////////////////////////////////////////////////
79
80 bool createSet(const string & s, vector<int> & Va, vector<int> & Vb) {
81     int j;
82     char c;
83     string n;
84
85     for (int i = 0 ; i < s.size() ; ) {
86         if ((c = s[i]) == 'a' || s[i] == 'b') {
87             i += 2;
88             j = 0;
89             while (std::isdigit(s[i]))
90                 n[j++] = s[i++];
91             if (c == 'a')
92                 Va.push_back(stoi(n));
93             else
94                 Vb.push_back(stoi(n));
95             i++;
96         }
97         else
98             return false;
99     }
100     return true;
101 }
102
103
104 ////////////////////////////////////////////////////
105 //                               INSIGHTS
106 // I don't like to do 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.
109 ////////////////////////////////////////////////////

```