

```
1  #include <iostream>
2  #include <string>
3  #include <vector>
4  #include <sstream>
5
6  using namespace std;
7
8  bool createSet(const std::string &, std::vector<int> &, std::vector <int> &);
9  int func(std::vector<int> &, std::vector<int> &);
10
11 // This assignment is a variation of the previous one, but simpler since the
12 // additional elements of the longer vector are essentially ignored.
13
14
15
16 int main() {
17     std::string input;
18     std::vector<int> SetA, SetB;
19     std::getline(cin, input);
20
21     if (createSet(input, SetA, SetB))
22         std::cout << func(SetA, SetB);
23     else
24         std::cout << "Error" << std::endl;
25     return 0;
26 }
27
28
29
30
31
32
33 ///////////////////////////////////////////////////
34
35
36
37 // This function is unchanged
38
39 bool createSet(const string& input, vector<int>& SetA, vector <int>& SetB) {
40     int n;
41     char c;
42     std::stringstream stream(input);
43
44     while (stream >> c) {
45         if (c == 'a') {
46             stream >> n;
47             SetA.push_back(n);
48         }
49         else if (c == 'b') {
50             stream >> n;
51             SetB.push_back(n);
52         }
53         else
54             return false;
55     }
56     return true;
57 }
58
```

```
59 int func(std::vector<int> & Va, std::vector<int> & Vb) {
60     int p = 0;
61     // Get the sizes once to avoid recalling the method size multiple times
62     unsigned lA = Va.size();
63     unsigned lB = Vb.size();
64
65     // Use a different name for the shorter size
66     unsigned& shorter = (lA <= lB) ? lA : lB;
67
68     // Compute the scalar product.
69     // Since I have to assume that missing values for the shorter vector
70     // are 0, essentially I don't even need to care about the additional
71     // values.
72     for (auto i = 0 ; i < shorter ; i++)
73         p += (Va[i] * Vb[i]);
74     return p;
75 }
```