

COMSC-200

Lab 6

Ryan Jacoby

13 October 2020

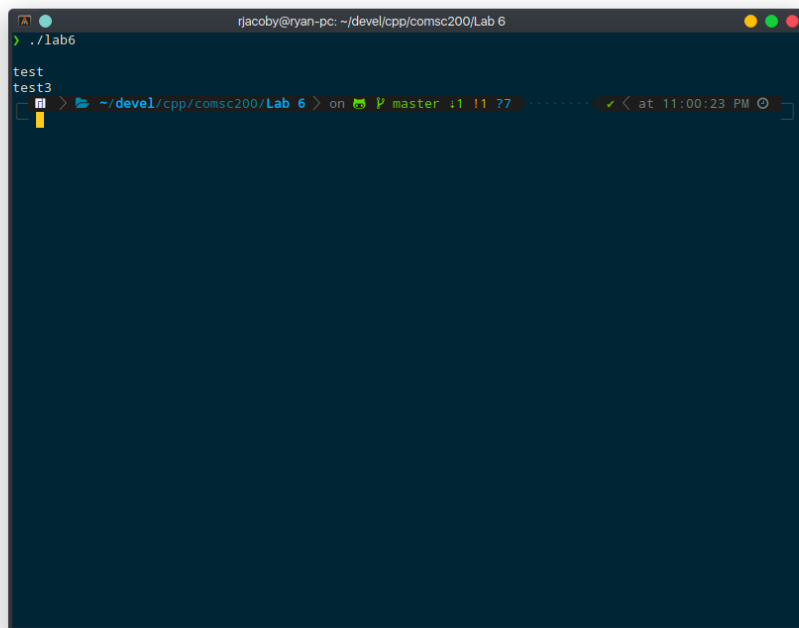
1 Unique Words

```
1 // Ryan Jacoby
2
3 #include<iostream>
4 #include<fstream>
5 #include<set>
6 #include<string>
7
8 using namespace std;
9
10 int main() {
11     ifstream fin;
12     set<string> fset;
13     set<string> duplicates;
14
15     fin.open("input.txt");
16
17     while(fin) {
18         string str;
19         fin >> str;
20         if(fset.find(str) != fset.end()) duplicates.insert(str);
21         fset.insert(str);
22     }
23
24     set<string>::iterator sit;
25     for(sit = duplicates.begin(); sit != duplicates.end(); sit++) fset.erase(*sit)
26     ;
27     for(sit = fset.begin(); sit != fset.end(); sit++) cout << *sit << '\n';
28
29     fin.close();
30
31     return 0;
32 }
```

Listing 1: main.cpp

```
1 test test2
2 test2
3 test3
4 test2
```

Listing 2: input.txt



2 Course Information

```
1 // Ryan Jacoby
2
3 #include<iostream>
4 #include<map>
5
6 using namespace std;
7
8 int main() {
9     map<string, int> roomNumber = {"CS101", 3004}, {"CS102", 4501}, {"CS103",
10     6755}, {"NT110", 1244}, {"CM241", 1411}};
11     map<string, string> instructor = {"CS101", "Haynes"}, {"CS102", "Alvarado"},
12     {"CS103", "Rich"}, {"NT110", "Burke"}, {"CM241", "Lee"}};
13     map<string, string> meetingTime = {"CS101", "8:00 a.m."}, {"CS102", "9:00 a.m."}, {"CS103", "10:00 a.m."}, {"NT110", "11:00 a.m."}, {"CM241", "1:00 p.m."}};
14
15     string course;
16
17     cout << "Enter a course number: ";
18     cin >> course;
19
20     if(roomNumber.count(course) == 0) cout << "That is not a valid course.\n";
21     else cout << course << " meets at " << meetingTime.at(course) << " in room "
22     << roomNumber.at(course) << " and is taught by " << instructor.at(course) << '\n';
23
24     return 0;
25 }
```

Listing 3: main.cpp

```
rjacoby@ryan-pc: ~/devel/cpp/comsc200/Lab 6
> ./lab61
Enter a course number: NT110
NT110 meets at 11:00 a.m. in room 1244 and is taught by Burke
> ./lab61
Enter a course number: CM241
CM241 meets at 1:00 p.m. in room 1411 and is taught by Lee
> ./lab61
Enter a course number: CS102
CS102 meets at 9:00 a.m. in room 4501 and is taught by Alvarado
> ./lab61
Enter a course number: COMSC200
That is not a valid course.
~> ~/devel/cpp/comsc2/Lab 6 > on P master 11 11 27
```

3 Text File Analysis

```
1 // Ryan Jacoby
2
3 #include<iostream>
4 #include<fstream>
5 #include<set>
6 #include<string>
7
8 using namespace std;
9
10 void unique(ifstream *);
11 void common(ifstream *, ifstream *);
12 void unique(ifstream *, ifstream *);
13 void xorFin(ifstream *, ifstream *);
14
15 int main() {
16     ifstream fin1;
17     ifstream fin2;
18
19     fin1.open("input.txt");
20     fin2.open("input2.txt");
21
22     cout << "Unique words in file 1:\n";
23     unique(&fin1);
24
25     cout << "\nUnique words in file 2:\n";
26     unique(&fin2);
27
28     fin1.close();
29     fin2.close();
```

```

30     fin1.open("input.txt");
31     fin2.open("input2.txt");
32
33     cout << "\nCommon words between the two files:\n";
34     common(&fin1, &fin2);
35
36     fin1.close();
37     fin2.close();
38     fin1.open("input.txt");
39     fin2.open("input2.txt");
40
41     cout << "\nWords that only appear in file 1:\n";
42     unique(&fin1, &fin2);
43
44     fin1.close();
45     fin2.close();
46     fin1.open("input.txt");
47     fin2.open("input2.txt");
48
49     cout << "\nWords that only appear in file 2:\n";
50     unique(&fin2, &fin1);
51
52     fin1.close();
53     fin2.close();
54     fin1.open("input.txt");
55     fin2.open("input2.txt");
56
57     cout << "\nWords that appear in only one of the files:\n";
58     xorFin(&fin1, &fin2);
59
60     return 0;
61 }
62
63 void unique(ifstream *fin) {
64     set<string> fset;
65     set<string> duplicates;
66
67     while(*fin) {
68         string str;
69         *fin >> str;
70         if(fset.find(str) != fset.end()) duplicates.insert(str);
71         fset.insert(str);
72     }
73
74     set<string>::iterator sit;
75     for(sit = duplicates.begin(); sit != duplicates.end(); sit++) fset.erase(*sit);
76
77     for(sit = fset.begin(); sit != fset.end(); sit++) cout << *sit << '\n';
78 }
79
80 void common(ifstream *fin1, ifstream *fin2) {
81     set<string> fset1;
82     set<string> fset2;
83
84     while(*fin1) {
85         string str;
86         *fin1 >> str;
87         fset1.insert(str);

```

```

88     }
89
90     while(*fin2) {
91         string str;
92         *fin2 >> str;
93         fset2.insert(str);
94     }
95
96     set<string>::iterator sit;
97     for(sit = fset2.begin(); sit != fset2.end(); sit++)
98         if(fset1.count(*sit) != 0) cout << *sit << '\n';
99
100 }
101
102 void unique(ifstream *fin1, ifstream *fin2) {
103     set<string> fset1;
104     set<string> fset2;
105
106     while(*fin1) {
107         string str;
108         *fin1 >> str;
109         fset1.insert(str);
110     }
111
112     while(*fin2) {
113         string str;
114         *fin2 >> str;
115         fset2.insert(str);
116     }
117
118     set<string>::iterator sit;
119     for(sit = fset2.begin(); sit != fset2.end(); sit++)
120         if(fset1.count(*sit) != 0) fset1.erase(*sit);
121
122     for(sit = fset1.begin(); sit != fset1.end(); sit++) cout << *sit << '\n';
123 }
124
125 void xorFin(ifstream *fin1, ifstream *fin2) {
126     set<string> fset1;
127     set<string> fset2;
128
129     while(*fin1) {
130         string str;
131         *fin1 >> str;
132         fset1.insert(str);
133     }
134
135     while(*fin2) {
136         string str;
137         *fin2 >> str;
138         fset2.insert(str);
139     }
140
141     set<string>::iterator sit;
142     for(sit = fset2.begin(); sit != fset2.end(); sit++)
143         if(fset1.count(*sit) != 0) fset1.erase(*sit);
144
145     for(sit = fset1.begin(); sit != fset1.end(); sit++)
146         if(fset2.count(*sit) != 0) fset2.erase(*sit);

```

```

147
148     for(sit = fset1.begin(); sit != fset1.end(); sit++) cout << *sit << '\n';
149     for(sit = fset2.begin(); sit != fset2.end(); sit++) cout << *sit << '\n';
150 }

```

Listing 4: main.cpp

```

1 test test2
2 test2
3 test3
4 test2

```

Listing 5: input.txt

```

1 second
2 test
3 file

```

Listing 6: input.txt

```

rjacoby@ryan-pc: ~/devel/cpp/comsc200/Lab 6
> ./lab62
Unique words in file 1:
test
test3

Unique words in file 2:
file
second
test

Common words between the two files:
test

Words that only appear in file 1:
test2
test3

Words that only appear in file 2:
file
second

Words that appear in only one of the files:
test2
test3

file
second
test

```

4 Word Count

```

1 // Ryan Jacoby
2
3 #include<iostream>
4 #include<fstream>
5 #include<map>
6 #include<string>
7
8 using namespace std;
9
10 int main() {

```

```

11  map<string, int> wc;
12  ifstream fin;
13
14  fin.open("input.txt");
15
16  while(fin) {
17      string str;
18      fin >> str;
19      if(wc.count(str) == 0) wc.insert(make_pair(str, 1));
20      else wc.at(str)++;
21  }
22
23  map<string, int>::iterator it;
24  for(it = ++wc.begin(); it != wc.end(); it++) {
25      cout << it->first << "\t\t" << it->second << '\n';
26  }
27
28  return 0;
29 }

```

Listing 7: main.cpp

```

1 test test2
2 test2
3 test3
4 test2

```

Listing 8: input.txt

```

rjacoby@ryan-pc: ~/devel/cpp/comsc200/Lab 6
> ./lab63
test      1
test2     3
test3     1

```