

Files Workshop Solutions

stringstream

```
#include <sstream>
```

```
#include <fstream>
```

```
#include <string>
```

```
#include <iostream>
```

```
#include <vector>
```

```
using namespace std;
```

```
struct language {
```

```
    string language;
```

```
    string designer;
```

```
    int date;
```

```
};
```

```
// Struct to hold data
```

stringstream contd

```
int main() {  
    ifstream infile("data_ss.txt");           // Open the file  
    if (!infile) {                             // Did it work?  
        cout << "Could not open data_ss.txt" << endl;  
        exit;  
    }  
  
    string line;  
    vector<language> languages;                // Vector to hold data  
    while (getline(infile, line)) {            // Read each line into a string  
        language lang;                        // Struct to hold data for this line
```

stringstream contd

```
istringstream is(line);           // Get the first field of the data
is >> lang.language;

// The second field of the data may contain multiple items
// We use an ostream to build up the designer name
ostream os;

bool compound{false};           // True if we are in a compound second field
while (true) {                  // We loop over the second field
    string temp;
    is >> temp;
```

stringstream contd

/* At this point, temp could be either text (part of the compound second field) or an integer (the third field).

If it contains an integer, we have read all the second field and are now on the third field. If text, we are still in the second field */

```
try {  
    lang.date = stoi(temp);           // If no exception thrown, we have finished this  
    lang.designer = os.str();         // line and can populate the rest of the struct,  
    break;                           // then go to the next line in the file  
}  
catch (std::invalid_argument) {      // Thrown if temp is not an integer  
    os << (compound ? " " : "") << temp; // Still in the second field - append to os  
    compound = true;                 // and add spaces inside compound field  
}
```

stringstream contd

```
    } // End of loop over each line
    languages.push_back(lang);    // Add this struct to the vector
} // End of getline() loop

// Print out the vector elements
for (auto l: languages)
    cout << l.language << ", " << l.designer << ", " << l.date << endl;
}
```