General Computer Science for Engineers CISC 106 Lecture 32

Dr. John Cavazos
Computer and Information Sciences
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Lecture Overview

- More Project 2 hints
- C++ while loops

Project 2 Hints

- Several ways to read in a file
- High Level: textscan, tdfread, textread
- Low Level: fscanf
- An example using textread

Songs.txt file

- Columns separated by tabs (tab-delimited)

songs.txt

Title	Artist	Year
2Wicky	Hooverphonic	1997
98.6	Keith	1967
…	…	

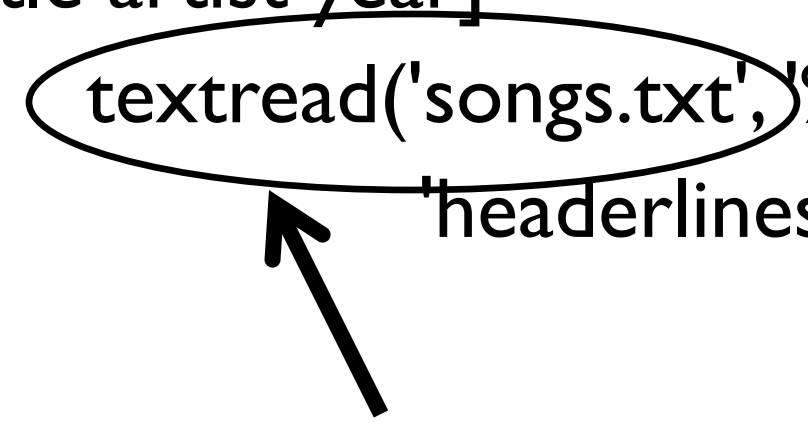
Using textread

- Need to give format specifier
- Note: All on same line
  - Can use ellipsis (…) to continue line on next line

```
[title artist year] =
        textread('songs.txt', '%s %s %d',
                        'headerlines', 1, 'delimiter','\t')
```

Using textread

```
[title artist year] =
    textread('songs.txt','%s %s %d',
                'headerlines', 1, 'delimiter','\t')
```



Calling textread with name of songs file.

Using textread

```
[title artist year] =
        textread('songs.txt', '%s %s %d',
                              'headerlines',1, 'delimiter','\t')
```

Format specifier. Expects:

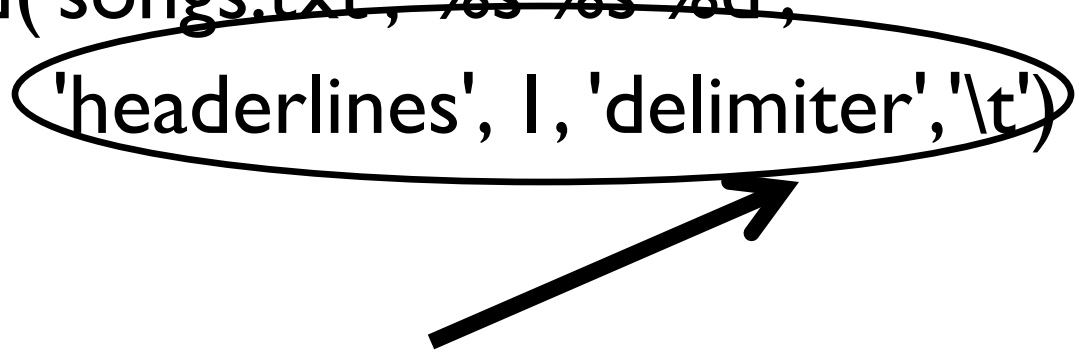
1st field → string

2nd field → string

3rd field → integer

Using textread

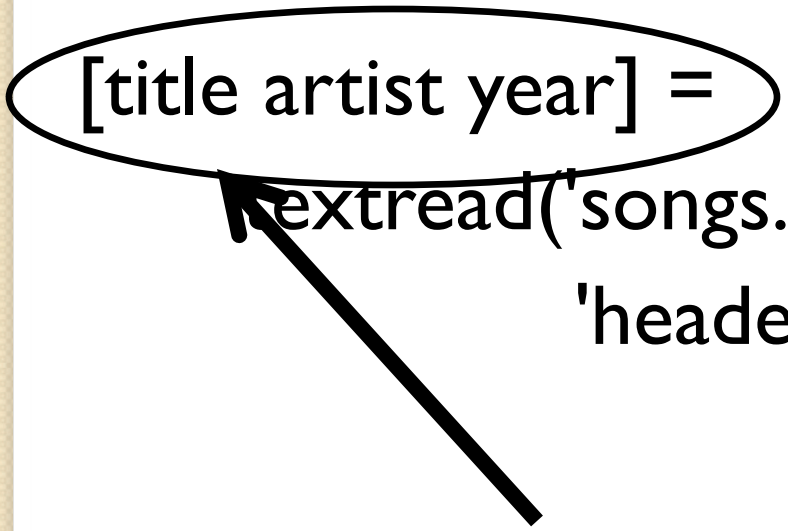
```
[title artist year] =
        textread('songs.txt', '%s %s %d',
                 'headerlines', 1, 'delimiter','\t')
```



1st line is a header line and
text fields separated by tabs (delimited)

Using textread

```
[title artist year] =
    textread('songs.txt', '%s %s %d',
                'headerlines', 1, 'delimiter','\t')
```



textread returns three arrays. Types of arrays based on format specifier.

Textread returns three arrays

- [title artist year] = …

```
title =
   '2Wicky'
    '98.6'
    '#9 Dream'
    'ABC'

artist =
   'Hooverphonic'
   'Keith'
   'John Lennon'
   'Jackson 5'
…
```

Looping through Title array

```
for j =  1:length(title)
    title(j)
end

ans =
    '2Wicky'

ans =
    '98.6'
…
```

Put data in structure array

- S=struct('title',{}, 'artist',{}, 'year',{});

```
S(1).title = char(title(1));
S(1).artist = char(artist(1));
S(1).year = year(1);

S(1).artist
ans =
    'Hooverphonic'
```

Put data in structure array

```
S=struct('title',{}, 'artist',{}, 'year',{});
```

```
S(1).title = char(title(1));
S(1).artist = char(artist(1));
S(1).year = year(1);
```

Create an empty structure

```
S(1).artist
ans =
    'Hooverphonic'
```

Put data in structure array

- S=struct('title',{}, 'artist',{}, 'year',{});

```
S(1).title = char(title(1));
S(1).artist = char(artist(1));
S(1).year = year(1);
```

```
S(1).artist
ans =
    'Hooverphonic'
```

Put first element of each array into structure; char(…) converts the cell array of strings to a character array to work with strlexcmp.

C++ while loop

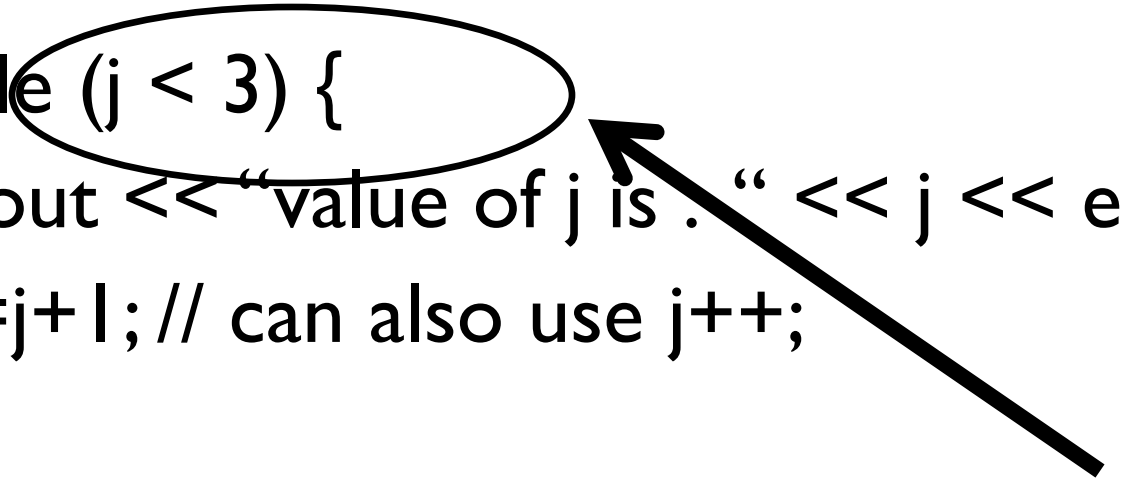
```
…  // main function
int  j = 1;

while (j < 3) {
   cout << “value of j is : “ << j << endl;
   j=j+1; // can also use j++;
}
```

C++ while loop

```
…  // main function
int  j = 1;

while (j < 3) {
   cout << "value of j is . " << j << endl;
   j=j+1; // can also use j++;
}
```

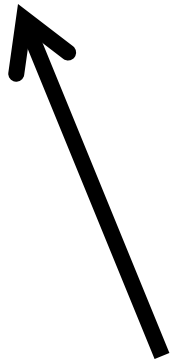


Loops while j less then 3

C++ while loop

```
…  // main function
int  j = 1;

while (j < 3) {
  cout << "value of j is : " << j << endl;
   j=j+1; // can also use j++;
}
```



Body of loop; executed 2 times

C++ Functions: Putting all together

```
#include <iostream>
using namespace std;


int main()
   int height = 0, maxheight = 0;
   cout << "Enter heights: (enter end of file to end): ";

// rest on next slide
```

C++ Functions: Putting all together

```
// cont'd from last slide
   while(cin >> height) {
         if( height > maxheight)
            maxheight = height;
    }
   cout << "Tallest person's height = " << maxheight
   << endl;
   return 0;
}
```