General Computer Science for Engineers CISC 106 Lecture 31

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Lecture Overview

- Project 2 hints
- Return values versus output to screen
- C++ functions

Project 2 Hints

- Several ways to read in a file
- High Level: textscan, tdfread
- Low Level: fscanf
- Will show an example using tdfread

Project 2 Hints

- Assume file songs.txt
- Columns separated by tabs (tab-delimited)

Title	Artist
2Wicky	Hooverphonic
98.6	Keith
…	

tdfread

- Reads a tab-delimited file
  - Expects file with variable names in first row
  - Returns a structure

S=tdfread("songs.txt");

S.Title(1,:)

ans =

2Wicky

S.Artist(1,:)

ans=

Hooverphonic

Project 2 Hints

- Sorting by Title
- Use Selection sort
  - But how do we sort character arrays?
- Can use a utility function on Project 2 website
  - Download strlexcmp.m from here
  - http://www.udel.edu/CIS/106/cavazos/09S/project2/

strlexcmp.m

- strlexcmp(string1,string2)

  If string1 comes before string2

  returns -1

  if string1 and string2 are equal

  returns 0

  if string1 comes after string2

  return 1

Using strlexcmp.m

```
strlexcmp('Able', 'Barry')
ans=
   -1

strlexcmp('Cathy', 'Barry')
ans=
    1

strlexcmp('Barry', 'Barry')
ans=
   0
```

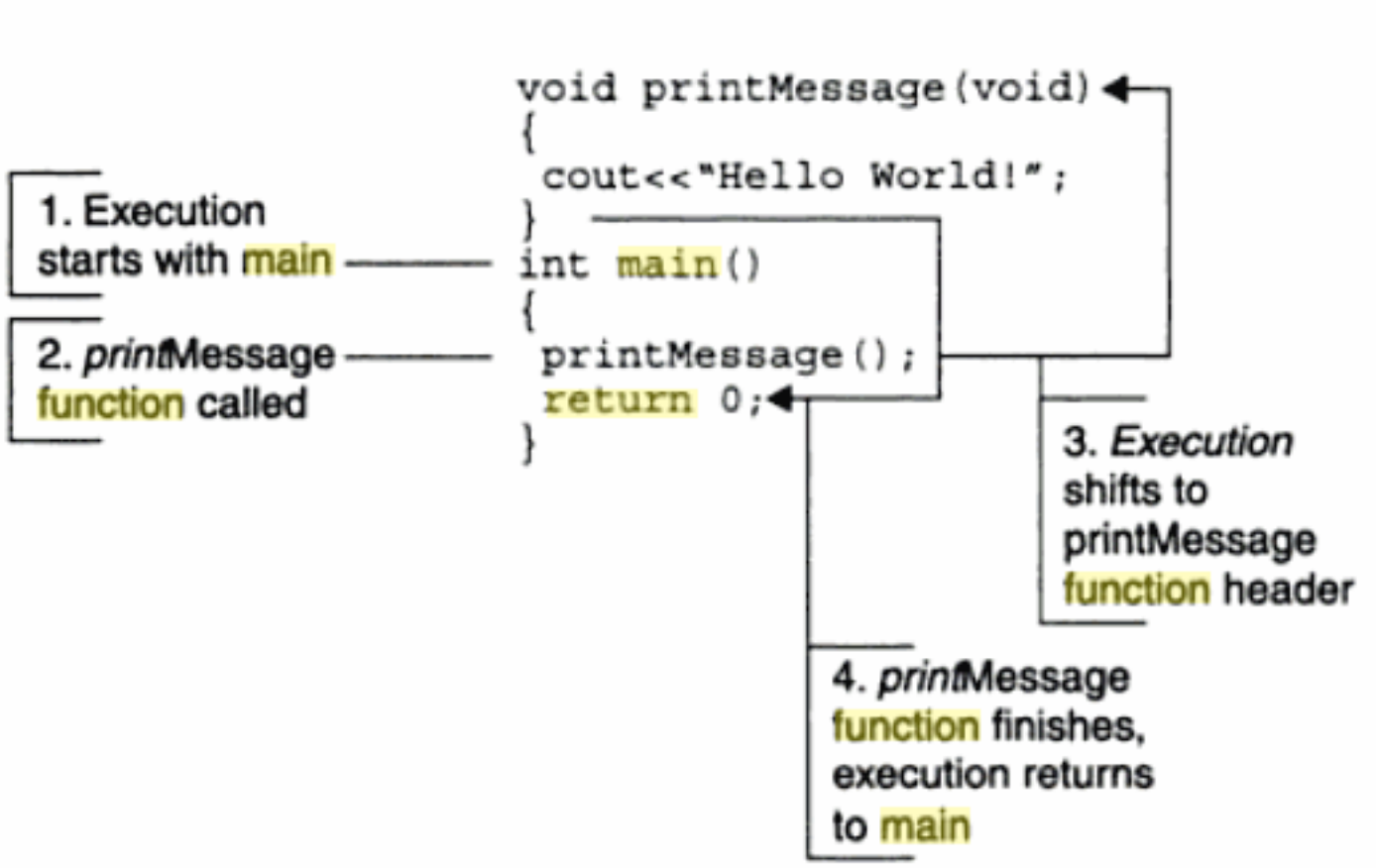
Remember S=tdfread('songs.txt')

```
S.Artist(1,:)
ans=
  Hooverphonic

S.Artist(2,:)
ans=
   Keith

strlexcmp(S.Artist(1,:), S.Artist(2,:))
ans=
   -1
```

Function calls graphically



Order of execution of the Hello World Program

Return versus output to screen

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

int square(int x) {
   return x * x;
}

int main() {
  int result = 0;
  result = square(5);
  cout << "Square of 5 :  " << result <<endl;
}
```

Putting all together

- Create a function to sum number from 1 to N
- What do we need?

C++ Functions: Putting all together

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

int sumFrom1ToN(int);   // function prototype


int main() {
   int n = 0, sum = 0;    // declare some variables
   cout << "Enter a number  \n";  // ask for input
   cin >> n;                 // put user input in variable n

// the rest of main is on next slide
```

C++ Functions: Putting all together

```
// main function continued

   sum = sumFrom1ToN(n);    // call function
   cout << "The sum of numbers to " << n;
   cout << " is " << sum << endl;
   return 0;
}

// the rest of program is on next slide
```

C++ Functions: Putting all together

```
// main function above this

int  sumFrom1ToN(int n) {
     int sum = 0;
     for (int i =  1;  i <= n; i++) {
        sum = sum + i;
     }
    return sum;
}
```