

CS6771 Tutorial 2017

Week Two

C++ Basics

Topics Covered:

- Types (signed and unsigned)
- Pointers
- References
- Namespaces
- Input/Output
- Function Overloading
- Call-by-value, call-by-reference

1. Write a C++ program that does the following:

- Prompts a user to enter three ints
- Uses the call-by-value function `order3` (provided below) to order the inputted numbers in descending order
- Print the three numbers to the console
- Write the three numbers in sorted order out to a file
- Test your program with the input: -1, 0, 1

```
namespace cs6771 {
    void order3(int *a, int *b, int *c) {
        if (*a < *c) {
            int t = *a;
            *a = *c;
            *c = t;
        }
        if (*a < *b) {
            int t = *a;
            *a = *b;
            *b = t;
        }
        if (*b < *c) {
            int t = *b;
            *b = *c;
            *c = t;
        }
    }
}
```

2. Write another C++ program that does the following:

- Reads the three numbers from the file that you wrote in the previous question into three unsigned ints
- Uses the call-by-reference function `order3` (provided below) to order the numbers from smallest to largest
- Print the three numbers to the console

```
namespace cs6771 {
    void order3(unsigned int& a, unsigned int& b, unsigned int& c) {
        if (a > c) {
            int t = a;
            a = c;
            c = t;
        }
        if (b > c) {
            int t = b;
            b = c;
            c = t;
        }
    }
}
```

```
    }  
    if (a > b) {  
        int t = a;  
        a = b;  
        b = t;  
    }  
}
```

3. Extension:

- Place the two order3 functions into a different cpp file from your main function.
- Create a header file for the two order3 functions that you will include in the main cpp file.
- Compile the code through a makefile that sperately compiles and links the various cpp and h files.