

## CSC 101 Lab Week 7

### Using Struct and Command-Line Arguments

**ISSUED: Friday, 4 May 2012**  
**DUE: Wednesday, 11 May 2012, by the end of lab**  
**POINTS POSSIBLE: 1**  
**WEIGHT: 1% of total class grade**

#### Specification

Write a program that uses the following struct to hold information about a student:

```
typedef struct {
    char last_name[NAME_LEN];
    int id;
    char major[MAJOR_LEN];
} StudentInfo;
```

The program declares a variable `s` of this type. The program gets values for the data fields of `s` in one of two different ways:

1. If the program is executed with no command-line arguments, then the program prompts for the information and reads the values from standard input (using `scanf`). These input values are stored into the three fields of the variable `s`.
2. If there are exactly three command-line arguments, then the program stores those three values into the fields of the variable `s`.

If there are a different number of command-line arguments than zero or three, the program outputs the error message "Program must have 0 or 3 arguments".

After the values are stored into the variable `s`, they are output to standard output. The output format is shown in the sample outputs below.

Name the program `student_info.c` and compile with the command

```
gcc -ansi -pedantic -Wall -Werror -g student_info.c -o student_info
```

Here is a sample of running the program with input from `stdin`:

```
unix1: student_info
Input last name, id, and major: Smith 12345678 CSC
Last Name: Smith
Id: 12345678
Major: CSC
```

Here is a sample run with three command-line arguments:

```
unix1: student_info Smith 12345678 CSC
Last Name: Smith
Id: 12345678
Major: CSC
```

Finally, here is a sample run with an incorrect number of arguments:

```
unix1: student_info Smith
Program must have 0 or 3 arguments.
```

#### Reading Resources

Section 13.7 of the book describes how to use command-line arguments in the `main` function. Since command-line arguments are string values, you will need to use the `atoi` function to convert the string value of the student id into

an `int`. The `atoi` function has this signature:

```
int atoi(const char* s);
```

It returns the integer value of the string `s`. If `s` is not a legal string, it returns 0.

There is a simple example of using command-line arguments and `atoi` in the `lab7` directory, in the file `cmd-line.c`  
unix1: `student_info` Smith Program must have 0 or 3 arguments.

### Submitting Your Work

Sometime before end of lab on Wednesday May 16, demonstrate that your program runs correctly. To verify that you've completed the lab, submit your work as follows:

```
handin gfisher 101_lab7 student_info.c
```