CSC 101 Lecture Notes Week 5

Arrays and Strings
I. Introduction to Arrays

A. Chapter 8 provides good coverage.

B. Explains structure and has some good pictures.

C. These notes have additional array examples.

D. Code for all examples is online.
II. Using an Array in the Stats Program

A. A loop significantly improves things.

B. Allows indefinite number of data points.

C. However, it can’t do standard deviation.

D. Why not?
Using an Array in the Stats Program, cont’d

E. Answer -- we need *arrays*.

F. Example in
   
   `stats-while-array.c`
III. Best Version Yet of Stats Program

A. Example

```
stats-loops-arrays-functions.c
```

B. As the name suggests:
III. Best Version Yet of Stats Program

A. Example

stats-loops-arrays-functions.c

B. As the name suggests:

• uses a loop to read in data values
III. Best Version Yet of Stats Program

A. Example

    stats-loops-arrays-functions.c

B. As the name suggests:

    • uses a loop to read in data values
    • an array to hold values
III. Best Version Yet of Stats Program

A. Example

stats-loops-arrays-functions.c

B. As the name suggests:

- uses a loop to read in data values
- an array to hold values
- functions to perform the computations
C. Look in particular `read_values`:
Best Version Yet of Stats Program, cont’d

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1. reads values from from `stdin`
Best Version Yet of Stats Program, cont’d

C. Look in particular `read_values`:

1. reads values from `stdin`
2. returns array formal output parameter
Best Version Yet of Stats Program, cont’d

C. Look in particular `read_values`:

1. reads values from `stdin`

2. returns array formal output parameter

3. section 8.5 of the book has good discussion
IV. Strings as Arrays of Characters
IV. **Strings as Arrays of Characters**

A. Arrays in stats example hold numbers.
IV. Strings as Arrays of Characters

A. Arrays in stats example hold numbers.

B. Arrays can hold any type of data value.
IV. Strings as Arrays of Characters

A. Arrays in stats example hold numbers.

B. Arrays can hold any type of data value.

C. Very common type is arrays of \texttt{char}, which are called \textit{strings}.
IV. Strings as Arrays of Characters

A. Arrays in stats example hold numbers.

B. Arrays can hold any type of data value.

C. Very common type is arrays of char, which are called strings.

D. Ch 9 of book does a good job explaining.
Strings as Arrays of Characters, cont’d

E. 101/examples/strings directory has:
Strings as Arrays of Characters, cont’d

E. 101/examples/strings directory has:

1. string-basics.c
Strings as Arrays of Characters, cont’d

E. 101/examples/strings directory has:

1. string-basics.c

2. input-3-strings.c
Strings as Arrays of Characters, cont’d

E. 101/examples/strings directory has:

1. string-basics.c
2. input-3-strings.c
3. input-loop.c
Strings as Arrays of Characters, cont’d

E. 101/examples/strings directory has:

1. string-basics.c
2. input-3-strings.c
3. input-loop.c
4. strlen.c
Strings as Arrays of Characters, cont’d

E. 101/examples/strings directory has:

1. string-basics.c
2. input-3-strings.c
3. input-loop.c
4. strlen.c
5. string-list.c