

## CSC209H Worksheet: scanf and arrays

Where possible work with a partner or in a group of three to do this activity on a computer. Compile and debug your program at each step. If you don't have access to a computer running C, you may work on paper.

1. Write a C program that declares an array of length 10, initializing all values to 0. Then read in two integers `ind` and `amt` from a line of input, and add `amt` to the value of the array at index `ind`.

2. Suppose we wanted to modify our program to read in many pairs of integers, each time adding an `amt` to one of the array elements. Unfortunately, We can't do this using a for loop if we don't know how many pairs of integers to read. To solve this problem, we introduce a common C idiom.

`scanf`, like many C functions, returns an integer that gives the caller some information about the success of the function. In the case of `scanf`, the return value is the number of items successfully matched or assigned, or a special value `EOF` which indicates the end of the input. If `scanf` returns `EOF` then no matches are made and the arguments are not given new values. You can manually indicate the end of the input on the keyboard by pressing Ctrl+D (on Unix) or Ctrl+Z (on Windows) and Enter.

Use a while loop with condition `while (scanf(...) != EOF)` to modify your above program to read in an arbitrary number of pairs of integers, and continually add numbers to array elements. Then print out the contents of the array so make sure you have updated the array properly.