Wednesday 19 November

Extra Credit Programming Assignment: due Monday 1 December
Programming Assignment 10: due Wednesday 3 December

Class Activity 25:

Objectives:
Learn about 2-D arrays.

Available on get12: `ca25a.cpp`. Place it in the `c:\user` directory.

Activity 1:
Open `ca25a.cpp` in Visual Studio. Edit the top lines and the displayheader function appropriately. Looking at the code, answer the following questions.
(a). Why declare the defined constants `ONEDSIZE` and `TWODSIZE`? What role do they play?
(b) How does the declaration of a two-dimensional array differ from the declaration of a one-dimensional array?
(c) What role do `onedused` and `twodused` have? Why use them at all?
(d) In initializing `linarray`, why does the loop index start at zero?
(e) What does the statement `i++` in the `for` loop control mean?
(f) Why is `twodused` initialized as 3? What more general initialization statement could you use?
(g) Why have a two nested `for` loops to process a two-dimensional array?
(h) Why is the 15th element (value) in `linarray` found at `linarray[14]`?

Activity 2:
Run the code and answer the following questions.
(a) How is the display handled in showing `linarray` to have an evenly indented column of numbers?
(b) How is the display handled in showing `twodarray` to have an evenly aligned table of rows and columns?
(f) What value do you expect for `twodarray[-1][12]`? Why (you should be able to predict this value)? What value is displayed? Why can you use array indexes that are less than 0 and greater than `TWODSIZE`?
Activity 3:
The section of code that distributes the contents of a linear array to a square two-dimensional array can be easily converted to a function.
   (a) Write a coherent purpose for such a function.
   (b) Write a coherent goal state for such a function.
   (c) What variables/information does the function require in order to operate?
   (d) Write a prototype for the function.
   (e) What is an appropriate calling statement for the function from main?

Activity 4:
Code the function from activity 3. Cut and paste code appropriately. Run your program. Do you get the same results as before?

Activity 5:
The section of code that displays the contents of a square two-dimensional array can be easily converted to a function.
   (a) Write a coherent purpose for such a function.
   (b) Write a coherent goal state for such a function.
   (c) What variables/information does the function require in order to operate?
   (d) Write a prototype for the function.
   (e) What is an appropriate calling statement for the function from main?

Activity 6:
Code the function from activity 5. Cut and paste code appropriately. Run your program. Do you get the same results as before?

Turn in: Your handwritten answers to questions 1, 2, 3, and 5. A listing of your final ca25a.cpp program (after activity 6). The screen display from running your program.