Helwan University

Programming Language I
(Spring 2016)

Sheet 3: Two Dimensional Arrays

1. Write a program to read all the elements of a two dimensional array
2. Write a program to print the minimum value of each row in a two dimensional array, then print the minimum of the whole array.
3. Write a program to print the maximum value of each column in a two dimensional array, then print the maximum of the whole array.
4. Write a function to search for an element in a 2D array and call it in the main function that will print both the row number and the column number
5. Call a function named removeEvens, that will modify the 2D array such that all even numbers are replaced by the number 11
6. Call a function named findAverage that will find and print, appropriately labeled, the average of the numbers in the whole 2D array
7. Write a function SameRow to return the indices of repeated rows of a 2D array. Return the indices in a 1D array.
8. Write function Transpose to switch the content of rows and columns of a 2D array.
9. Write a program that performs matrix addition and subtraction according to user choice.
10. Write a program to check the symmetry around the diagonal in a 2D array.
11. Use a two-dimensional array to solve the following problem. A company has four salespeople (1 to 4) who sell five different products (1 to 5). Once a day, each salesperson passes in a slip for each different type of product sold. Each slip contains the following:

    a. The salesperson number
    b. The product number
    c. The total dollar value of that product sold that day

    Thus, each salesperson passes in between 0 and 5 sales slips per day. Assume that the information from all of the slips for last month is available. Write a program that will read all this information for last month's sales and summarize the total sales by salesperson by product. All totals should be stored in the two-dimensional array `sales`. After processing all the information for last month, print the results in tabular format with each of the columns represent a particular salesperson and each of the rows representing a particular product. Cross total each row to get the total sales of each product for last month; cross total each column to get the total sales by salesperson for last month. Your tabular printout should include these cross totals to the right of the totaled rows and to the bottom of the totaled columns.