Slot :E2

BCSE102L Structured and Object-Oriented Programming

1. Write a C Program to arrange the numbers stored in an array in such away that the array will have the odd numbers followed by the even numbers.
2. Write a C program to merge two sorted arrays into another array in a sorted array.
3. Write a C program that deletes a word from a sentence. The word may appear any number of times in a sentence.
4. Write a C program to rearrange an array in reverse order without using a second array.
5. Write a function that will print the longest word written in a line.
6. Write a program to read in an array of names and to sort them in alphabetical order. Use sort function that receives pointers to the functions strcmp and swap. Sort in turn should call these functions via the pointers.
7. Write a function day_name that receives a number n and returns a pointer to a character string containing the name of the corresponding day. The day names should be kept in a static table of character strings local to the function.
8. Write a function using pointers to add two matrices and to return the resultant matrix to the calling function and also use pointers.
9. Write a function that takes pointer inputs of yards and feet (whole numbers) and calculates and returns an output of the total number of miles (a floating-point value). There are 5280 feet per mile. There are 3 feet in a yard. For example, with inputs of 1760 yards and 1320 ft, the result would be 1.25 miles. Call this function from the main function with different sets of values and print the output.
10. Write a program for Basic Inventory System. For example, you might have an inventory of items sold at a clothing store. Associated with each item (e.g., shirts, pants, sweaters) are two values: the cost and how many of item is currently in the inventory. Your program should ask the user to input the cost and number in inventory for each item. The user may enter information for up to 15 items. However, there may be fewer than 15 items in the inventory. Your program should then calculate the total number of pieces in the inventory (for example, if I have two shirts and five sweaters, the total number of pieces would be seven), and the total value of the inventory. The results should be printed for the user. Your program should then ask the user to enter any changes to the inventory. For example, the user might increase the number of a particular item if a shipment has arrived or decrease the number of a particular item if some have sold. Your program should update the calculations (total items in inventory and total inventory value) and reprint them for the user.

11. Rita has a money pouch containing Rs.700. There are equal number of 25 paise coins, 50 paise and one rupee coins. Write a C program to find how many of each are there?

12. Write a function SPECIAL_NUMBER to perform the following processing: A input line contains a three-digit positive integer value posint. If the rightmost digit is equal to the sum of the other two digits, that number is to be shown on a separate line along with the message THIS IS A SPECIAL NUMBER. If not, then print THIS IS NOT A SPECIAL NUMBER. Thus, 246 and 729 are special numbers while 264 and 381 are not.

13. Given two numbers 'x' and 'y', write a program to print number of digits needed to be flipped to convert 'x' to 'y'.
Input: 7 10
Output: 3
Explanation: Binary representation of 7 is 00000111 Binary representation of 10 is 00001010 We need to flip three bits in a to make it b.

14. Mr. Joe is a dietician and acts as a diet advisor for n number people. He wants to measure the improvement of his customer after his guidance. In order to know the overall performance, he calculates it for 'n' people's weight sum, mean and standard deviation. Develop a program using pointers to compute the sum and standard deviation of n people whose values are stored in an array.

15. Mr. X has a restaurant with a square space. In that square space, he wants to arrange the numbered chairs. The Initial arrangement of chairs should be obtained from the user. Mr.X is interested in the following operations. Help Mr.X by writing a C program for the below operations

    i. Swap the first and last row chairs and the second and last before row chairs and so on.
    ii. After the row swap perform the column swap. Swap the first column and the last column chairs and the second and last before column and so on.
    iii. Find the column sum of the numbered chairs.

    In both row and column swap if the number of rows and number of columns is odd then keep the middle row or column numbered chairs as such.

Example swap	after row swap	after column swap	column sum
1 2 3	7 8 9	9 8 7	18
4 5 6	4 5 6	6 5 4	15
7 8 9	1 2 3	3 2 1	12

Sample input

```
2 2 // number of rows and number of columns
1 2 // matrix input
3 4 // matrix input
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Sample output

```
4 3 //matrix after row and column swap
2 1 //matrix after row and column swap
6 // column1 sum
4 // column2 sum
```