

Slot :B2

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 that takes the name of the person as input and prints the first letter of the first name and middle name(if any) , and the title as it is, eg., Raj Kumar Santoshi as R.K.Santoshi.
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. Consider a teacher who wants to look at students' attendance data. Given that there is a class, and the teacher has the record of the students present on n days of the month. Write a C program to perform the following operations.
 - i. Find the maximum number of consecutive days on which all students were present in the class and display the days.
 - ii. Find the maximum number of consecutive days on which all students were absent in the class and display the days.
 - iii. Find the days in which the number of students present is greater than the number of students absent
 - iv. Find the days in which the number of students absent is greater than the number of students present
 - v. Find the days in which the number of students present and absent is equal

Example:

m=4

n=9

data=[PPPP, PPPP ,PPPP ,PPAP ,AAPP ,PAPA ,AAAA,AAAA,PAPA] // get the value in each line

There are 4 students and 9 days of attendance data. There are only three days, at the beginning when all students are present. Student 3 is absent on the fourth day, and students 1 and 2 are absent on the fifth day , students 2 and 4 are absent on the sixth day and all are absent on 7th and 8 th day and so on. The maximum number of consecutive days on which all the students were present in the class is 3 days long and the days are 1,2 and 3.

Sample output

consecutive days present

3 // number of consecutive days in which all the students were present

1 2 3 // days in which all the students were present

consecutive days absent

2 // number of consecutive days in which all the students were absent

7 8 // days in which all the students were absent

present highest

1 2 3 4 // days in which present is > absent

absent highest

7 8 // days in which absent is > present

present absent equal

5 6 9 // days in which absent is == present