I B.TECH

PROGRAMMING WITH C LAB

Assignment Set-II Last Date: 28-10-2017 23:59:59

1. A positive integer is entered through the keyboard, write a function to find the binary equivalent of this number using recursion. Also, check whether an equivalent *ascii* character exists for the entered positive integer. If so, display the character.
2. Write a program to swap the position of largest and smallest elements in a given array.
3. Let A and B be two arrays. Write a function to create a new array C that contains elements alternately from A and B beginning with the first element of A. Use pointer(s) to access the elements from the array C. If you run out of elements in one of the lists (array), then append the remaining elements of the other list to C. Remove duplicate elements from the array C.
4. Let *A* and *B* be two $N \times N$ lower and upper triangular matrices respectively. The total number of elements in both of the matrices together is $N(N+1)$. Write a C program to represent both the triangular matrices in a single array *D[N+1][N]*. Use single set of loops to read both the matrices.
5. Write a program that creates an array of 100 random integers in the range of 100 to 300, and then using the binary search, searches the array 100 times using randomly generated targets in the same range. Perform the linear search for the same. Display the number of comparisons done using linear search and binary search for the above problem. Display the percentage of successful searches for both the searching methods (Is it equal or different?). Write two separate functions for linear search and binary search.
6. Write a program to input N values into array and generate the cumulative sum into another array. (For example, input array is A[0] to A[N-1]. The output array must be Sum[0]=A[0], Sum[1]= A[0] + A[1], Sum[2] = A[0] + A[1] + A[2]., and so on). Optimize the computation.
7. Write a program which takes 2 arrays (say, A and B) of 10 integers each and another array (Say, C) with 20 integers. The program should store in C by appending the array B with A. The first 10 integers of C from array A, the latter 10 integers are from B. Then the program should display the array C.
8. Write a program to find the trace of a matrix and find the sum of all odd numbers in the given matrix.
9. Write a program to find the smallest number in a given array of elements using recursion.
10. Using pointers, write a function that receives a character string and a character as argument and deletes all occurrence of this character in the string. The function should return the corrected string with no holes. Write a complete program for this.
11. Write a program to determine the given string is palindrome or not and also write a recursive function to find the length the given string.
12. Write a program to sort the given words and count the number of characters, words, lines in a given input text.
13. Write a program that prompts the user to input a string and outputs the characters of that string in opposite-case (Example, Input: A1sdF*, Output=a1SDf*)
14. Given three arrays sorted in non-decreasing order, write a program to print all common elements in these arrays.

    For Example: Array1 = {1, 5, 10, 20, 40, 80}
    Array2 = {6, 7, 20, 80, 100}
    Array3 = {3, 4, 15, 20, 30, 70, 80, 120}
    Output: 20, 80

15.

Given two strings, write a program to verify if first string is subsequence of second string. A subsequence is a sequence that can be derived from original sequence by deleting some characters without changing the order of the remaining characters.

Example: str1 = "AXY", str2 = "ADXCPY", str1 is a subsequence of str2.
Input: str1 = "AXY", str2 = "YADXCP", str1 is not a subsequence of str2

16. Write a program to replace all uppercase letters with ' # ' and lowercase letters with '*' in a given string. All other characters like special symbols, digits in the given string should come as they are.

    For Example, if string is IIITap@2017, Output should be ###**@2017

17. Write a program to calculate the **factorial** of a large number(n=100)

18. Write the user defined functions for the library functions strcpy, strcat and strcmp by using pointer notation.

19. Write a program to find the first non-repeating character in a given string

20. Write a program to find the sub array with given sum. Ex: Input array is { 11,12 14,15,20} and sum is 35 means sub array is {15,20}, sum is 37 means sub array is {11,12,14}